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Railroader

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Model Railroad Planning

2021

12 inspiring
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designed for industrial
switching. See p.8

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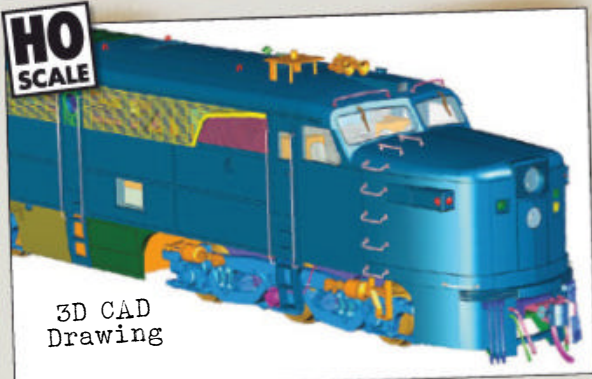
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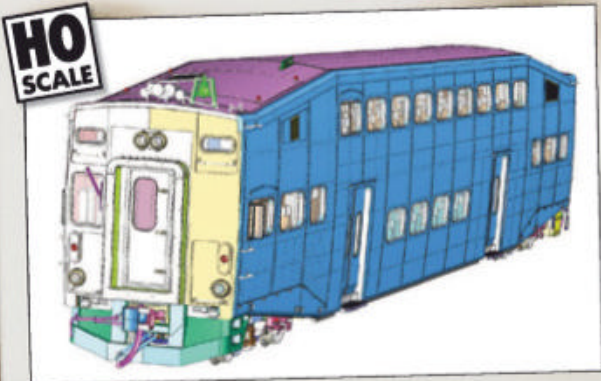
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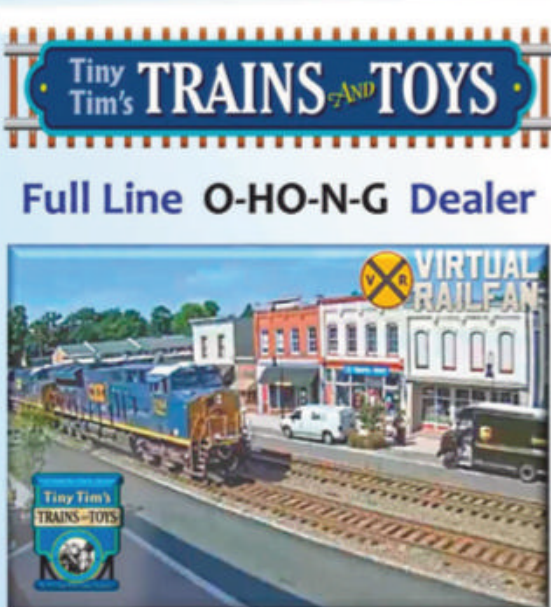
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On the cover: Joe Green's C&O/Chessie HO railroad focuses on industrial switching rather than long mainline runs; see page 8. Photo by Joe Green

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Editorial

Graduation day

For 25 years and counting, *Model Railroad Planning* has been offering what we believe has been good advice from some of the hobby's most experienced and respected modelers. Our goal, and theirs, was very simple. We wanted to enhance your enjoyment of our hobby in two ways: first, by providing an annual magazine that was not only informative but also entertaining; and second, by inspiring you to learn more about full-size railroading and thereby be able to build and operate more realistic model railroads. Why reinvent the wheel?

In this issue, we offer you something very special: a chance to see what happens when you've paid close attention to the teachings of the masters and have produced a model railroad that, when photographed by yet another master of the art, portrays your work as though it was a full-size railroad. In other words, it looks like how you view it when you press your nose down on the scenery and squint a bit as a train roars by. Never mind the basement stairs or garage storage shelves in the background; they cease to exist for the moment!

For the handful of veteran modelers whose work we are sharing with you in this issue, this is a sort of graduation day, a chance to take a bow for years and decades of dedication to a single task: building a realistic model railroad. Note that not all of them depict a prototype railroad. Realism comes to those who embrace prototypical principles as much as to those who model a specific prototype.

Not quite there yet? Keep reading MRP and *Model Railroader* and *Great Model Railroads* for inspiration. The modelers whose work we're sharing here didn't begin as experts, either.

The genesis of this article was a conversation with Craig Wilson about photographing layouts in the style of the great railroad photographers like Philip R. Hastings, Jim Shaughnessy, Jim Boyd, and so many others. I had been observing Craig's work for many years and noticed that he, too, had that special gift for just the right angle and had found ways to overcome the grossly out-of-scale cameras we have to work with in our miniature worlds.

As the mega-pixel counts increased, he was able to obtain images of print



Two grand masters of the art of model railroading, Chuck Hitchcock (left) and Paul Dolkos, chat about Paul's Canon Rebel. Listening in to almost any conversation they have is enlightening. Mat Thompson photo

publication quality, and photo-editing software allowed him to salvage some earlier efforts. It was time to find a special platform upon which we could share his work with you. “Portraits of the rails” is the result.

I hope you enjoy his rather unconventional report on how we might view our own and other model railroads if we could be scale-size railfan photographers. And I hope it inspires you to look at your own railroad from new angles in a new light.

Two veterans talking shop

Those of you who have been reading *Model Railroad Planning* and *Model Railroader* for any length of time will recognize the names, if not the faces, of the two men shown chatting in Mat Thompson’s photograph at lower left. On the left is Chuck Hitchcock, builder of several Santa Fe-themed HO scale railroads. At right is renowned layout photographer and modeler Paul Dolkos, whose work regularly graces the pages of MRP, MR, and GMR.

Chuck’s Santa Fe Argentine Division was started in 1971 and dismantled in 2002. That marked the beginning of the Argentine Industrial District Ry. It was dismantled in December 2017 when the house was sold and the Hitchcocks moved to a retirement community.

I’d heard that the Hitchcocks had reconsidered their retirement accommodations, so I was naturally curious, as editors are paid to be, whether Chuck had plans for another model railroad. It turned out that Chuck and Jenny had indeed bought a new home that had more than enough basement area for a good-sized model railroad, and it was in fact well along.

More good news: Paul was attending the Railroad Prototype Modelers meet in Collinsville, Ill., as was Chuck, and then they were continuing west for an operating session at Chuck’s. Paul agreed to do an initial photo shoot to show MRP readers what Chuck is up to this time around.

Mat was with Paul when they visited Chuck and took a snapshot of two guys chatting about Paul’s Canon Rebel digital camera. There’s easily a century of experience and wisdom in this photo. I’ve known both men for decades, and they have always been more than willing to share their accumulated knowledge and hard-won wisdom with me, and hence with you.

Everyone is entitled to his or her opinion. But in my book, some opinions count for more than others. When I hear Chuck say, “Well, I don’t know, T.K.,” or Paul reply, “Are you sure about



Conductor Mat Thompson signals to engineer John King that he has about two car lengths to go before making the joint on Chuck Hitchcock’s Santa Fe branchline railroad. Paul Dolkos photo

that?” – always with a smile – you can bet I’m not done listening to whatever else they have to say. And I’ll do my best to pass along what I learn through the pages of MRP and in my “Trains of Thought” commentaries in MR.

Two-person crews

I’m sure many of you have never participated in an operating session of the caliber Chuck Hitchcock has routinely hosted over the decades. I thought the accompanying photograph showing two of his crew members at work may be enlightening.

Conductor Mat Thompson is using hand signals to tell engineer John King how far he has to go before “making the joint.” John could walk down to where Mat is standing and do this work on his own, but there are other tasks where having a second person on the job – checking waybills, timetable schedules, train orders and messages, and so on – comes in very handy.

A more subtle lesson is not apparent: John and Mat live in the Washington, D.C., area, and Chuck lives near Kansas City. Chuck’s new(est) railroad – see page 18 – obviously isn’t fully scenicked, but it is fully operational. John and Mat were in St. Louis (Collinsville, Ill.) for the summer Railroad Prototype Modelers meet and continued west to operate on Chuck’s Santa Fe, as did photographer Paul Dolkos.

That’s what realistic operation is all about: sharing modeling railroading experiences based on prototype railroading. If you build it...

Last run

John N. Ozanich, better known to friends as Jack, died on May 29, 2020,



Jack Ozanich almost always had a wry grin on his face as he caught one of us overlooking some point of prototype railroading. A lecture was sure to follow. Chuck Geletzke photo

after a brief battle with cancer. Jack and his Atlantic Great Eastern (AGE) taught many of us the fundamentals of timetable and train-order operations and railroading in general. A retired locomotive engineer, he loved railroading and did his best to convey to us amateurs why it meant so much to him.

Model Railroad Planning was privileged to feature the AGE in its inaugural (1995) issue, and a few photos of it appear in Craig Wilson’s “Portraits of the rails” in this issue. I can think of very few model railroaders who have contributed as much to our understanding of how railroads went about their business as the man I was honored to have as a good friend, Jack Ozanich. **MRP**

Tony

A mountain railroad INDUSTRIAL

Looking to the prototype for inspiration and information

By Joe Green//Photos by the author



This story starts more than 25 years ago. I was lying on the couch on a Saturday afternoon when my wife said, “You need a hobby. Why don’t you build a model railroad like you used to do in high school?” Neither she, nor I, had any idea how far this idea would lead.

The initial railroad was 5 x 13 feet in a spare bedroom. It featured two ovals, one for each child; a bit of a yard; a few small industries; and some Appalachian mountain scenery reflecting my youth living in Virginia.

Early on, I started attending National Model Railroad Association Pacific Coast Region conventions. A

number of the railroads on the layout tours were simply awe-inspiring. I could see the limitations of the railroad I was building and began longing for something better.

I joined the Chesapeake & Ohio Historical Society (coh.org) to learn more about a favorite prototype. I also discovered the Western Maryland Ry. and became fascinated with it, as well. Research trips to the mountains of Virginia and West Virginia generated lots of new ideas.

More room!

We moved to a new home in the San Francisco area in 1996. I now had a

256-foot-square railroad room all for myself. I designed a more sophisticated railroad, double-decked with a connecting peninsula in lieu of a helix.

The top deck featured a small staging yard, a coal mine on the WM, and the Cass, W.Va., lumber mill on the C&O. The bottom deck had room for a freelanced town and yard with a fair amount of industry blended in. The whole layout was to have an early 1970s Chessie System theme around a never-built branch line that would allow me to have everything that I wanted: the WM and the C&O, towns and mountains, coal mines, lumber mills, paper mills, etc.

designed for SWITCHING



I started building the top deck first. My construction methods improved, and the railroad ran reliably enough that I was comfortable leaving a train running continuously, even if I had to duck out of the room for a minute. This was a real improvement over my first layout. Even more rewarding was building my version of well-known Cass, W.Va. I found that I truly enjoyed scratchbuilding and kitbashing models to create scenes that were reminiscent of their prototypes.

An introduction to operations

In the 1990s, I attended a clinic on operations taught by Jim Providenza

and Dave Clemens. The clinic included a trip to Jim's house for a mini operating session. I was hooked. Over the next decade, I had the chance to operate on a number of excellent layouts in the Bay Area, including becoming a regular member of Dave Adams' crew. Great fun!

By 2005, the limitations of my railroad's overall design were starting to show again. I didn't relate to the freelanced sections the same way I did to the Cass scene. I'd started operating the layout by myself, but found it only moderately interesting.

Perhaps the most telling comment came when one East Coast modeler

I Electro-Motive Division SD40 no. 7535 leads train 147W as it eases to a stop by Back Creek Paper to swap blocks of inbound and outbound cars at the setout track to the right of the train. The scene takes place on Joe Green's 30 x 31-foot HO layout.

sent a photograph of Cass to another who replied "Nice model, but what's a Western Maryland engine doing in front of Cass station?" The answer was, I was trying to do too much with the space I had.

Retirement and more room

About this time, my wife and I started discussing the possibility of



2 The afternoon Mill Job is about to begin switching Back Creek Paper. Boxcars of pulp, tank cars of chlorine, and covered hoppers of sodium chlorate are visible on three of the mill's 13 tracks. The cars to the right of GP9 no. 6034 are in the setout track and will be picked up by train 147W later in the afternoon.

skills and interests continued to improve and change?

I recognized that I needed to ground my layout design with a set of criteria for making design decisions. I started with John Armstrong's "Givens and Druthers" and then added two or three pages of specifications for different criteria: 30" minimum mainline radius curves, no. 6 minimum turnouts, 36" minimum aisle widths, no duckunders, and so on. This work was important, but still not sufficient.

After a few weeks, I asked myself a very basic question: What did I most enjoy about model railroading? A number of answers came quickly: being creative, feeling like a craftsman, having a sense of accomplishment, learning, sharing the experience with others, building, planning, researching, prototype modeling, and operations. What a great hobby!

Next I thought through what activities I preferred the most: developing scenery, constructing buildings and cars, operations, and the friendships that operating with others can bring. And what activities were of less interest: building benchwork, laying track, wiring, and electrical projects.

Thinking through these questions helped me realize that I was a builder

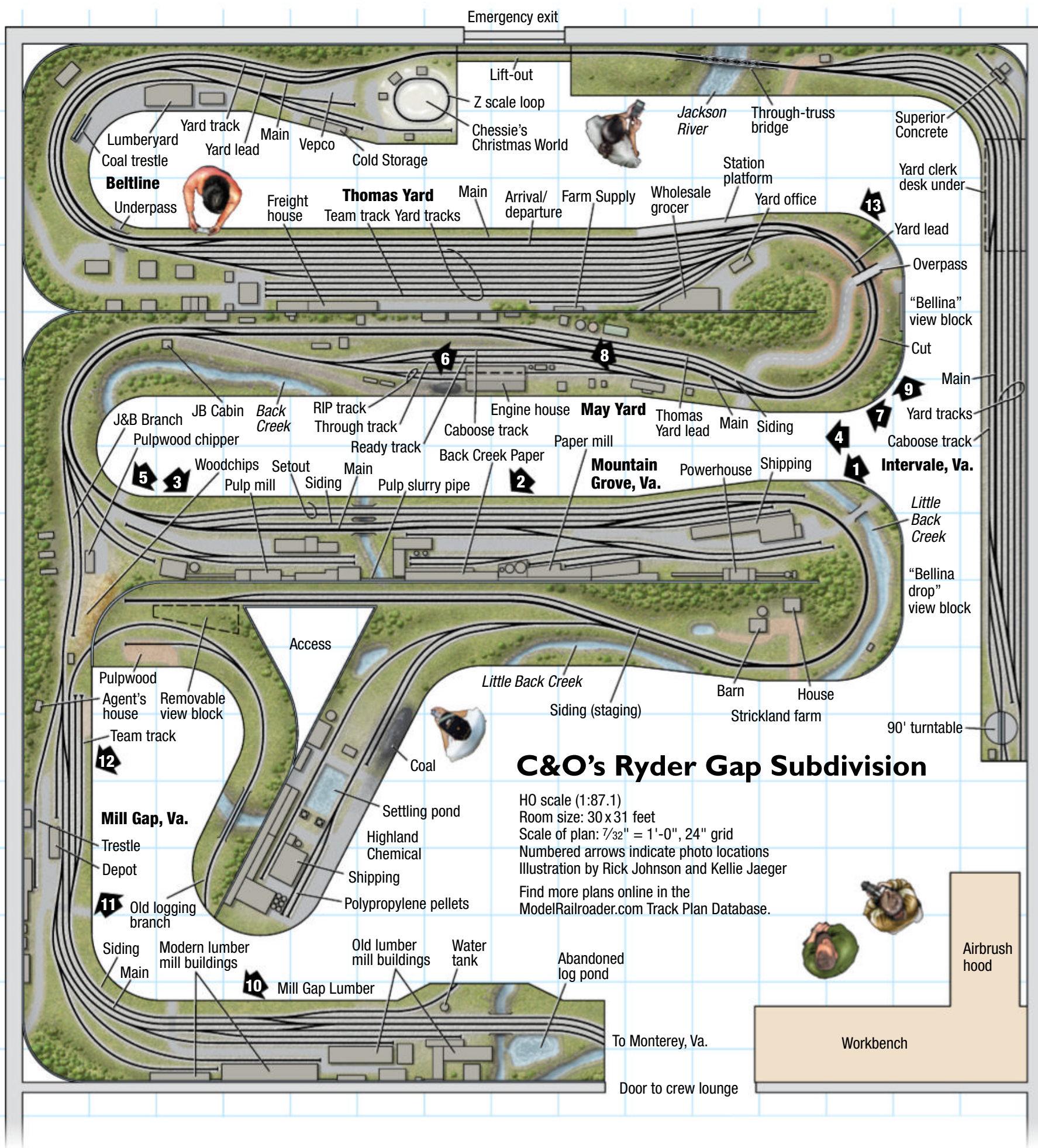
3 The afternoon Mill Job delivers loaded coal hoppers for the Back Creek Paper powerhouse. Even with its central Appalachian setting, the industrial theme of Joe's railroad is clear.

an early retirement. What started as a fanciful discussion accelerated quickly, and in 2006 we bought our retirement home on Washington's Olympic Peninsula. Although retirement was still scheduled to be several years off, progress on the current layout just about came to a halt as my interests shifted to designing the new railroad.

Property on the Olympic Peninsula was much less expensive than in the Bay Area, and we were able to buy a few acres of land with a view of Victoria, B.C., Canada. In addition to our new home, the property came with a second 30 x 42-foot building. The largest part, a garage that had housed

two RVs, was 30 x 31 feet – ample space for a new, lifetime railroad. The smaller part, 11 x 30 feet, was semi-finished with a bathroom and kitchen water hookups, making a nice space for a crew lounge.

New designs seemed to come as fast as I could put pencil to graph paper. They were all over the place. There were too many options, and I didn't have any specific criteria to give me guidance. In addition, I had to face the reality that my first two layouts, although great fun to build at the beginning, had eventually come up short. What if I also ended up disappointed with this layout design as my



4 This view down the center aisle shows Back Creek Paper mill at left and May Yard at right. Back Creek Paper was influenced by the Westvaco mill at Covington, Va., and May Yard shows kinship to C&O facilities at Thurmond, W.Va.

Track plan at a glance

Name: Chesapeake & Ohio
 Ryder Gap Subdivision
Scale: HO (1:87.1)
Size: 30 x 31 feet
Prototype: C&O
Locale: western Virginia
Era: spring 1974
Style: single deck
Mainline run: 150 feet
Minimum radius: 30"
Minimum turnout: no. 6
Maximum grade: none

Train length: 25-plus cars
Benchwork: L-girder
Height: 53"
Roadbed: foam and cork
Track: Peco code 83
Scenery: foam board, plaster cloth over cardboard strips, Sculptamold
Backdrop: 1/8" tempered hardboard, sheet styrene
Control: NCE wireless Digital Command Control



5 Wood for making paper can arrive as pulpwood or wood chips; both are visible in the wood yard. Back Creek Paper's pulp mill has a voracious appetite for wood, consuming well over 500 tons per day. Yet this is still not enough for the paper mill, which buys additional pulp to meet its needs.

and various structures that I'd seen in Lynchburg, Va., Charleston, W.Va., and other places along the C&O.

Combining these scenes into a layout wasn't going to be straightforward. They stretched across multiple subdivisions and several hundred miles. At least I'd recognized that I couldn't include scenes from the Western Maryland without making the situation worse. Moreover, at least one of the industries – the lumber mill at Cass – was closed well before the 1970s timeframe I wanted to model.

Modeling what could have been

The solution was a prototypically freelanced design. The C&O Engineering Department originally proposed that the Greenbrier Subdivision, where many of the scenes I wanted to model were based, be built as an extension off the Hot Springs Subdivision. The board had overturned this recommendation, choosing a different route. My layout would assume that the engineers' proposal was adopted, and I'd include the scenes I most wanted in my revised history for the subdivision and area.



6 Trees and vines are claiming the concrete coal dock at May Yard in Mountain Grove as the Highland Turn behind GE U23B 2300 eases into town. Geep 6034 waits on the yard lead to attend to any local switching chores.

who loved to operate. I wanted realistic prototype scenes, but I also wanted to operate the layout in a prototypical fashion. The more my layout design allowed me to concentrate on the activities I most enjoyed, the better.

Initial choices

I prioritized the prototype scenes I wanted to include. The lumber mill

and town of Cass, W.Va.; the iconic engine facility and structures of Thurmond, W.Va.; and the paper mill and yard at Covington, Va., topped the list. In addition, there were many other interesting options that would be fun to model, including Durbin, W.Va., and its nearby tannery; various bridges along the Greenbrier Subdivision; the Hercules Chemical Plant in Covington;

Layout lighting

Layout lighting was installed when the RV garage was originally converted into a train room. Since I didn't know the final design at that point, I had the electrician install 15 troughs recessed into the drop ceiling roughly over where I believed the aisles would be. Each trough held three 4-foot fluorescent tubes for a total of 45 fluorescent lights in the 930-square-foot train room.

The lighting was adequate, but there were a couple of issues. First, because the troughs were four feet apart, the layout lighting was uneven. The difference was subtle; some areas appeared to be in full sunshine, other areas under a bit of a cloud.

The second issue was that I felt we needed more light in the room to help our aging eyes during operating sessions.

I was considering having more troughs installed when I remembered an article by Seth Neumann in the Layout Design Special Interest Group's *Layout Design Journal* (ldsig.org) where he discussed using high CRI daylight fluorescent tubes. After some Internet research, I found a 5100K, 91 CRI tube with higher lumens than my current lights and with the added benefit that they had no ultraviolet emissions.

Switching to the new tubes has made the room brighter, although the

light level variation remains an issue. It has also distinctly changed the colors on the layout. In particular, blues and greens are much more vivid. Fortunately, I'm modeling a sunny spring day, and I enjoy the richness of the colors, but I do suspect that I would have chosen more subdued hues had the daylight tubes been installed from the beginning.

There's an emotional benefit as well. During our long, dark winters, it's enjoyable to walk into a room full of sunny skies and lots of green. My wife was so taken with the change in the train room that she converted her quilting room to 5100K lighting as well. – Joe Green

Designing a layout for operations was a more troubling task. The railroads I had experience operating on were "full-featured" in that they included freight and passenger trains, through and local freights, scheduled and extra trains, significant yards, numerous towns, staging tracks, dispatchers, yardmasters, and various types of crews. Similarly, the layouts I had built and was designing were also full-featured.

In *Model Railroad Planning 1999*, however, I read about Jim Senese's Kansas City-based switching layout. It sounded like great fun, since yard and industrial switching is my favorite aspect of operations. But I wasn't interested in building an urban-based railroad and didn't consider it further.

Later, while thinking about the new layout, riding an exercise bike, and watching a video on Chuck Hitchcock's Argentine Industrial District Railway, it hit me: I wanted a switching-based layout. Only my layout would be set in the small- to medium-sized mountain towns of Virginia and West Virginia.

Would there be enough action?

I went to high school in Covington, Va., a town of approximately 9,500 people. In 1963, the yard in town had 16 tracks, the Westvaco paper mill had 24, the Hercules plant had 4, and other industries in town had another 13. Layout Design Elements [visually and operationally recognizable models of actual locations – Ed.] based on Covington would have plenty of switching opportunities if the compression was minimized.



7 GP9 no. 6006, sporting the new Chessie paint scheme, leads train 146E through May Yard. Although the new paint scheme has been around for nearly two years, most engines on the Ryder Gap Subdivision still wear solid C&O blue.

Similarly, West Virginia towns on the C&O's Durbin Route had potential. In 1950, Cass and its lumber mill had 9 industrial tracks, Marlinton and its tannery had 8 tracks, while Durbin/Frank and its tannery had another 9. Again, with minimal compression, these towns were good candidates.

A crew size of four to eight people seemed about right to me. I wasn't sure how many people interested in prototype operations lived on or near the Olympic Peninsula, and I feel more comfortable in groups of this size. So although the room size could support a layout designed for 10 or more operators, I was quite happy to pursue a smaller effort.

C&O's Ryder Gap Subdivision

My basic concept had now taken shape: a C&O-based but freelanced switching layout set in selected small and medium-size towns of the mountains of Virginia and West Virginia in spring 1974. Now it needed a name. Although the prototype would probably have used either the Greenbrier Subdivision or Hot Springs Subdivision, I felt that doing so could mislead people about what the layout comprised. The engineers' route would have passed through the Ryder Gap, so the layout would be named the Ryder Gap Subdivision.

The goals for the scenery, buildings, track design, and train sizes had also



8 GP9 no. 6034 idles near the enginehouse in May Yard awaiting its next assignment. The C&O made extensive use of board-and-batten construction on depots and other structures. Building the enginehouse to the full prototype width, while including space for the yard tracks, main line, and brick commercial buildings required a 30" deep scene.

lift-out in front of the emergency door simple to remove. The only other items to consider were two windows and an electrical panel on the west wall.

But there was work to be done. The room was actually a dingy garage with 14-foot-high walls and tall doors on the east wall for two RVs. My children, Beth and Joshua, built a wall in front of the RV doors and erected wallboard throughout the room. Contractors added an acoustical ceiling, lighting [see "Layout lighting" on the previous page. – *Ed.*], heating, and electrical outlets. I also installed interlocking rubber mats to cover the concrete floor.

While the garage was being converted to a layout room, I considered a number of different basic layout shapes. With so few obstacles to work around, there was a lot of flexibility. What started to emerge in the designs was a consistent footprint for the layout's focal point, Mountain Grove.

Mountain Grove

I had a good idea of what I wanted my main town to include:

- a large, relatively straight freight yard patterned after Covington, Va.
- long leads on both ends of the yard so that two crews could work simultaneously



9 Train 146E is passing through the Hawthorne Cut as the yard crew in U23B no. 2300 is working on the yard lead. Using a short "Bellina drop" (visual view block) at the end of the peninsula turned a visual liability into an interesting scene. Another pair of units is switching in Intervale Yard in the background.

taken shape. Lots of blue sky and green hills – a beautiful spring day in the Allegheny Mountains! I would minimize individual scene compression, 2 to 1 at most, but preferably less. I'd plan for good-sized trains: 10- to 15-car locals and 25-car-plus through trains. Big industries would make the train sizes look appropriate. And even bigger mountains would dwarf the industries and trains.

The layout room

The layout room features a number of strong points, starting with 930 square feet of space, almost four times that of my previous layout. There are no internal supports to work around. There are two doors, the main entrance and an emergency exit. One of my design criteria was to keep entry from the main door unblocked (no duckunders) and to make any

- a large space for a paper mill patterned after the sprawling Westvaco plant in Covington
- enough run between the yard and the mill so that it didn't feel like they were right next to each other (on the prototype, the two are separated by a little less than a mile)
- an engine facility modeled after Thurmond, W.Va., between the mill and the yard
- a number of smaller railroad-served industries
- a main line that traveled railroad east and west out of town, plus a branch line that would go due north (railroad west) to Monterey, Va.

There are obvious scenic challenges with the design that emerged: two blobs at the end of the peninsulas and two 180-degree curves against the east wall. There's also a lot of track running parallel to the fascia and backdrop. I was willing to accept these limitations and challenges for what I got in return: three long and wide areas to develop the yard, engine facility, and paper mill.

In addition, the main line through Mountain Grove would be approximately 90 feet long, a scale 1½ miles. The same area in Covington stretches about 2½ miles, so the town has an overall compression of less than 2 to 1. The number of yard and industry tracks would also be at least 50 percent or more of the prototype. Long sidings and yard tracks could support 15-to-25-car yard movements and local trains. The design for Mountain Grove was meeting, perhaps exceeding, my goal to minimize compression.

Beyond Mountain Grove

Minimizing compression led to unforeseen consequences. Mountain Grove had grown to over half the layout room. I didn't want a double-decked layout; doing so wouldn't keep construction simple. Plus scenicking one deck of a 30 x 31-foot railroad was daunting enough.

The other half of the room wouldn't have enough space for all the towns and industries I wanted, long mountainous runs between those towns, and plenty of staging. Either my design principles or my inclination to build a full-featured layout like the model railroads I admired would have to give.

Full-featured layout? Hadn't I decided to build a switching layout? Somehow making the decision to do the one hadn't completely ruled out the other in my mind. Perhaps I could still design a model railroad that combined the best of both approaches.



10 Chesapeake & Ohio U23B no. 2303 pulls into Mill Gap with a cut of inbound cars from Mountain Grove. Long industrial tracks spiral into Mill Gap Lumber, including to the wood-chip loader to the left of the main line and siding.



11 The U23B we saw earlier has stopped in front of the Mill Gap station (labeled "Cass" in honor of the town that inspired the scene) so that the conductor can discuss switching needs with the station agent. The two will also swap waybills for inbound and outbound cars.

Designing a switching layout also led to another unanticipated consequence: Large parts of the railroad would be flat. A flat mountain railroad? Clearly the backdrops and forested mountains would be critical in creating the illusion that you were in the mountains of Virginia, not in the farmlands of the Midwest. I also decided to build the entire layout on 1½" foam so that I could easily drop the scenery below track level.

