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**How to model a busy
passenger terminal** p.8

Multi-deck N scale railroad p.16

PLUS

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Cliff Powers
explains how
he models a
city passenger
terminal. See
page 8.

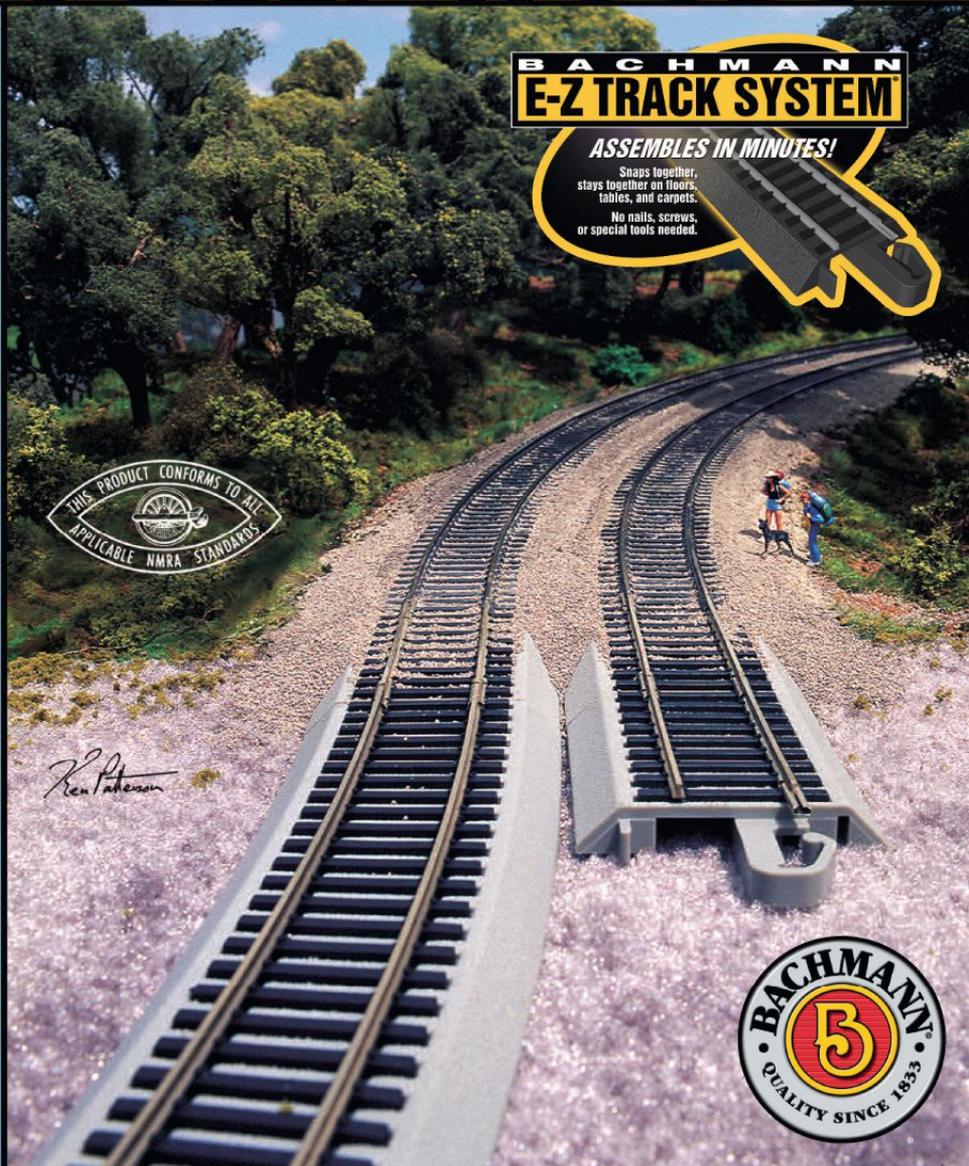


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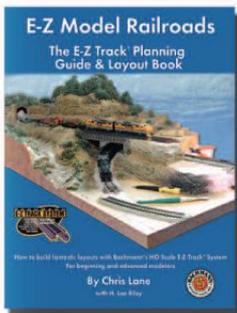
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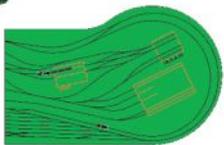
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Model Railroad Planning

2014

6 Editorial
A perfect viewing height – somewhere!
Tony Koester

COVER STORY

**8 Action at the New Orleans Union
Passenger Terminal**
Accommodating lots of action and detail
on a peninsula
Cliff Powers



Page 8: Passenger operations in the Big Easy.

On the cover: New Orleans Union Passenger Terminal was served by seven railroads and therefore offers Cliff Powers a chance to operate a variety of colorful locomotives and passenger cars and to model a classic passenger station. Cliff also took the photo.

Photos, clockwise from top: Tim Miller, Mike Rinkunas, Clark Propst, Ryan Moats, Cliff Powers



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A perfect viewing height – somewhere!



Johnny Over is at the throttle as a long freight works through the Siskiyou Mountains on his dad Larry's N scale Siskiyou Line layout (page 16). The viewing height on this part of the lower deck is perfect for Johnny. Elsewhere, maybe not. Tim Miller photo

Model Railroad Planning tries hard to reflect the trends and aspirations of our broad-shouldered hobby. That means our coverage of multi-deck layouts will continue unabated as many modelers adopt this approach to layout design, which essentially doubles or even triples the amount of railroad they can fit into a given footprint.

One attribute of a multi-deck railroad is some section of it will most likely be an ideal height for viewing by everyone from a child to a basketball player. The downside is everywhere else will be somewhat less than ideal. That's true of my HO railroad, which ranges in height from 43 to 68½ inches. I enjoy the higher parts, which allow me to view the scenery and rolling stock from the vantage point of a scale-height railfan photographer. But many of my operators don't punch through the 6-foot level.

The above photo by MRP 2014 contributor Larry Over (see his article on his N scale SP Siskiyou Line starting on page 16) shows his son, Johnny,

easing a train across the towering Wall Creek Viaduct. The elevation looks about right for him to enjoy the action, but it's apparent the upper deck is a bit high. In a few more years, though, he'll be nose-to-nose with the upper deck and bending down to see the lower.

As the owner-builder of a multi-deck railroad that's well into its second decade, I can report (with some relief) that all of my expectations have been met or exceeded. It was the only way I could model in HO (and thus reuse a lot of equipment acquired over the years) and achieve my operating goals, which required a long mainline run.

That said, it's clear the railroad's higher reaches are challenging for shorter crewmembers. Footstools, ledges, and a raised floor in the west-end yardmaster's alcove ease the tasks of operating up where the oxygen is thinner, but I really wouldn't call it an ideal situation. We therefore look to you for examples of even more creative ways to use the vertical space in our railroad rooms.

Layout space

Speaking of the maximizing what you can do in a given footprint, be sure to read about Bill DeBuvitz's achievements on page 44: five layouts in four scales in the footprint of a bookcase! He pretty much lays to rest the age-old argument about not having enough room for a layout. Instead, it's, "What can I do with all that space?"

The vertical dimension

And, speaking of using the vertical space ("air rights") above one deck of our railroads, here's an idea that one veteran MR staffer once called the "worst idea I've ever seen": the vertical interchange (page 62). Most of us have trouble paring down our list of railroads to model or to base our free-lanced railroad on, so I'm suggesting you settle for not one, but two favorite railroads, one on each deck.

And if you model the town where those two railroads crossed at grade, you could also model the crossing and ubiquitous interchange not once, but twice. You could even make a length of the interchange track a removable cassette allowing cars to actually be swapped, or stored below.

I don't think I've won over that staff member, but then he has a single-deck railroad anyway.

Planning for dismantling day

By the time you've reached retirement age, you're no longer harboring any illusions about permanence. You think in terms of adapting to changing physical abilities, moving to a different climate, and how you might adapt your layout to your changing needs.

Harry Bilger is back with us this year as he describes enhancements made to his HO railroad prior to a move to a retirement community, and then his new HO railroad. Harry points out that this time, he built the railroad to be taken apart with a minimum of fuss. He made notes on the benchwork (see photo above) to guide him or someone else when taking it apart.

His goal wasn't so much to make it movable as to make it removable, but the same criteria apply.

More than meets the eye

I confess that I had to study the track plan – the very simple track plan – that accompanies Erik Block and Evan Daes article on a round exhibition layout a couple of times before the magnitude of what Evan's track plan allows to happen sank in. Picture a knowledgeable viewer – you – standing in front of this small cylinder and



Harry Bilger labeled the benchwork on his new layout to make it easier for him or someone else to know how it was assembled, thus making disassembly easier later on. Harry Bilger photo

watching a train roar by. In fact, you'd be watching a very long train go by, and your eyebrows would arch when it didn't show up again for a surprisingly long time.

"How they'd do that?" you'd wonder. See for yourself beginning on page 50.

Modeling vicariously

The editors who bring you MRP each year are well aware that some of the railroads we feature are well beyond the means, and even goals, of many readers. Others are chosen specifically with the beginner or those who have very limited space in mind. Some articles focus on big-time railroads that are popular with a lot of modelers, while others feature obscure branch or short lines that may make ideal candidates for the type of one-horse railroad traditionally favored by many modelers.

What we hope is that you will choose to read not only about those railroads, scales, and gauges that happen to fit your immediate modeling goals and needs but also about those that embrace far different goals. Even if you will never have the means to build a gymnasium-size edition of the BNSF or a predecessor railroad, we hope you will vicariously enjoy the accomplishments of those who can.

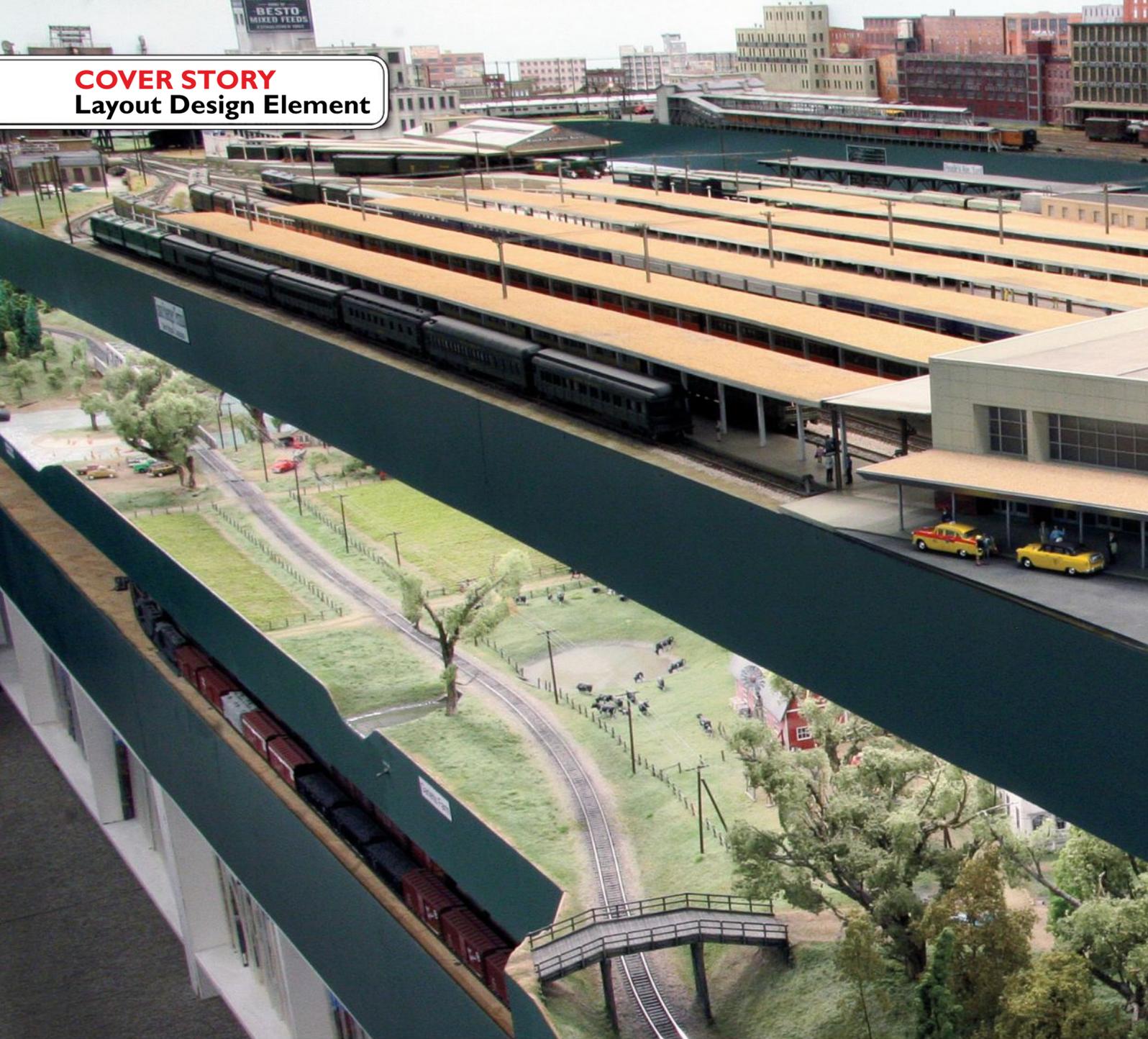
Happy as I am with my basement-size Nickel Plate layout, I would enjoy having the time, money, and space to model a Midwestern electric railroad

such as the Indiana RR, the Illinois Terminal, or maybe one of those classic Iowa interurbans. As long as I'm dreaming, I'll make it an O fine-scale (Proto:48) railroad. I'd have to find time to build it between breaks in constructing a 1.5"-scale, outdoor, live-steam "system" on 40 acres with a fleet of Berkshires, light Mikados, and some Geeps and RS-3s. (Please don't wake me up – this is getting good!)