Bob the Builder

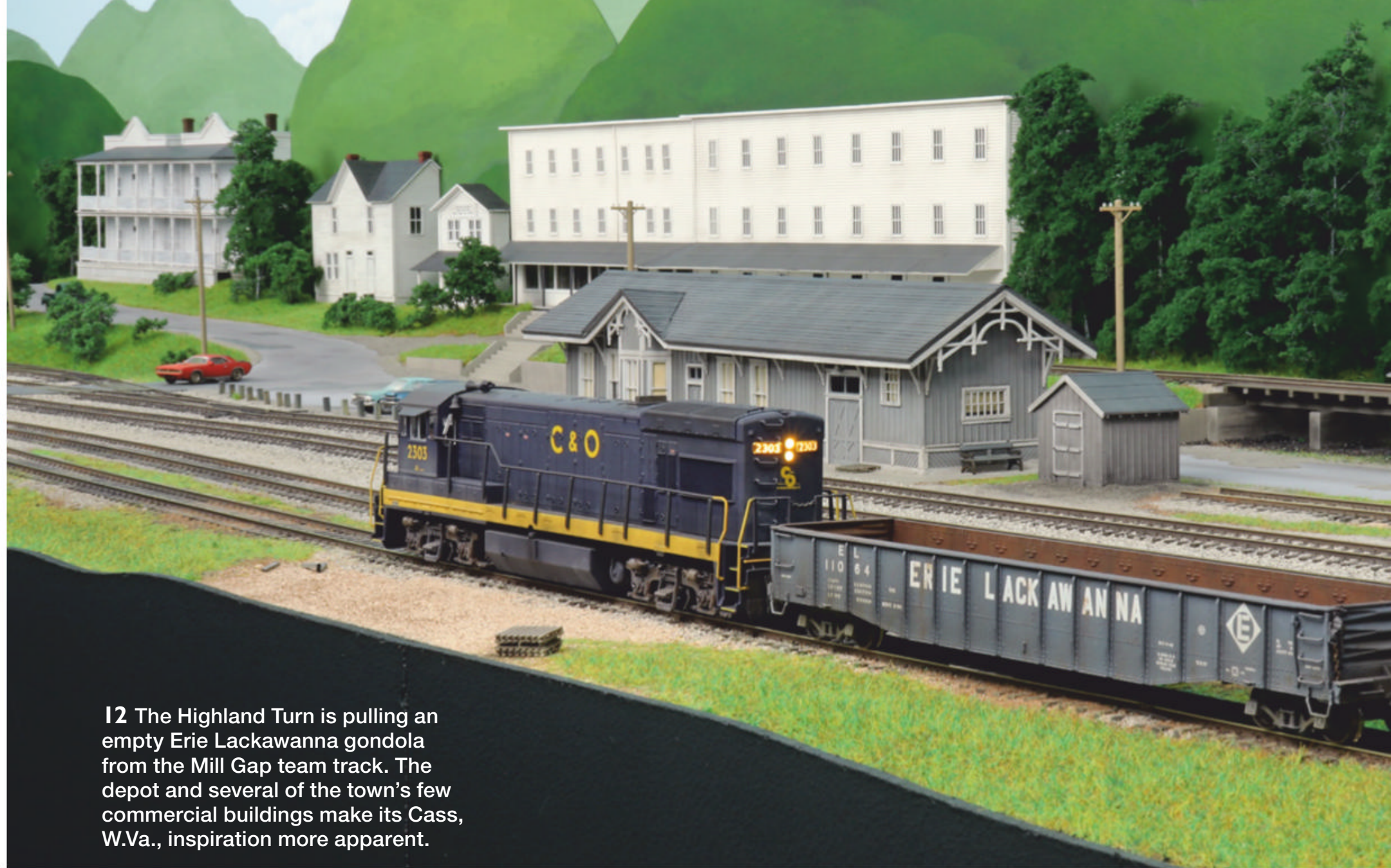
By late 2008, we had retired in Washington, the layout room was ready, the design for Mountain Grove was basically set, and what happened beyond Mountain Grove was changing every month.

Enter Bob the Builder. One of the reasons I had wanted to keep the basic construction tasks simple is that

I couldn't use power tools due to persistent tendinitis in my wrists. Fortunately, a neighbor, Bob Lemon, loved to work with wood and volunteered to build the benchwork and backdrops with me.

Back Creek Paper

A paper mill was the first part of the layout design to be finalized. My prototype was the sprawling Westvaco pulp and paper mill in Covington. The original sulfite mill was built in 1900 alongside the Jackson River. In the 1920s, a second sulfate ("kraft") pulp and paper mill was built on the other side of the river. By the late 1940s, the company had evolved its bleaching process to the point that it could turn brown kraft paper white enough to be used as paperboard. The entire site was then repurposed as one big sulfate mill, with a pulp mill on one side of the



12 The Highland Turn is pulling an empty Erie Lackawanna gondola from the Mill Gap team track. The depot and several of the town's few commercial buildings make its Cass, W.Va., inspiration more apparent.



13 The Yard Job is starting to build the Highland Turn in Mountain Grove's Thomas Yard. Although the compound yard ladder follows the Covington, Va., prototype, the crossovers into and out of the yard had to be modified to support the layout's operations. The church in the background is from Joe's high school days four decades ago.

river, a set of pipes crossing the river, and a paper mill on the other side.

Despite having more than 50 square feet to work with, the mill would need to be significantly compressed. Key points to the design include:

- 13 of the prototype's 24 tracks
- spots for 35 to 40 cars; each

switch job spots and pulls 12 to 15 cars, so no crew feels like it has worked the entire mill

- paper mill and pulp mill separated by a creek
- like the prototype, the paper mill is accessed from the main line; the pulp mill is reached from the branch line.

Much of the mill's track is easily accessible by operators even though the prototype track is often deep within brick canyons. Empty track is important in a large industrial scene. On the prototype, there can be a significant distance between the railroad main line and the industrial spurs located deep within the plant. The long switchback in the heart of the paper mill and the inclusion of a few lengthy spurs help create this sense of empty industrial tracks.

May Yard

Thurmond, W.Va., thoroughly captured my imagination during my visits there. Modeling its iconic structures near the engine facility was both a high priority and a real challenge. I justified the existence of an engine facility by the need for helpers to be stationed in Mountain Grove for the climb over the Ryder Gap summit.

By devoting one side of a 26-foot peninsula to the engine facility, the scene contains not only the major prototype structures but also many of the smaller buildings such as the bunkhouse, sheds, and residences.

Changes from the prototype were needed. The Ryder Gap Sub operates under timetable and train orders, so



the prototype's signal bridge was left out. Thurmond's massive coaling tower was reduced to one more appropriate for the subdivision's traffic. Several tracks have been modeled as being removed during a downsizing effort after steam was retired.

Thomas Yard

Thomas Yard is pretty faithful to the prototype Covington Yard with a compound ladder on one end, a simple ladder on the other, mostly double-ended tracks with a few single-ended tracks to the rear, and long yard leads on both ends with an extra yard track paralleling the east yard lead. Track capacities range from 15 to 25 cars.

The yard has been more than adequate for our operations, but it has come with some lessons:

- The main line on the west end follows my 30" minimum radius, but that forces the yard lead inside it to have a 28" radius. The lead's radius is operationally more important; it's not uncommon for a switch engine to shove a 20-plus-car cut around the 180-degree, 28" curve into the set of compound turnouts.

- Allocating the room to have long yard leads on both ends of the yard has been well worth it. It's fun to watch two crews working simultaneously.

I'm happy to report the yard is rarely an operational bottleneck.

Time to make a decision

I spent seven years laying the Mountain Grove track and completing the scenery for May Yard and for part of Back Creek Paper, including scratch-building a number of structures. Regular operating sessions with two crews were going well, so it was finally time to expand beyond Mountain Grove. Was the design ready?

Actually, many designs were ready. Perhaps every 3 to 6 months, a new idea, preference, or prototype information would inspire me to pull out the graph paper and sketch out a revised or entirely new design. A number of them could be successful, albeit in different ways.

When it came to making a decision, I realized that I really enjoyed developing large scenes with low compression and wanted to continue to do so. Indeed, I thought it might be strange for the scene compression to change significantly once the crew left Mountain Grove.

In addition, my desire to develop a switching layout overcame my interest in adding a long mainline run. Again, instinct said my crews and I would be happier if the layout stayed true to its core premise than if I tried to graft on a different style of operation.

Mill Gap

Mill Gap's benchwork was already in place and would provide plenty of space to model a Cass, W.Va.-based scene. Like the Cass mill, Mill Gap Lumber closed in 1960. The site was later purchased by Inter-State Hardwoods of Bartow, W.Va., and a new mill was built at the location. Modern sheet-metal buildings augment the older wood structures from my previous layout.

The prototype station area is generally viewed from the east looking west, while the lumber mill is more often viewed from the west looking east. Placing the station and its surroundings on one wall and the lumber mill around a 90-degree turn on a second wall helps to mitigate this.

Another issue is that the switching done in Mill Gap needs to stay within the scene. The distance between Mountain Grove and Mill Gap is more than 15 miles in reality but only 20" on the layout. But once in Mill Gap, a backdrop isolates the crew from Mountain Grove. This sense of separation would be broken if the train came into the Back Creek Paper scene while switch-

Learning points

- "You need a hobby!"
- Get room preparation out of the way first.
- Switching layouts based on small and medium-sized towns are a viable alternative to ones based on large urban settings.
- A design that evolves over time can be successful when a layout is built in phases, each phase being grounded in a well-thought-through, unifying set of goals and objectives.
- Focusing on less-compressed scenes can be more satisfying than trying to do too much in your available space.

ing in Mill Gap. The operating scheme and turnout locations minimize this.

A road crew at last

Building Mill Gap successfully created enough work for a third crew during the operating sessions. Adding a fourth crew took the layout design in an unforeseen direction. I wanted the fourth crew's work to be switching oriented but to have a different feel than the other three jobs. The answer was a road crew to move cars onto and off of the subdivision, cars that were previously staged on the setout tracks in Mountain Grove.

A number of previous designs used the Intervale area as a staging yard. Conceptually changing the area to a junction yard just off the primary C&O main line created an area where 40 to 60 inbound cars could be staged prior to the operating session. The road crew is kept busy sorting these cars into two trains, bringing them onto the layout, returning with outbound cars, and classifying them for later pickup by un-modeled mainline trains.

Thanks!

I want to thank my wife, Janet, and my children, Joshua and Beth, for all of their encouragement, support, patience, and help. I couldn't have done it without you. **MRP**

Joe Green is a retired computer software manager who lives in Sequim, Wash., with his wife, Janet. Diversions from the train room includes solving kakuro and sudoku puzzles, watching Duke basketball and San Francisco Giants baseball, and walking in the woods and along the shores of the Olympic Peninsula.

A different approach to modeling the Santa Fe

A veteran modeler rethinks his retirement plans

By **Chuck Hitchcock**//Photos by Paul J. Dolkos except where noted



When my wife, Jenny, and I decided in the fall of 2017 to sell our house of 47 years and move into a retirement community, that meant the Argentine Industrial District Ry. would be dismantled. At age 80, I had no plans to build another railroad. I decided to give away or sell everything. Some 700 freight cars, 25 locomotives, and numerous structures and all support materials were disposed of in about two months.

We moved to the retirement community in January 2018. By then, I'd accepted the reality that I'd built my last railroad. But then something surprising occurred when in July,

I Mixed train No. 79 has arrived in Burlington and spotted its steel combine for unloading passengers (not many on most occasions) and any Railway Express packages.

Jenny asked me whether I thought we could find a house in Prairie Village, as she missed living in our own home. We began looking, and to our delight we found a 2,000-square-foot house with an unfinished basement that seemed to be looking for a model railroad!

Choosing what to model

I could see that by finishing one end of the basement, a 28 x 30-foot area could be set aside to build a railroad. But what to model?

As I thought about a possible concept, I recalled seeing a track plan article written by Steve Flanigan in the December 2012 *Model Railroader*. Steve had won a track-plan design contest with a plan designed for a 13 x 15-foot area, and I was intrigued by its operating concept.

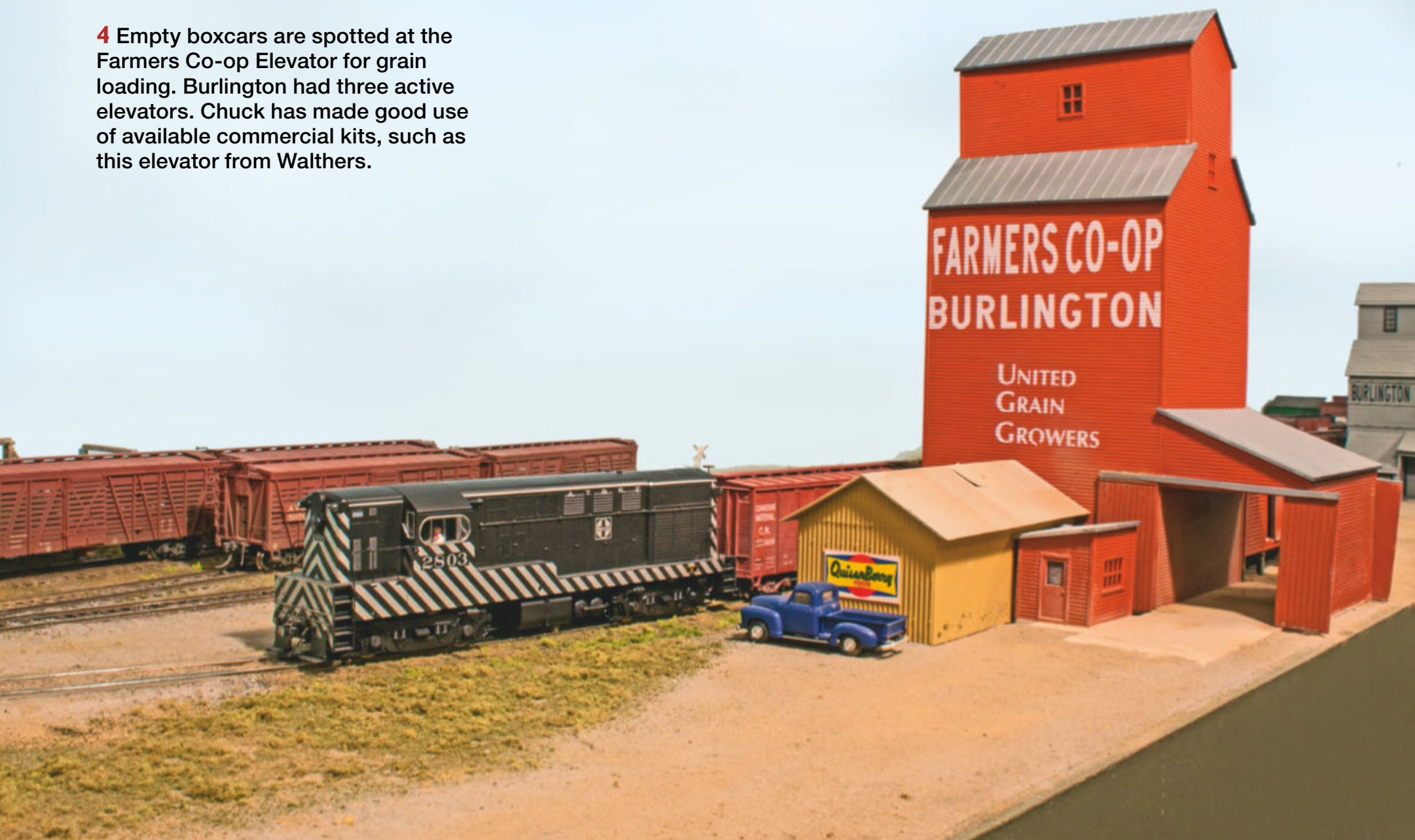
It was based on two logging railroads in Georgia, the Louisville & Wadley and the Wadley & Southern. Some years later, the two railroads became one, and both were bisected by the main line of Central of Georgia at Wadley. As Steve described the operation, the switch crew would go to work at Wadley in the morning, assemble its train, and work the towns



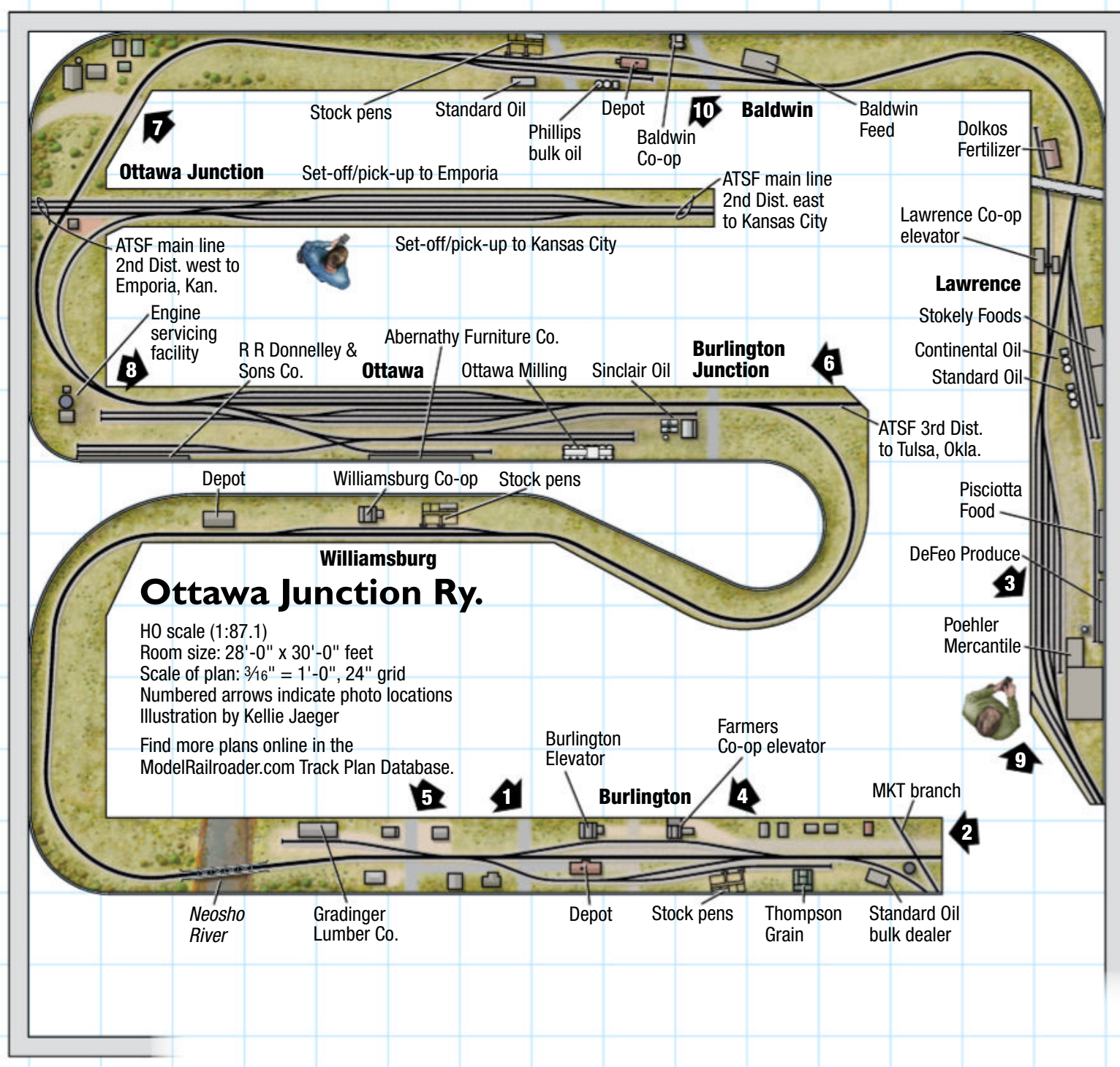
2 Southbound local Katy Train 61 crosses the diamond at Burlington, Kan., as Santa Fe's Burlington local No. 79 pauses in the background. Katy operated southbound locals Tuesday, Thursday, and Saturday; the north local operated Monday, Wednesday, and Friday. Santa Fe 79 operated daily except Sunday.

3 Consolidation no. 2518 is pulling four loads from Theo Poehler Mercantile Wholesale Grocers. This company was founded in 1901 and distributed groceries throughout Kansas to more than a dozen grocery companies until it closed in 1951. Keith Jordan photo

4 Empty boxcars are spotted at the Farmers Co-op Elevator for grain loading. Burlington had three active elevators. Chuck has made good use of available commercial kits, such as this elevator from Walthers.



5 Westbound Fairbanks-Morse H16-44 2803 sounds its horn and bell for U.S. Highway 75 (6th St.) as the competition pauses respectfully at the grade crossing at the east end of Burlington. The local beanery is in the foreground; the siding leads into Gradinger Lumber.



6 No matter how long you've been a modeler, you'll always have questions. Here Chuck points out a detail on one of his freight cars to visitor John King. This is a good overview of the yard and engine facility at Ottawa, Kan.

on the north part of the railroad, returning to Wadley about lunchtime. Following lunch, the crew would assemble its train and head out on the Wadley & Southern, the southern portion of the railroad, returning to Wadley about 5 p.m.

My problem at this point was what to do about the railroads, because

I knew little about Georgia short line railroading. I'd been a Santa Fe modeler all of my life and found it difficult to leave the railroad I'd loved. I decided to make a search of Santa Fe towns that had two branch lines, one to the north and one to the south.

My friend Jeff Needham suggested I take a look at Ottawa, Kan., because it

met the criterion. So I checked it out. North of Ottawa was a branch line to Baldwin and Lawrence, Kan. Four miles south of Ottawa was another branch line called the Gridley Branch, a 52-mile branch serving about 10 towns.

So I decided to transition to the Santa Fe using the concepts Steve discussed in his article. I could

Track plan at a glance

Name: Ottawa Junction Ry.

Scale: HO (1:87.1)

Size: 28'-0" x 30'-0"

Prototype: Atchison, Topeka & Santa Fe

Locale: Kansas

Era: 1952

Style: around the walls with center peninsula

Mainline run: 24 feet on Second District, 24 feet on main line through Ottawa

Minimum radius: 30"

Minimum turnout: no. 6

Maximum grade: none

Train length: 7 to 8 feet

Benchwork: 3/4" plywood on brackets or 2 x 2 legs

Height: 53"

Roadbed: none on branch, 3/16" camper tape on main

Track: code 70 branch, code 83 main

Scenery: under construction

Backdrop: walls painted blue

Control: CVP Easy DCC with radio throttles



7 The Lawrence local passes a typical Kansas farm on its approach to Ottawa. Photo backdrops make it easy to extend a narrow scene almost to infinity. Keith Jordan photo

visualize the operation of the new railroad to be three two-person crews. One crew would work the Lawrence job; another would work the Gridley job; and the third would work the Ottawa switch job.

Planning work sessions

With that key decision made, I asked several of my modeling friends to meet with me to discuss the concept and to set up weekly work sessions. I told them that at age 81 I didn't have another 20 years to build this railroad. They agreed to meet weekly on Wednesday for work sessions.

They began the first Wednesday in November 2018. All benchwork and track laying was completed by early 2019, and the first operating session was held in April 2019. Since the first session, we've hosted eight more.

Another concern was that of rebuilding a roster of locomotives and rolling stock, and again my friends helped. Several contributed freight cars and some structures. Jeff Needham, who had purchased 75 of my HO



8 Engineer Mat Thompson and conductor John King, with pencil in hand, back today's power onto the consist of the Burlington local before departing Ottawa. Two-person crews are standard for the Ottawa Junction Ry.

scale freight cars, later decided to change to O scale and so had no further need for them. I asked him whether I could buy them back, and he said no – but he'd lease them to me. So for now, the cars are in active service

on my railroad, with no plans that they will ever leave it.

Never too late

It's been fun and a great pleasure to have wonderful friends be a part of



Learning points

- Perhaps the opportunity to build your next model railroad isn't as far off as you think.
- Increasing age is a factor, but enlisting the support of friends can overcome most of the time concerns.
- Ask friends for help not only with construction but also with structures, locomotives, rolling stock, and other materials if needed.
- Don't lower your standards; your next model railroad may be your best yet.



9 This under-construction view of Lawrence, Kan., looks south toward the Highway 10 overpass. The brick building at right houses both Pisciotta Food and DeFeo Produce; the structure at near right is Poehler Mercantile.

something very special as we work together in this great hobby we all enjoy. If you're waiting to proceed with construction of your model railroad, perhaps because of concerns about your age, wait no more. Gather a few

friends and begin thinking about what you want to achieve. Take it from an 83-year-old: It's never too late! **MRP**

Chuck Hitchcock had a 30-year career in the insurance business, then as the



10 Chuck provides crew workstations at each town. A track schematic shows crews where cars are to be spotted.

general manager of the National Lubricating Grease Institute. Chuck has always loved trains and flying, but the most important parts of his life are Jennifer, his wife of 62 years; their three children; and their families.

Boston & Maine's CHESHIRE BRANCH

Jim Dufour's
HO tribute to
a spectacular
rural railroad

By Randy Laframboise

Model photos by the author



I don't remember when I first met Jim Dufour. We are both long-time members of the Rutland RR Historical Society, and I'm pretty sure it was at one of their annual conventions. Jim started a website called "Remembering the Rutland" in 1998 that focused on modeling the Rutland.

Mike Sparks and I were building a layout based on the Rutland [see "Resurrecting a New England classic," *Model Railroad Planning 2016 – Ed.*], and we started corresponding regularly with Jim and got together annually at Rutland conventions. We hit it off quickly, as we had the same philosophies of prototype modeling and a real appreciation for and enjoyment of the Rutland. Jim is a gregarious fellow and easily makes friends in the hobby. His website was a great



I Boston & Maine no. 2641, a class K-8-b Consolidation, leads westbound local W-X1 past Webb station on Jim Dufour's HO scale Cheshire Branch layout. The station, built by Rich Cobb, was built on a shelf cut into the mountainside above the South Branch of the Ashuelot River, as seen in the prototype photo above.

Prototype photo Jim Dufour collection





2 Above: Consolidation no. 2717 leads a way freight eastbound weaving through the Troy Ledges. The old Keene-Troy Road is to the right of the train and has been abandoned and supplanted by Route 12 on the left. Left: The prototype photo shows No. 6000, *The Cheshire*, passing through the same area. The passenger train ran this route between 1944 and 1952. Prototype photo Jim Dufour collection



resource for Rutland modelers and brought a lot of information and people together who appreciated the Rutland.

Making hard choices

Jim is also a huge fan of the Boston & Maine (B&M) and was torn between which railroad to model. He got serious about building a layout after he bought a townhouse in 2005. Like most of us, he agonized over what to build for a long time. His basement is relatively small, and he wanted to keep his layout to a manageable size in the hopes of actually completing it someday.

After growing up in New Hampshire and attending college in Keene, N.H., Jim was particularly fond of the Cheshire Branch of the B&M. This branch ran 55

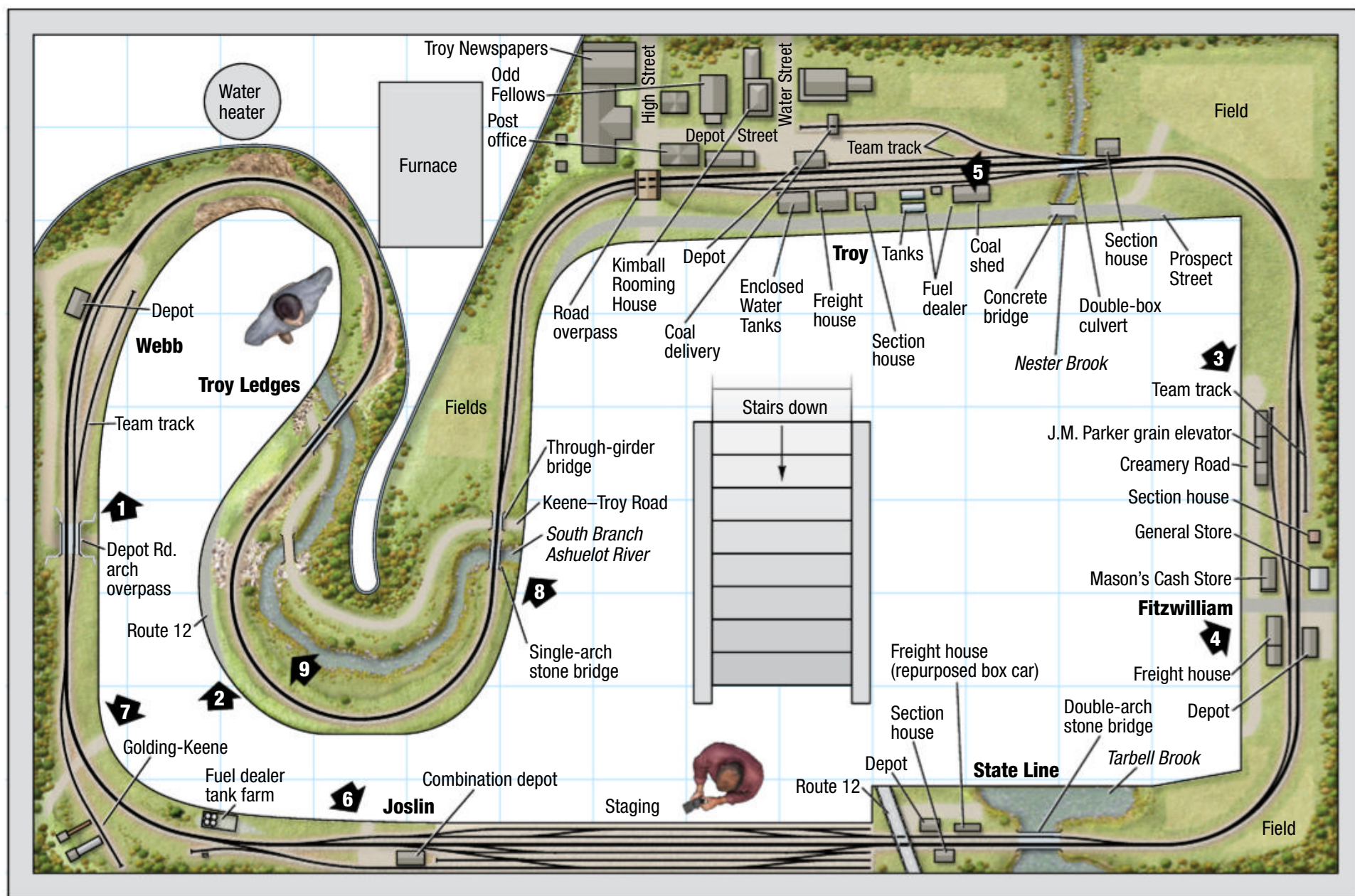
miles northwest from the Fitchburg Division main line of the B&M at South Ashburnham, Mass., through the southwest corner of New Hampshire via Keene, and up to a connection with the Connecticut River Line of the B&M and the Rutland RR at Bellows Falls, Vt. It was a busy section of railroad in 1947, the year Jim decided to model, so he had plenty of trains and traffic to keep him interested in the operating possibilities.