Neither of those pipedreams is going to happen, but I'd enjoy reading about someone who had managed such feats. And, unlikely as that may actually be, I'd love to share such stories so we can all enjoy walking in someone else's shoes, if only for a few pages.

Our first 20 years

It seems like only yesterday that the *Model Railroader* staff and I sat down to discuss the concept of a layout planning magazine and what to call it. But it's been two decades – you're reading the 20th issue of *Model Railroad Planning*. Many of you have all 20 issues, and we thank our readers, advertisers, and contributors for your ongoing interest and support. **MRP**



Operating a busy passenger



1. The passenger terminal occupies the top of three decks to ensure its grandeur is not obscured by benchwork support pieces.

terminal

Scaling down the large and active New Orleans Union Passenger Terminal

by **Cliff Powers**//Photos by the author



2 and 3. These two views only hint at the incredible interior and exterior detail, including lighting, that Cliff has included in his 1:87.1 scale model of New Orleans Union Passenger Terminal. Blue Christmas-tree lights illuminate the entire railroad for night operations, so the structure lights aren't just for show.

I love passenger trains. That became the driving force in designing my Mississippi, Alabama & Gulf HO railroad. I knew that it would be set in the deep South of the 1950s, but I needed to find a large city to serve as a focal point. Ideally, it would host passenger traffic from such favorite roads as the Southern, Louisville & Nashville, Illinois Central, Southern Pacific, Missouri Pacific, Kansas City Southern, and the Texas & Pacific – clearly a tall order!

It was therefore no accident that I ultimately chose New Orleans. Not only did the Crescent City serve as a terminus for each of these railroads, but it also provided the opportunity to model the newly opened (1954) New Orleans Union Passenger Terminal (NOUPT), where varnish from the West and Southeast converged on one stage. By also including the numerous support facilities that served the NOUPT, I could simulate the rarely modeled, day-to-day operations of a major passenger terminal.

Achieving this goal became of paramount importance in designing the remainder of the layout as well as determining staging yard requirements to handle the density of both passenger and freight traffic.

A tour of NOUPT

One of the last union stations to be built in the United States, NOUPT was the answer to a problem that had plagued New Orleans for years. With nine railroads serving five different downtown stations, the resulting 144 grade crossings had become a serious issue for both the city and railroads. The creation of Union Passenger

Terminal eliminated all of the existing stations and relieved many of the city's traffic nightmares.

The main concourse was, for its time, modern in design. The interior was entirely air-conditioned, a consideration much appreciated by visitors to humid New Orleans. The limestone and imported marble facade was simple, yet impressive.

The structure was built at an angle from the 12 tracks that served the terminal. An interesting brick baggage building was erected adjacent to the main concourse and connected by a curved canopy. Six butterfly-style sheds protruded from the rear of the building to provide shelter for arriving and departing passengers. These architectural attributes made for a very impressive and visually interesting keystone structure. Working from original blueprints of the building, fellow model railroader Nick Muff drafted scale elevation drawings of the station that were laser-cut in acrylic by Custom Model Railroads (www.custommodelrailroads.com). With its fully lighted and detailed interior, the finished model is the most impressive structure on my layout and the thing visitors notice first as they enter the layout building.

In addition to the station itself, I modeled the original Railway Post Office (RPO) shed, the Railway Express Agency (REA) facility, and the distinct interlocking tower at Clara Street, which, although no longer in use, still exists. Nearby, the South Claiborne

Avenue overpass crossed the station yard throat. On the layout, the scratch-built model of the bridge helps to soften the effect of the wye, which was actually located beyond the coach yard. The bridge also serves to visually separate the coach yard from the rest of the terminal.

Between the South Claiborne Avenue overpass and the REA building stood the Gibbons Feed Mill. While not part of the complex, this large building is visible in most of the period photos taken of NOUPT, so I wanted to include it. I built the model from Walthers modular components, and it closely follows the prototype.

Learning points

- Operations at a busy passenger terminal are an oft-neglected but highly interesting operational theme for a model railroad.
- The wide variety of railroads serving such a terminal offers diverse modeling opportunities.
- The range of color schemes and equipment in the pre-Amtrak eras is almost limitless.
- The sprawl of a passenger terminal may make it difficult to locate on a lower deck.
- Dividing operating sessions into segments of a day provides different operating challenges.
- Operating at night under a “full moon” is practical.



The Pullman servicing building was semi-scratchbuilt using modified window components from a Rix kit, while the overhead pipes of the coach yard were created using an assortment of styrene rods and tubes. The diesel shop was extensively kitbashed from a Walthers kit and includes a scratch-built model of NOUPT's unique concrete sanding tower. While my arrangement of these support facilities was dictated by the available space, they nonetheless communicate the overall rhythm and function of the prototype during operating sessions.

NOUPT as an LDE

My Mississippi, Alabama & Gulf became a triple-deck design out of necessity. In a 14 x 32-foot area, the inclusion of adequate staging, a run through rural Mississippi, and the urban landscape of New Orleans required each theme area to have its own respective deck. The conventional wisdom in multi-deck design is to have yards and large switching areas on the lower deck. In my case, this was not possible.

On my layout the NOUPT is a layout design element (LDE). [As defined by editor Tony Koester in *Model Railroad Planning 1995*, a layout design element (LDE) is a visually and operationally recognizable model of a specific prototype location. – Ed.] The prototype NOUPT is huge, and modeling it was going to require the entire 4 x 19-foot footprint of my center peninsula to be realistic. Because the wide-open space of the terminal would not support a deck above it, I had to locate it on the upper deck. The coach yard and diesel facility take up an



4. Illinois Central's *Panama Limited* has backed into the station as the Louisville & Nashville's *Hummingbird* awaits its 10:40 a.m. departure time. The yard throat and supporting buildings are visible in this view looking toward Clara Tower and the South Claiborne Avenue overpass.

additional 2 x 14-foot space along the back wall.

My biggest challenge involved the track arrangement of the yard throat. The actual NOUPT had five tracks while I only had room for three. This was acceptable to me, but accurately duplicating the complexity of turnouts within that area was much more problematic. I was faced with the decision to include a few of the numerous double-slip switches in the yard throat or to maintain a minimum track length of eight feet into the station. The use of double-slip switches

would have severely shortened these station tracks.

Not wanting to limit myself to passenger consists of five or fewer cars, I elected to substitute a single double-crossover for the double-slip switches. This still allows trains to cross from one side of the terminal to the other while affording a complex appearance. It also provides room for a minimum of seven passenger cars plus head-end equipment to be spotted at each of the 12 station tracks. This was a functional and aesthetic compromise I could live with.



5. This overview of the entire Mississippi, Alabama & Gulf RR shows the passenger terminal on the top deck of the central peninsula. Access on both sides eases potential reach-in concerns.

Another design consideration dealt with the way the NOUPT relates to the rest of the upper deck. In theory, the mainline track behind the Peoples Avenue freight yard facilitates trains coming from the east (MA&G; Southern; Gulf, Mobile & Ohio; and L&N). It would not look plausible to see the Southern Pacific's *Sunset Limited* approaching from the same direction.

To eliminate this problem, I designed a "points west" five-track staging yard, which is hidden in the waterfront warehouses on the opposite side of the layout. This provides a point for all trains from the west to originate or terminate. In each six-hour trick (three-hour operating session), five tracks are adequate for trains arriving and departing to "swap places." It also allows trains coming from the west to enter from the left side of the layout and trains from the east to enter from the right. While these points of entry would have been miles away from the wye itself, it gives the right visual cues to operators.

This is also in keeping with the directionally sincere aspect of the entire layout: East is right and west is left. "Points east" trains are easily

accommodated by the lower-deck staging tracks, which can handle as many as 32 trains at any given time.

Modeling a timetable

Early in my research, I chose 14 passenger trains I wanted to model and entered their actual arrival and departure times from NOUPT Timetable No. 1, dated April 16, 1954, onto a spreadsheet. The remaining available time slots were assigned to trains from the MA&G. Once I was armed with this piece of the puzzle, my focus shifted to recreating the traffic patterns of the NOUPT on the layout. I began by dividing a full day into four, six-hour operational periods, or "tricks," based on periods of somewhat equal degrees of operating action and interest. Finally, I choreographed the arrivals/layovers/departures of consists to ensure adequate staging, terminal, and coach yard tracks would be available to accommodate those moves.

Session 3 (2 p.m. to 8 p.m.)

Let's take a closer look at one of the four operating sessions I regularly host from the perspective of two of my crew members. The stationmaster

is responsible for moving all passenger traffic between staging and the passenger terminal. His assistant, the switchman, is charged with the servicing and movement of all motive power, passenger cars, and head-end equipment within the terminal. As you'll see, during an operating session there is very little downtime associated with these challenging positions!

Prior to the arrival of the crew, both freight and passenger trains have been staged according to the timetable. For this session, the lower (points east) staging tracks include L&N No. 5, the *Hummingbird*, Southern No. 37, the *Crescent Limited*, and L&N No. 1, the *Azalean*. In the upper (points west) staging yard, the only staged passenger train is Southern Pacific No. 2, the *Sunset Limited* on Track 1. Track 2 and 3 are empty in anticipation of two of the five

On our website

All four of Cliff Power's NOUPT train schedules are available online as a free download. You'll also find videos of Cliff's layout. Click on the links at www.ModelRailroader.com.

The layout at a glance

Name: Mississippi, Alabama & Gulf RR (upper deck shown)

Scale: HO (1:87.1)

Size: 14'-0" x 32'-0"

Prototype: railroads serving New Orleans

Locale: southern Mississippi and New Orleans

Era: summer 1955

Style: triple deck

Mainline run: 160 feet

Minimum radius: 27"

Minimum turnout: no. 6

Maximum grade: 1.79 percent in helix

Train length: 12 feet

Benchwork: L-girder and metal shelf brackets

Height: 30", 40", and 58"

Roadbed: cork on 1/2" plywood

Track: Atlas code 83

Scenery: foam insulation board and Sculptamold

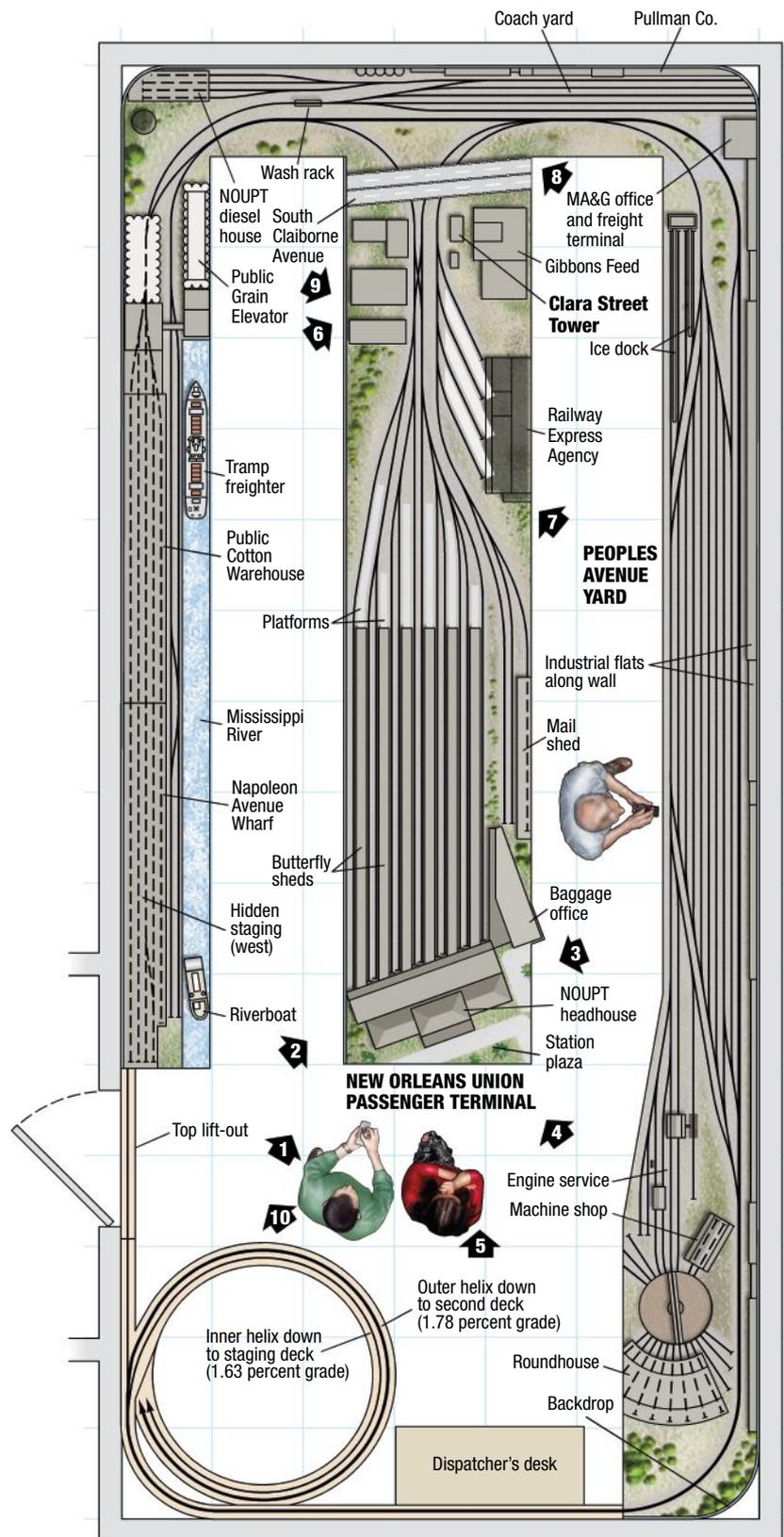
Backdrop: 1/8" hardboard and digital images

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scheduled departures. The coach yard is holding colorful equipment from KCS No. 2, the *Southern Belle*, Illinois Central No. 6, the *Panama Limited*, L&N No. 12, the *Gulf Coast Commuter*, and Missouri Pacific No. 116, the *Southerner*. Because MA&G No. 3, the *Magnolian*, will depart 15 minutes after the session begins, it has already been spotted on station Track 9 with head-end equipment and motive power in place, ready to leave on schedule.