The Cheshire RR was chartered by the New Hampshire legislature in 1844. Construction was started in 1845 and gradually headed north, reaching Troy, N.H., in 1847 and Keene in 1848. Then it crossed the Connecticut River into Bellows Falls, Vt., in June 1849. The

Cheshire was the first railroad to reach Bellows Falls.

The line was originally promoted by Keene businessmen to gain reliable access to the Boston markets and transportation hub. They believed extending the line to Bellows Falls would enable the road to capture traffic from northern New York, Vermont, and Canada to funnel into Boston. Unfortunately, the northern roads created a compact to divert traffic away from the Cheshire Route, and the anticipated overhead traffic never materialized to the extent the originators of the line had hoped.

The usual bankruptcies, route consolidations, and takeovers in the ensuing years finally resulted in the Fitchburg RR gaining control of the Cheshire in 1890 and naming the line the Cheshire Branch. In 1900, the Boston & Maine leased the Fitchburg for 99 years and took over control of the Cheshire Branch. The branch became part of the B&M's Fitchburg Division.



Boston & Maine's Cheshire Branch

HO scale (1:87.1)
Room size: 18'-0" x 28'-0" feet
Scale of plan: 1/4" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger

Find more plans online in the
ModelRailroader.com Track Plan Database.

Designing the railroad

Jim is a meticulous modeler and spent much time researching and designing a prototype layout to fit his available space. Jim worked for several years in the area he's modeling, which enabled him to spend a lot of time making contacts, researching, and walking the branch.

Jim finally narrowed his focus to a section of the line that started just north of the Massachusetts state line in a town called, appropriately, State Line, and worked north from there up to Joslin just south of Keene. He chose this section in part because the towns were relatively small, and he felt that he didn't have the room in his basement to do justice to any of the larger towns on the Cheshire. Another major factor in Jim's thinking was to model the towns in prototype order on the layout.

I worked in Boston for several years after college and am familiar with the territory Jim wanted to model, as I'd

driven it innumerable times on trips back home to Vermont to visit family and friends. It's a scenic and rural section of railroad with bridges, mountains, rock cuts, and farmland. The towns are reasonably sized to model effectively and are representative of the rural railroading typical of northern New England that Jim liked.

Jim's first prototype railroad

Once Jim had set his course for what he wanted to model, he started to plan how he was going to model it. Jim spent a lot of time sketching and laying out possibilities in his basement. Since this was the first prototype layout he would ever build, Jim asked many questions of other modelers to figure out do's and don'ts. After much deliberation Jim built the layout in phases, as he wasn't sure how long he was going to stay in the house and how fast he would be able to make progress.

Jim started with the town of Troy, which was going to be largest town on the layout. Building Troy first would let him refine his techniques and see exactly how it was all going to work out. Jim's plan was to build out approximately half of the basement as layout and construct a temporary shelf track in the other half of the room

Track plan at a glance

Name: Boston & Maine's Cheshire Branch
Scale: HO (1:87.1)
Size: 18'-0" x 28'-0"
Prototype: Boston & Maine
Locale: southwestern New Hampshire
Era: 1947 to 1948
Style: walk-in
Mainline run: 93 feet
Minimum radius: 32" main, 28" sidings
Minimum turnout: no. 8 (7½ curved)
Maximum grade: none
Train length: 12 cars
Benchwork: open grid, shelf
Height: 48"
Roadbed: milled basswood and foam
Track: code 83 main, code 70 sidings
Scenery: extruded-foam insulation board and Sculptamold
Backdrop: hardboard and styrene with photo backdrops
Control: NCE Digital Command Control



3 *The Cheshire* passes the J.M. Parker & Co. grain elevator in Fitzwilliam, N.H., heading north on its daily roundtrip between Boston, Mass., and White River Jct., Vt., in 1948. The grain elevator at Fitzwilliam is an interesting structure that never fails to attract interest from visitors. The elevator had a 12-car capacity. Prototype photo Jim Dufour collection



to enable continuous running. This would allow him to determine if he had the time, desire, and ambition to build more. Jim started the layout in 2005 and began plugging away with benchwork and making changes to the room and utilities to get the space he wanted.

Advice from friends

As with all of us who venture into layout construction for the first time, there was a lot of indecision and anxiety about what to do and how

to do it. Fortunately, Jim had a large group of friends to lean on for advice. Not all of the advice was good; techniques and experiences that work for some don't for others. A good rule of thumb is to try out ideas on a limited scale before applying them to an entire model railroad if you aren't sure.

Jim started building structures prior to layout construction, and with the help of model builder Rich Cobb, he was able to populate the layout with prototypically accurate structures relatively quickly. A stickler for

accuracy and detail, Jim took his time in laying out the town of Troy. He was able to fit the town into the available space, having to compress the entire town by about only 100 scale feet.

The next order of business was to construct the remainder of the benchwork for phase 1 construction and build a staging yard just south of State Line so he could begin running trains. The benchwork is a mix of tabletop, shelf, and open-grid construction with plywood subroadbed. Once this was completed, Jim worked on installing the flag-stop station at State Line and the town of Fitzwilliam. This took several years of steady work.

While this work was ongoing, Jim and I had numerous discussions about whether to do phase 2 construction, which would mean building a bull-nose peninsula in the remainder of the basement and adding two more small towns. This area was planned for the most scenic stretch of the prototype line known as Troy Ledges. Jim was uncertain how long he would be in

the house and wasn't sure he wanted to commit to tackling another large section of layout building.

I pushed him pretty hard to move forward with it. (As a professional contractor, I'm good at telling people they should do more work!) Around Thanksgiving 2009, I called Jim and told him I was coming down for a long weekend between Christmas and New Years, and we were going to build this thing. He agreed, and over three long days we built the benchwork and had a great time doing it.

I'll never forget leaving The Home Depot with a truck-load of lumber and supplies in the back and Jim saying, "I think you should tie it down."

"No problem, don't worry," I said, and then proceeded to dump the entire load out in the parking lot while leaving the store.

Troy Ledges time machine

The addition of the second phase of the layout gave Jim the opportunity to have some rural running outside of towns and to indulge his love and high skill level when it comes to constructing scenery. Troy Ledges is a spectacular piece of railroad, and Jim nailed it. Watching trains running through this area is like taking a trip back in time.

The prototype Ledges area was annihilated during a Route 12 reconstruction many years ago, so Jim relied on historical photos to get the scenery, bridges, and terrain right. Jim cast his own stone blocks out of resin to build the many granite bridge abutments, stone arches, and culverts that are signature structures on the Cheshire right-of-way.

There were numerous quarries along this portion of the Cheshire, and much traffic was generated in early years of the railroad hauling the rough granite blocks to finishing sheds in Worcester, Mass. This traffic was long gone by Jim's era, but he did include a portion of an abandoned right-of-way for a quarry spur in the town of Webb.

Planning for operations

When designing the layout, Jim gave much thought to operations and how he could best capture the ebb and flow of traffic on the prototype. He collected equipment for years and has prototypically correct passenger and freight trains running during operating sessions. The trains are powered by brass steam locomotives and plastic diesels that have all been fine-tuned with Digital Command Control sound installations by Rick Knight.



4 Boston & Maine 4-6-2 no. 3717 leads the *Green Mountain Flyer* eastbound across Laurel Lake Road in Fitzwilliam, N.H. The B&M freight house is on the right with Mason's Cash Store in the left foreground and Plante's General Store on the opposite side of the tracks.



5 An A-B set of covered wagons passes Alco RS-2 no. 1500 at Troy, N.H. Jim's fleet of highly detailed and accurate rolling stock is a key factor in creating a believable operating experience on the railroad.

The railroad is dispatched using a prototypically correct schedule based on B&M timetables from the modeled era. Interestingly, the railroad's public timetables carded trains as north-south, while the employee timetable schedules showed them as east-west to fit into the rest of the system's scheduling. Jim uses the east-west convention.

The Cheshire used Union Switch & Signal Style B double-arm lower quadrant signals in Jim's era; the late Terry Wegmann built the signals for Jim. The freight and passenger equipment is a mix of brass, resin, and plastic kits, all of which are modified as needed for accuracy.

The Cheshire was known for its large amount of passenger traffic, which Jim thoroughly enjoys modeling and operating. In Jim's era, two pairs of first-class trains, the *Mount Royal* and the *Green Mountain Flyer*, ran on the

Cheshire that directly connected with the Rutland at Bellows Falls. They enable Jim to run a lot of equipment from his second favorite railroad.

A highlight of any operating session is the appearance of No. 6000, a diesel-powered three-section articulated streamliner that passes over the Cheshire on its daily round trip between Boston and White River Junction, Vt. This equipment is perhaps best known as the *Flying Yankee* but was named *The Cheshire* while in this service for the B&M between 1944 and 1952.

There was a second-class dedicated milk train every night from Bellows Falls that carried milk traffic from upstate New York and Vermont via the Rutland to Boston. Jim also runs a way freight in each direction daily as well as a pair of symbol freights each night between Boston and Bellows Falls.



6 2-8-0 Consolidation no. 2717 is switching the team track at Joslin, N.H., on a beautiful summer day in 1948. Jim considers this to be the quintessential scene on the layout, reflecting the rural character of the Cheshire Branch. The prototype photo shows the main and passing tracks in the foreground and the team track behind the depot. Prototype photo Jim Dufour collection



A fondness for scenery

Jim's favorite aspect of layout construction is scenery. He spends a lot of time researching, experimenting, and perfecting various scenery techniques. His basic scenery base is Sculptamold over extruded-foam insulation board

covered with ground foam and static grass. Jim uses Scenic Express Super-Trees for trees and foliage.

He isn't afraid to rip out and redo anything that doesn't meet his standards and is always trying to find ways to improve his techniques. Jim is gener-

ous in sharing the discoveries, techniques, and materials used in his construction, and his helpfulness has enhanced many of the layouts in the northern New England area.

While constructing the Ledges, Jim also worked on Webb and Joslin, the last two towns on the layout. As of this writing, Jim is revisiting early areas of construction to update the scenery, install backdrops, and fine-tune the trackwork. He's getting close to



7 Boston & Maine no. 2717 pulls a covered hopper out of spur 0757 in Swanzey, N.H. The Golding-Keene Co. processed feldspar that was mined in Alstead, N.H., and trucked to this facility on the Cheshire Branch. The processed feldspar was loaded into boxcars and covered hoppers.

Learning points

- Build in phases to avoid burnout and to get a feeling of progress and accomplishment.
- Building structures in advance of layout construction will enable quicker completion when construction does start.
- Build a network of friends for advice and help.
- Build a layout to the size you can handle without becoming discouraged or overwhelmed.
- Do a lot of research in advance of layout construction so you have a good idea of what you are trying to accomplish.

completing the layout, although like all of us he knows that it will never really be done.

Jim enjoys having people over to see the layout and has several open houses every year to run trains and spend time shooting the breeze. He especially enjoys the visits of people who worked on or railfanned the prototype railroad.

Sharing knowledge

George Corey is a special friend and surprisingly little known New England railroad photographer who chronicled the Cheshire Branch in the steam era. He has contributed much knowledge and information to the layout and is a frequent visitor. Among the other valuable contributors to the layout to whom Jim is indebted are Mike Confalone, Don Duplease, Mal Houck,



8 Mount Monadnock, looming in the distance, dominates the area of south-western New Hampshire Jim is modeling. In the foreground, Alco RS-2 no. 1500 leads an eastbound train over the South Branch of the Ashuelot River and the Keene-Troy Road near Troy, N.H.

Mike Rose, Neil Schofield, and Ted Shasta.

Jim's 18 x 28-foot B&M Cheshire Branch layout is a perfect example of picking a reasonable and representative portion of a full-size railroad to fit into a relatively small area while representing the flavor, scenery, and operations that make the prototype unique. The model railroad captures the essence of transition-era northern New England railroading in a modest-size townhouse basement without feeling cramped, forced, or overcrowded. Jim is happy about how it has turned out. It has met all of the hopes and expectations he had during the planning and construction process. **MRP**

Randy Laframboise is a frequent contributor to Model Railroad Planning. Jim Dufour recently retired from a 42-year career as an industrial automation engineer.

Jim Dufour lives near Worcester, Mass., with his wife, JJ. They enjoy cooking, hiking, exploring Boston on weekends, and travel. Jim regularly attends Railroad Prototype Modelers meets, often with his good friend Randy.



9 Electro-Motive Division F2 A no. 4224 is on the point of an eastbound freight at Troy Ledges. Details such as the rail rack and the milepost abound on Jim's layout. These details are a sure sign of thorough research and adherence to the prototype. The F units are Athearn Genesis models.



LOTS OF STAGING – OR NONE AT ALL?

Ideas that may make staging work better for you

By Paul J. Dolkos//Photos by the author

More and more model railroads are being built with operation in mind. And to operate, you have to have staging tracks, an area where trains originate or end their runs. In fact, there's a saying in the hobby to the effect that you can't have too much staging.

Is that true? Well, not necessarily, especially if there's limited space, say

for just a shelf running a few feet along a wall. If that's all you have to work with, don't devote that space to train storage. So let's talk about staging.

Locating staging

Larger layouts supporting time freights and passenger trains depicting movements require locations to park, or stage, trains. Local freights often

don't require that sort of support. For those building big layouts in large spaces, a frequent downside is staging is often relegated to dark caverns under the benchwork. Often one can't quite see what train or string of cars he or she wants or whether the outbound route's switches are lined correctly.

Adding to the fun, there will often be another operator standing there



There's no doubt where the east-end Beaumont staging yard is on Pete LaGuardia's layout, which is separated only by a low fence from the main Crotona classification yard. It looks like one big yard, and during operating sessions, crews in both yards are busy and tend to ignore each other.

switching the town above you while you're crawling around on the floor trying to figure things out. Seemingly helpful aids such as closed circuit cameras and diagrams with occupancy lights can be confusing, particularly to visiting operators.

At the bottom of my list is when staging is hidden behind a scenic backdrop along a wall. I recall a *Model Railroader* article back in the 1990s that proposed removable backdrops for access to staging. I certainly wouldn't want to be lifting backdrop



At the other extreme, if the Carroll Street portion of Paul Dolkos's Baltimore Harbor District were a standalone switching layout, sessions would start with a train occupying the street with the crew ready to go to work. After a couple of hours, the outbound train would be set to leave, and the crew would go off duty.



Another way to accommodate staging is to use a car float as a staging yard. Many railroad barges had a capacity of up to 20 cars. In this scene on Paul Dolkos' railroad, there's a Baltimore & Ohio job that did originate in staging, but the job could begin work here.

pieces up and over scenery and rolling stock to access staging tracks should a train stall or derail in the middle of an operating session.

Locating staging can become a problem when we want it to accommodate the full roster we have or imagine we'll have someday. It's better to have staging for only the number of cars or slightly more than will be used in a typical operating session. Store extra rolling stock in a cabinet or on shelves, and rotate it on and off the railroad.

Arrival/departure tracks as staging

In the best of all worlds, staging yards are located where tracks are

readily visible or in an adjoining room. That's easy to say, but what if you don't have such space? You might consider a design locating a division point yard at one end of the modeled main line. Add arrival/departure tracks either as part of the yard or on the outskirts of the yard. Yard crews like this feature, as they can put off dealing with such traffic for a while.

If you don't want, need, or have space for a working yard at the end of the line, consider just arrival/departure tracks strictly for staging purposes. Establish the fiction that there's a yard farther down the line. Outbound trains parked can be considered as having been placed there on an earlier shift.



At one time the four tracks filled with cars on Mat Thompson's Oregon Coast RR extended around the hill into a hidden staging yard. Crews had trouble pulling the right train out, so Mat began parking inbound and outbound consists in the open. During operating sessions, car cards with waybills are filed for inbound and outbound traffic to and from the local Portland yards by the layout's Hoyt Street yard crew. The staging holds 75 cars, including a track for 11 overflow cars.

Inbound trains can arrive and stay parked. This is how arrival/departure tracks are used by the prototype.

By doing this, you've created an open and visible staging yard. If you give up a town scene or scenic feature to accommodate such staging, you'll probably be happier in the long run.

Turning power, smaller roads

If your railroad is set in a modern era (late 1950s onward), you're

probably running diesels, so you may not have to turn motive power for a return trip back out of staging. Turning a steam engine, however, may be appropriate. So if staging requires a turntable or a wye, it further complicates the design. It's all the more reason not to put staging in dark places under the layout.

Handling staging for smaller railroads – for instance, a shelf layout running 12 feet or so along a wall –

requires a different approach. One might consider a track section that folds up or down to enable placement of a train waiting to come in to do its work.

But why bother with such a track extension? It's not very interesting running a few feet into the scene. Instead, park the train where one could assume it has just arrived in town. If the stubbed staging section is in a space where you can have a permanent siding and more scenery, then use it for that. A train running onto a bare stub-ended staging track isn't very interesting.

Other options

While I have the luxury of a staging yard in a second room in the basement, there are some instances where I have switching jobs that don't run out of staging. In one scene, inbound cars are on site via a car float. The switching engine, a General Electric 44-ton diesel, is also parked on site. The switching job takes an hour or more. There are two customers, each with multiple car spots. My barge carries only up to eight cars, but longer barges can carry up to 20. That capacity provides a couple hours of work for a crew.

There are other operating options that don't require staging. For instance, my Carroll Street job has 25 car spots, half of them in a three-track produce receiving yard. A switch job originating in staging usually arrives with 10 to 15 cars to spot and picks up a similar outbound number. This 12-foot-long scene could be a stand-alone layout without staging.

In this mode, operating sessions begin with a train that has already arrived but no work has been done. The crew arrives, picks up the waybills and car cards (or in my case a switch list), studies the paperwork, and begins work. When they're finished, a new train has been assembled ready to return to the home yard. If there's no yard to run to, the crew leaves the train where it is and marks off, and the day is done.

So without offsite staging, for the next session one could simply reposition the locomotive and caboose to make it appear that the train has just arrived. Set up the paperwork, and you're ready to go again. Or go back to the storage cabinet and manually swap out cars as desired. Even with limited layout space, one can therefore create a satisfying operating experience. If you should later think a small shelf-layout operations would get repetitive after a few years, think about building a new shelf layout.



On Brian Wolfe's Western Maryland, staging representing the railroad's east end at Baltimore, left, is above the modeled town of York, Pa. Aesthetically, it's not a great spot for staging, but it's not a distraction because a York operator's attention is on his or her specific job. Eastbound trains from Cumberland, Md., are in this upper-deck staging yard, above Williamsport, Md.

British staging systems

Many British model railroaders don't have layout space in their homes, so they build portable railroads to exhibit at shows that are great fun and very social. During these day-long sessions over two or three days, they have

several styles of staging yards to assemble trains to run on the scenicked portion of the layouts. Below is a gallery of various designs. – *Paul J. Dolkos*



Lifford, Warley: Long cassettes with tracks for cars and short ones for locomotives are easily moved around on the smooth surface. The cassettes have contacts for track power when lined up with the inbound track.



The traverser Paul photographed in Breadalbane, Warley, in 1999 pivots front to back to permit any storage track to be lined up with the layout access track.



Staging on a turntable: Adding the capability of being able to turn a sector plate 180 degrees permits easy turning of rolling stock. It avoids handling locomotives and other equipment.



Any of the staging tracks on this sector plate at Broom Junction, Warley, in 1999 can be moved to line up with the main layout track. This eliminates the length required for multiple turnouts in the staging area.

Baltimore Harbor staging

In a room separate from the layout, I have a staging yard where cars and consists are fully visible. I built it 35 years ago as part of my Boston & Maine RR. It has five stub-ended yard tracks with a capacity of about 80 cars. These stubs are surrounded by a 24"-radius loop. Part of it folds down to provide access to utilities. It was used to turn passenger trains. Three stub tracks were added later for passenger car storage in the middle of the loop.

When I began to model Baltimore city operations, I kept the old staging section. The former passenger car storage tracks are now used for locomotives. The loop can hold most of the returning freight cars prior to building outbound consists before being sorted for the next session.

In my fiction, this compact staging area now represents the yards of three Class 1 railroads in the city: Baltimore & Ohio, Western Maryland, and Pennsylvania RR. Six jobs originate out of this staging area. – *Paul J. Dolkos*



Paul Dolkos built this staging loop and yard to service his Boston & Maine layout 35 years ago. It has stood the test of time and now is staging for his Baltimore Harbor District railroad.

Learning points

- Staging can take many forms.
- Opinions vary as to whether staging should be hidden, but the more accessible it is, the better.
- Staging yards aren't storage yards.
- Steam power may require turning between runs, complicating staging requirements.
- On a small layout, a train can be staged by assuming it has already arrived or is ready to depart.

In plain view and accessible

What I'm proposing is to keep staging in plain view and accessible. However, it was former MR editor Andy Sperandio's opinion that model trains should disappear from sight, thus creating the illusion that the trains are really going somewhere. That's nice if you have room. But if you don't have the space for easily accessible, visible, offsite staging, park the train in the scene, and let the crew mark off.

Such an approach doesn't work so well with passenger trains, because they do need to go places. One option is to create a passenger terminal scene. Start with several trains that have arrived and terminated their runs. Then begin working with each consist, turning, rearranging, and servicing them to prepare them for tomorrow's runs.

Express and mail cars may need to be pulled from the consist to be spotted on sidings elsewhere. Different head-end cars may be swapped out for the outbound train consists. One could have a lot of fun sorting cars for the next day's schedules. A similar approach would work in a standalone freight yard.

The larger the layout, the more critical staging visibility and access become. I would give up an industrial area or town for the ease and pleasures of open staging. You may be able to end up with both staging and industries to switch.

Staging unused equipment

You've probably noted lines of freight cars stored on dormant track. It can be a string of a 100 or more cars being held for future or seasonal use. Some shortline railroads seek out the storage business for additional revenue. On model railroads, this may be another way to store cars on the layout not being used during an upcoming session.



On Chuck Hitchcock's Ottawa Junction layout (see page 18), interchange sidings along the Santa Fe main line are the traffic source for two branch lines. The main line is a stub section that runs down the middle of the room. No trains run on these tracks.



Bob Rodriguez's Nickel City Line has two easily accessible staging yards on the lower deck of a peninsula. His north staging yard, seen here, has an open front, six tracks on a 14"-wide shelf, and a vertical reach-in clearance of not less than 6½". The locomotive on the far left is parked in the similar east staging yard on the other side of the peninsula.

On a layout, a storage siding could be a stub of a former branch line or the unused second track on a main line. Look at space for a storage track between towns or a bit of a blank space on the layout. If you can find spots to park 10 to 20 cars, that works visually.

This storage doesn't have to be a static display. You can pick up cars as an assignment during a session. Since the cars have been stored, they'll have to be inspected and repaired to be put back in service. They may be moved to the railroad's car shop or to an independent operation. Many of these are compact and fit into a model scene nicely. This shop activity creates another industry on your layout.

Car storage seems more prevalent today, but over the years there were always seasonal demand or downturns in traffic that idled equipment – for example, a line of boxcars waiting for the grain rush. What we often see today is string of the same car type, covered



hoppers as an example. Ideally there should be some uniformity in the equipment stored. Twenty covered hoppers in a line would be impressive.

Having a green signal, a train departs north staging on the Nickel City Line. The red signals on other tracks indicate the track ahead has not been allocated to the train or switches have not been lined for the route. Each staging track is equipped with a rerailer. Track power, signals, and switches are controlled by the dispatcher, so no train should move unless the route has been cleared.

hoppers as an example. Ideally there should be some uniformity in the equipment stored. Twenty covered hoppers in a line would be impressive.

Don't give up too quickly

And just because space is limited, don't give up building a layout and having operating sessions. A few feet

devoted to a wall layout offers pleasant operation. When the switching is done, leave the train on the main. So what if it never leaves town? That's better than no layout. And staging in whatever form will complement your operations. **MRP**

Paul Dolkos is a regular contributor to Model Railroad Planning.



Modeling a bucolic NEW YORK SHORT LINE

The Fonda, Johnstown & Gloversville is set in the 1950s

By **Stephen Lamora**//Photos by Ken Karlewicz except where noted

The Fonda, Johnstown & Gloversville railroad came into my life briefly during my childhood. I never was able to see it operate, but as a teenager I would ride my bike or skateboard from a family member's home on Great Sacandaga Lake to Broadalbin to see the station and freight house. Those memories stayed with me as I got serious about the hobby of model railroading.

While going through old issues of *Model Railroader*, I came across the August 1979 issue, which featured the Fonda, Johnstown & Gloversville and reignited my love for the railroad. With

the purchase of our home in 2000, I set out to build a large FJ&G layout. It was featured in the February 2004 *Rail-Model Journal*. The layout was torn down in September 2004 as my interests shifted to bigger railroading.

On my first FJ&G layout I had modeled the mid-1970s, when the railroad was under the ownership of the Delaware Otsego Corp. As I researched the line's history, I realized I wanted to backdate to the 1950s. The operations then were more interesting, with a mixed train daily-except-Sunday from Gloversville to Broadalbin. It was also the last mixed

train to operate in New York State, running until the summer of 1956.

In addition to the mixed trains, two freight trains a day ran from Gloversville to Fonda and the New York Central interchange, both of them switching cars along the way, then returning to Gloversville. Throw in three mail-express trains a day from Gloversville to Fonda operated with a Brill motor car or one of the FJ&G's Alco S-2s pulling a leased New York Central baggage car, and there was enough to keep operators busy.

Also, if I modeled the 1950s, all of the coal companies were still



I Fonda, Johnstown & Gloversville Alco S-2 no. 20, built in 1945, eases across Bleecker Street in Gloversville, N.Y., on Stephen Lamora's HO scale FJ&G layout. That's Clemente's soda fountain and barber shop in the background and the spur heading to Independent Coal Co. in the foreground. Stephen Lamora photo

operating; a major portion of the line's business was inbound coal traffic.

My wife and I decided to sell our house in 2015, so my previous layout was removed in preparation for the move. I'd decided that a new house would mean a new FJ&G. The sale never happened, so we decided to stay. Construction on a new layout began in January 2017. I wanted to be able to move some of the scenes and put them into a larger layout. Most sections are built lightweight with shelving brackets and 1 x 4s with 2" foam as the base.

The whole section of Broadalbin is built almost like a module, so it doesn't have to be disassembled to be moved to a new layout. It's built with wheels so it can be moved into place for operating sessions.

This is the sixth serious layout I've built. My first large layout was my first FJ&G layout that filled the basement of our current home. The second layout was the Maine Central Mountain Division. The track work was completed and scenery just underway when

I decided to go another direction. I had three other smaller layouts in a short period of time until my last layout, which lasted 10 years, a fictitious railroad based in the area near the FJ&G called the Southern Adirondack RR. Every layout I built after the first FJ&G seemed to be missing something. I felt it was missing the passion and love that I have for the FJ&G and the cities it served.

Picking an area to model

In the past 10 years, I've become very passionate about researching the history of the cities of Johnstown, Gloversville, and Broadalbin, as well as the glove companies and tanneries that were the lifeblood of those cities. Understanding the cities and industries has helped with modeling the railroad and its operations.

I wanted a layout I could operate by myself or with friends. I also wanted a lot of switching. I knew right away that I wanted to have Broadalbin. But picking another area that would fit in

the space I wanted to build in was tough. After thinking about it for a while, I decided to model the north side of Gloversville, with Gloversville Yard acting as my staging. That gave me roughly 30 feet to model the north side, with 10 industries and a couple of spots for off-site industries to unload or load cars. I'd found the perfect fit.

Through the years I've made many great friends because of the FJ&G. Gino Dicarlo has helped me so much with information and photos. In the late 1950s, Ebar Davis photographed the entire right-of-way and every industry on the railroad from Fonda all the way to Broadalbin. Without his passion for and photos of the railroad, my layout wouldn't be as close to the prototype as it is. Aaron Keller, Paul Larner, and the late Walt Dynalak are other people who have helped to make this a lot easier to model with information, photos, and stories.

Without the help of two people – Matt Giardino at Mile Post Hobbies in Amsterdam, N.Y., and Dave Widman, who did all the custom painting of my engines – this model railroad probably wouldn't be here. My two Alco S-2s, numbers 20 and 21, are Atlas engines with ESU LokSound decoders. Both were custom painted before Atlas released 20 and 21. I do have one beautifully done Atlas model, but I weathered and detailed it to look like it did in the late 1970s to photograph on the layout. I also have a Bachmann custom GE 44-tonner, no. 30, that has been detailed to be prototypically correct. I plan on adding sound and a keep-alive and work on its running performance. My brass Suydam Brill motorcar, number 340, was extensively reworked to look like the FJ&G's. I have other engines and equipment from the Delaware Otsego era. The thought is someday to have operating sessions in different eras of the railroad, from the early '40s to the end in 1984.

I've used Digitrax Digital Command Control since the late '90s and like it. I haven't upgraded to wireless yet, but that will be happening in the next few years. The layout has only one power district because of its size and at most two engines on the layout at one time.



2 As night closes in, engine no. 20, along with caboose No. 3, a hand-me-down from the Delaware & Hudson, rumbles across West 8th Avenue and Bleecker Street in Gloversville, N.Y.



3 Number 21 with a short morning train for Broadalbin crosses Foster Street with two cement cars for the Vail Mills team track and one D&H boxcar for the Broadalbin freight house to be loaded by DK Fiber Company.

I don't need any more power than what the command station puts out.

Scenery and structures

My favorite parts of model railroad-ing are scenery and operations. I wanted this layout to have superdetailed scenery. Being as small as it is has helped: When you model a short line with only three engines, that gives you more time to work on scenery and scratchbuilding prototype structures.

My base layer of scenery is "ground goop," which I've been using for 20 years and swear by. That goes over either the foam board or plaster cloth depending on the locations. I use only real dirt right from our backyard. I let it dry for a long time before use. I like to keep at least three or four coffee cans of dirt drying so I never run out.

The ballast on the layout is a mix of dirt and Scenic Express fine cinders.

On my last layout, I started working with static grass. I found Silflor static grass works well for me. I've also used Noch and the new Woodland Scenics grass on this layout. The effect of high and low grasses is achieved by layering the static grass. I start with a layer of 2mm grass, let it dry, then go back and add another layer of 2mm and 4mm grass of different colors mixed together. I use Aqua Net hairspray to do the layering, and I work in only a very small area at a time. I keep going until I get the height and coloring that I'm looking for.

All the grass between the tracks is done with a mixture of 2mm and 4mm grass; I found that anything longer than 4mm is too tall. The base for all

my static grass is Mod Podge right from the bottle. I use small foam brushes to apply it to the ground goop after it's dried. I use the original Noch Static Master and a pen-sized applicator made by War World Scenics out of Great Britain and now sold in the U.S. by Peco.

Most of my trees are Scenic Express SuperTrees with SuperLeaf materials. Some are SuperSage and Woodland Scenics with SuperTrees material on them. Pine trees are made using dowels, floral wire, and different sizes of static grass. I make bushes using twine, static grass, and SuperLeaf material. The flowering tufts are made with a static grass applicator and a mixture of static grass, with the tips of the long grass dipped into various colored flower material.

Roads and sidewalks are made with Dap Concrete Patch, which comes pre-mixed. I cut a section of road or sidewalk out of 1/4" foam board, glue it to the layout, and then add the concrete. It comes out much smoother if I don't use a lot at one time and keep it wet as I work. Sometimes it takes one layer for a road, sometimes three, but overall the effect is great.

The sidewalks are done the same way, but while it's still wet, I scribe the joint lines in. I color the street and sidewalk with an assortment of acrylic artist paints.

Fonda, Johnstown & Gloversville

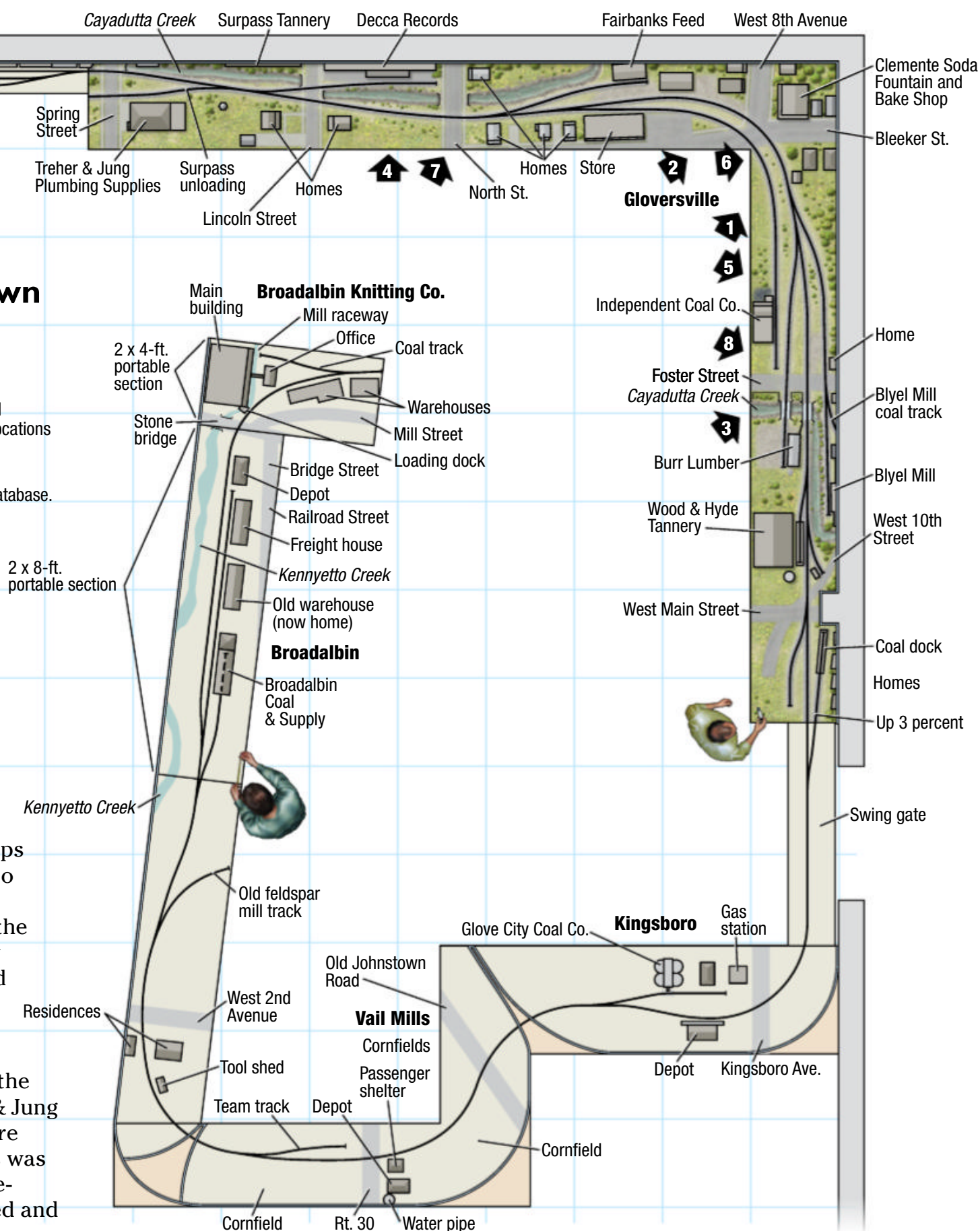
HO scale (1:87.1)
Room size: 30'-0" x 30'-0" feet
Scale of plan: 1/4" = 1'-0", 24" grid
Numbered arrows indicate photo locations
Illustration by Kellie Jaeger
Find more plans online in the
ModelRailroader.com Track Plan Database.

I wanted to use photo backdrops but couldn't find what I needed. So I decided to paint the backdrop, which I love doing. At the end of the streets, I used Google street-view photos of actual locations printed out to scale and glued to the backdrop. I'm very pleased with the depth it gives each scene.

I kitbashed or scratchbuilt all the industries on the layout. Treher & Jung and the Independent Coal Co. were both scratchbuilt. Decca Records was made from two City Classics warehouse kits with one story removed and windows enlarged on the first story. Fairbanks Feed is a Walthers warehouse kit. At the time, I didn't have a good picture of the area, but I now have a couple of good pictures, so the buildings will eventually be replaced with scratchbuilt models.

I've already started buildings for Broadalbin, with the freight house completed and an old cement and feed warehouse that was converted into apartments. Broadalbin Station will most likely be the next project, followed by Glove City Coal and the Kingsboro station.

My layout is a time machine that brings me back to a place and time to see the railroad operate. I'm working hard to make this layout feel like Gloversville and Broadalbin in the mid-1950s. The railroad was laid out



Track plan at a glance

Name: Fonda, Johnstown & Gloversville
Scale: HO (1:87.1)
Size: 23'-0" x 26'-0"
Prototype: Fonda, Johnstown & Gloversville
Locale: New York State
Era: 1956-'58
Style: single deck
Mainline run: 61 ft.
Minimum radius: 24"
Minimum turnout: no. 5
Maximum grade: 2.5 percent (main),

3 percent (industries)
Train length: six 40-foot cars plus engine and caboose
Benchwork: extruded-foam insulation board with shelf brackets and 1 x 4 supports
Height: 62.5" to 64.5"
Roadbed: N scale cork
Track: codes 70 and 83
Scenery: foam; plaster cloth over cardboard strips
Backdrop: hand painted plus photos
Control: Digitrax DCC



4 General Electric 44-tonner no. 30, purchased second-hand from the Washington & Old Dominion, passes Decca Records in Gloversville with two loads for Independent Coal Co.

building was removed, with just an unloading trestle left. They used it to unload cars of cement for the Route 29 and Route 30A construction projects.

Track and benchwork

Most track on the layout is Atlas code 83 on the main line and Micro Engineering code 70 on the sidings, with Peco turnouts. The track for Vail Mills and Broadalbin is Micro Engineering code 70 with Micro Engineering turnouts.

As of January 2020, almost all of the benchwork is complete. I still need to build the modular section of Broadalbin. I also need to add some backdrop to the stationary section of Broadalbin. All of the track is laid to Vail Mills. The whole Gloversville section is operational, with only the 11th Avenue coal dock not put in yet.

I did things a little differently with this layout. I wanted scenery right away so I could have completed scenes to run in and photograph. Nevertheless, I laid the track, tested it for a



5 Number 30 arrives at the Independent Coal Co. in Gloversville. After dropping two loads of coal there, it will then continue on with its train to Broadalbin.

using the prototype track plan. I skipped two streets and one industry north of Gloversville, but all other streets and industries are represented.

Obviously, everything has been compressed. I had to compromise with some of the track plan. In real life, the Independent Coal siding was just north of Blecker Street. I had to move it south of the crossing because I didn't have room to drop the track down a 3 percent grade to achieve the look of the area I wanted.

I also left out the Surpass Tannery siding. I didn't have the room to squeeze the turnout between the one for Decca Records and Treher & Jung. Surpass received mostly coal and some hides. I've decided to have Surpass unload on the Treher & Jung siding, with the hides trucked across the street to the plant. Treher & Jung got carloads of plumbing supplies.

I have three tanneries modeled in Gloversville: the Blyel Mill, Wood & Hyde Tannery, and Jones & Naudin

Tannery. The Blyel Mill and Wood & Hide received coal in addition to hides and chemicals. I also modeled the Gloversville team track where supplies for the city were unloaded. Glove City Coal Co. received coal, and Kingsboro Lumber also unloaded carloads of lumber at the Glove City Coal location.

The 11th Avenue coal dock is an old Fulton County coal company. The



6 Alco S-2 no. 20 heads mixed train No. 3 trailing two cars from Broadalbin and combine no. 21 as it nears Blecker Street in Gloversville. Stephen Lamora photo

Learning points

- A small railroad can kindle a large passion.
- Choosing a specific era is important to capture major industries, such as the FJ&G's inbound coal traffic.
- Commercial support of even obscure prototypes is often available.
- Modeling a prototype allows others to help you locate needed information.
- Researching a prototype can lead to lifelong friendships.

while to make sure everything operated well, and only then worked on the scenery in that area. There's nothing worse than ripping up scenery for bad track or a bad turnout, so I took my time to make sure everything was working well.

Operating the FJ&G

Operations on the layout will be just like the prototype. The first train of the day, a mixed train with a few cars for Broadalbin and a combine, leaves Gloversville for Broadalbin at 7:30 a.m. It stops at the Kingsboro and Vail Mills stations both ways. There will also be an occasional car for the Vail Mills team track, where at this time they unloaded cement for the New York S.R. 29 project.

A few other customers used the team track to receive carloads of lumber, and a local turkey farm received bags of feed there. From there, the mixed train will grab any cars billed to leave Broadalbin. The scheduled departure time is 8:30 a.m. The cars are then brought back to Gloversville staging.

On the north side of Gloversville there were no runaround tracks, so the next job leaves the yard with all the facing-point moves and switches throughout Gloversville, then returns to staging.

Next, the crew picks up all the trailing-point cars and switches them throughout the city. In the afternoon, any hot cars will also be delivered. This work should keep a crew of two occupied for a couple of hours.

I use Old Line Graphics and Micro-Mark car cards and waybills. With this layout, I will also use handwritten switch lists. The morning mixed train moves on train orders to Broadalbin. Almost all of Gloversville falls within yard limits, so any work being done in



7 The 400-hp GE center-cab is almost back to the yard to rest up for another day as it crosses North Street after a long day of picking up and delivering hides, coal, and general supplies around Gloversville.

the city is considered a yard job and needs no orders to work.

Looking ahead

I look forward to having friends over to operate the railroad in the near future. Everyone wants to see Broadalbin completed. I'm currently expanding the staging yard to add a third track and adding more scenery to the staging area.

My oldest daughter has gone off to college, and I have two other daughters who are 13 and 16. If we decide to stay in our present home when they leave for college, I have a plan in place to build my dream FJ&G layout. It will comprise three decks and include Fonda and the New York Central interchange, which I've never modeled on this layout or my first FJ&G layout. This will allow me to have the full operations that the real railroad had.

There are a few scenes that would be used from this railroad for the new one. Broadalbin will be able to be put in place on the third deck, and a part of Gloversville will be reused. But there are a few things I would do a bit differently if I started this layout again.

First, the swing gate is a nightmare because it's on a curve. I have one siding with the turnout on the swing section – another thing I'm not happy about but had to do to get the coal dock to fit the area. I wish I could have included the Surpass Tannery siding, as well as Grand Street. And it would have been great if I could have accommodated the entire area around Bleeker and Foster streets.

Nonetheless, I'm very happy with this layout and how it operates. I've met many great people while building my layout and through the comments

on my Facebook group, "Modeling the Fonda, Johnstown & Gloversville."

Thank you!

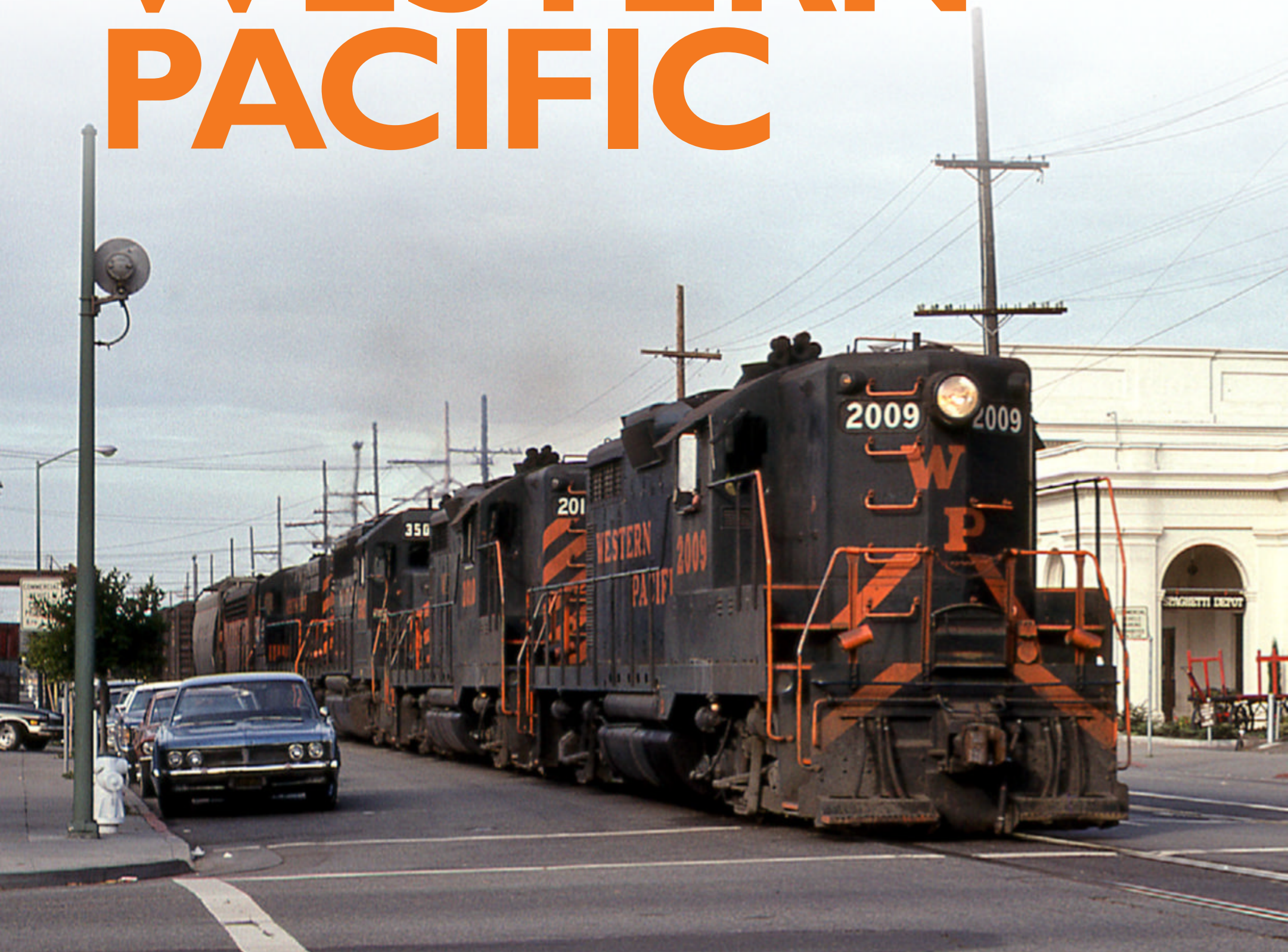
I would like to thank every one of my followers for the motivation and help they have given me. A special thank you goes to David Magill for always pushing me and for his patience with me, for sending tons of pictures, and for asking if things look good. Thanks to Greg Ricciardi, Justin Jankauskas, Matt Giardano, and Gino Dicarlo for all their help, and to Ken Karlewicz for photographing this layout. Very special thanks to my wife and daughters for putting up with my crazy obsession with the FJ&G. The real railroad died in 1984, but it lives on in my basement. **MRP**

Stephen Lamora lives in Brunswick, N.Y., with his wife and three teenage daughters. He has worked as a professional railroader for 25 years starting with Conrail, then CSX, and now Amtrak in Albany, N.Y. In his spare time, he plays bass guitar and loves to read and research local history.



8 Our visit to the Fonda, Johnstown & Gloversville ends as caboose No. 3 nears Foster St. in Gloversville, N.Y.

Switching on the WESTERN PACIFIC



Western Pacific GP20 no. 2009 leads a parade of first- and second-generation power through downtown Oakland, Calif., past the former passenger station, then the “Spaghetti Depot” (now offices), in December 1975. Joe Blackwell photo

Urban railroading in
Oakland, California –
in S scale

By Byron Henderson

The Western Pacific (WP) is best known for spectacular Keddie Wye and the Feather River Canyon as well as the beautiful *California Zephyr* passenger train. But the WP also boasted an extensive urban switching area in downtown Oakland, Calif., the subject of this layout design. Also somewhat unusual was the choice of S scale – $\frac{3}{16}$ " to the foot, or a ratio of 1:64, about halfway between HO and O scales.

The WP's western terminus in Oakland was the landing point for passenger and railcar ferries that linked the railroad to San Francisco and other points in the Bay Area. Large classification yards were nearby, and the WP's eastbound main line ran roughly parallel to the Southern Pacific's (SP) line through Oakland. In a modest space (for S scale) of roughly 21 x 25 feet, with some reserved for an

aisle to a service area, it was likely that we would represent these yards with staging.

Although there was some street running in town, the builder's interest was primarily in the private right-of-way from about milepost 9 to milepost 14 in the transition era. This stretch offered a good variety of modeling subjects, including a few signature landmarks. Fortunately for this project, I had on hand 1956-era WP-created Training Manual pages laying out major yards and adjacent areas that included detailed descriptions of industry and other tracks. Though not strictly to-scale, these still provided a good idea of the real-life arrangements and relationships.

What can fit?

These 5 prototype track miles were packed with industries, joint switching leads with the SP, interchanges, crossings, and junctions. So we would need to make some difficult trade-offs in deciding what would fit when we came to detailed track planning. First, however, I needed to consider how to curve as much main line into the space as possible.

A clear aisle to the building's service area was required along one wall. When combined with the desired 36" radius, it seemed like a fully walk-in design based around two turnback "blobs" wouldn't quite fit while allowing for the desired broad aisles. The builder was OK with a movable gate, which allowed an around-the-room arrangement with a single turnback loop that fit well in a rough footprint sketch and left plenty of room for operators. Since local switch jobs were the primary traffic desired, simple stub-ended staging would fit compactly against one wall.

What should fit?

The next step was to decide which elements of the prototype line should be included. The well-known Montgomery Ward building (with its inside loading docks) was the timetable western-most "must have," so I started with that in mind. Looking at the locations of the major industries, it seemed that a "map convention" orientation of west-to-the-left would place some key industries against the walls, which would work slightly better than the alternative. That decision suggested general locations for staging and Montgomery Ward.

The entrance from staging was the next consideration – and conveniently, the 16th Avenue overpass was just a



Who knew Western Pacific was an urban switching railroad? Another view of GP20 no. 2009, delivered in mid-1960, shows it sporting the classic silver-and-orange livery and a large Pyle headlight. The engine is switching in Oakland in 1972 with a massive gas holder in the distance. Dave Stanley photo

little way west of Montgomery Ward. The overpass would conceal both the staging entrance and just a bit of dummy SP track. With the west end securely anchored, I set out to plan as far east as would fit.

The challenge of "Area 64"

One of the things one quickly encounters in working in S, O, and larger scales is the challenge of space, not only for the wider track, greater track-to-track spacing, and broader radii required, but also for the size of structures and other 3-D elements. These requirements grow geometrically, not linearly, and to-scale structures gobble up space quickly.

I drew on two tactics to deal with this challenge: One was to make use of flats and low-relief structures both against the walls and at the aisles ("fascia flats") wherever possible. The second was to choose operating elements with little-or-no structure footprint, such as the house and team tracks near the 42nd Avenue underpass.

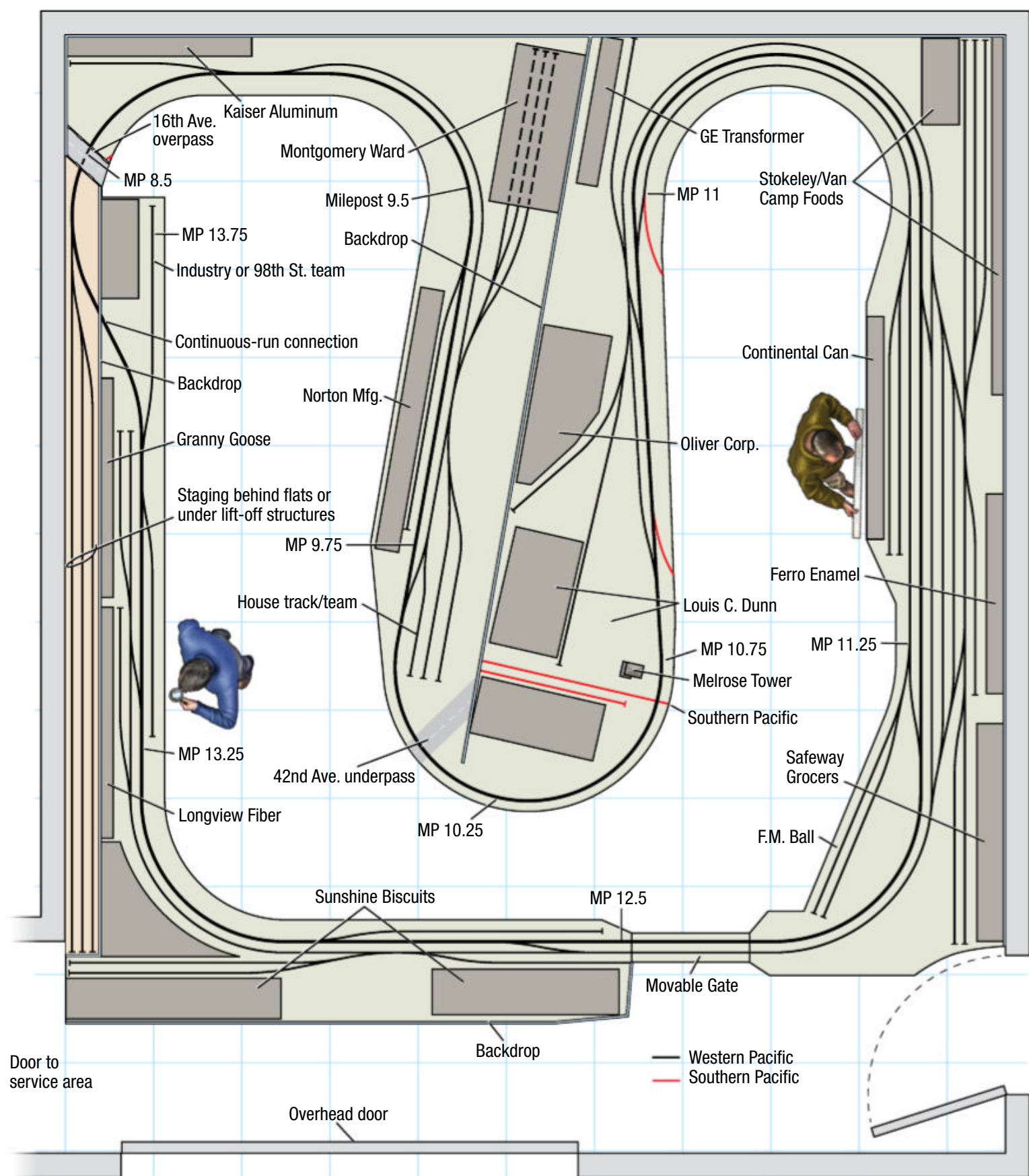
As we continued around the turnback curve, Melrose Tower is another

key landmark that doesn't require much space on its own but could provide an interesting operation event if the WP crews must occasionally hold for an "imminent" simulated SP train. The double-sided backdrop allows us to suggest larger industries with less footprint. Although there wasn't a lot of room to represent the SP, a couple of dummy connections toward the aisle help suggest the tangle of interconnected tracks in the area.

Industry yard for the win

Although I'd relegated the larger WP classification yards to being represented by staging, the WP had a small yard around milepost 11 that offered shared storage for SP and WP cars. In this design, some interchange could take place here, with "outbound" cars removed and replaced between sessions with "inbounds."

This industry support yard would also be a good place for WP switch crews to do some organization and classification as they work. Smaller satellite yards such as this can often provide some satisfying switching



WP's Oakland and Fruitvale Districts

S scale (1:64)
Room size: 21'-4" x 25'-4" feet
Scale of plan: 1/4" = 1'-0", 24" grid
Illustration by Byron Henderson & Kellie Jaeger
Find more plans online in the
ModelRailroader.com Track Plan Database.

Track plan at a glance

Name: Western Pacific Oakland and Fruitvale Districts
Scale: S (1:64)
Size: 21'-4" x 25'-4"
Prototype: Western Pacific
Locale: Oakland, Calif.
Era: 1950s-'60s

Style: walk-in
Mainline run: 97 feet
Minimum radius: 36"
Minimum turnout: no. 5
Maximum grade: none
Train length: 12 feet

when a realistically sized major classification yard just won't fit.

What's up, dock?

Continental Can and F.M. Ball were major shippers on both the SP and WP in the modeled era, but their prototype location was toward the aisle. Plausible

3-D buildings here would place the rest of the layout well out of reach and clog the aisles. So these might be represented on the model by more fascia flats, just a shipping dock, or only the industry tracks themselves.

From here, my original design continued around the rest of the space,

with the idea of concealing the staging tracks behind flats or beneath low-relief structures. The builder and I thought that local switch crews could leave staging, do their work, and then return to staging. But as time and detailed revisions passed, a different idea emerged.

Springing for a Zephyr

The builder also had a *California Zephyr* on hand. He had not originally



Western Pacific no. 602, an EMD SW9, works near MP 11. The diamond crossing and guardrail on the foreground curve reflect the tight urban trackage. A twisted S curve spur just south of Melrose and the SP crossing led to the area. Vic Neves photo

planned to use it on this layout, but he suggested that with just a little modification at the end of the line near 98th Avenue, we could provide a continuous-run main line for the streamliner. The *Zephyr* might not comfortably negotiate any of the no. 5 crossovers, but it could make a lap or two on the main before backing into staging. With that change, the plan was complete.