The session begins, and promptly at 2:15, the *Magnolian* pulls out of NOUPT headed to Meridian, Miss. Once it passes under the South Claiborne Avenue overpass on the east leg of the wye, it passes behind the Peoples Avenue yard and exits the third deck. It then enters the outer loop of the helix so that it may pass through the Mississippi towns located on the second deck. It will make brief station stops at Edna and Wharton, Miss., before re-entering the helix headed down to lower-deck staging.

Meanwhile, the switchman is using NOUPT SW8 no. 2 to ready the *Southern Belle* for her 4 p.m. departure. The first step involves pulling the handsome black-and-silver smooth-side cars from the coach yard and through the wash rack. They are then backed through the



UPPER DECK, NEW ORLEANS - 58"

Mississippi, Alabama & Gulf "The Magnolia Route"

HO scale (1:87.1)

Room size: 14x32 feet

Scale of plan (upper deck): 1/4" = 1'-0", 24" grid

Numbered arrows indicate photo locations

Illustration by Rick Johnson

Find more plans online in the

ModelRailroader.com Track Plan Database.



6 (top) and 7 (above). The highway overpass (top) is located much closer to the terminal throat than on the prototype, but it helps to visually and operationally separate the coach yard (above) from the passenger terminal.



8. The NOUPT engine servicing facility includes a model of the multi-track sand tower. Building flats and digital photos help to extend the scene.

west leg of the wye into Track 6. Once the consist is spotted, the switcher then collects a baggage car from Track 1 and an RPO car from the postal shed. These are similarly backed into Track 6 and connected to the string of coaches. The next order of business is to pick up two reefers from the REA building and add them to the consist.

Now that the SW8 is no longer needed, the switchman turns his attention to the diesel shop, where a single KCS E6 has been fueled and prepped for its return trip to Kansas City. It is also pulled through the wash rack, and then backed to the awaiting *Southern Belle*. Here it will wait for passengers to be loaded prior to the 4 p.m. departure time. The switchman will repeat a similar series of moves for each of the departures scheduled for this op session.

Once the stationmaster has dropped off the *Magnolian* in the points-east staging yard, he finds the *Hummingbird* parked nearby. Because L&N trains do not traverse the second deck, the *Hummingbird* enters the inside track of the helix and emerges on the third deck, where it enters New Orleans behind the MA&G roundhouse. It is backed at 3:10 into Track 9 where it will sit long enough to simulate the unloading of passengers.

The switchman uncouples the two E7A units and moves them to the diesel shop for servicing. He then resumes control of NOUPT no. 2 and moves the express cars to Track 2 of the REA building. There is an RPO car that must be spotted at the mail shed and two baggage cars for Track 1. Then the remainder of the consist is backed into the coach-yard track previously occupied by the KCS cars.

At 4 p.m., the stationmaster highballs the *Southern Belle* out of NOUPT and moves her into “points west” staging track 2 which, in this case, represents Kansas City. He then aligns the switches for staging track 1, where the *Sunset Limited* has been patiently waiting. At 4:15, it pulls out from behind the New Orleans Public Grain Elevator and backs through the east leg of the wye to Track 12.

The switchman has his hands full at this point, as he must assemble the *Panama Limited* on Track 10 and the *Gulf Coast Commuter* on Track 4 in 45 minutes. This isn’t as large a task as it would seem. The *Gulf Coast Commuter* is the smallest resident of the NOUPT, made up of only a single FP7 and three coaches, so the switching chores involved are minimal. Once this work is completed, the *Panama Limited* departs

at 5 p.m. and is stored on the staging track vacated by the *Sunset Limited*.

The switchman now has plenty of time to switch and set out the cars of the *Sunset Limited* and assemble the *Southerner* for departure. The stationmaster can take a short break before preparing for the arrival of the *Crescent Limited*. At around 6:20 he pulls it from lower staging and enters the outer loop of the helix. The Southern and GM&O have trackage rights through the Mississippi area, so the *Crescent Limited* will run through the second deck without making any station stops. Once in New Orleans, it will back through the west leg of the wye into Track 8 at 6:45.

While the switchman breaks down the *Crescent Limited*, the stationmaster will repeat the process for the *Azalean* at 7:30, only this time bypassing the second deck completely. Before the end of the operating session, the switchman will service the cars of the *Azalean*, and the stationmaster will facilitate the 7:50 departure of the MoPac's *Southerner* and bring it into "points west" staging track 3. The session comes to an end at this point, and the two operators certainly feel like they've put in a full day's work!

Night operations

When you factor in all of the freight traffic that is simultaneously moving on the layout, my operating sessions are certainly a beehive of activity. From a passenger train perspective, some sessions see more activity than others.

As one would expect, NOUPT saw fewer train arrivals and departures during the wee hours of the morning. To compensate, I wanted to make those less traffic-intense night sessions more interesting. I accomplished this by installing blue Christmas lights in the valance and under the third deck to simulate a full moon. Because the station alone has more than 300 light-emitting diodes (LEDs), the third deck is particularly stunning during these "lights-out" sessions.

Operators are equipped with small flashlights for reading switch lists and other paperwork. Likewise, the dispatcher has a lamp to allow him to perform his duties. This not only creates a truly realistic atmosphere for the night sessions but also makes them more operationally demanding with the added element of darkness.

Passenger train potential

I hope my report has illustrated that the operational aspects of passenger



9. Cliff has devoted a lot of attention not only to the rail-related structures such as the Railway Express Agency building in the background but also to commercial businesses, such as the used car lot, that line the terminal tracks.



10. This long warehouse to the left on the upper deck conceals a five-track "points west" staging yard for consists from the SP, MP, T&P, IC, and KCS. Its roof is removable for access and maintenance.

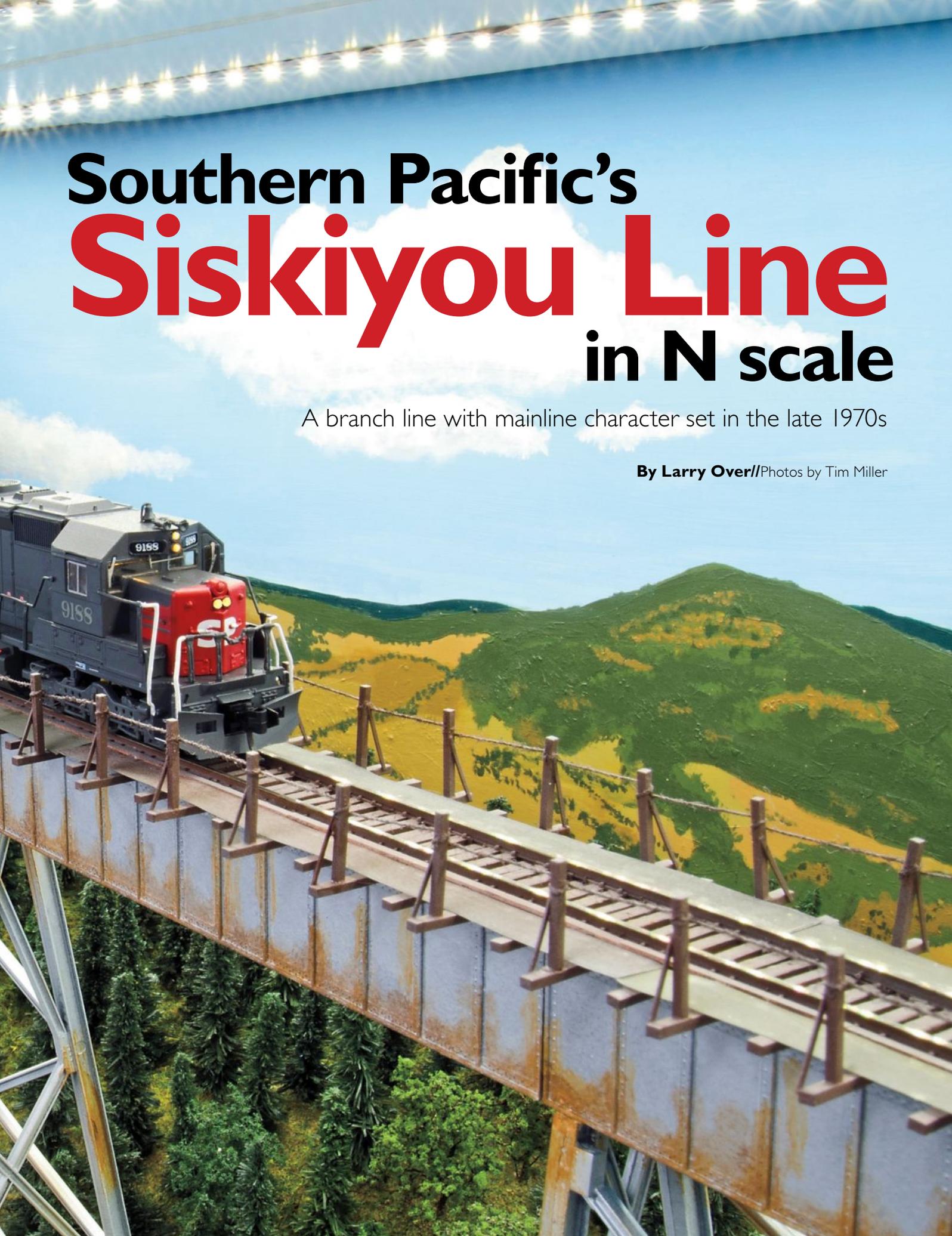
train modeling are not only possible but also very interesting on a home layout. I consider it to be one of the most neglected aspects of our hobby. The simulation of activity in and around a major passenger terminal is incredibly challenging and rewarding. I encourage you to look for ways to incorporate some degree of passenger train presence on your layout. **MRP**

Cliff Powers has been a model railroader since age 10. An elementary

educator for nearly 20 years, Cliff is currently serving as both lower school STEM Lab instructor and Technology Integration Specialist. He and Jennifer have been married 22 years and have three children. The MA&G was featured in Great Model Railroads 2013 ("Way down yonder in New Orleans") and GMR 2007 ("The South has risen again"), and it was also part of Allen Keller's video series Great Model Railroads Volume 54. Cliff also enjoys playing the piano.



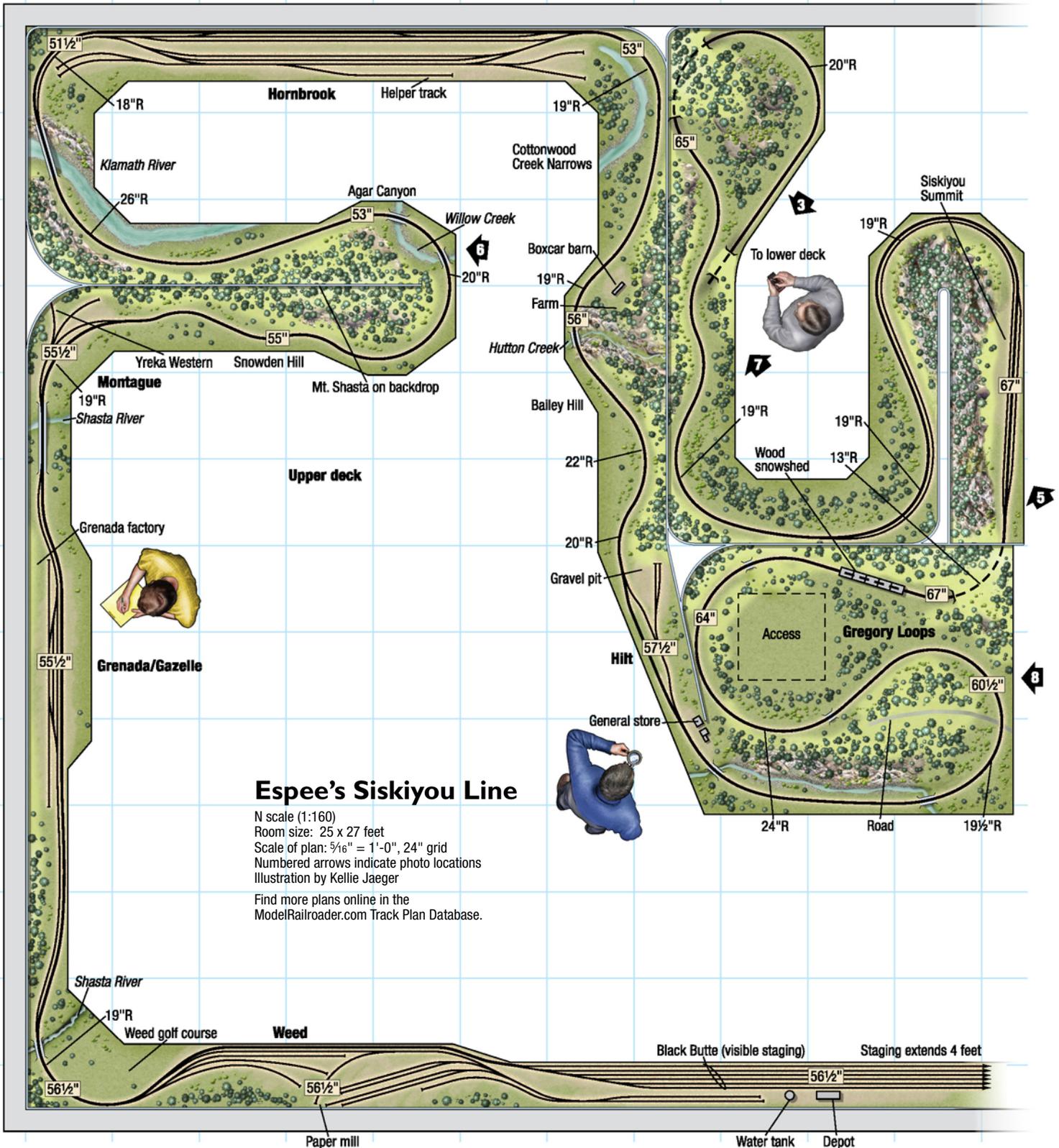
1. An eastbound freight crosses Wall Creek Viaduct in the Siskiyou Mountains. Strips of light-emitting-diode (LED) lights illuminate this scene on the lower deck of Larry Over's N scale Southern Pacific Siskiyou Line, which was inspired by a track plan in *Model Railroad Planning 1997*.



Southern Pacific's **Siskiyou Line** in N scale

A branch line with mainline character set in the late 1970s

By **Larry Over**//Photos by Tim Miller



The origin of my N scale Southern Pacific Siskiyou Line layout dates to my childhood. I'm a native Oregonian who grew up on the SP's Toledo branch. Since I was old enough to remember, I've seen SP's long and heavy Toledo Hauler come into town. It was often pulled by solid sets huge six-axle

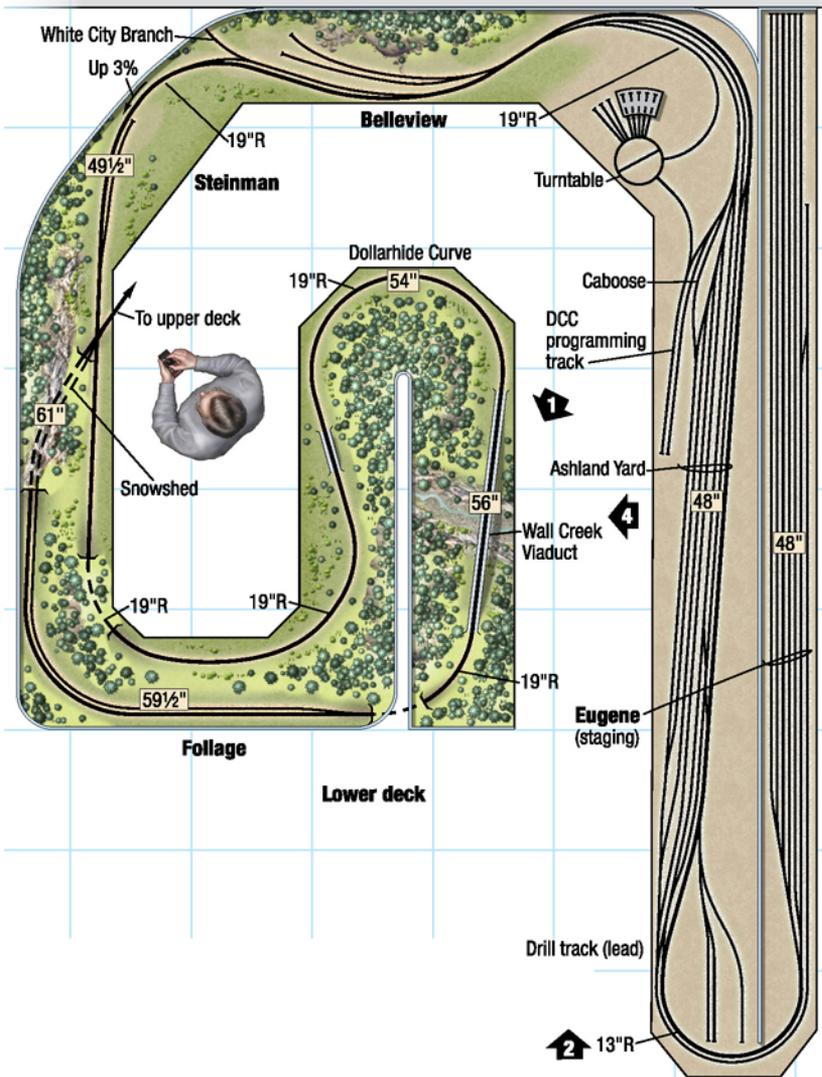
engines like EMD SD9s and, for a time, SD45s. There was always a GP9 or SD9 stationed in Toledo to work the many lumber mills and the large paper mill, as well as some other industries.

My father often took me down to the yard to look at the locomotives. This firmly established that the SP and its six-axle (C-C) locomotives became part

of my childhood as I developed a sincere interest in both prototype railroads and model railroading.

What to model?

I've modeled in N scale since 1970, but until recently I didn't have the time or space to plan a large layout. I've been fortunate enough to view



The layout at a glance

Name: Southern Pacific's Siskiyou Line
Scale: N (1:160)
Size: 25 x 27 feet
Prototype: Southern Pacific
Locale: Pacific Northwest
Era: late 1970s
Style: multi-deck walk-in
Mainline run: 220 feet
Minimum radius: 18"
Minimum turnout: no. 6
Maximum grade: 3.3 percent
Train length: 11 feet
Benchwork: conventional grid
Height: 48" to 67"
Roadbed: Vinylbed
Track: Peco code 55
Scenery: cardboard lattice with masking tape and plaster
Backdrop: .060" styrene
Control: Digitrax duplex-radio DCC

Oregon's many Class 1 mountain railroads, such as Union Pacific's Blue Mountain Crossing, the Great Northern-Spokane, Portland & Seattle (later Burlington Northern) Inside Gateway, and the SP's Cascade Crossing and Siskiyou lines.

My goal was to realistically model an Oregon mountain main line. The prototypes I considered were the SP's Modoc Line, the Inside Gateway, and the Siskiyou Line. I used a decision matrix like the one Bernard Kempinski described in *Model Railroad Planning 2006* to decide on a prototype.

While I was reviewing the pluses and minuses of each line, I happened to scan MRP 1997. In that issue, Don Mitchell described a multi-deck N scale bedroom-sized layout for the SP Shasta Route. From my many hikes along the Siskiyou Line, the pictures I had taken, and my knowledge of the topography, it dawned on me that the route had the same "Z" curves Don described in the Shasta Route design.



2. Ashland Yard, with Medford/Eugene staging hidden behind the backdrop, is on the right. Visible to its left on the lower level is Wall Creek Viaduct, with Siskiyou Summit above it. The Gregory Loops are under construction at left.



3. The head-end power of a westbound freight circles back to cross above and soon over the rest of its train, which includes a set of mid-train helpers. Larry used a typical SP snowshed to transition smoothly between levels.



4. This view shows both decks as the railroad climbs up the Siskiyou. An eastbound freight is crossing Wall Creek Viaduct on its way down to Ashland. Tunnel 15 and the transition between decks is in the background.

That gave me the idea to switch the Siskiyou locations with the Shasta ones. So, with suitable modifications, Dunsmuir Yard became Ashland Yard, Cantara Loop became Dollarhide Curve, and Mount Shasta became Siskiyou Summit.

Don's design allowed my trains to climb prototypically from Ashland to Siskiyou Summit, just as the SP had done, yet stay within a reasonable space to allow development for the rest of the layout. This fit together perfectly with my prototype, so I knew this was

the railroad I would model. Don had worked out all the difficulties for me concerning maximum grade, the space needed to construct the Z-curve area, and the minimum radius.

Several other factors also favored the Siskiyou Line: the incredible route over the Siskiyou, which was laid out by William Hood in the late 1880s; the mountain scenery; the use of large six-axle units, including Alco Centuries and EMD tunnel motors; and large sets of helper engines.

This section of the Siskiyou Line is rarely modeled. Bruce Chubb has a portion modeled in HO scale, and Joe Fugate's HO scale mushroom-style Siskiyou Line depicts the northern part. It's officially a branch line in the late 1970s that I model, but has the characteristics of a heavy mountain main line. The scenic variety of the line on the southern half of the railroad south of Hilt, Calif., was another plus.

I chose the late 1970s because the Southern Pacific was still a viable railroad, and heavy trains with 6-axle



5. A train exits tunnel 13 while a westbound waits in the siding next to the eclectic maintenance of way structures at Siskiyou Summit. This relatively finished area shows how the railroad will appear as Larry completes more scenery.

power were routinely dispatched over the line west to Black Butte, Calif., and east to Eugene, Ore. (In SP timetables, west is toward San Francisco and east is away from the Bay Area.) The 1970s were also the years when I photographed and hiked much of the line.

Online industries

Most Siskiyou Line traffic was related to the lumber industry. This often came from mills farther east on the Siskiyou Line and from many mills in the Medford and Rogue Valley areas.

In addition, the Rogue Valley is known for pears, peaches, apples, and other types of fruit due to the favorable climate. I've represented a portion of this with two fruit-packing plants, which are serviced by mechanical refrigerator cars. This "hot" perishable traffic is represented by a small piggyback terminal that loads refrigerated trailers on flatcars.

The SP didn't have a piggyback service for refrigerated trailers on the Siskiyou Line due to tunnel height



6. Larry's scenery and fascia-construction techniques are on display in this view of westbound MERV (Medford-to-Roseville freight) crossing the Klamath River Bridge and moving along the Klamath River Canyon.

restrictions. But I feel this traffic adds operational interest and is in keeping with the overall theme of the Siskiyou Line and the industries it served.

The southern end of the Siskiyou Line, south of Hornbrook, is agriculturally rich. It will be represented by

industries that serve agriculture, such as grain loading, farm equipment transport, and crop storage.

The large paper mill at Weed will require a dedicated local because of its multiple tracks and the traffic generated. The east end has no industries



7. A close-up view of both finished and unfinished scenery shows the cardboard lattice that Larry uses to create mountain landforms. The lead units of this westbound

freight have exited tunnel 14 as the midtrain helpers pass through prototypically short tunnel 15 below. UP units were common on the SP in the 1970s and '80s.

between Bellevue and Hilt, Calif., as per the prototype.

Geographical tour

The layout is a linear point-to-point design with open staging representing Eugene and Medford on the east end of the system and scenicked open staging representing Black Butte and Roseville on the west end.

I was able to expand Don's minimum radius to 18"; most curves are 19" or larger. All mainline curves are super-elevated with easements.

Mainline turnouts are no. 8s, and yards have no. 6 or larger turnouts. The track is Peco code 55 flextrack with Peco Electrofrog turnouts. This line was Automatic Block Signal territory, with all switches operated manually by a switchman or brakeman, and I wanted to represent this authentic aspect of the Siskiyou Line. All 101 turnouts are therefore operated with Blue Point manual controls.

The maximum grade is 3.3 percent over Siskiyou Summit, and the profile closely represents the prototype grade on both its east and west approaches.

I included a turntable and roundhouse at Ashland Yard. The yard itself

is designed from John Signor's excellent book, *Rails in the Shadow of Mount Shasta*. It includes a yard plan of Ashland and one of Hornbrook, Calif. These were a tremendous help in designing the track plan.

The turntable and roundhouse were gone by the time I'm modeling, but I included both because of the interesting operation of a turntable.

The track starts its climb after passing the sawmill at Bellevue, and the 3-percent-plus grade continues up to the east siding switch at Siskiyou Summit. I decided to terminate the grade at this point because the height above the floor was 67", and I felt that this was high enough.

On the way up the grade to the summit, trains pass through tunnels 15 and 14. A large loop between these tunnels provides a turnback curve as far out on the mountain ridge as possible. This allows the head-end units to pass above the helper engines on most freight trains. I incorporated this into my design; a typical 25- to 32-car train duplicates this passing of hauler and helper engines.

Towering Wall Creek Viaduct is located west of tunnels 14 and 15.