Alternatives and options

The builder was happy with our representation of a portion of the prototype track in the given space. A lot of the real-life interchange with the SP probably took place in the

large yards just west of the modeled portion, so realistically this would have happened “off-stage.” But a proto-freelanced addition might be more tracks offering live interchange.

The same layout concept could be adapted to smaller scales. The aisles are reasonably broad, so shrinking the layout to HO proportionally might work well, with care taken to avoid pinch points for operators and visitors. Resizing any layout down requires care – humans don’t scale down with their trains!

A unique chunk of prototype, a less-common scale, and detailed prototype documents combined well for an engaging operating layout

highlighting landmarks and industries from the real thing. **MRP**

Byron Henderson is a custom model railroad designer (layoutvision.com) from San Jose, Calif. He is also editor of the Layout Design SIG's (ldsigs.org) Layout Design Journal and a regular contributor to MRP.

Learning points

- The area required for plausible 3-D structures in larger scales can be a problem in terms of aisle widths and reach. Using flats against the wall and along the aisles can help.
- Large yards may better be represented by staging in limited space, but smaller industry support and interchange yards are modelgenic and compact.
- Although some prototype railroads are best known for mountain settings on the “high iron,” they may also have areas with dense urban switching.
- Around-the-room plans with a single “blob” often work well with relatively broad radii but may require a movable gate or duckunder.



Western Pacific no. 1501 returns with the Long Street switching job down Third Street in Oakland's Jack London Square on Nov. 10, 1978. Vic Neves photo

Portraits of



the rails



Images of the big payoff
after all that hard work

By Craig Wilson

Photographs by the author

Consciously or unconsciously, we all have a vision of something we have experienced. As my late friend Arnt Gerritsen used to say, “Tell me what a modeler was watching when he was about 15 years old, and I’ll have a pretty good idea of what he wants to build.”

Although that’s not accurate for everyone, we all have a vision of something we’ve seen and of which a fondness was developed. For Arnt, it was the Ann Arbor RR’s Boat Landing, which he visited on his sailboat every summer. He did an outstanding job of re-creating that experience on his basement layout, as he described in *Model Railroad Planning 2005*.

Photography, especially trackside images of our models, evokes those memories and helps drive our modeling efforts. I have been privileged to visit, and operate on, many outstanding layouts over the years. When I bought my first digital camera, I wanted to use it to record the vision of those layout builders.

The ability to edit the digital images made it possible to overcome most of the limitations imposed by miniaturizing the scene and to see the layouts as being part of the real world – just as the builders see it in their minds.

Nearly every photo presented here was taken during an operating session. No staged set-ups or extra lighting was used. When I see something worthy of capturing as an image, the trains are paused for a few seconds to let the timer run down, and the session continues on.

I make no apologies for using Photoshop to edit out benchwork

In a photograph reminiscent of those featured in our prototype-focused sister publication, *Classic Trains*, Second No. 31 behind a pair of Maumee Alco RS-3s has just pounded across the Toledo & Ohio Central and the Big Four diamonds at Edison, Ohio, in the fall of 1955. [Bill Darnaby’s Maumee Route]



A Maumee Route wood caboose bears marker flags denoting the end of a long eastbound freight as it rumbles across a through-truss bridge over the Kokosing River on a perfect day for photography in northern Ohio. [Three photos: Bill Darnaby's Cleveland, Indianapolis, Cincinnati & St. Louis RR]



Eastbound passenger train No. 18 behind a pair of "torpedo boat" Geeps, the lead unit still in the Maumee's passenger paint scheme, sails under the concrete edifice to steam at Avoca, Ohio, with nary an upward glance. Clearly, mail and express are the moneymakers for this train.

edges or improve backdrops by adding "real sky." Gone are the days of holding a piece of blue painted hardboard or twirling wads of cotton on a wire to simulate steam locomotive smoke during a time exposure.

My first camera was an Olympus C3000 3-megapixel camera. It was great

to learn with and was affordable on a young schoolteacher's salary. After it tragically died in a tripod mishap, it was replaced by the slightly better C4000. The best thing about these "compact" digital cameras is that I could place them on the layout, getting down low for the scale railfan's



perspective. After years of listening to MRP's editor Tony Koester pester me to "get a better camera so you can publish your photos," I bought my current camera, a Fujifilm X10 12-megapixel model. The feature that makes it so useful is the ability to use an aperture-priority function to set the lens at its minimum f11 aperture. This requires long exposures and the use of the camera's timer feature to minimize camera shake during the exposure.



Most of the currently available compact cameras only stop down to f8, which doesn't provide sufficient depth-of-field in the image. And while many will argue that f11 is also not sufficient, I get good results, especially when combined with Photoshop image editing software. **MRP**

Craig Wilson grew up watching the Ann Arbor and Pennsylvania railroads in Cadillac, Mich. A close friendship with

the late Arnt Gerritsen led to a collaboration to encourage accurate Ann Arbor modeling. Jack Ozanich and Dan Holbrook helped nurture an interest in prototype modeling and encouraged the development of his photography skills. After years as a schoolteacher and a secondary career in the transportation industry, Craig retired in October 2019. He now resides in Cadillac, Mich., where he is digging into piles of accumulated modeling projects.

Eastbound local No. 20 behind light Mikado no. 560 has been spotting loads of coal at Avoca, Ohio, as No. 54 behind L-class Mountain no. 614 comes up on the passing track to stop for a drink of water before continuing on to the next division point at Dacron, Ohio.



It's September 1939 and eastbound No. 10, the *Fast Mail*, is roaring by the east end of Weirton Junction Yard on Track 2. The two K4s Pacifics will need no help getting their 20-car consist up the long hill just east of the yard. Awaiting clearance in the departure yard behind a big 4-8-2 is eastbound manifest VL-6. It will proceed east on Track 4 to the next interlocking tower, then swing over onto Track 2 behind the *Fast Mail*. [Bill Neale's Pennsylvania RR]



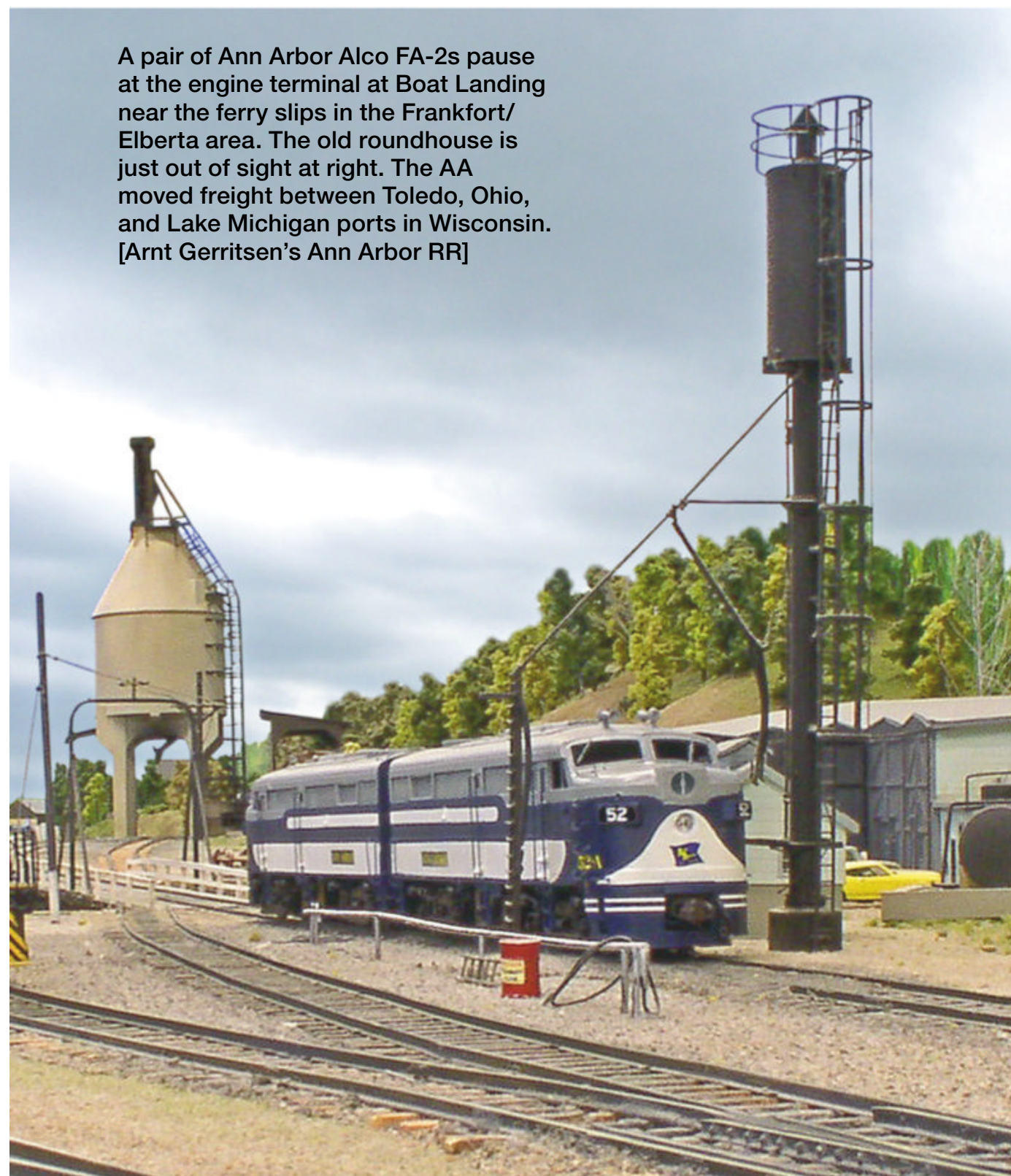
Maine Central GP7 564 is picking up a car from the interchange at Ellen, Maine. In the pre-radio days, hand signals conveyed the "Two cars ... one car ... half-a-car ... that'll do!" messages. [Jack Ozanich's Atlantic Great Eastern]

A Boston & Maine Alco HH-660 rattles over the Grand Trunk diamond at EB Tower in East Berlington, N.H., while working the paper-mill switching job. [Jack Ozanich's Atlantic Great Eastern RR. Jack saw a photo of this unit in a book and loved the weathering effects with the burn marks on the hood; friends Mark Belmonte and Chris Thompson re-created the weathering effects for him on this Atlas model.]



Ann Arbor Alco S-3 no. 6 employs idler flats to switch cars on and off the car ferry *Arthur K. Atkinson* at the East Slip in Betsie Lake at Frankfort/Elberta, Mich. The Alco has to struggle to pull an entire 12-to-15-car cut at one time. [Arnt Gerritsen's Ann Arbor RR]

A pair of Ann Arbor Alco FA-2s pause at the engine terminal at Boat Landing near the ferry slips in the Frankfort/Elberta area. The old roundhouse is just out of sight at right. The AA moved freight between Toledo, Ohio, and Lake Michigan ports in Wisconsin. [Arnt Gerritsen's Ann Arbor RR]



Chesapeake & Ohio Extra 6011 East, ably powered by a pair of GP9s, splits the signals at Gala, Va., as it hauls central Appalachian bituminous coal to tidewater at Newport News. [Mike Burgett's C&O Ry.]





Green classification lamps denote this as Atlantic Great Eastern First No. 6 behind 4-8-2 no. 6094 at Rangeley River Jct., Maine. Its V-shaped number boards and Vanderbilt tender strongly suggest the AGE's Canadian National parentage. [Jack Ozanich's AGE]

Train VL-6, leaving Weirton Junction Yard, needed a pusher today; there were too many eastbound cars for the 4-8-2 up front. About 125 trains went by here every day in 1939, so the locals aren't too impressed by the steam action. Pusher no. 4638 is a class I1sa 2-10-0 that will work all the way to Burgettstown, Pa. [Bill Neale compressed 14 prototype miles to 2 scale miles on his HO layout. The I1 is from Broadway Limited.]

Learning points

- Applying the lessons learned in the past quarter century of *Model Railroad Planning* can result in a model railroad that achieves a high degree of prototypical authenticity.
- Modern digital cameras make it much easier to record realistic images of our model railroads.
- Photo-editing software can remove the distractions that we tend not to see when viewing our model railroads and salvage earlier photographs.
- Studying the work of the master railfan photographers will help you determine where to place your camera to achieve more realistic images.



Center Monson Slate Company's no. 7, a 45-ton GE side-rod center-cab, pulls empty flat cars from the plant. It will take them to the nearby quarry to be loaded with slate. Slate shingles will become loads for the Atlantic Great Eastern. [Jack Ozanich's AGE]

Train PH-11 behind class N1sa 2-10-2 no. 9861 is drifting downhill through Collier Interlocking, W.Va. PH-11 handles general merchandise going west and often has cars for Weirton Junction, usually on the tail end of the consist. The 2-10-2s were drag freight engines that could pull well but were not balanced for speeds above 35 mph. [Bill Neale's PRR; the N1 is a Westside brass import.]

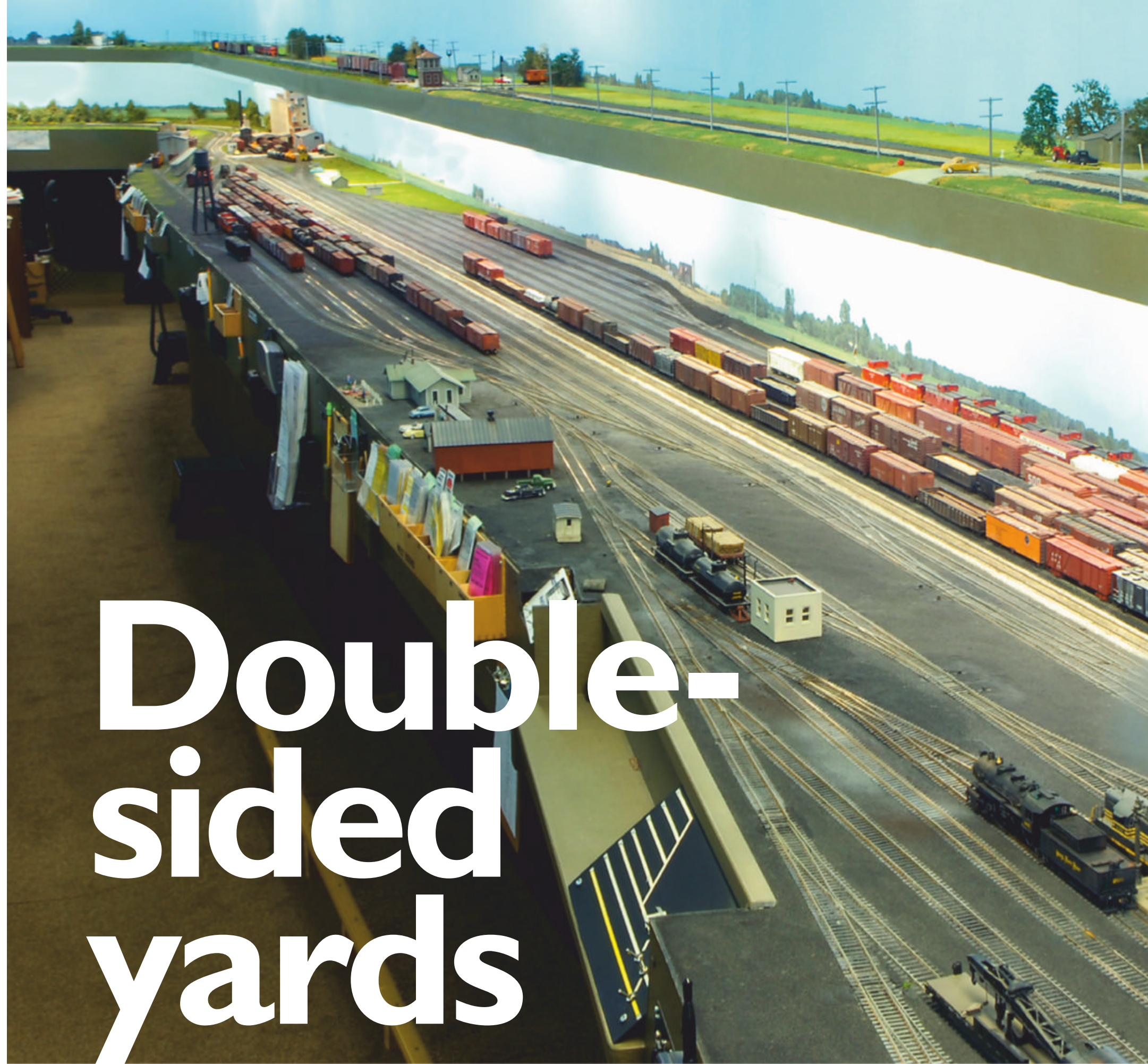




Chesapeake & Ohio Electro-Motive Division FP7 no. 8001, an F7B, and a Geep have their charges well in hand as they pass an abandoned canal lock along the James River at Major, Va. [Two photos: Mike Burgett's C&O Ry.]



Smith's Farm at Stapleton, Va., provides a frame for C&O freight No. 94 led by C&O F7 no. 7094. The lady hanging out her wash doesn't mind the passing of the steam era in the slightest.



Double-sided yards

Access from both sides can ease aisle congestion and reach-in concerns

By Tony Koester

Those of us who model a busy, frequently multi-track classification yard are often faced with a thorny design problem. If we include any where near the number of tracks that the prototype yard comprised, reach-in distances quickly become a concern.



1 The Nickel Plate's yard at Frankfort, Ind., on Tony Koester's HO railroad are split by the main line into east- and westbound yards. It's a stretch to reach the westbound ladder (far right). Had the basement been wider, an alcove at the back would have been handy. Three photos, Tony Koester



Tony Koester's Nickel Plate Road

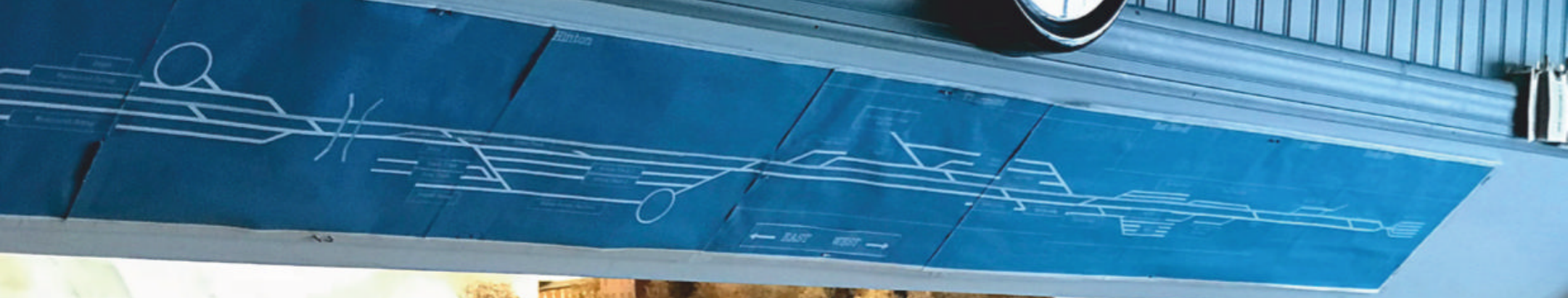
I faced a double-barreled problem at Frankfort, Ind., where there were both east- and westbound yards on either side of the main line, **1**. The result is a less than pleasant reach-in requirement for the westbound yardmaster. We're still finding ways to ease that chore, including a raised ledge for him to stand on.

Thanks to some clever thinking by track planner Frank Hodina, the other classification yard at Charleston, Ill., is accessible from both sides, **2**. But it's only 24" wide, and the main line runs along the most distant track, so there's seldom a problem reaching cars for classification. The both-sides access does come in handy when doing town switching work at Charleston, however.

Others have attacked this problem more creatively. I'll cite a few examples here to give you an idea of options that you or your club may want to consider.



2 The yard at Charleston is 68½" above the floor but easily switched, thanks to a raised floor in an alcove. Moreover, the yard is only 24" wide and accessible from both sides, and the main runs along the back.



3 Ted Pamperin ensured good access to the busy yard at Hinton, W.Va., by cutting an opening in the wall separating the basement and former garage. This view from the former garage shows the easy access the hostler has to the engine facilities.

Ted Pamperin photo

4 Bruce Ernatt's Butte Mine & Eastern Union Pacific's Kansas City, Mo., Neff Yard. Larry Burk photo





Ted Pamperin's Chesapeake & Ohio

Ted Pamperin models the Chesapeake & Ohio in the spectacular New River Gorge. He wisely chose to model Hinton, W.Va., which is where the steam locomotives used to power river-grade trains were swapped for the beefier engines that tackled the mountain grades east of Hinton.

The roundhouse and 130-foot turntable sit on the north side of the yard and tuck neatly back into one corner of the railroad room, where they're essentially out of reach. Like the engine terminal, the yard at Hinton was a busy place, as is his HO model. Ted employs two yardmasters, one for each end of the yard, plus a general yardmaster to provide oversight as passenger and freight trains constantly arrive and depart.

Ted solved the engine-terminal and turntable access problem while providing working space for the general yardmaster and hostler by cutting a large window in the wall between the garage – now the site of his workshop and operator's desk – and the railroad room, **3**. Access is now available on both sides of Hinton yard.

Bruce Ernatt's Butte Mine & Eastern

Bruce Ernatt's Butte Mine & Eastern includes Union Pacific's sprawling Neff Yard in Kansas City, Mo., although selective compression was obviously required. Before he started to design a plan for his home layout, he was fortunate to have participated in operating sessions on many other large layouts. Bruce was therefore well aware of problems with reach-in distances as the number of yard tracks increased.

Doing a good job of modeling Neff Yard suggested that he would need about 21 yard tracks, which on about 2" centers in HO equates to a width of at least 48", **4**. Since a general rule of thumb is that 30" is about as far as anyone can be

5 The Minneapolis & St. Louis (at right) interchanges with the Chicago & North Western in New Ulm, Minn., on Arlan Tietel's HO railroad. It can be a busy place with road trains arriving simultaneously. Arlan Tietel and Mark Amfahr are working the C&NW side while John O'Brien handles M&StL switching. The interchange track between the yards cuts diagonally in front of the tall tan structure. Jeff Kraker photo

expected to reach in, and since that number decreases as the height of the layout increases – he planned Neff Yard to be 50" off the floor – it was immediately apparent that he needed to provide access to both sides of the yard.

One side of the yard is reached by ducking under the benchwork into an alcove. This area is where Joint Agency yardmaster works the trains beyond the basement plus breaks down and builds transfers. Road crews don't have to repeatedly duck under the benchwork to gain access to their trains, so the "penalty" is not severe. The east-end transfer job spots the westward outbound trains from the main aisle.

Bruce reports that the design has worked out very well. Double-sided yards are perhaps an under-used design tool as modelers plan their next layouts.

Arlan Tietel's C&NW/M&StL

Model Railroad Planning contributor Jeff Kraker's friend Arlan Tietel has been building an interesting two-deck layout in HO scale that served New Ulm, Minn. One deck is the Chicago & North Western; the other is the Minneapolis & St. Louis. The two railroads have a live interchange down a big central peninsula with operators on both sides. Jeff describes the layout as "on the moderate-to-large size, and its operating scheme is well thought out."

There can be as many as three operators working in town when their trains arrive at the same time, **5**. From an



operating standpoint, Jeff reported, “It’s nice to be able to work both sides of a wide yard and to talk face-to-face with other yard crews.”

Dan Holbrook’s Burlington Northern

Dan Holbrook’s HO Burlington Northern Twin Ports Terminal is a 30 x 60-foot multi-deck railroad. The yard is 54" off the floor. The main yard at Superior has a main line on both sides and yard operators on both sides, **6**. The main yard at Duluth has mainline operators on one side and yard operators on the opposite side. The industry yard at Superior East End has a transfer and yard operator on one side and private industry switcher on the opposite side.

Dan offers an interesting sidebar to compare how layout owners use the double-sided concept:

“Historically, urban terminal areas have multiple yards and connections. In turn, this leads modelers of busy urban terminal areas to consider having duckunders at multiple locations. I faced this challenge when modeling 11 yards at Duluth, Minn., and Superior, Wis.

“In 1987, I asked Ray Kucaba to design the aisles and approximate locations of the track. Ray designed the aisle footprint for the layout with only one duckunder and the ability to have crews operating on both sides of multiple yards. Through ‘proportional planning,’ I filled in the yards and industries based on railroad track charts. This required scaling the size of trains, area required by the tracks, and

6 Dan Holbrook’s Burlington Northern, former Great Northern, main yard at 17th Street at Superior, Wis., was a hub of activity during a May 2019 operating session. From left are Mark Belmonte, Jack Ozanich, Anthony Randall, and Chris Vanko. Dan Holbrook photo

room required for the planned roster of equipment needed to achieve a balanced layout.

“In turn,” Dan continued, “this allowed me to know in advance that all of the operations would work together. A total of 84 trains are operated in a 24-hour period, but the crews of only 14 of these have to navigate the duckunder.

“The main yard at Superior, 17th Street, occupies an area 50 feet long and varies from 5 to 12 feet wide. I wanted to model historically accurate scenes, which required the 12-foot width. The long-reach areas comprise the body of tracks in 17th Street Yard. The leads in these areas are generally not used for switching. All of the unreachable tracks have under-track movable magnets to allow cars and locomotives to be cut off. Magnet locations are identified by orange clearance marks. The yard is a one-fifth replica of the prototype, with four sub-yards that allow up to six or seven crews to be working in the yard at the same time.

“Some of the yard crews work tracks that require access from both aisles, and these jobs normally have two-man crews to eliminate the need to duck under. I retained Kadee coupler trip pins and developed movable under-track magnets in unreachable areas for uncoupling cars.



Learning points

- Looking across a yard at another yard crew in an alcove may not be realistic, but it can make a lot of switching tasks easier.
- Stationing yard crews on one side of a yard and road crews on the other eases congestion.
- Cutting an access portal in a wall may resolve reach-in concerns.
- Double-sided yards may eliminate duckunders for road crews.



7 This view of Eric Hansmann's double-sided active staging yard shows freight house crew Mike Weiss and Robbie Robinson on the left and team yard crew Erik Arellano and Tom O'Brien at the start of an operating session. The yard is full of inbound cars delivered from B&O's Benwood Yard, south of town. Eric Hansmann photo

"Ray's design also allowed double-sided operation of the Rice's Point yard in Duluth, where the yard crew is isolated from mainline, transfer, and industry jobs in its own aisle. This is also the case with the New Yard at Superior East End and the King Midas Flour mill, where the yard crew and the flour-mill crews assist each other.

"Having double-sided yards," Dan concluded, "allows a higher density of yard crews along with a higher density of road crews, eliminating much of the congestion with yards worked from only one aisle. We've been operating the yard for over 25 years, and my operators enjoy the flexibility of the double-sided yards."

Eric Hansmann's Wheeling Freight Terminal

Several years ago, Eric built a U-shaped 10 x 16-foot HO switching layout to fit a small bedroom in a rental home. The Wheeling Freight Terminal layout was inspired by the Baltimore & Ohio freight facilities adjacent to downtown Wheeling, W.Va. Shortly after the layout was built, they bought a home and moved. Fortunately, the new hobby space was 14 x 20, so the layout fit easily.

The layout was built in sections to prepare for future moves. Eric set it up quickly in the new space with the help of a local modeler. The yard portion ended up as an active staging, or "fiddle," yard on a peninsula with access on both sides, **7**. This was a happy accident, as there was less interference between crews working in the yard.

Although the layout was small, two-person crews were used on two jobs: freight house and team yard. Accessing the space on both sides of the yard kept people movements easier in the six-foot-wide center aisle. Crews were able to easily focus on sorting the freight cars destined for their work areas.

Since the layout was designed to go around the walls, there were no control elements on the back of the yard peninsula. Throttle plug-ins and switch-point controls were all located along the side of the yard facing the center aisle.

Therefore, as the session got underway, the team yard engineer and conductor would review the lists of incoming cars and plot the organizational moves. The engineer would move into the center aisle to plug-in for locomotive control and turnout access. The conductor would stay on the far side of the yard to direct moves and uncouple cars.

The situation worked for operating sessions but wasn't ideal, Eric admits. He was planning to add the control elements to the other side of the yard when yet another move intervened.

Planning and serendipity both work

As these reports make clear, there are many reasons why providing access to both sides of a yard may offer planned or unanticipated benefits for the smooth operation of your railroad. It's equally clear that too seldom is double-sided access given serious consideration. **MRP**

“Tehachapi, British



Modeling the famous loop – but in Canada, eh?

By **Gary Hinshaw**//Photos by the author

I live in Vancouver, British Columbia, but I’m a native Californian with a lifelong interest in trains. I paid my first railfan visit to Tehachapi Pass as a teenager in 1976, and I’ve been hooked on the prototype ever since.

There are several aspects of the Pass that appeal to me. First and foremost is the geography of the line, a tortuous mountain crossing with nearly endless curvature (very “model railroady”), scenery that reminds me of home (dry grass and live oaks), and of course, the Loop. The route is shared by two Class 1 railroads (originally Southern Pacific and Atchison, Topeka & Santa Fe, today Union Pacific and BNSF Ry.). With lots of traffic on a mostly single-track main line, the operations can be quite challenging.