Because of the 183-foot height of this bridge, I couldn't place it in its proper place and still have room for the lower deck below it. I therefore moved the viaduct to the lower deck, just after trains pass through Dollarhide Curve. This accommodated a largely scratch-built viaduct that's four feet long and the proper scale height.

Once trains pass through Tunnel 13 at Siskiyou Summit, they begin the western descent of the Siskiyou Mountains. I've represented this by including a scaled-down version of the Gregory Loops, which are complete turnback curves that the prototype employed to keep the grade to a maximum of just over 3.3 percent.

Another hill is encountered past the small industrial area of Hilt, Calif. Bailey Hill has another severe grade, and eastbound trains face another hill on their way toward Ashland.

For the old helper area of Hornbrook, I used the track plan in John Signor's book. I located industries at both ends of the yard for operational interest and included a helper track.

There was a grade in either direction out of Hornbrook. Westbound trains cross the scenic Klamath River

Canyon and then transition into rugged Agar Canyon. They traverse another grade at Snowden Hill, with majestic Mount Shasta in the background.

The next community is Montague, where the Southern Pacific interchanged with the Yreka Western. Including this interchange adds switching interest. I included one other branch line: the Southern Pacific's White City Branch. In reality, the White City Branch comes off the Siskiyou Line east of Ashland, but I transposed it to the west end of Belleview.

Trains continue through the communities of Granada and Gazelle. The industrial area of Weed, Calif., is represented by what will become a large Georgia Pacific paper and pulp mill and bag plant. Actually, Roseburg Lumber Co. had a very large sawmill at Weed, but I worked at a paper mill during summers in college, so I know the car variety serving a paper mill is greater than a lumber mill.

Passing Weed, trains enter the west-end staging at Black Butte, Calif. This is where the Siskiyou interchanges with the Shasta Line, the newer main line built into Oregon in 1927. The visible staging allows some scenic representation of Black Butte, as well as having four of the six staging tracks more than 11 feet long.

Design and construction

I designed the operation to be representative of Southern Pacific's ABS practices. This line used lower-quadrant semaphore signals, a feature I want to add to the layout. The Siskiyou Line used both timetable-and-train-order and track-warrant controls. All train movements are controlled by Digitrax duplex wireless Digital Command Control throttles. The Blue Point switch controls require operating crews to walk to a switch to line it.

Learning points

- Favorite prototype locomotives may help you choose a prototype, era, and locale to model.
- Studying and adopting portions of published track plans may ease layout-design chores.
- Modeling a prototype railroad is essentially stringing together a series of Layout Design Elements.
- Locating switch controls near the associated turnout rather than on a central control panel puts crews where the action is.



8. The Gregory Loops are on the west side of the climb up to Siskiyou Summit, with Siskiyou Summit tunnel just to the right of the photo. Black Butte/Roseville staging and the site of a large paper mill complex at Weed are at left.

The layout is designed to accommodate six to eight operators in a comfortable environment. Aisles are wide enough to allow operators to pass without any bottlenecks.

The stand-alone, double-deck part of the layout from Don Mitchell's plan is constructed of three walls of 2 x 4 studs anchored to the room floor. I secured standard open-grid benchwork to this foundation. This has proven to be a very solid construction method that really minimizes the amount of space needed for the three freestanding walls of this portion of the layout. The large peninsula representing the Klamath River and Snowden Hill was constructed with this same method.

Even though the layout is located in a large area (25 x 27 feet), many compromises had to be made concerning the amount of track represented from Ashland to Black Butte. Multiple Layout Design Elements – Wall Creek Viaduct, Siskiyou Summit, the loop between tunnels 14 and 15, Montague, Weed, and others – were incorporated early in the design. [Layout Design Elements, or LDEs, are visually and operationally recognizable models of actual locations. –Ed.]

By using this approach, I was able to incorporate the important features of each LDE without unduly compressing the scene to the extent that it no longer was representative of the prototype. Certainly selective compressions were an important part of designing the LDEs, but I tried very hard to maintain the key features of the prototype.

I wanted a mountain railroad that required the use of helpers and allowed train crews to follow their trains without passing through any scene more than once. I believe the design achieves this operational goal.

The portion of the line west of Siskiyou Summit was designed in four segments over a 3-year period. I started the initial design in December 2005. At this point, all track is in place except the turntable, and all trains are operational. Scenery has been completed in several areas. Scenery construction and layout design are my favorite aspects of the hobby.

I would say I'm very satisfied with the design. I believe it will support interesting operation for years to come. An important part of attaining my goals for the layout was designing it over the course of several years after careful reviews of photos and diagrams of the prototype.

I also enjoy studying published track plans. One can learn and adapt something from many plans to his or her own layout. I'm most grateful to Don Mitchell for his Shasta Route plan, which led me to the Siskiyou plan.

Every time I have an opportunity to work on or operate the layout, I'm reminded what a truly wonderful hobby I have to enjoy. **MRP**

Larry Over is a maxillofacial prosthodontist who lives with his wife, Beth, and three children in Eugene, Ore. His other interests include skiing, golf, and family time. Son Johnny shares Dad's interest in model railroading.

Alice Street in 4x8 feet



The Santa Fe's First & Alice Street Yard was a compact industrial area along the waterfront in Oakland, Calif. It had no direct rail connection with the rest of the far-flung Atchison, Topeka & Santa Fe Ry. The yard did have a little-used interchange track connecting with the Southern Pacific, but most of its traffic came and went by way of the "Santa Fe Navy," railroad-owned car-float barges and tugboats that plied San Francisco Bay and connected with five other rail-marine terminals.

I first became aware of Alice Street when I operated an HO scale shelf layout based on this prototype built by my friend Bill Childers in Fort Worth, Texas. It featured industrial switching concentrated in a small area along a narrow shelf, and it used the car floats both to move a variety of cars on and off the layout and to store them as if in staging. I'd seen other model railroad designs and actual layouts featuring this kind of operation but hadn't associated this concept with the

AT&SF. (Yet I should have, having seen photos of Santa Fe tugs, one even painted in a variation of the famous "warbonnet" passenger diesel color scheme.)

I learned more about Alice Street from Bill's article in the 3rd Quarter 2001 issue of the Santa Fe Ry. Historical & Modeling Society's *Warbonnet* magazine. That issue also showed his Alice Street layout. More recently, an article by *Warbonnet* editor John R. Signor in the 1st Quarter

A highly prototypical N scale track plan for a Santa Fe rail-marine operation in Oakland, Calif.

By Andy Sperandeo//

Photos used by permission of the Santa Fe Ry. Historical & Modeling Society



2011 issue covered the Santa Fe's San Francisco Bay rail-marine operations more generally.

(You can find back issues of the *Warbonnet* at atsfry.net. You don't have to be a society member to buy them.)

All of this prototype information contributed to the N scale track plan shown here, which first appeared in the February 2011 *Model Railroader*. I was allocated only a few paragraphs there to explain my layout design, although I had more to say. *Model*

Railroad Planning editor Tony Koester thought you'd appreciate my sharing those further thoughts here.

So why is it a 4 x 8?

Before I retired from the magazine's staff, MR editor Neil Besougloff wanted to offer readers a variety of track plans for the common 4 x 8-foot layout size that so many hobbyists begin with. He asked each of us on the staff to design a layout of that size, guaranteeing that they'd all be different.

The Santa Fe's First & Alice Street Yard was an isolated industrial district in Oakland, Calif., connected to the rest of the system by car floats. In this 1952 view, a General Electric 44-tonner switches reefers on the team tracks. The building at right is one of two at Alice Street used by the Merchants Express & Drayage Co.

John R. Signor collection photo



In this aerial view of the Alice Street complex from 1921, the freight slip is at the lower left on the Oakland Estuary, First Street runs up the right side with Southern Pacific tracks in the street, and Alice Street crosses First at the fifth intersection up from the bottom. The Atchison, Topeka & Santa Fe freight house extends to the left from the corner of First and Alice. John R. Signor collection photo



Looking south along the Oakland waterfront, car float No. 3 is tied up at the Alice Street slip along with the Santa Fe tug *Richmond*. The tall structure to the left is the hoist house that adjusted the ferry apron's height. Vernon Sappers collection photo

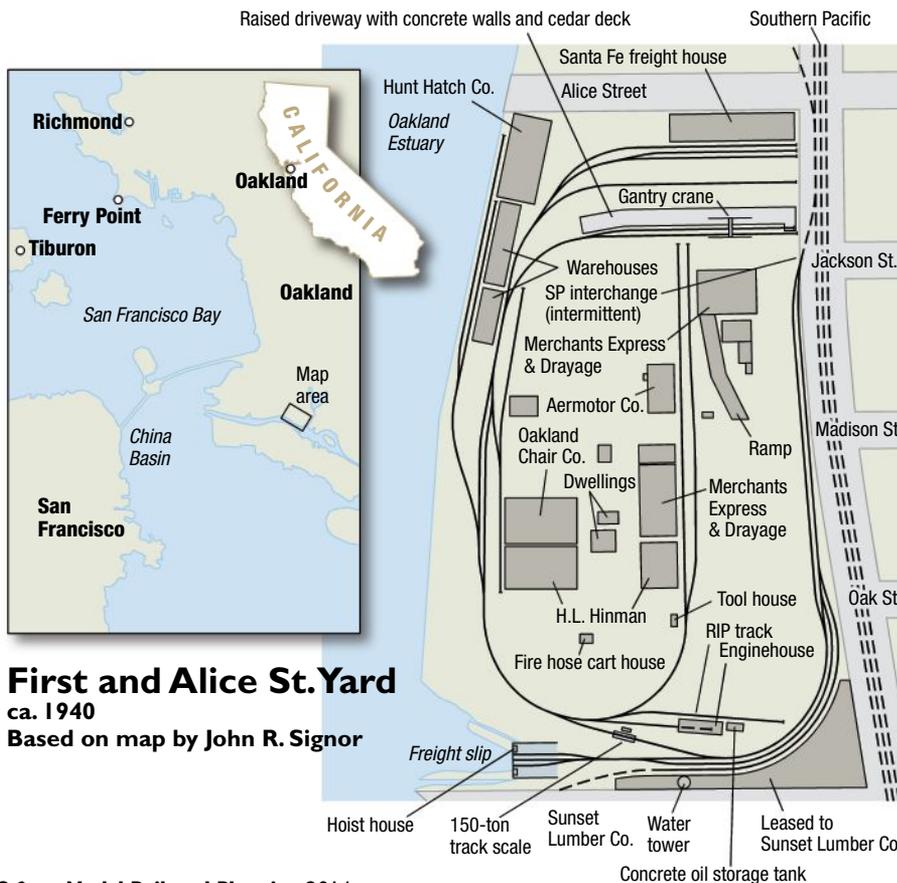
We were all aware of the advice offered by MRP's editor and other layout-design gurus to cut the 4 x 8 sheet of whatever material into narrow strips and build shelf layouts. But Neil was aware of that too, and he told us that he wanted plans for 4 x 8-foot table layouts, not shelf railroads.

To make the assignment more interesting, I decided to try to come up with a prototype-based track plan. And when I think of prototypes, I naturally start with my own favorite, the Santa Fe. Reviewing familiar AT&SF station and yard layouts to find a suitable modeling subject, the First & Alice Street Yard quickly came to the fore. It had several appealing features:

- **Shape:** Okay, it wasn't a rectangle, but it seemed close enough to the 1:2 proportions of the 4 x 8 to allow a reasonably true-to-life N scale track arrangement. I like following a prototype track layout because it tends to impose realistic operating patterns on us hobby railroaders.

- **Marine connection:** Staging can be a challenge on the smallest layouts, but car floats allow rolling stock to readily move to and from the rest of the Santa Fe system and the national rail network. As I'd seen on Bill Childers' layout, car floats can also serve a storage function just like the cassettes used in British-style fiddle yards.

- **History:** Although the First & Alice Street Yard was eventually ripped out in favor of expanded parking for Oakland's Jack London Square, it was a functioning terminal operation from 1904 through the 1950s. (The freight agency closed in 1958, and the freight house was razed in 1966.)



First and Alice St. Yard
ca. 1940
Based on map by John R. Signor

The track plan at a glance

Name: First & Alice Street Yard
Scale: N (1:160)
Size: 4 x 8 feet
Prototype: Atchison, Topeka & Santa Fe industrial terminal
Locale: Oakland, Calif.
Era: 1904-1958 (plan based on drawing representing the 1940s)
Style: tabletop
Mainline run: no main line
Minimum radius: 12"
Minimum turnout: no. 5
Maximum grade: none
Train length: switching operations only

That gives modelers a choice of periods, including Alice Street's own steam-diesel transition in 1952, when 0-6-0s gave way to 44-ton General Electric steeple-cab units.

• **Point-to-point schematic:** At first glance the real Alice Street layout might look like a typical oval model railroad, but look closer. There was no continuous running at Alice Street, and the crews didn't take the engine from one end to the other unless there was work to do when they got there.