One of the hallmarks of Vancouver is that housing and land are expensive, so most of us are forced to make do with fewer square feet than we might prefer. When my wife and I moved here in 2011, we were lucky to find a place in a nice location with a detached

single-car garage and an adjacent parking pad. My wife was happy to park our car outside so I could have the 10 x 20-foot garage to myself. Sold!

Before starting layout construction, I made sure to prep the space (now called “The Shed”) appropriately: heat, insulation, drywall, and good lighting so that spending hours out there, in any weather, would not be a chore. “Tehachapi, B.C.” was born!

Big railroading in a small space

I’ve been an N scaler for most of my modeling life, and given how far N scale has come in the past few decades – and how modest my space was – Tehachapi, B.C., would continue that tradition. In planning the layout, I wanted to prioritize the following:

- a long mainline run with mountain grades and numerous single-track sections to make busy mainline operations set in the modern era challenging and interesting;
- visually and operationally recognizable Layout Design Elements

(LDEs), with at least a few having expansive scenery that captures the essence of the prototype;

- helper operations;
- Centralized Traffic Control-based dispatching with signaled control points (CPs);
- enough local switching to give operators a variety of jobs; and
- enough space for a crew of 5 to 6 people to comfortably work in.

A multi-deck design

It was clear from the beginning that the layout would need to be multi-deck to accommodate the desired mainline run. In addition, since the prototype has a long grade on the west slope but a relatively modest one on the east, it was likely that a “nolix”-style design – that is, a main line with a nearly continuous climb – would be a good choice.

However, what goes up must come down, so it made sense for the eastern terminus to take the form of a serial staging helix. The challenge would be to make a helix fit comfortably in the available space.

With the above goals in mind, and the nolix/helix concept as a likely configuration, I set out to identify important LDEs to include in the plan. From north/west to south/east,

Columbia” in N scale



I wanted to feature LDEs shown on the prototype map below.

Tehachapi Loop

The critical LDE was Tehachapi Loop itself, so I set out to place that scene first. I knew from previous musings that I could produce a reasonably satisfying likeness of the LDE in a roughly 6 x 10-foot area, and

since the Loop is near summit, it had to be located in the upper deck at a mean height about 60" above the floor.

A rational person would have scoffed at the notion of a 6-foot-deep shelf – period! – let alone one on the upper deck of a multi-deck plan. Undeterred, I set about to mock it up across the garage door. I quickly realized the height could actually be

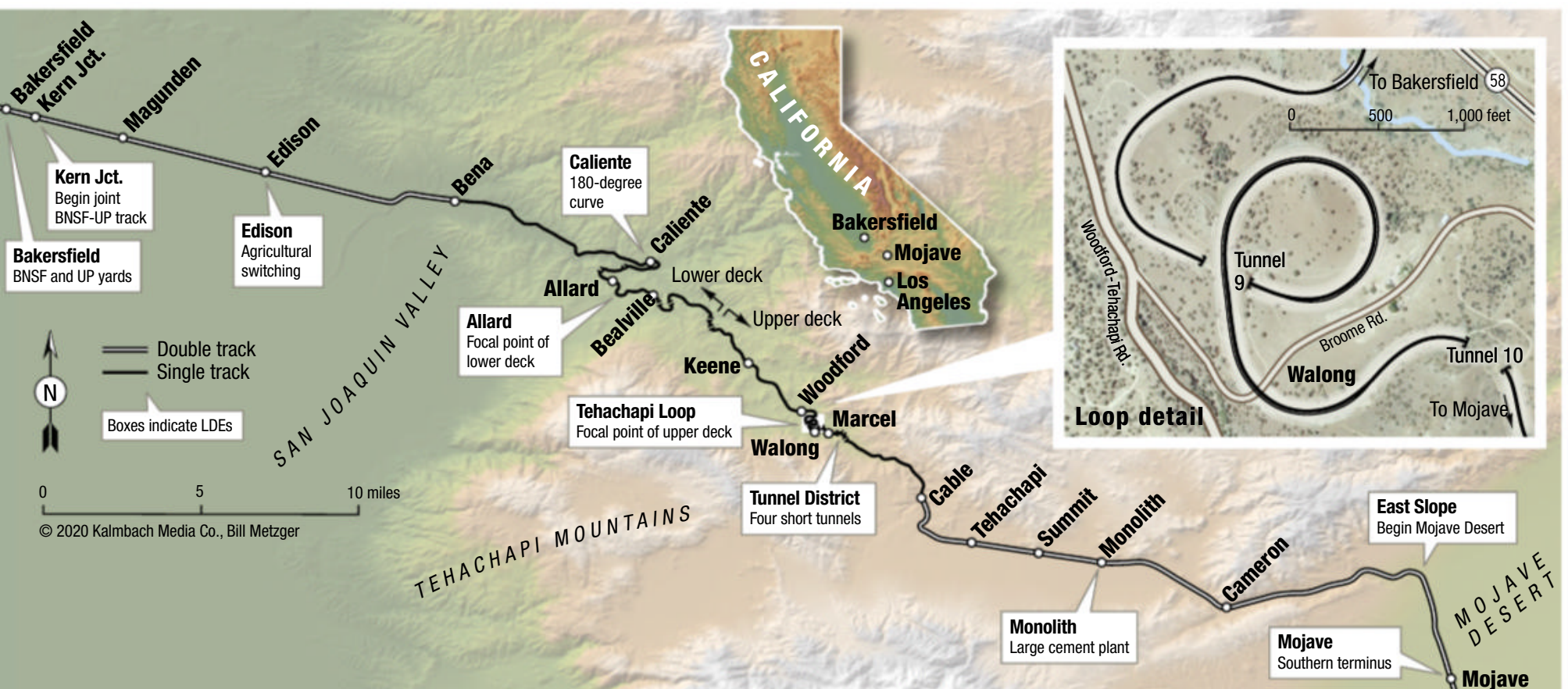
I A high-priority BNSF Ry. intermodal is navigating Tehachapi Loop with the tail of its train deep in the cut below the Loop. The action takes place on Gary Hinshaw's 10 x 20-foot N scale multi-deck layout. Gary's extensive use of photo backdrops and carved expanded-foam scenery is evident.

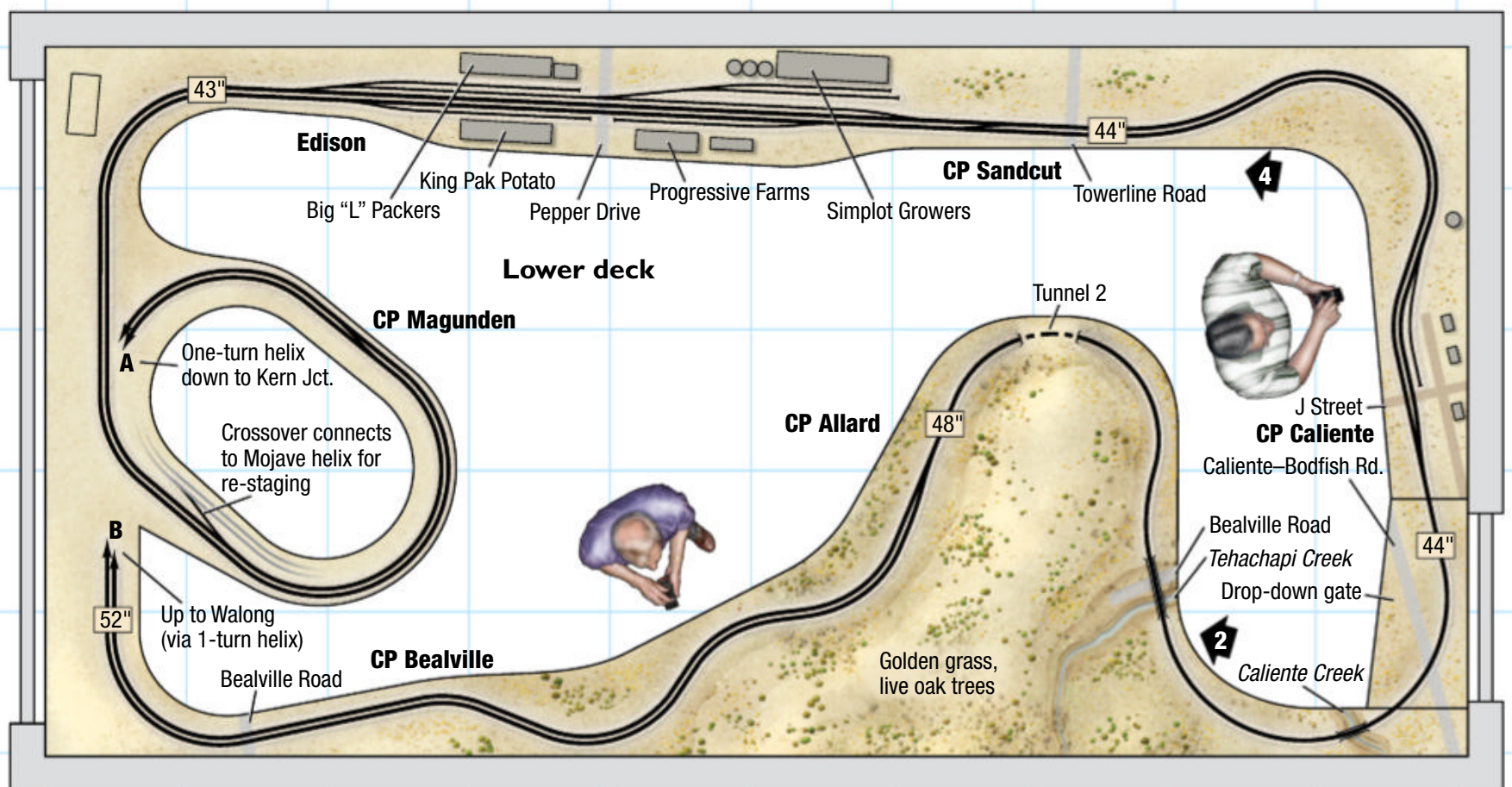
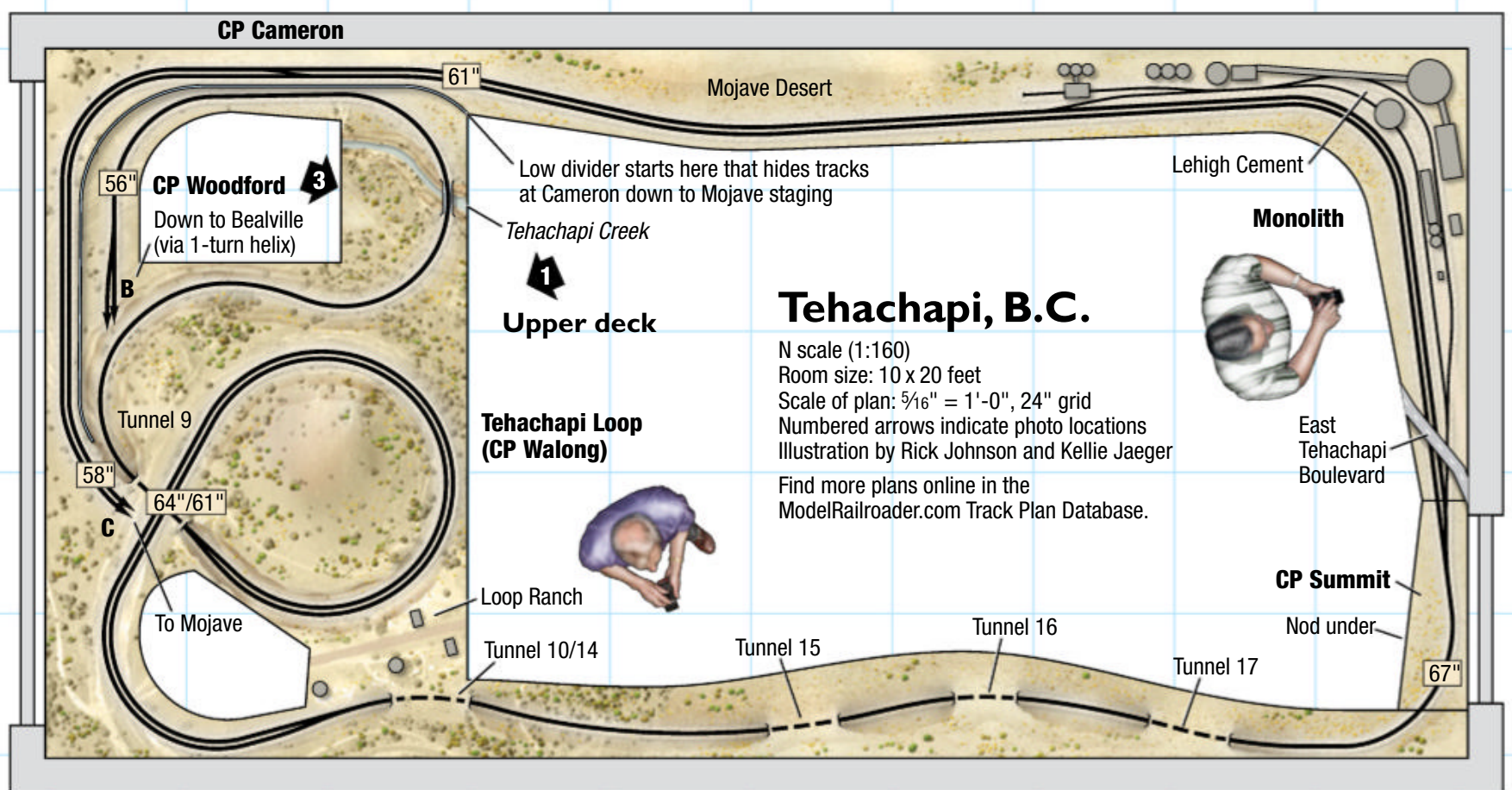
an advantage if I were able to keep portions of the real estate underneath it clear for operator access. I could then leave holes in the scene that people could access via nod-under. This concept has survived intact in the final plan.

The next element to consider was the helix, which was to form the basis for Mojave staging at the south end of the noli plan. Helixes are notorious space hogs, and I was starved for room, so I had to be resourceful. Since I was convinced that the Loop LDE was viable, it seemed logical to me that a helix would fit well directly underneath the Loop. Further, if I played my cards right, I could leave the area on either side of it open for the upper-deck access holes. Happily, the helix could be accommodated without requiring any additional square footage, only cubic footage.

Additional LDEs

With the key LDE penciled in and the staging helix concept fleshed out, I now had to figure out how the rest of the plan could be made to work. In addition to the above constraints, I was hoping to maintain a prototypical 2.2-percent grade from Caliente to the summit so that pusher locomotives would have some plausible work to do.





Layout at a glance

Name: Tehachapi, B.C.

Scale: N (1:160)

Size: 10'-0" x 20'-0"

Prototype: Tehachapi Pass, UP with BNSF trackage rights

Locale: Bakersfield-Mojave, Calif.

Era: present day

Style: multi-deck around-the-walls

Mainline run: 185 feet

Minimum radius: 18"

Minimum turnout: no. 7

Maximum grade: 2.2 percent

Train length: 10-15 feet

Benchwork: open grid

Height: 39" to 67" (36" at overflow staging)

Roadbed: 3/4" plywood (cookie cutter) plus cork

Track: code 55 (main), code 40 (industrial)

Scenery: carved foam and Sculptamold

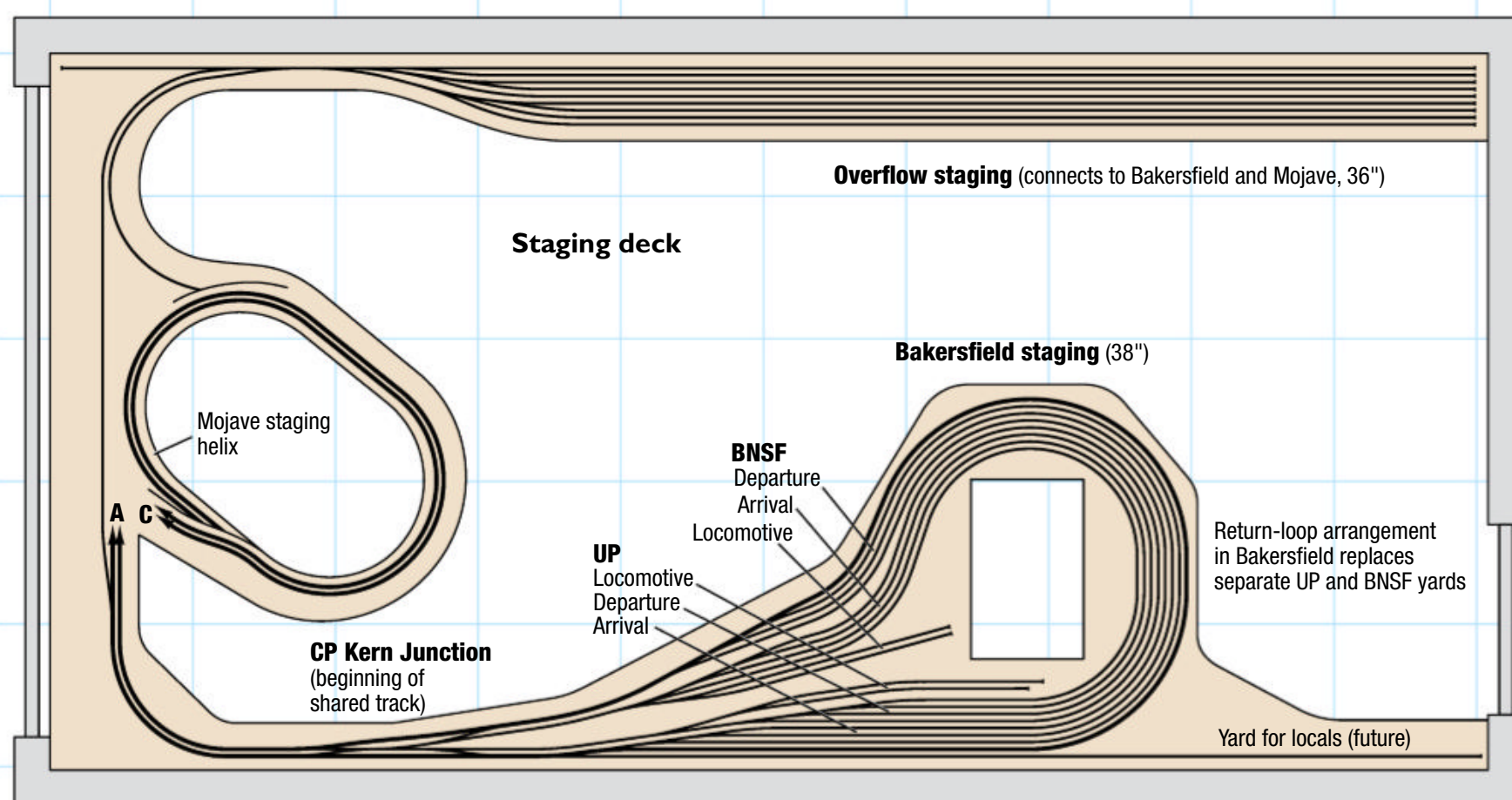
Backdrop: photo panoramas taken by author

Control: Digitrax Digital Command Control

My approach to this step of the planning was fairly conventional: Try to string together LDEs in their proper sequence and jettison any that don't fit well, either horizontally or vertically.

The upper deck was relatively straightforward. I was able to include the tunnel district, Monolith, and the east slope in a simple around-the-walls plan. As it happened, the location for the summit was exactly where the garage's entry door was located, so by placing this track at an elevation of 67", I was able to span the door with a permanent nod-under.

The only compromise I had to make in the upper deck plan was to flatten



the grade through the tunnel district. Otherwise, the run from the summit down the east slope to Mojave staging would have placed the staging helix higher than the Loop itself. By keeping the grade in the tunnel district to 0.5 percent instead of 2.2 percent, the entire east slope from summit to Mojave could be about 3" lower, just enough to place the helix comfortably below the Loop.

The lower deck

The footprint of the upper deck was relatively compact: the 6-foot deep loop shelf in front of the garage door and a narrow (about 12") shelf around the walls. This left the middle of the room relatively open for planning the lower deck.

To lengthen the mainline run and add scenic interest, I wanted to incorporate a central peninsula. I batted around a number of ideas based on a peninsula down the middle, but they all had problems, mostly due to overly cramped aisles and collisions with the Loop/helix area.

In the course of these deliberations, I consulted my online buddies on The Railwire forum (therailwire.net). I'd been documenting my ideas on this site, and we eventually hit on the idea of a shorter cross-wise peninsula that would seamlessly incorporate the twin LDEs of Caliente and Allard. This arrangement produced a relatively expansive lower deck scene in the front of the room that provided a natural counterpoint to the correspondingly expansive Tehachapi Loop scene in the back of the room.

The devil is in the details

Before worrying about the rest of the lower-deck plan, I had to determine how to connect the two decks with noli tracks while satisfying three constraints: maintain a steady 2.2-percent grade, maintain vertical clearances along the right-of-way, and keep the access areas under the Tehachapi Loop shelf clear for operator access.

The solution? Duck under the Loop shelf at the front-left, where the upper-deck track was at its highest elevation, then make a one-turn helix underneath Tehachapi Loop, around the outside of the Mojave staging helix, and emerge on the Tehachapi Loop shelf at the right-rear, which roughly corresponds to the south end of Woodford siding on the prototype.

This arrangement satisfied all three constraints at the cost of a one-turn helix in the middle of the climb. This segment is my least favorite part of the plan, but it's a small price to pay for all the advantages it offers.

The base of the grade at Caliente crosses the entry door at an elevation of 44" above the floor, a comfortable mean elevation for the remainder of the lower deck. (The lower-deck track across the door is mounted on a simple swing-down gate.) Continuing north from Caliente was relatively straightforward: I could proceed around the walls in a fairly simple plan to arrive at Bakersfield, which was to be directly under the Allard peninsula.

Unfortunately, the vertical clearance between Bakersfield and Allard was tighter than I wished. But I could

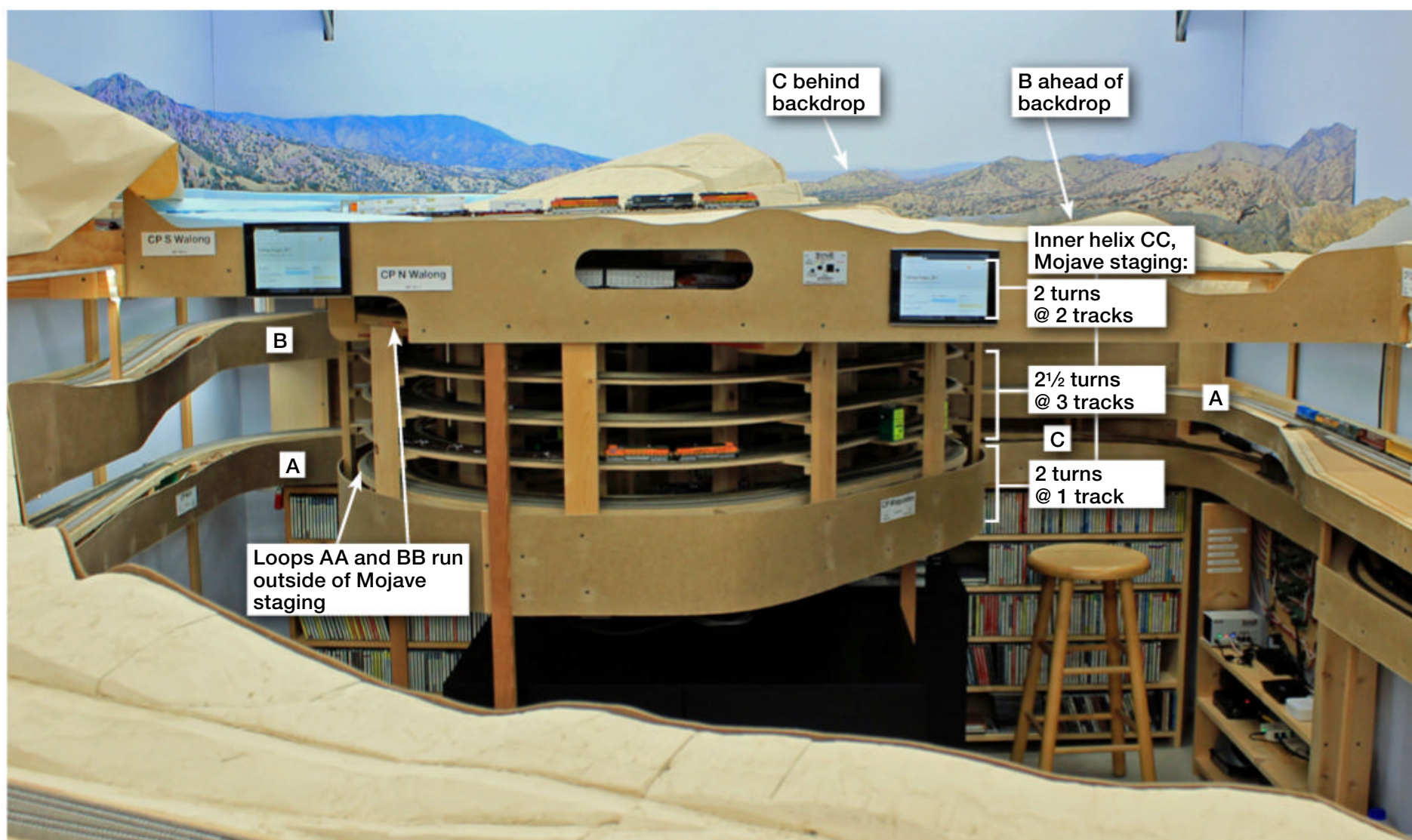
expand that easily if I were willing to add another one-turn helix around the Mojave staging helix on the way into Bakersfield. I guess I can live with another one-turn helix in the main line if it means that access to Bakersfield staging is much more tenable.

The mainline run from Kern Junction to Mojave ended up being 5.6 scale miles, thus achieving my primary goal of a reasonably long mainline run. One thing you'll notice is that any track that penetrates the footprint of the Tehachapi Loop shelf must make at least one over-and-under loop: the two one-turn helixes lamented above (which comprise only 0.6 scale miles of the run), the Mojave staging helix, and Tehachapi Loop itself. I've come to call this overall collection of loops "The Vortex."

Primary and secondary LDEs

The Allard peninsula on the lower deck and the Tehachapi Loop shelf on the upper deck are the dominant scenic elements in the plan. At roughly 50 square feet each, they provide a lot of room for each scene to breathe, and the hope is that they obscure the fact that a lot of track is packed into the room. Their horizontal and vertical separation provides a nice balance to the plan, and their placement helps to convey a sense of climbing from the rolling foothills toward the more rugged summit. I regard these two scenes as the primary LDEs in the plan.

However, Tehachapi, B.C., is first and foremost intended to be an operating model railroad, and the



3 An overview looking toward the entrance door shows Tehachapi Loop in the foreground, the Allard peninsula (built over Bakersfield staging) in the middle of the room, and the tracks at Summit and Caliente crossing the entrance door.

secondary LDEs are critical to achieving that goal. A few more comments about the plan are warranted:

Bakersfield and Kern Junction: I was able to conceptually replicate the two yards in Bakersfield with an eight-track balloon yard situated underneath the Allard peninsula. The BNSF yard is represented by the front half of the balloon; the UP yard is represented by the back half. During operations, the inner four tracks serve as both the BNSF arrival yard and the UP departure yard, and the outer four tracks handle UP arrivals and BNSF departures. Kern Junction fits in naturally with this configuration and operating scheme.

Edison: The fruit-packing district in Edison occupies the west wall of the lower deck. This region is at the end of the Central Valley, so the long linear run there mimics the prototype nicely and offers a reasonable amount of online work.

Monolith: The cement plant at Monolith fits well just beyond the summit, but I had to mirror the prototype and bend it around a curve to make it work in the final plan, a small price to pay for the operational interest it adds.

Overflow staging: A late addition to the plan was a nine-track, stub-end staging yard underneath Edison. This yard connects directly to both the

2 This view shows the Tehachapi Loop shelf and the Mojave staging helix underneath. The size and placement of the helix allowed Gary to keep aisles open on either side to reach the access holes in this upper-deck scene. Rail access to/from Mojave staging is via the upper-deck tracks on the far right.

Bakersfield balloon yard and, more importantly, to the bottom of the Mojave staging helix. During a session, it's necessary to occasionally run transfer jobs between the yards to keep things fluid. This is especially true with terminating trains in Mojave. There's capacity for three terminating trains there (more if we really load it up), so the ability to easily flush the Mojave arrival track was essential to maintain fluidity.

Build/operate/build/operate/...

Construction of Tehachapi, B.C., began in earnest in 2013. The layout was planned to be built in five stages: the upper deck, the helix, the overflow yard connected to the helix, Bakersfield staging, and the lower deck. At each stage, the layout was more or less operational, which allowed me to suss out any trouble spots along the way and make mid-course corrections to the plan and/or the operating scheme.

In stage 1, we made a simple "roundy-round" loop using a tempo-

rary shoofly. The first few sessions were mainly intended to ensure that people were comfortable with the height of the upper deck, the depth of the Loop shelf, and that the access nod-unders were functional.

In successive stages, we were able to start running limited point-to-point operations using a temporary stub-end staging yard in place of Bakersfield and the lower deck. Through-train operations were managed with “mother may I” dispatching. The main goals of these sessions were to get a sense of how crowded the space would feel with five to six operators and how long it would likely take a typical train to traverse the entire main line once it was complete.