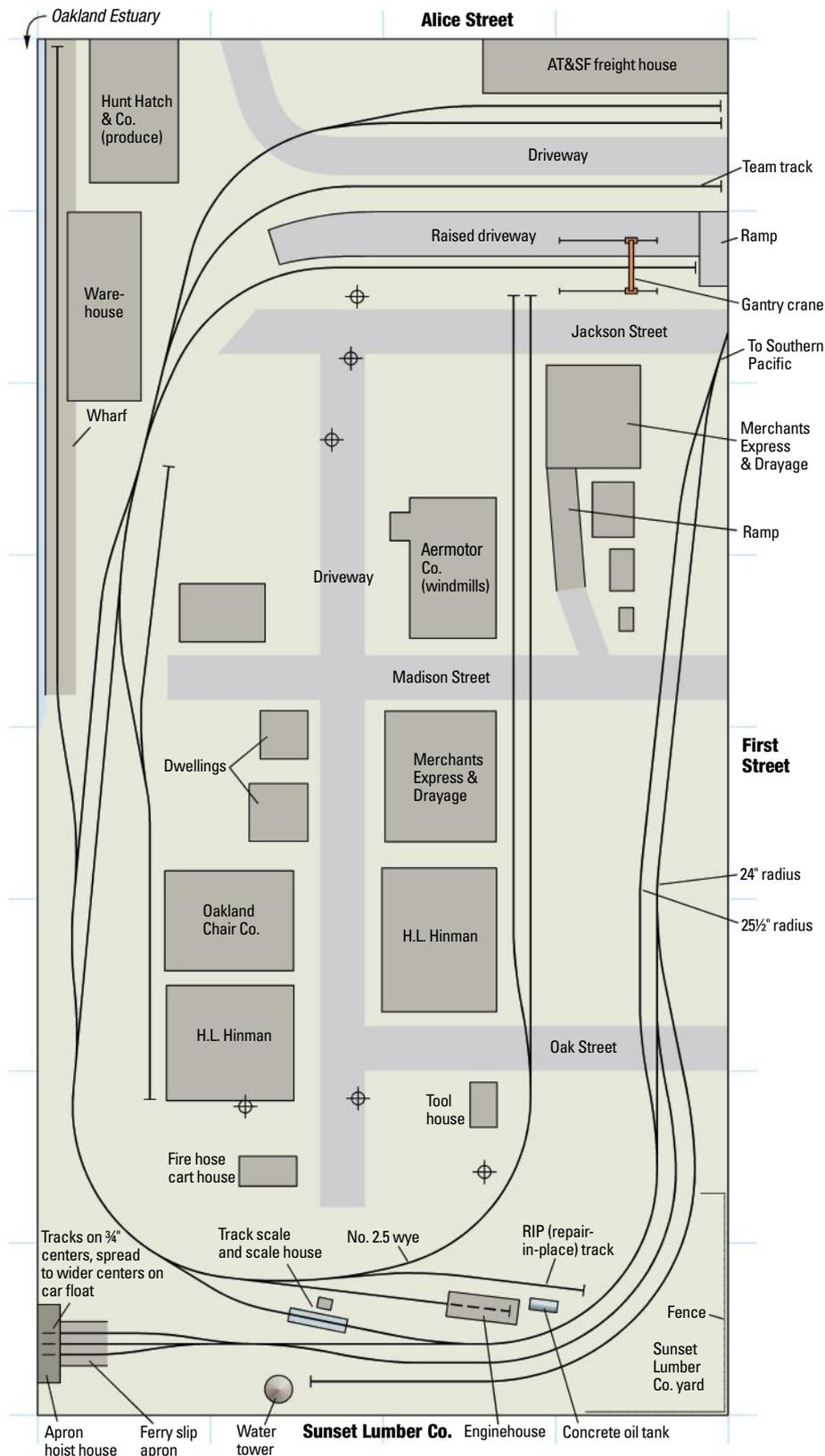
The same is true of this track plan. I'm sure many of you will think of joining the layout's SP connection and one of the team tracks to make an ordinary oval, but I hope you won't. As it stands, Alice Street is small, but it's really a railroad.

Track plan details

I chose a minimum radius of 12", a little larger than the "N scale minimum" of 9¾". This will make the equipment look better and make it easier to shove long cuts of cars reliably. I'd still advise keeping most of the rolling stock to less than 50 scale feet in length. I'll also suggest body-mounting all the couplers for reliability in switching. You don't need so many cars on this layout that this should be a great burden, although with car-float cassettes you can expand your roster as much as you'd like.

The plan shows the center locations for the major curves. Use these to assist in accurately drawing out the track layout on whatever tabletop material you choose. I drew the plan using the specifications of Atlas code 55 turnouts, and the matching code 55 flextrack would look good in Alice Street's industrial setting.

Experienced N scalers know that Atlas code 55 track hasn't always been readily available, and if you really want



First & Alice Street Yard

Atchison, Topeka & Santa Fe Ry.

N scale (1:160)
 Layout size: 4 x 8 feet
 Scale of plan: 1" = 1'-0", 12" grid

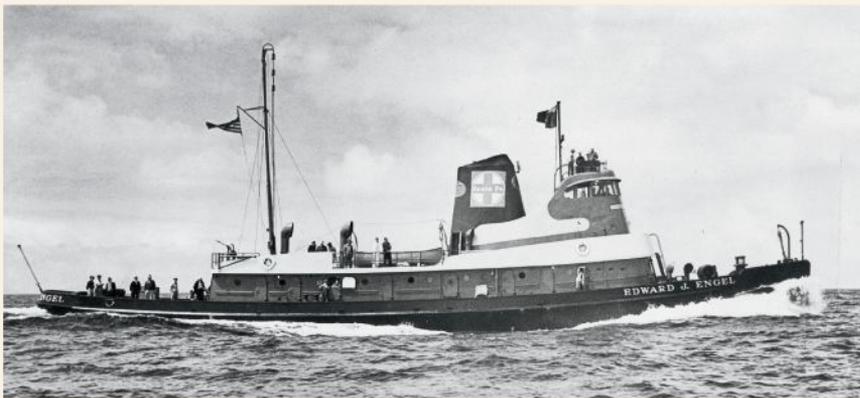
All turnouts no. 5 unless marked
 Minimum radius 12"
 Illustration by Rick Johnson

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

The Santa Fe Navy



Car float No. 4 is taken west through the Oakland Estuary by an unidentified Santa Fe tugboat in 1923. Alice Street was one of five freight terminals connected by water to the Ferry Point slips near the railroad's Richmond Yard. Richmond was the northern terminus of the Valley Division main line from Bakersfield. Vernon Sappers collection photo



The last tugboat built new for the Santa Fe was dressed with a streamlined superstructure and a red and silver "warbonnet" paint scheme. A yellow oval-cross Santa Fe emblem decorated the front of the *Edward J. Engle's* wheelhouse. Kansas State Historical Society collection photo

The Santa Fe's early car floats were wooden barges with steel chafing surfaces. Numbered 1 through 3, they were 261 feet long and had a beam (width) of 41'-6". The 3rd Quarter 2001 *Warbonnet* includes a scale drawing. Two all-steel barges were added later.

The newest steel floats, Nos. 6 through 9, were 260 feet long with a 38-foot beam. All of the steel barges had rudders to assist in maneuvering and were steered from an elevated wheelhouse at the stern. For scale drawings, see the 1st Quarter 2011 *Warbonnet*. The barges held 8 to 13 cars.

Santa Fe tugboats moved the unpowered barges around the Bay. There were eight of these over the years, but usually only three or four in service at one time. The *Edward J. Engle* of 1945 was built with a streamlined superstructure dressed in warbonnet-style red and silver. The last two boats, the *John P. Hayden* and the *Paul P. Hastings*, were seagoing tugs built for the U.S. Army in 1945. They began their Santa Fe service in 1948, after which the remaining older tugs were retired or sold.

The Santa Fe navy was based at Ferry Point, near the railroad's Richmond freight yard, terminal of the Valley Division main line from Bakersfield. From Ferry Point, car floats served five other terminals around San Francisco Bay. Besides Alice Street, these included Alameda, China Basin and Powell Street in San Francisco, and the North Western Pacific terminal in Tiburon.

For modeling information, I recommend Richard Dietrichson's article, "Modeling the Santa Fe Navy in N scale," in the 2nd Quarter 2011 *Warbonnet*. It includes scale drawings of the tugs *Hastings* and *Hayden*. – A.S.

to get your Alice Street layout started quickly, you can look at handlaying the track. This is a small enough model railroad that tracklaying from scratch wouldn't be an endless chore, and you'd learn a lot too. When you know how to build your own turnouts, the commercial products pretty much lose whatever mysteries they once held.

I've labeled each edge of the plan for the boundary features that defined the Alice Street property. The left edge on the page is the Oakland Estuary, the waterfront at Alice Street. The top edge is Alice Street itself, and the right edge is First Street, where the Southern Pacific's main line ran right down the middle of the roadway. The lower boundary is the property line of an industry, the Sunset Lumber Co. The yard space along the spur there can be detailed with stacks of lumber being loaded into freight cars.

I've also included the road grid for this area on the plan. Such a grid is one of the most characteristic features of urban districts, and here it helps to put Alice Street in its City of Oakland setting.

Where do the car floats go?

On the plan I've indicated only the apron that connects to the car floats and the hoist house that raises and lowers the apron to match the freeboard of the barge. The three tracks on the apron are tightly spaced as on the prototype and don't allow clearance on more than one track at a time. This reduced the width and weight of the apron, with the tracks spreading out again on the barge to allow loading on three parallel tracks.

An extension shelf, perhaps a temporary clamp-on in the manner of David Popp's extensions for the MR Beer Line project layout, shown in the Jan. 2009 issue, could be added to the Alice Street 4 x 8 to support a car float and even a tug. This would allow you to use car float barges – if not detailed models, at least wooden planks with lengths of track – as staging cassettes to move cars on and off the layout. See "The Santa Fe Navy" at left for information on the prototype vessels.

Industries

The wharf and the freight station/team track complex were probably the busiest "industries" in Alice Street's heyday. The wharf is rather compressed on the layout because of space constraints, but the freight station can boast a near-prototypical complement of tracks – a bit foreshortened, of course. The good news is that as

trans-shipment points rather than actual producing or consuming industries, these can use many types of cars.

The Merchants Express & Drayage buildings serve a similar function to the freight station as terminals for a local trucking operation. Both Merchants Express and the freight station can load merchandise and LCL (less-than-carload-lot) cars for scheduled car float (and ultimately freight train) connections. Both can also load and unload cars on parallel tracks: Spot the cars so their doors line up to allow placing bridge plates to connect the outer car to the loading dock through the inner car.

The Sunset Lumber Co. was a sawmill operation and a major shipper, so several cars at a time can be spotted for loading on its long spur. Remember that for most of Alice Street's operating life, finished lumber mainly moved in boxcars, with flatcars and gondolas used for rough-cut lumber and larger timbers. Bulkhead flats carrying packaged lumber and wallboard didn't come on the scene until the middle 1950s. One source says Sunset Lumber closed in 1945, but keeping it in business for a few years more would be a reasonable compromise.

The other industries are labeled on the track plan. Hunt Hatch received produce by boat from the Sacramento River Delta and packed it for shipping. The Aermotor Windmill Co. is a branch of that large manufacturer specializing in windmills and other machinery for ships. This is a business most of us might not think to include on a model railroad, and that's one of the pleasures of following a specific prototype.

Learning points

- It's possible to accurately model a carefully selected part of a prototype railroad on the classic 4 x 8-foot table.
- The car floats that connected the railroad to the rail network can serve as portable staging yards or fixed fiddle yards.
- Despite the railroad's small footprint, it served several major industries.
- Unloading or loading a barge isn't as simple as it may seem.
- Either steam or diesel operation is appropriate.
- This plan offers the opportunity to do some marine modeling.



Although taken at Ferry Point in 1962, this photo shows the same kind of apron hoist used at Alice Street, and the three tracks on the car float squeezing together to meet the closely spaced tracks on the apron. Jack Whitmeyer photo

There can be challenges too: The H.L. Hinman Co. is identified, but I haven't been able to learn what kind of a business it was. I'll bet some MRP reader out there knows all about it.

Operation

I'd begin a shift at Alice Street by pulling outbound cars from their spots and lining them up for loading on the next car float, giving priority to loaded merchandise and LCL cars and other outbound loads. When the barge comes in the activity shifts to pulling inbound cars off and shoving outbound cars on.

There's a convention among model railroaders to unload cars alternately from either side of a barge, and to load by reversing that procedure, but that's not necessarily how it was done. It all depended on where the loaded and empty cars were and how their weight was distributed on the barge. The exact order of moving cars on and off was up to the captain of the vessel, and you can make out switch lists requiring varied loading procedures based on those factors. The 1st Quarter 2011 *Warbonnet* includes a selection of Santa Fe "Rules Concerning Barge Loading."

The engine switching the barge used idler flatcars, called "boat flats," to reach across the apron and onto the barge. Engines could run on and off barges – as they regularly did to get to and from maintenance shops – but in normal switching it was just simpler and safer to keep the engine's weight onshore.

When the inbound cars are landed and the barge "sails" with the outbounds aboard, I'd write out a switch list showing how the inbound cars stand on the track and give some thought to the most convenient order

of spotting. That would probably be to start with the freight house and team track cars and work back around the rest of the layout. Before that, however, I'd line up cars that need to be on the other end of the engine and spot them in a runaround track, ideally one we'll pass on the way to the freight house.

A couple of the prototype features of Alice Street can add variety to the switching. You can have car inspectors go over outbound cars and tag any with defects – as determined by a random card drawing – to be spotted on the RIP (repair-in-place) track for at least one operating shift. The RIP can also be used as a clean-out spot to clean a car before loading.

Other cars can be designated for weighing on the track scale, either before or after loading, sometimes both, depending on the commodity being shipped. Remember not to weigh tank cars, though. Their billing is determined by volume in gallons rather than by weight.

When all the cars are spotted, take the engine to the house and put her away until the next "day," which can start whenever you'd like. Before that, put on your freight agent hat and check the waybills of the cars spotted on the layout. Write up a switch list of outbound cars for the next Alice Street engine foreman to pull, and line up a new set of inbound cars on the next barge to arrive. With just a little housekeeping, the fun at Alice Street can go on and on. **MRP**

Andy Sperandio, contributing editor to Model Railroader, served as the magazine's editor and then executive editor until he retired in 2011. He is editor of Great Model Railroads, which, like MRP, is an annual issue of MR.

A moving experience



Harry Bilger and his wife, Pearl, didn't need a dining room in their house, so he built his HO scale Great Northern layout modeling Moscow, Idaho, in that space. Their dog, Molly, likes to be close to Harry when he's working on the railroad.

A new layout fit for a retirement home

By Harry Bilger//Model photos by the author

My HO scale model railroad depicting Moscow, Idaho, was featured in *Model Railroad Planning 2008*. I described the planning and design process I used to capture my memories of the Northern Pacific and Union Pacific operations in the fall of 1965 when I had just arrived as a graduate student at the University of Idaho.

I enjoyed all aspects of that layout for seven years: the initial planning and design, renovation of the building to house it, backdrop painting, benchwork, wiring, tracklaying, scratchbuilding and kitbashing of the many distinctive structures, and most of all running HO scale versions of trains I remember seeing in person.

In September 2011, my wife and I moved from our country home of 24 years to Denton, Texas, just north of Fort Worth. At the time we realized that it was becoming increasingly difficult for us to care for our rural property and manage our lifestyle.

The return of a health problem also slowed me down considerably.

The time for a major change in our lifestyle had finally arrived, so we moved into a retirement community that provides a caring environment and independence. Many services are included, and good medical and other resources, including two universities, are close at hand. Our worries for the future have been greatly diminished.

My HO layout had not been built to move, so I had to abandon it. Although I was sad to dismantle it, I was pleased with what I had accomplished and was looking forward to the opportunities and challenges of a new railroad.

As an update, I'll briefly describe the improvements I made to the original layout as well as the planning, design, and current status of my new layout. [See sidebar: "Updates on the old layout." – Ed.]

My goal is to encourage those of you facing a major relocation, even if it's due to accommodating advancing age,

to continue to enjoy your model railroading endeavors.

Railroad in the dining room?

Giving up that layout was difficult. It looked great and operated beautifully. I enjoyed it immensely and was looking forward to several more years of structure building, detailing, and operating. Although it wasn't complete (are they ever?), I had fulfilled my major objective, which was to re-create my memories of the Northern Pacific and Union Pacific in Moscow when I lived there from 1965–67. I was very proud of that layout, especially so when others who were familiar with the Moscow rail scene told me that I had captured the look and feel of that time and place.

Expanding the staging area and including the Northern Pacific's Sweet Avenue spur instead of the fictional town of Grangemont greatly enhanced the layout's realism and cohesiveness. I had also come to realize that when

lacking a large space, a narrowly focused layout based on one town or portion of a town worked best for me. But it was time to move on.

Our new house has only slightly less space than our old one, but it is arranged differently and has one fewer rooms. Finding suitable space for a layout didn't look promising until one evening my wife said, "It would be nice if you could build the layout in the dining room where I could see you when you were working on your railroad." Well, yes, that idea would certainly work!

That space is 11'-0" by 11'-6" in what would normally be the open dining area between the living room and kitchen. But since we have plenty of room to eat in the kitchen and there's another entrance through the central hallway, the dining room became our train room.

What to model?

The big question then became what to model in that room, as it was apparent that I could not adequately duplicate the scenes from my previous layout in about half the space. I considered modeling the Texas & Pacific in Sherman, Texas, where my boyhood home was literally a stone's throw from the tracks, or some part of the Chicago Terminal area of the Milwaukee Road, where I began my professional career.

Back to Moscow

But my mind kept returning to that interesting scene at "A" and Almon streets in Moscow, with the Great Northern depot and the Dumas Seed Co. plant that I had often thought had great possibilities as the focal point of a layout. So this time around it would be my third railroad in Moscow, Idaho: the Great Northern in the fall of 1965.

Moscow was at the end of the Ninth Subdivision of the Kalispell Division in 1965, 96 miles south of Spokane, Wash. The GN branch to Moscow had originally been built as an electric railway in 1908 by the Spokane & Inland Empire RR, which was purchased by GN subsidiary Spokane, Coeur d'Alene & Palouse in 1927. Electric operations had been discontinued in 1942, and in 1952 the route was changed to use the UP between Spokane and Fairfield, Wash. A train worked down the branch from Spokane to Moscow on Monday, Wednesday, and Friday, returning to Spokane the next day. By the mid-'60s, the customary power for these trains was one or two GP7s, GP9s, or SD9s.



Prototype (1987) and model photos show the Dumas Seed Co. pea processing and warehouse buildings with sidings on both sides of the curving Great Northern main track at Almon and "A" streets in Moscow, Idaho. Harry is using structures from his old layout as stand-ins to help visualize whole scenes.

The Great Northern served several online customers in town: the Dumas, Western Valley, and O'Donnell seed companies, handling seed and dried peas; Helbling Bros. farm implements; and a Humble Oil Co. dealer. There was also business for the team track, plus interchange traffic with both the NP and UP. Maximum permissible speed on the branch was 25 mph, with a 10-mph restriction in Moscow.

I set only a few simple but important requirements for the new layout: It had to have a prototypical track arrangement and appearance to provide for realistic operations. The focal point would be the depot and Dumas Seed, plus several other online customers.

The NP/UP interchange tracks and Spokane staging would provide access to the rest of the rail network. It had to operate reliably, be easily constructed and dismantled, and be easily acces-

sible without a duckunder. I also wanted a comfortable and uncrowded operating area, with room for a couple of operators or guests. And it had to visually complement our living space.

Inland Empire Electric Line: Spokane to Coeur d'Alene and the Palouse by Clive Carter (Museum of North Idaho, Coeur d'Alene, Idaho, 2009) is an excellent history for students of the Great Northern in the Pacific Northwest. The track charts, photos and operational information in this book were very helpful to me. The Great Northern and Northern Pacific Joint Archives located at the Jackson Street Roundhouse in St. Paul, Minn., are another treasure trove for modelers of those roads. Its website provides on-line access for maps, building plans, photos, and other useful resources.

As on my previous Moscow layout, I used railroad maps to lay out a



Northern Pacific GP9 no. 308 is returning an empty GN boxcar to the Moscow transfer tracks and delivering a Gulf, Mobile & Ohio box for the Dumas Seed Co.; GN will return the GM&O car to the NP after it has been loaded by Dumas

for shipment to a Campbell Soup plant in the Midwest. The little transfer yard also serves the Union Pacific. The cars in the background behind the Geep are standing on the Spokane staging tracks.



The GN depot and Dumas Seed Co. elevator in Moscow are visible in this black-and-white 1970s photo. Maynard Rikard photo, collection of Sheldon Perry.



This photo shows the GN depot as it looked in 1971 at "A" and Almon streets; it was built in 1912 by the Spokane & Inland Empire RR. David S. Lehlbach collection

prototypical plan. The GN's track arrangement in Moscow wasn't complex, and by using a digital copy of an original GN map from the archives, I was able to fit an almost perfectly scaled copy of the existing depot track arrangement and Dumas Seed plant into the layout.

The only significant compromise required by my space for that scene was that I had to introduce a curve into

the approach from the north rather than have the track come straight into town, but I was able to maintain the approximate lengths of the main track and siding. I also found several color photographs of the depot in the archives.

Although I had taken no photos of the GN while living in Moscow, I shot a couple of pictures of the Dumas Seed elevators in 1987. Fellow railroad enthusiasts Blair Kooistra and David Lehlbach have also given me their photos of the remaining evidence of the GN there in 2005 and 2006. Moscow resident Jim Davis again gave me good local information.

Downsizing the scene

The new layout is about half the size as my previous one, but it has the advantage of being where my wife can enjoy it with me. Since it's smaller and considerably less complex, the layout has proceeded much more quickly, even though I'm working more slowly.

I probably spent more time thinking about and designing the plan for the

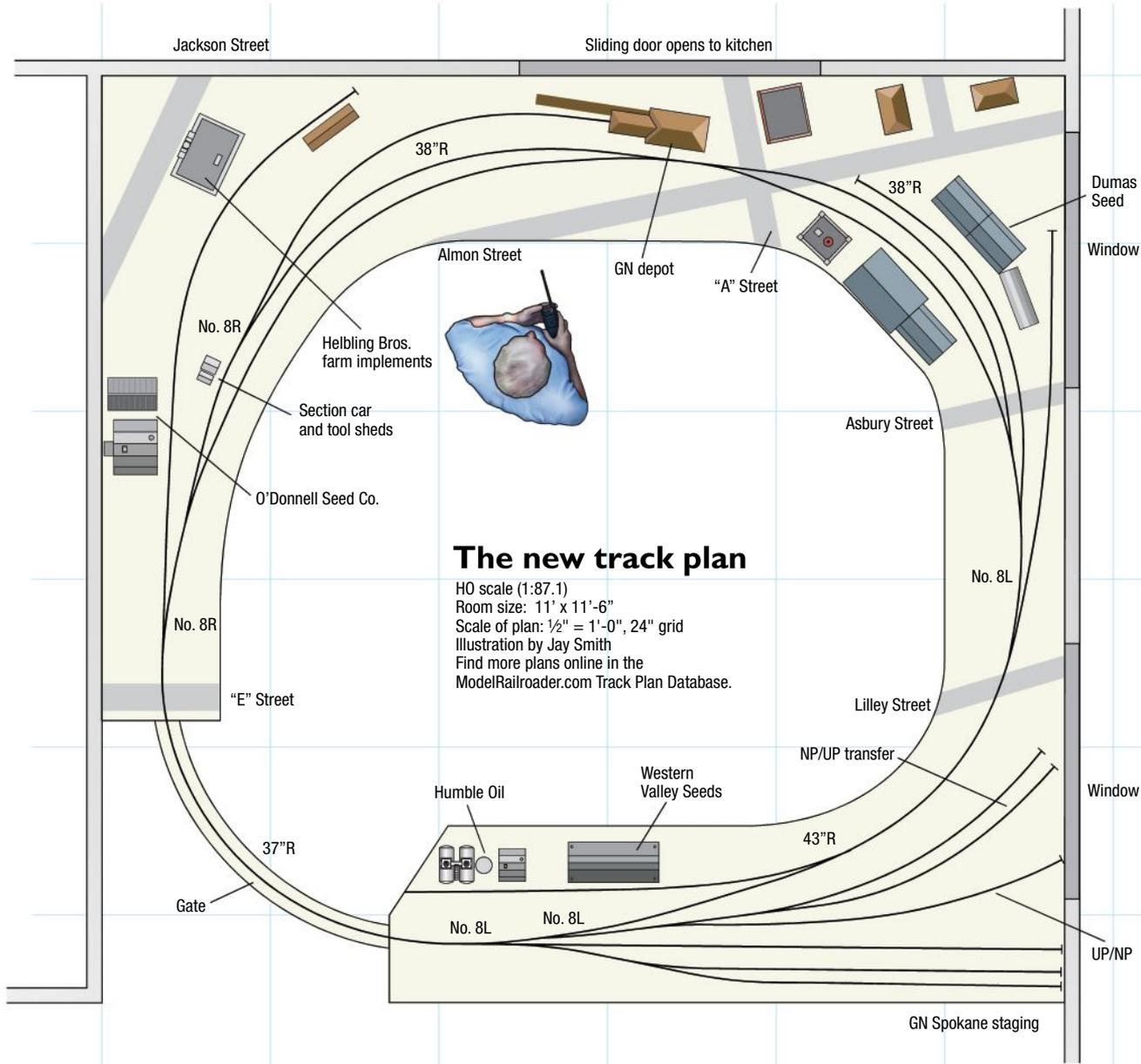
layout than I spent on basic construction. But that was time very well spent. I used Empire Express layout design software by Haddon Software (www.haddonsoftware.com), which I've used before, to ensure that I would have an accurate track plan that fit my available space. It even helped me to size the benchwork sections.

I constructed an L-girder base that's attached to wall studs with screws at several locations to give the benchwork more rigidity. Then I fastened open-grid boxes made of 1 x 3 pine, 18" or 24" wide and from two to six feet long, on top of the L-girders and bolted them together. The top of each box was made of ¾" birch plywood, topped with ½" acoustic tile, and ⅝" sheet cork.

Whenever it might become necessary to dismantle the layout, it should come apart relatively easily. I used a permanent marker to label and write assembly notes on the benchwork and mark the locations where the boxes were attached to the L-girders and where the L-girders are fastened to the wall studs.

Learning points

- Rethinking a layout's basic plan can enhance its scenic and operational possibilities.
- Moving to smaller living quarters need not bring modeling activities to an abrupt end.
- Narrowing one's focus can create a satisfying plan for a compact space.
- Basing a layout on cherished memories adds to the satisfaction of seeing it come to life.