During this period, the decision to add the third staging yard really bore fruit. It was becoming clear that it was going to take a typical crew about 45 actual minutes to traverse the full main line once traffic was busy and meets were frequent. Since I was aiming for operating sessions of about three hours, I figured that most crew members would “die on the law” before they could get four trains over the hill. So I planned to have at least 15 trains staged for each session. Each of the three yards can comfortably accommodate six departing trains at the beginning of a session, so their capacity is pretty well matched to the needs of a session.

Fast forward to 2020. Now all five stages of the layout are functionally complete, although far from being fully complete. The entire main line is operational and is fully signaled and block-detected (using electronics from RR-CirKits). Traffic is controlled using a CTC panel built with the CATS software package in conjunction with JMRI. Since space is tight in The Shed, the dispatcher controls the layout from inside the house via a Wi-Fi connection to the layout. Voice communications are carried out using a radio system built over a baby monitor by my friend Victor Gilbert.

As of this writing, only a few of the control points have physical signals (based on the exquisite searchlight kits from Showcase Miniatures, augmented with custom heads 3-D printed by Mike Musick). As a supplement to physical signals, we use JMRI to display signal aspects on a track schematic that operators can view on Android tablets mounted around the layout fascia.

The operational plan for the layout has mildly evolved over its relatively brief operating life. The original con-

Learning points

- Think and plan in three dimensions, especially if space is small and your ambitions are large.
- Full-size mock-ups of unconventional design elements can be helpful when deciding if they’re workable.
- A few scenically expansive LDEs can help obscure the fact that you’re packing a lot of track into a small space.
- Consult with your peers while you are planning.
- Don’t be afraid to take liberties with prototypical accuracy if it enhances the play value of your model railroad.

cept was focused on lots of through trains with distributed power units (DPUs). But as time goes by, I find myself taking liberties with prototypical accuracy in order to enhance the play value of the layout. Some examples include:

- We’re (d)evolving to using live helper sets instead of distributed power units (DPUs). This requires cooperation between operators and extra moves on the line, both of which add interest.

- The emphasis continues to be running lots of through freights over a busy main line, but some of the third-class manifest freights are being given pickup and drop-off work in Edison and Monolith. This adds operational variety and quite a lot of time to the schedule of those freights. It also ties up the main line in interesting ways for the dispatcher.

- The superintendent (layout owner acting as maintenance-of-way foreman) will occasionally request track and time to take certain sidings out of service for a while.

Looking back, looking ahead

While it’s still early, the plan has so far met my expectations. I’ve achieved the six goals outlined earlier, and there’s little about the layout that I would consider changing at this time. Clearly, the most challenging aspect of the plan is The Vortex, both from the design-and-build standpoint and, more importantly, from the operator’s standpoint.

It’s easy for a new crew member to get confused when his or her train is traversing the one-turn loop from the lower to the upper deck, while at the same time another train is



4 A short southbound BNSF Ry. intermodal meets a northbound Union Pacific manifest at Edison as a UP local on the siding prepares its switching moves among the to-be-built packing houses. At 16 feet, this is the longest stretch of tangent track on the layout.

departing Mojave on track that is miles away conceptually but inches away physically. I’m hoping to develop more visual clues to help guide operators through that complex. Nonetheless, The Vortex was critical to achieving my goals, so I have no regrets about it.

Looking ahead, I hope I can continue to meet expectations as I begin to tackle scenery, especially in the primary LDEs of Allard and Tehachapi Loop. Let the fun begin – or rather, continue! **MRP**

Like most of us, Gary Hinshaw has been obsessed with trains for as long as he can remember – at least as far back as kindergarten when he was disciplined for running out of class to watch a Northwestern Pacific local pass by the school. He teaches physics and astronomy at the University of British Columbia and maps the universe using radio and microwave signals.

Beyond the

Design tips for
improved backdrops

By **Bernard Kempinski**
Photos by the author



One of the easiest and most effective improvements you can make to your model railroad is to add a backdrop. Many layout builders I have known remarked how dramatically improved their layouts were upon

installing a backdrop, even with one as simple as plain sky-blue walls.

Backdrops help set the scene in time and place. They make the layout look bigger by extending the scene past the modeled areas. They also help avoid distracting views of other parts

of the layout and provide a sense of distance and isolation to the operators.

This article doesn't discuss specific backdrop building techniques in detail, but I will mention a few points related to design. There are several ways to build a backdrop; most work quite well.

walls



Over the years I've used rolls of sheet aluminum, $\frac{1}{16}$ " styrene, tempered hardboard, and wallboard. The material you select depends on the particulars of your planned site. For example, if you already have smooth walls, you can paint directly on them.

Styrene and aluminum are lightweight and good when weight is a concern. They'll need some type of clip along the top edge or a frame to hold up the material. Aluminum, which comes in rolls, is somewhat prone to dents and creases that are hard to remove once they occur, but some modelers have used it successfully.

Other factors to consider when designing a backdrop are how it will be

illuminated, how high should it be, and whether the corners will be coved.

Backdrops can be coved both across the corners of vertical walls and where the wall meets the ceiling. Coved corners reduce some of the scenicked area, but they smooth out the unrealistic sharp corners and the resulting shadows, presenting a clean, continuous look to the backdrop.

Coving across corners is not that difficult. Coving a backdrop against the ceiling is much more involved. I have only seen it done on a few layouts, and it seems to offer little improvement in realism when weighed against the effort required to build.

One of the most effective corner-coving techniques was devised by the late Dan Zugelter: He cut the corner pieces as wide as one-fourth of the circumference of the cylinder formed by the cove and tapered the top to a gothic arch. When a corner-cove piece was slid upward, the pointed tip curved slightly away from the corner

For his HO Port of Los Angeles layout, Bernie didn't think he could do a good enough job of painting the cranes, refinery tanks, and ships on the backdrop, so he opted for a photo-mural comprising about a dozen images he took at the actual port. The final image was 32 feet by 18" high.

and butted almost perfectly into the ceiling coves. A little tape and spackling finished the job.

Coved corners look good when viewing the layout in person. But when photographing a layout, it's usually easy to remove the shadows and corners in the backdrop with photo-editing software.

Tips on painting the backdrop

While constructing the backdrop is important, the art is what makes the backdrop come alive. When designing a layout, I like to consider how I will use backdrop art to embellish the plan. There are three general approaches to placing artwork on backdrops: hand painting, photos, and a hybrid approach of painting and photos.

Hand painting scenes on the backdrop is the traditional way to embellish a backdrop. This is a part of



I As clouds get closer to the viewer, they get bigger and will be higher on the backdrop. Note how the clouds follow the rules of perspective and draw the eye to the center.

the hobby I really enjoy. Before painting actual backdrops, I practiced on small boards to learn and to improve my techniques. I also volunteered to paint backdrops for friends' layouts, thereby gaining practice (and my friends' appreciation). By the time it came to paint backdrops for my own layout, I had a lot of experience.

Painting a backdrop is attractive for several reasons. First, it's economical. Paint costs less than other techniques. It also allows for precise control of a scene, especially in color and perspective. By hand painting, you can control the blend from foreground scenery to distant vistas.

When I mention perspective, I mean both geometric and atmospheric perspective. Geometric perspective is governed by the horizon line, the viewer's eye level, and vanishing points. Atmospheric perspective is the gradual blurring of the image and color desaturation that occurs as light travels through the air. Atmospheric perspective is more obvious in warm, humid climates, less so in desert and Western mountain scenes.

I've heard people say that backdrops should be simple because you want people to look at the trains, not the backdrop. I disagree. The most common question I get on my layout is,

"How did you paint the backdrops?" People are going to look at them, so you might as well make them as good as you can.

You don't need to be an expert artist to paint a convincing backdrop, but practice does help. When painting, I don't go for a photo-realistic appearance, nor do I want an overly impressionistic or abstract look. Instead, I try to paint my backdrop to roughly the same level of detail as my modeled scenery and objects, especially in that part of the backdrop that abuts the modeled scene. As the backdrop scene recedes in distance, I cut back on the detail and add haze.

Avoiding common pitfalls

I won't cover detailed painting instructions here, but I do want to mention how to avoid two potential pitfalls.

The first is realistic clouds. The simplest approach to painting clouds is to avoid them and instead depict a clear day with just a slight white fade above the horizon to represent atmospheric haze. That said, I find that clouds can add a fantastic touch of realism to my backdrops.

2 If you are depicting a specific sharp peak, make the peak much less steep than you might for a 2-D painting. If it's painted at too steep an angle, it will appear like a tooth of a saw and will not look realistic. Bernie laterally stretched the peaks on his N scale Tennessee Pass layout.

Clouds are three-dimensional objects, not amorphous 2-D blobs. As such, they obey the rules of perspective that must be apparent when you paint clouds. Clouds that are far away are closer to the horizon and smaller. As clouds get closer to the viewer, they get bigger and will be higher on the backdrop. I have painted clouds near the ceiling that are several feet long **I**. A large cloud painted on a backdrop can really enhance a scene and make the layout experience more immersive.

Clouds also cast shadows within themselves and on the ground. That means that clouds are rarely just white puffs. You need to add shadows along the bottom and inside the clouds.

Painting clouds is not hard, but it takes some experimentation and practice to find a style that works for you. I have used latex house paint,



acrylics, oils, spray cans, and an airbrush to paint clouds. I often use multiple types of paint and techniques on the same backdrop. For example, I'll apply a base coat of latex house paint, then use fast-drying acrylics to block in shapes. For smooth blending, I use oil paints. Airbrushes are great for painting fog or haze over a scene.

The second pitfall to be aware of is the sharply pointed mountain. When we envision a mountain, too often we think of the Matterhorn or some other pointy peak. But the vast majority of mountains are actually a series of foothills and ridges that gradually rise to peaks. If you are depicting a specific sharp peak, as I did once with Mount Elbert on my former Tennessee Pass layout, you should make the peak much less steep than you might for a 2-D painting **2**. That's because most of the time when you view a layout scene, you will not be perpendicular to the backdrop but will be looking obliquely at it. As you peer down the length of the track, the distant mountains on the backdrop will be foreshortened. If they are painted too steeply, they will appear like the teeth of a saw and will not look realistic.

You can get away with sharp mountain peaks on the backdrop if you ensure that the peak will only be viewed head on. This situation can occur at the base of a layout peninsula where it is not possible to view the mountain from an oblique angle or if you can use other scenic elements to control the field of view.

Photo murals

A newer approach to making effective backdrops, made possible by digital photography and printing, is using your own photos. These can range from wall-size murals to smaller prints that are manually stitched together or surrounded by view blocks such as trees or buildings.



3 Bernie considered his first experience using a photomural a failure. It looked good on its own, but the colors were more desaturated than he preferred. He found it hard to blend vivid foreground scenery materials with the backdrop.

When done properly, a photomural can be incredibly realistic. When I was building my modern HO Port of Los Angeles layout, I didn't think I could do a good enough job of painting the cranes, refinery tanks, and ships on the backdrop, so I opted for a photomural [see page 70]. I created the photomural by compositing in Photoshop about a dozen images I took at the actual port. The final image was 57,000 pixels across and when printed was 32 feet long and 18" high. I had a shop that specializes in backdrops print the image for me on self-adhesive heavy paper, and they did a great job.

It took careful planning to align the images on the backdrop with the layout plan. The features on the backdrop, such as cranes, buildings, oil tanks, etc., are roughly where they would be in the prototype. I paid careful attention to the area with open water to match the track plan. I also tried to get the perspective lines to point to the corners.

Even with deliberate planning, I still didn't get it exactly how I wanted. I really would have preferred the large cranes to be farther to the left, but this modification wasn't worth the cost of reprinting the backdrop. I would also have liked to have more sky on the mural, but again, it wasn't worth the expense of printing 12" of plain blue sky at the top of the mural.

There are other pitfalls in using photomurals. Probably the most challenging is matching colors on the backdrop to your scenery. In fact, my first experience in using a photomural was a failure for this very reason. I created a large digital file that I had printed at a local sign shop.

The sign-shop printer helped me install the 12-foot-long mural on a coved styrene wall above the layout, and it looked good on its own **3**. However, the colors were desaturated (faded) more than I would have liked. Furthermore, I found it impossible to get my foreground scenery to blend





4 Combining photos and hand-painted art can be very effective. In this approach, you would paint the sky with or without clouds, then use sections of photos to add more detailed elements such as structures, trees, and hills, as Bill Neale did here.

with the backdrop. Faced with the expense of six more sections of similar murals, along with some with complex terrain forms with below-track-grade sections, I opted to paint the backdrop, including painting over the first mural.

I am not the only layout builder to experience that problem. Mike Burgett initially used photomurals on his magnificent double-deck Chesapeake & Ohio layout, but he decided to paint over several sections to get a better color match.

Another concern I have with stock images is that, like using unmodified structure kits, they start to look too familiar after seeing the same ones on so many layouts. But they're still better than nothing.

A hybrid approach

A hybrid approach of combining photos and hand-painted art can be very effective and not as expensive as full murals. In this approach you would paint the sky with or without clouds. Then you use sections of photos that you trim to add the more detailed elements, such as structures, trees, and hills **4**. I find that objects with hard



5 Bernie used a fence and cedar bushes to disguise the joint and to control the view of a road that recedes on an angle onto the backdrop. He also used forced perspective to make the fence appear to be extending into the distance.

edges such as buildings work better as cutouts than natural objects like trees and bushes. You can use photos that you took or get images from vendors that sell prints exactly for this purpose.

The hybrid approach works really well if you are trying to replicate a scene that can't be photographed – for example, a town as it existed a century ago. In that case, you can use prints of existing photographs and composite

them with painted scenes. If the only photos you have are black and white, no worries. It's possible to colorize them using photo-editing software.

Creating new artwork

If photos of the scene you want aren't available, you'll have to create the artwork. One effective technique is to draw structures using Adobe Illustrator and its perspective feature. You set the vanishing points and

Learning points

- Backdrops help establish the time and location of your railroad and extend the scene beyond the modeled areas.
- More than one technique may be required to achieve maximum backdrop effectiveness.
- Avoid sharp mountain peaks that can be viewed from an angle.
- Roads and waterways that contact the backdrop at right angles are the most difficult to manage effectively.
- Photo-editing software has become a primary tool in today's modeling arsenal.
- Photographing a model scene and then using the image to extend the 3-D scene is effective.



6 Depicting the interface where bodies of water meet the backdrop presents a challenge, especially in getting the modeled and painted water to have the same color and reflectivity as the backdrop. As in the case of roads, a small fillet helps ease the transition.

planes, and the program makes sure the objects you draw have the correct foreshortening. If you've never drawn in perspective before, you might be surprised how quickly objects in the background shrink in size. This means that you don't have to add a lot of detail to buildings that are in the back.

Another trick I use is to take a modern photo of the scene, put it in Photoshop (or Photoshop Elements) and then edit out the modern parts to backdate it. I then trim the parts out as described above. If drastic changes are needed to the building beyond what you can do in Photoshop, I'll import the image into Illustrator and draw the buildings. I've done this technique with images I got from street-view programs from popular internet map sites.

Roads and rivers

Two of the most common and difficult scenes to add to a backdrop are roads and rivers extending into the distance. Roads extending to the horizon are common in town scenes and in the flatland, where numerous roads cross the railroad at grade.

Roads that meet the backdrop at an angle are easier to execute realistically than roads at right angles. The reason is that as soon as the viewer shifts his or her point of view from the perpendicular axis of the road, the road will now appear at an obtuse angle, spoiling the effect. Adding a fillet between the flat road and the image on the backdrop softens the effect, but the road still appears to jog at the joint.

On the other hand, an angled road is already at an angle, so the effect is still convincing, even from off-axis

points of view. For an even more effective scene, have the road curve to one side as it recedes into the backdrop. Curved roads are convincing from more points of view.

There are three steps to help make a convincing road-to-backdrop junction. First is to match the color between the modeled road and the road on the backdrop. If necessary, you can carry the paint from the 3-D scenery onto the backdrop. Artist Tom Johnson strongly advises matching the color of the backdrop image to the 3-D scenery rather than trying to repaint the backdrop photo.

Second, you want to smooth the transition from the modeled road to the backdrop. You can do this with a small fillet of plaster or putty to round or cove the joint between the backdrop and the layout. The fillet gets rid of the sharp line you would otherwise have. If you don't have room for a fillet, you can disguise the interface with vehicles or figures.

Finally, try to control the viewing angle. In towns, this is easier to achieve by lining the road with structures or other view blocks. In open country scenes, you might be able to use trees, bushes, and fences for the same function.

I used a fence and cedar bushes to disguise the joint and to control the view of a road that recedes on an angle onto the backdrop **5**. I also used forced perspective to make the fence look like it was extending into the distance. That is, the modeled fence is not as tall in the rear as it is in the foreground. Then I painted the same fence receding into the distance on the backdrop by

extending the forced perspective lines. I also used forced perspective by placing an S scale figure on this O scale layout at the spot where the 3-D fence met the backdrop. Cedar bushes help disguise the road as it extends to the distance.

Another challenging situation is depicting the interface where bodies of water meet the backdrop. This most frequently happens at river crossings, but also in harbor and ocean scenes. The key challenge is getting the modeled and painted water to have the same color and reflectivity as the backdrop **6**. As in the case of roads, a small fillet helps ease the transition, but the reflectivity issue is hard to address. One solution is to place the water-ground interface solely on the backdrop – that is, you extend the shore onto the backdrop. But that's not always possible.

As in road crossings, rivers are more convincing when the river is at an angle to the backdrop and or curves as it recedes. Often, you can use a bridge to disguise the water-backdrop interface, especially in narrow sections of the layout. This requires some planning, as you have to align the bridge between the joint and the typical viewer's eye level. **MRP**

Born in Brooklyn, N.Y., Bernard Kempinski now resides in Alexandria, Va., with his wife, Alicia. After serving in the U.S. Army, he retired from a 35-year career as an engineer in defense analysis. He now runs Alkem Scale Models and works on his layouts when he's not accompanying his wife on the golf course.

Modeling a close- to-home railroad

Truro, Nova Scotia, in the late 1990s fills the bill

By **Andrew Castle**//Photos by the author except where noted



When I began planning my HO scale layout, one of my main objectives was not just to model a railroad and its related structures, but also to capture the atmosphere of a specific place and time. Several different railroads and regions have interested me, but how could I capture the atmosphere of a place I had never been to or a railroad I had never seen in person?

The obvious solution to this dilemma was to model a railroad that I was familiar with, something close to home. I found exactly what I was looking for in the town of Truro, N.S.

Truro sits on Canadian National's main line between Halifax, Nova Scotia, and Moncton, New Brunswick. The town has a mid-size yard that is used by both a local switcher serving industries around town and for

I Train 108, behind a trio of General Motors Diesel Division GP40-2Ls, passes the wood depot at Brookfield with loaded/empty double-stacked containers headed for Halifax, N.S., on Andrew Castle's HO scale railroad.

interchange between CN and the Cape Breton & Central Nova Scotia Ry. (CBNS). Agriculture and forestry play a big part in the local economy, and the industries around town reflect that.

Choosing an era

I narrowed down the time period to between 1995, when I became a serious railfan, and the early 2000s, when CN tore up the second main track through Truro. I also wanted to model the summer so I could enjoy a nice warm day in the layout room no matter what the weather was doing outside.



It didn't take long to settle on the summer of 1997. That year, CN ran brand new EMD SD75I's alongside the last of the older Montreal Locomotive Works M-420's and Bombardier HR-616's. To add to the variety, the CBNS was still running into Truro with MLW Century 630Ms.

One problem with modeling the summer of 1997 was that I really like the second-generation EMD/GMD locomotives that came to the area in the following years. At the end of 1997, CN replaced the M-420s on the Truro switcher with GP38-2s, and by mid-1998 the CBNS was using ex-BN GP50s.

I thought about stretching my time period a bit to include these locomotives, but this would take away from the accuracy of my layout and the atmosphere I was trying to create. A



solution: Most of the time the layout will be set in 1997, but once in a while I will change the time period by two years to 1999 and swap out the locomotives on the layout.

Design goals

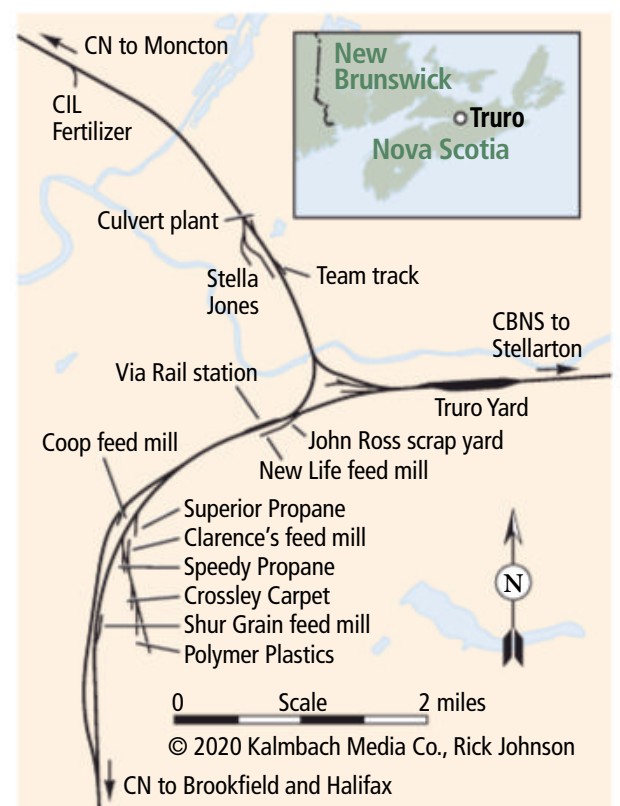
During the planning stage, I identified several things I wanted to incorporate in my design. I didn't want to overcrowd the layout or include too much track. I wanted to leave lots of room for structures and scenery. I also wanted to develop whole scenes rather than just focusing on things directly related to the railroad.

I also wanted to be able to take photographs that captured the chosen place and time. Operationally, I wanted to recreate the various train operations that took place in Truro during

2 A pair of Canadian National Montreal Locomotive Works M-420s has two covered hoppers and a van in hand on today's Truro local. This portion of the layout was scenicked first to ensure scenery techniques were working as planned before moving on to the rest of the layout.

1997. And I wanted to be able to run a single train or switch cars by myself as well as accommodate full operating sessions for four or five people.

Operationally, I decided to focus on the local switcher based in Truro and the interchange of traffic between CN and CBNS. Run-through trains on the main line would be more "supporting actors" instead of the "main characters." I wanted to include the wye entrance to the Truro yard and as many local industries as possible.





3, 4 Cape Breton & Central Nova Scotia Ry. train 305 drops empty lumber cars at Sproule Lumber's sawmill in Valley, N.S., before continuing on to Truro and the interchange with CN. The overview photo shows the entire facility.

Finally, I wanted to include a signature scene: As you drive into town on one of the main routes, you encounter two feed mills one in front of the other. The two lines of the double track are separated, one mill on the north track and the other on the south track.

A wye and a caboose

The industries around Truro have spurs facing both east and west with some industries being on the north track and others on the south track. To further complicate switching, there isn't a runaround track other than the double-ended tracks in the yard.

To switch these industries, crews start in the yard with their locomotive on the west end. A caboose is based in the yard for the conductor to ride on to protect backup moves. After the crew has assembled a cut of cars to deliver

to local industries, the caboose is placed on the rear. The wye between the yard and the main line allows the local to enter the main with the engine facing west and the caboose on the east end of the train, or vice versa.

Depending which industries are being switched, the train then either goes engine-first to the industries and returns to the yard caboose first, or caboose-first out and engine-first back. Switching is planned so several industries can be switched on one trip, but it may take several trips from the yard to finish the day's work.

One deck or two?

I never intended to have a multi-deck layout. My original plan was to design a single-deck layout with staging below. I soon discovered there was no way I could fit everything

Track plan at a glance

Name: Truro, Nova Scotia

Scale: HO (1:87.1)

Size: 18'-9" x 24'-9"

Prototype: Canadian National and Cape Breton & Central Nova Scotia Ry.

Locale: Truro, N.S., Canada

Era: 1997

Style: multi-deck

Mainline run: 120 feet (visible) plus 200 feet (helixes and staging)

Minimum radius: 30" (main), 26" (industries), 24" (storage helix)

Minimum turnout: no. 5 (cement plant), no. 6 elsewhere

Maximum grade: 2.2 percent

Train length: 15 to 20 feet

Benchwork: open grid

Height: 25" to 55"

Roadbed: cork and foam on plywood

Track: code 55, 70, and 83 flextrack

Scenery: plaster over extruded-foam insulation board

Backdrop: drywall

Control: Digitrax DCC

I wanted into the space. I even tried moving a couple of industries to the staging deck below, which worked but interrupted the flow of the layout.

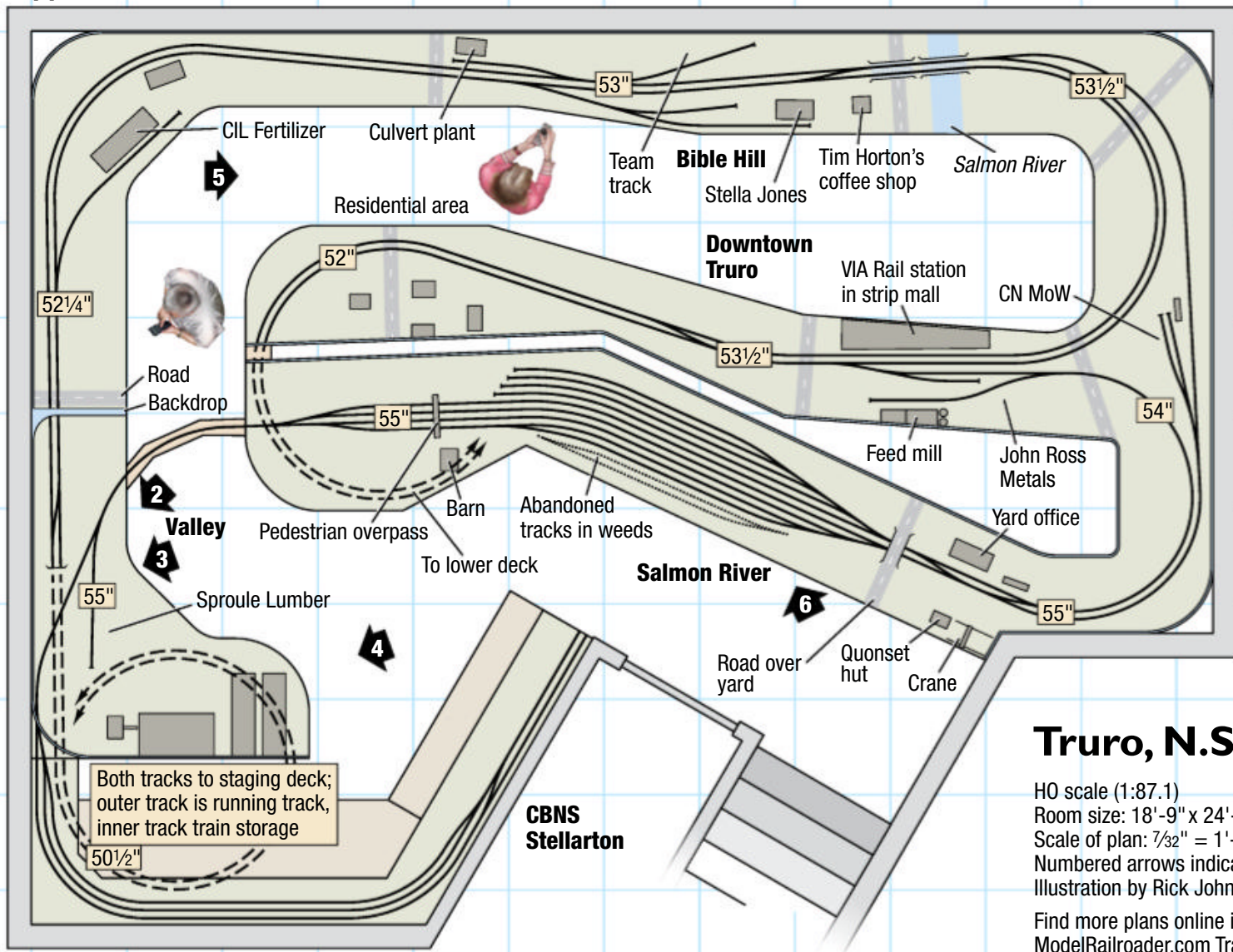
I then tried two decks plus staging on a third deck below. This way, I could fit almost everything I wanted in the right order and orientation. While I still wasn't completely happy, I was excited about what I was able to fit in.

To determine the final deck elevations, I set the lower deck at good height for operating from a chair and then put the staging deck below it. The height of the upper deck was determined by the elevation gained in the helix and the height of structures on the lower level. My final design has the upper deck 52" to 54" above the floor, the lower deck is at 32", and the staging deck is 24" above the floor.

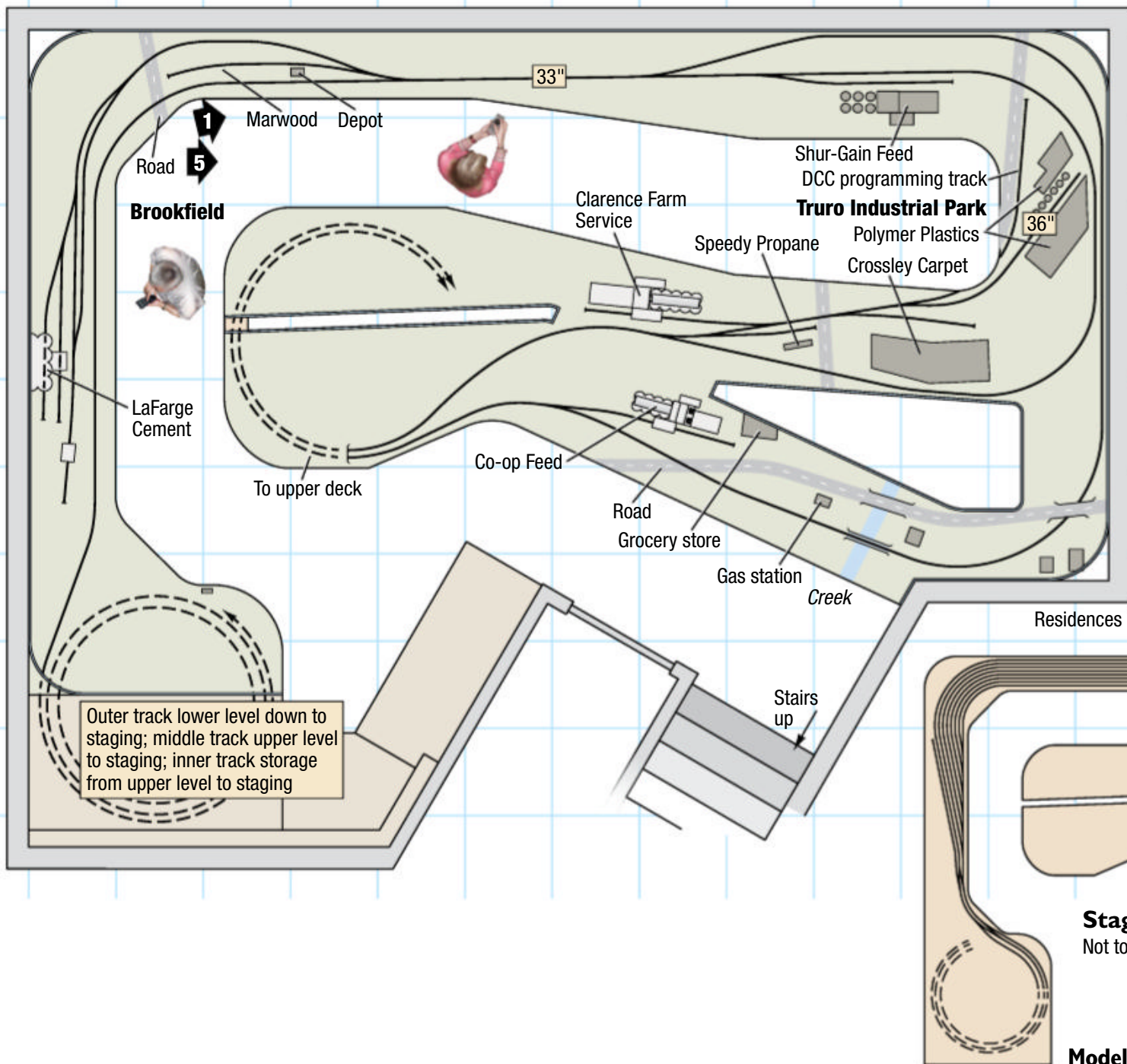
Two helixes

My final design includes two helixes. Operationally, the helixes aren't ideal, but they were the best way to get trains between decks in the amount of space I have. The fact that mainline trains aren't the focus of the layout helps minimize the impact of having trains disappear into a helix for an extended period of time. I have set things up so two of the main operations on the layout don't involve the helixes, and the third involves only one helix trip per session.

Upper deck



Lower deck





5 This down-the-aisle view shows the three decks, the fascia and valance treatment, the aisle lighting, the diffused lighting panels above the layout, and the coved backdrop.

Design challenges

Perhaps the biggest challenge was figuring out how to fit in the wye entrance to the yard with all three legs active. I found that if I put the wye at the base of the peninsula, I could have the main line running through uninterrupted on one side of the peninsula and the yard on the other side.

Truro Yard is made up of two sections. The first is the long double-ended interchange yard between CN, CBNS, and the local CN switcher. The second is the stub-ended classification yard. When laying things out prototypically, I found the tracks with the most switching were at the rear of the layout and farthest from operators. I considered building the yard as a mirror image to bring the stub tracks to the front, but this bothered me too much. I may come to regret my decision to put them in the rear as they should be.

Another challenge was how to capture the scene with the Co-op feed mill in front of Clarence's Feed Mill. I solved this by having the mills on the lower deck, one on each side of the peninsula, with a window in the backdrop so you can see both at once.

I had to make a compromise on the spur to the Lafarge cement plant in

Brookfield. The real spur runs several miles perpendicular to the main line, but I had to tuck it in just behind the main. There's also a runaround track just outside the cement plant property. I ended up combining the runaround with the plant tracks.

Staging

The main staging yard on the layout has seven storage tracks for CN and VIA trains and is connected to both decks through a double-track helix. The outer track goes up two loops and comes out on the lower deck at Brookfield on the east side of Truro, while the inner track continues up a further four loops and comes out on the upper deck at Onslow on the west side. Staging represents points both east and west on CN.

A pair of crossovers between the helix and the staging tracks allows a train to cross between any staging track and the tracks to either the upper or lower deck. Trains entering the staging yard run along the rear of the yard and around a reverse loop before entering one of the staging tracks. With this design, there's no need to turn trains before or during an operating session; they're parked ready to go again. This design also allows for continuous running on the layout.

The CBNS staging yard on the upper deck has two storage tracks and one runaround track. Between sessions,

the CBNS locomotives are cut off their train and run around to the west end so they're ready to depart for Truro next session. The visible portion of the CBNS staging was initially planned to be simple with no scenery. I later expanded it and plan to add scenery as a representation of the CBNS yard in Stellarton, N.S.

Signaling

I wanted to include a full signal system on my layout, and I realized early on that this should be addressed during the design stage. The area around Truro has a combination of systems for signaling and track

Learning points

- Modeling something close to home offers many advantages.
- Modeling two different eras on an alternating basis may resolve a dilemma.
- Staging tracks tucked inside a helix may provide operational flexibility.
- Operating the railroad as soon as possible almost always uncovers some needed changes.
- As Maumee Route builder Bill Darnaby said, "I don't like multi-deck railroads as much as I like what they let me do."

authority. The single track on either side of town is Centralized Traffic Control (CTC) territory, while the double track through town uses OCS (Occupancy Control System) for track authority, which is similar to TWC (Track Warrant Control) in the United States. The OCS area is protected by an Automatic Block Signal (ABS) system, but to complicate things the cross-overs and switch at the west entrance to the yard are interlocked and controlled by the CTC dispatcher, called a Rail Traffic Controller in Canada.

Along with dividing the layout into blocks for the signal system, I also cut in detection blocks for grade crossings. I use Digitrax BDL168s for block detection and SE8Cs to drive the signals, all controlled through JMRI on a laptop computer. The signal system added extra work and wiring to the layout, but by planning ahead and installing components during the initial construction, I kept things manageable.

Changes made along the way

Sometimes things look good on paper, but when you actually build them, you discover issues you never considered. This is especially true with a multi-deck layout, where it can be hard to visualize how one deck can interfere with another.

After track was laid and I started operating, I found a big problem with the track arrangement serving the Truro Industrial Park. Because of the grade on the industrial lead, cars are cut off on the main line and left there while switching on the hill. I had placed the main line 27" from the front edge of the layout, so it was hard to reach to uncouple cars. On top of this, there was a feed mill directly in front of the main line that blocked reaching in.

The solution was to move the main line closer to the front of the layout, move the turnout for the industrial lead to the left, and move the feed mill to the right. It took a bit of nerve to tear out a 6-foot section of completed track, but if I hadn't it would have seriously hindered operations for the life of the layout.

Perhaps the biggest change I made to the layout was to cut 4" off the front of the top deck in two areas. Originally, both decks were the same width, up to 30" in some areas. The view of the lower-deck main line was blocked in many places by the front of the upper deck. By reducing the width of the upper-deck benchwork in these areas from 30" to 26" I lost some scenery, but operations weren't affected, and it opened up the view of the lower deck.



6 Model (top) and prototype views of the yard at Truro, Nova Scotia, show the two abandoned and disconnected tracks that Andrew has faithfully modeled in the left foreground. The background trees from LARC Products were photographed by MRP editor Tony Koester on a Finger Lakes tour-boat cruise.

A staging helix

When I designed the model railroad, the number of tracks I could fit into the main staging yard was limited by the 19" width of one section of benchwork. I could fit in just enough staging tracks to hold all the trains I planned to run during a session, but this turned out to not be enough once I decided I wanted more variety in the CN trains running into Truro. I had enough locomotives and cars for three trains, which would provide the variety I wanted, but I only had one staging track.

I decided to construct a "storage helix" inside the main helix connecting the staging yard to the rest of the layout. The top of the storage helix connects to the upper deck; the bottom connects to the staging yard. Its radius gets as small as 24", but that's not a problem because it's not meant to be used during operating sessions. Rather, it's used to sequentially store three or four downhill-running trains so they're out of the way without having to remove them from

the layout. Between sessions, the manifest freight that left Truro during the previous session is run into the top of the helix, and the train for the next session is run out the bottom of the helix and into the staging track.

Still ahead

All trackwork and wiring is complete on the layout. The construction of scenery and structures is progressing, and though I do run trains, formal operating sessions are still in the planning stages.

I still have to install signal masts and program the signal system, but the research and planning for that have been done. There's still a lot of work to do, but the town of Truro during 1997 is indeed coming back to life in my basement. **MRP**

Andrew Castle is an air ambulance pilot who lives in Enfield, Nova Scotia, with his wife and son. When not building models, he can often be found photographing full-size trains.



Union Pacific's Barnes Yard local, YBA55, behind GP38-2 no. 631, heads past industrial buildings in the Kenton neighborhood of Portland, Ore., on Nov. 16, 2014, to switch industries on the Kenton Line. This location is approximately 10 miles from the track plan's Clackamas setting. Kyle Weismann-Yee photo

3 layouts, 2 dimensions

Sectional O scale in a modest footprint

By Byron Henderson

When I wrote about two layout designs inspired by a Union Pacific (formerly Southern Pacific) industrial switching area in Clackamas, Ore., for *Model Railroad Planning 2019*, I never thought that I'd have cause to design a third for the same locale. But Gary Zaro, a friend who lives near the prototype, had already planned a modern day Clackamas in O scale. When Gary saw my plans in MRP, he asked if I wanted to try a design for his mid-sized space.

A "bigger" challenge

Adding to the degree of difficulty, one side of Gary's layout room is lined

with closets that must be accessed occasionally, so he's using mainly prefabricated, sectional benchwork that will remain movable. And unlike my previously published track plans, which were based on flextrack, Gary planned to use Atlas sectional track (which would also make it easier to remove the sections when necessary). This would constrain track arrangements, since he wanted to minimize cutting-to-fit.

Most of all, O scale (1:48) is just plain larger than HO (1:87.1) or N (1:160). Minimum radius requirements, track-to-track spacing, and structure footprints would fill up the real estate quickly.

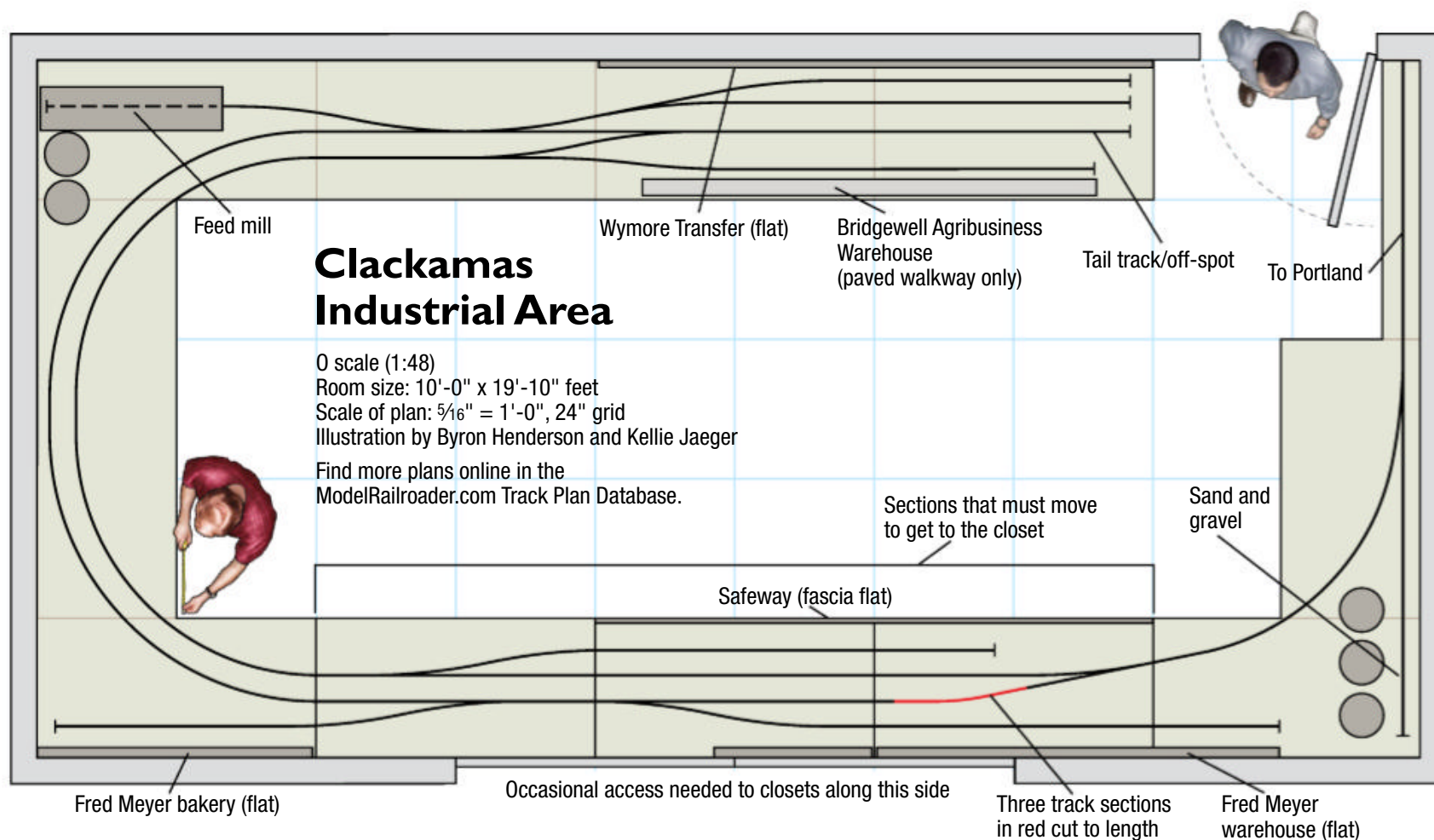
Going flat-out

One of my strategies in working with O scale and larger in a modest space is to address the worst problem mathematically by minimizing the square footage required by three-dimensional structures. While an O scale engine or railcar is only about twice as long as an HO version, structures are about four times larger overall. I like to reduce this three-dimensional problem to two dimensions wherever possible.

This meant orienting the layout so that the largest and most important industries could be represented by low-relief flats against the sectional backdrops. This included Wymore Transfer and the Fred Meyer warehouse and bakery. But this still left a couple of desired large industries prototypically located on the aisle side of the design.

For Safeway, I chose a fascia flat. Here, the fascia will extend up as a cross-section of the track-facing wall of the structure, with a thin flat attached on the layout side. This is an effective technique to represent a large structure imagined to be in the aisle.

I employed another old ruse for an additional structure by including just an industry's walkway next to the tracks. Compressed 3-D industries filled in the nooks and crannies.



Learning points

- Industrial switching areas are attractive subjects for modeling in any scale.
- Using two-dimensional modeling techniques to replace three-dimensional structure footprints can help pack O scale into a modest space.
- Sectional track is more constraining for design but makes construction and movable benchwork easier.
- Even a narrow benchwork shelf can help by adding length for a switching lead.

Gary is planning to use dead-rail technology with a battery concealed in a freight car semi-permanently coupled to a UP engine. I allowed for extra length on the tail tracks for this combination.

As the design came together, I realized that the only way to make the runaround long enough was to extend it along three walls. Happily the space behind the entrance door was just wide enough for a switch lead that also represents the connection to the UP main line.

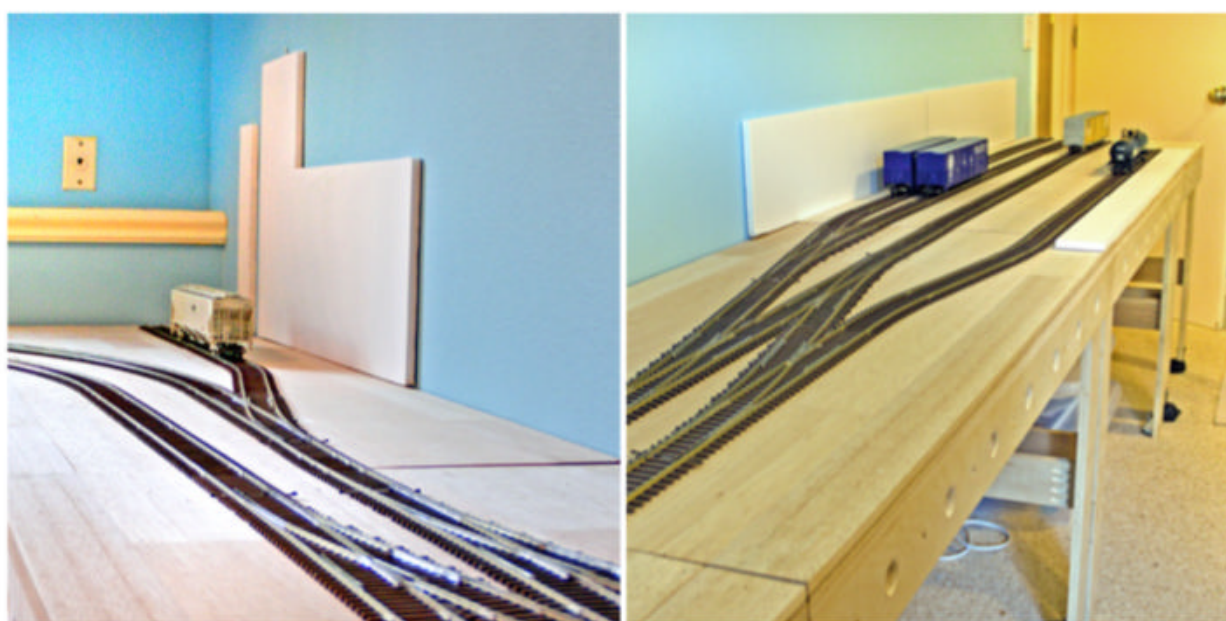
The third time is...

Gary and I were happy with the resulting design. He'll need to cut only three pieces of track to length, and I was able to work in small track pieces at the boundaries of the benchwork

Track plan at a glance

Name: Clackamas Industrial Area
Scale: O (1:48)
Size: 10'-0" x 19'-10"
Prototype: Union Pacific (former Southern Pacific)
Locale: Clackamas, Ore.
Era: modern
Style: around the walls, partially sectional
Mainline run: none
Minimum radius: 41½"

Minimum turnout: no. 5
Maximum grade: none
Train length: 7 feet
Benchwork: commercial prefab sections
Height: 43"
Roadbed: none
Track: Atlas O sectional
Scenery: industrial
Control: wireless dead-rail battery



These photos show early progress on Gary Zaro's O scale layout built to Byron's plan. The covered hopper is spotted at the future feed mill, and the blue boxcars are spotted at a mock-up for the Wymore Transfer structure flat. Gary Zaro photos

sections that will be moved most often. Working on three layouts in three scales for three different spaces based on the same real-life location was unexpected – and fun! **MRP**

Byron Henderson is a custom model railroad designer (layoutvision.com) from San Jose, Calif. He is also editor of the Layout Design SIG's (ldsig.org) Layout Design Journal.

Reader forum



Chicago & North Western class R-1 4-6-0 steam locomotive no. 1396 pauses with its caboose on the station track at Crystal Lake, Ill., in February 1954. The town was a terminal for C&NW commuter trains, making it a busy location. Dale Bufkin photo, David P. Morgan Library collection

Crystal-clear memories

Having grown up in Crystal Lake, Ill., several years before David Popp, I loved his track-planning article on our hometown in MRP 2020. I enjoyed

David's original series on track planning Crystal Lake in HO on MR Video Plus. But the new material he brought to his MRP article, including his N scale plan of Crystal Lake in the 1960s,

brought back some memories, including the smell that permeated the town when the yeast plant was in operation in the 1950s and '60s. Unmistakable!

Walt Herrick, Huntley, Ill.

A single-location layout

Iain Rice's single-location layout in MRP 2020 is a grand idea, and well thought out. There are a few items that need clarification:

The Brooklyn Intermodal Yard belongs to the Union Pacific. I'm sure BNSF takes and picks up intermodal cars from there.

Amtrak's *Empire Builder* is the Portland connection to and from the Seattle-Chicago train. This is done at Spokane, Wash.

Amtrak's *Coast Starlight* operates between Seattle, Wash., and Los Angeles, Calif. It may be terminated at Portland for some problem on the track between Portland and Seattle or somewhere south of Portland, but normally it goes through.

Bob Carlson, Mount Angel, Ore.

Smaller layouts, please

I have a small HO scale layout, 8 x 15 feet, block-wired for two cabs. A few days ago, I picked up *Model*

AIRWIRE900[®] Battery Powered Wireless DCC

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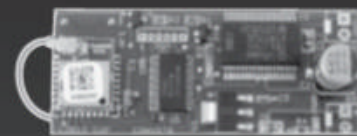
C60 - Internal Antenna \$132*



C60X - External Antenna \$138*



C25 - Internal Antenna \$99*



C25 - Internal Antenna \$105*



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Railroad Planning 2020. I have every edition of MRP back to the first one, and I still enjoy most of them. This edition was dominated by huge layouts. Out of 13 articles, only two offered track plans that were realistically room-sized.

Big layouts are exciting, and one can certainly learn from the club layouts and professionally built model empires. But I suspect the majority of railroad modelers struggle like me to find the space, time, and money to build a modest but satisfying layout.

I do understand that you are often at the mercy of your submissions, and the “short liners” among us don’t often make themselves known. I will say that Kalmbach’s track planning and scenery books continue to be a tremendous resource for me and a pleasure to read.

David Sakrison, Ripon, Wis.

[Point taken, David, but we also encourage creative thinking. For example, Stephen Lamora’s Fonda, Johnstown & Gloversville layout (page 38) could easily be condensed into a L-shaped railroad that would fit along two walls of a bedroom by eliminating the peninsula, making a very interesting one-town switching railroad. – Ed.]



Rick Bennett has been handlaying track using FastTracks jigs for most turnouts and crossings for his HO railroad, which is based on Bill Neale’s Philadelphia urban switching district track plan in MRP 2017. Rick Bennett photo

Sectional urban switching

Here’s a photo showing the progress on my layout based on the Philadelphia urban switching district layout plan by Bill Neale that appeared in MRP 2017. As you can see, I’m still plugging away

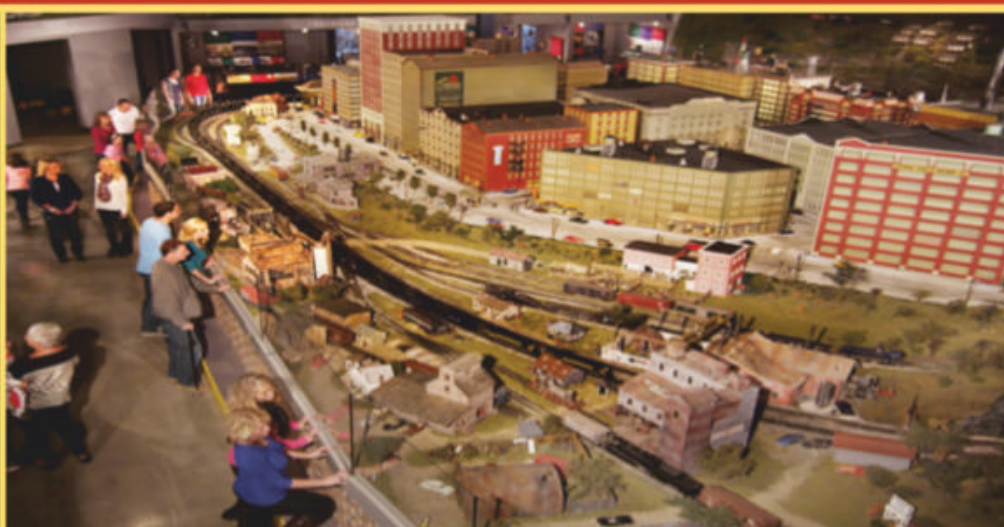
on laying track, but for a break, I’ve also gotten a start on some of the necessary structures; while my wife watches the 300th Hallmark movie, I work on some kits.

Rick Bennett, Allison Park, Pa.

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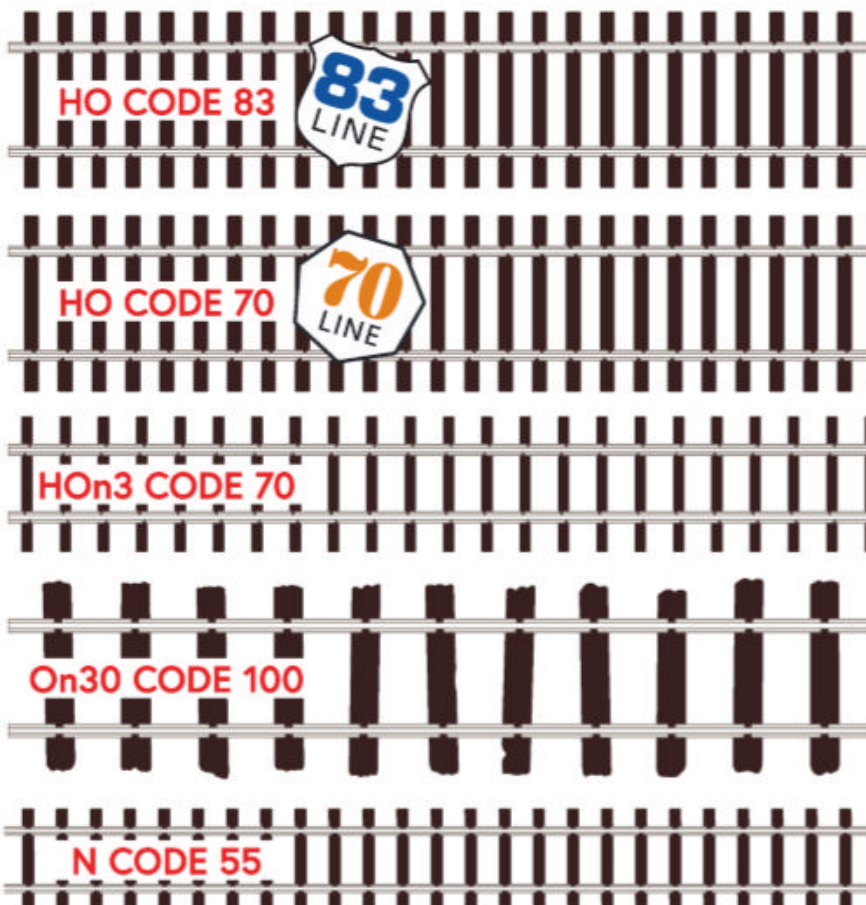


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Rear Platform



Jeff's planning had reached the upper deck, which had complicated angles, when this photo of his 3-D mock-up was taken. The 3-D model paid dividends, as he wanted to see how the scenery would work in the transition areas. He then built a second model that corrected the problem areas, saving him from having to do the same on the actual layout.

Model of a model railroad

3-D printing keeps finding new applications

By Jeff Kraker//Photo by the author

I've been printing 1/24 scale 3-D models of my new On3 layout that let me test the benchwork, backdrop, and scenery before construction. This was easy to do, because I designed each section in 3-D using Autodesk Inventor software. So I just exported them, scaled them to 1/24 actual size, and printed them using my Epax X1 resin 3-D printer.

I am aware that most MRP readers will not be experienced in the use of such professional-grade software or have ready access to a 3-D printer. But thanks to ready access to programs such as SketchUp and Autodesk Fusion 360, more and more modelers are using 3-D printing to obtain detail parts for their models or even entire models.

My purpose here is to show what lies ahead for our hobby. When access to such tools expands and the cost of

3-D printing shrinks, printing out scaled-down sections of a proposed layout will become a common way to test design concepts before cutting the first piece of lumber. We may even be 3-D printing custom brackets to hold up sections of roadbed or switch motors in difficult locations sooner than you think!

Tomorrow's model railroads and the components we use to construct them will be limited more by our imaginations than by the materials or tools we use. We're at a new threshold of model building that, as in my example, will extend to our "12-inch-scale modeling" such as benchwork. Here's a link to a YouTube video in which I describe the new layout using the 3-D model: youtu.be/u7bTgY900tk

May all our future mistakes be small-scale ones. **MRP**

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