The new track plan

HO scale (1:87.1)
 Room size: 11' x 11'-6"
 Scale of plan: 1/2" = 1'-0", 24" grid
 Illustration by Jay Smith
 Find more plans online in the
 ModelRailroader.com Track Plan Database.

Photographs taken during the construction and assembly process, plus written disassembly instructions, are in a document available for future reference by me or whoever has to disassemble the railroad.

The cork top provided a neat and clean working surface for the layout as I transferred the track plan from my computer to the layout surface. I put a 3" grid on the plan and then printed it full size on individual sheets of paper. The sheets were pinned and taped to the cork surface, which I marked with a 2-foot-square grid to align them. I slid sheets of artist's graphite (carbon paper could be used instead) under the printed plan and traced heavily over the track lines with a soft pencil, transferring the location of the tracks to the cork surface.

After removing the papers from the layout, I went over the track lines with a dark marker and used that as a guide to lay N scale cork roadbed. I used the

thinner N scale roadbed instead of HO roadbed because the GN tracks in Moscow seldom showed much elevation above the surrounding terrain.

Once I had the roadbed fastened down, I cut through the cork with a sharp knife along the intersections of all the box joints so that the roadbed would separate if the boxes are taken apart for a move. When I paint the track, I'll add dots of paint on the rails or ties to note where the track should be cut for dismantling.

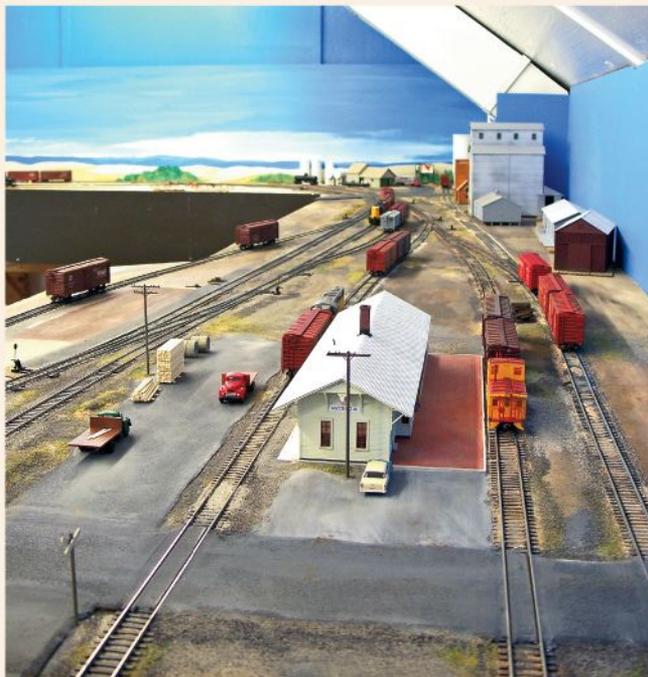
All of my new trackwork is in place except for a couple of feet of the house track, which I'll complete after building the depot. The main line is Peco code 83 flextrack and turnouts. It has a light look that more closely resembles the appearance of the small rail in the prototype tracks in Moscow compared to other code 83 track. I used Shinohara code 70 flextrack on some of the spur tracks for variety; the staging tracks are Walthers code 83.

The NEW layout at a glance

- Name:** Great Northern in Moscow, Idaho
- Scale:** HO (1:87.1)
- Size:** 11'-0" x 11'-6"
- Prototypes:** GN with Northern Pacific and Union Pacific
- Locale:** northern Idaho
- Era:** fall 1965
- Style:** single deck
- Height:** 52"
- Mainline run:** 32 feet
- Minimum radius:** 32"
- Minimum turnout:** no. 6
- Maximum grade:** none
- Train length:** 4 feet

A gate fits between the staging and Moscow tracks to provide access to the center of the layout, and this creates a nice transition. Although the top of the layout blocks the sliding doorway to

Updates on the old layout



Above: Harry's original Moscow layout, viewed from the roof of the Moscow Idaho Seed Co. elevator, shows the Union Pacific depot at 8th Street and the UP and NP tracks. The scenery in this area was relatively complete. Harry painted the backdrop based on his memories of



the Palouse countryside. **Top right:** Looking the other way at the UP depot in downtown Moscow shows the grain elevators that generated traffic for the UP, NP, and GN. **Above right:** This view of the original layout shows the hand-painted backdrop and its state of completion.

Following the article on my layout in Whitesboro, Texas, in MRP 2008, I continued to work on the section along the wall with the painted backdrop and the 8th Street side of the layout. This included expansion of the Moscow Idaho Seed Company plant and completion of the Latah County Grain Growers elevator complex, both of which I had begun for an earlier layout. I also scratchbuilt models of the UP depot and the large Crites-Moscow Growers facility facing 8th Street.

After enjoying the layout for about a year and operating with temporary staging tracks, I discovered that while I really liked to run the local trains switching the industries in town, the Northern Pacific Pullman Switcher crew didn't have enough of its own local work to do. I also decided that I could make better use of the available space on the other side of the room.

My first improvement was to move the Grangemont side of the benchwork against the far wall, gaining valuable operator space in the center of the layout and adding some extra running track and broader curves to the ends. Then

double-ended staging tracks went in along the wall behind the foreground scene and on an extended shelf over my workbench and paint booth area.

There were two logical alternatives for the new space on the layout. My first idea was to add the Great Northern Ry. by including its depot, a couple of elevators, and the GN interchange yard with the NP and Union Pacific. I had long thought that the GN's depot at "A" and Almon streets, with the large Dumas Seed Co. mill and warehouse on both sides of an adjacent curve, would make an interesting model. But that location was in another part of town and might seem at odds with the layout's focus on NP and UP operations. Alternatively, I could add the NP's spur along Sweet Avenue.

After several months of contemplation, which included drawing plans for both options and studying the operational possibilities, I decided to expand the work available for the Pullman Switcher by adding the Sweet Avenue spur. This industrial spur extended almost a quarter mile and was separated from the NP main tracks by Paradise Creek. Terminating at the Central Pre-Mix concrete plant west of

the kitchen, I left it open, and our dogs use it regularly.

Since I wanted the layout to look attractive, I covered the benchwork facing the living room with bead-board paneling, which will be painted the wall color. The layout became operational after I finished the wiring and installed the DCC system. Everything works reliably, and I'm having fun running trains once again. We've even

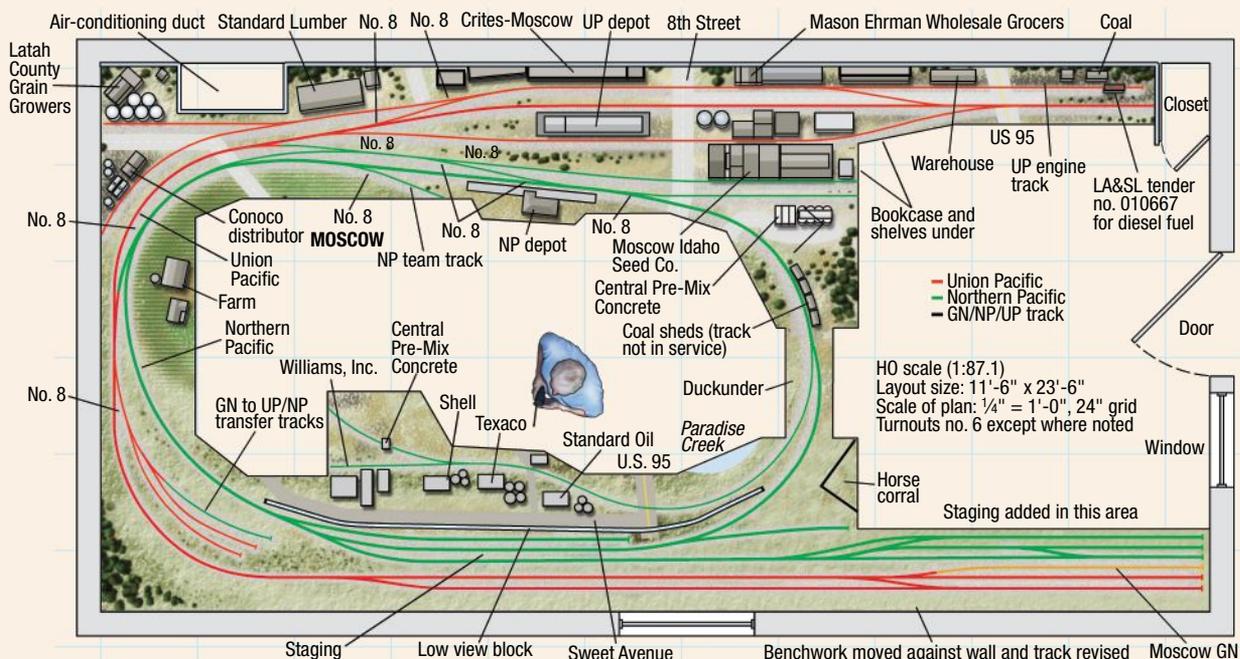
had some of our new neighbors stop by to see what I'm up to.

What lies ahead

I'm very pleased with the progress I've been able to make to date. The next stages – painting, ballasting, and weathering the track; adding initial scenery; scratchbuilding some neat structures; finishing some more GN locomotives and boxcars; and putting

the railroad through its paces duplicating the GN's operation in Moscow – all promise to be exciting. It'll be rewarding to re-create this vanished scene.

The railroads that I remember in Moscow are all gone, and the tracks have been removed. Burlington Northern abandoned the NP and GN branches; the old UP line between Moscow and Pullman is now a bike-and-hike trail. The trains I knew run no



The revised Union Pacific and Northern Pacific in Moscow, Idaho

the depot across the creek, it also served the Texaco, Shell, and Standard Oil of California fuel dealers and Williams Inc., a farm insecticides distributor.

An aerial photo taken during the 1960s shows several freight cars at both Central Pre-Mix and Williams, and at least one chemical tank car on the spur. An enlarged view of that aerial photo serendipitously dropped right into a scale plan of that side of the layout. This allowed me to model the Central Pre-Mix operation on a bump-out into the now enlarged open space.

Modeling the Sweet Avenue line added lots of operating interest and modeling possibilities. To properly work that spur, the local's crew had to make a long pull of cars back to the main track, sort out those going back on to the spur along with new cars, and then shove back into the spur, making sure everything was in the proper order.

Central Pre-Mix was a busy industry, receiving both aggregate and cement hoppers. I remember the plant as a large open area with lots of aggregate piles, heavy buildings, and concrete trucks, and I enjoyed kitbashing and scratchbuilding structures and the rock unloading area to try and capture that look. I included the Great Northern by modeling a small shared interchange yard so GN locomotives could swap cars with the other railroads in town.

The layout was now just the right size for me. I was very pleased with my decision to keep the layout purely Moscow, and I enjoyed seeing it come to life with the structures I was

more, but I can still remember watching the Pullman Switcher coming into town with its bell swinging, seeing and hearing UP 222 idling on the engine track, and visiting with NP engineer Dan Bass as he leaned from the window of Budd car B-30 during his brief station stops.

During my short time in Moscow, I had been in daily contact with the NP and UP, but seldom ventured across

town to the GN. I spent hours watching and photographing the action at the GN passenger depot in Spokane on several visits, but in Moscow I had seen a GN locomotive at work only once and at a considerable distance. However, its bright orange-and-dark-green image under an autumn sky is still etched in my memory.

And now I can re-create in my own home that beautiful locomotive

The MODIFIED layout at a glance

Name: Moscow, Idaho

Scale: HO (1:87.1)

Size: 11'-6" x 23'-6"

Prototype: Northern Pacific and Union Pacific with Great Northern interchange traffic

Locale: northern Idaho

Era: fall 1965

Style: around-the-walls

Height: 52"

Mainline run: 36 feet (NP), 32 feet (UP)

Minimum radius: 31"

Minimum turnout: no. 6

Maximum grade: none

Train length: 4 feet

building for it. I could enjoy spending a few minutes or all evening switching with the locals, and I occasionally added the NP Budd car's morning run from Spokane to Lewiston to interfere with the Pullman Switcher's usual routine.

While I was building the Sweet Avenue spur, I continued to research the distinctive Moscow structures that went with this area. I was nearly ready to begin building them when we made the decision to move. — H.B.

working on the Great Northern in Moscow, Idaho. **MRP**

Harry Bilger grew up with trains right outside his bedroom window and built his first layout as a teenager. He worked as a systems analyst and project manager for the Milwaukee Road in Chicago and is a retired faculty member of Austin College in Sherman, Texas. Harry and wife Pearl are enjoying their new home.



Switching for breakfast

N and HO track plans focusing on the Post Cereal manufacturing complex in Battle Creek, Mich.

By Lawrence Bolton and Bill Neale

Imagine a one-industry model railroad that would provide an excuse to run most types of freight cars, offer hours of challenging switching enjoyment, and highlight the operations of two Class 1 railroads. That's exactly what was once found in the Post Cereals manufacturing complex, located on the east side of Battle Creek, Mich., along the major railway crossing of the Grand Trunk



Alco S-4 8084 is about to pull cereal loads from 29 Building of the Post Cereal Manufacturing complex. Authors Larry Bolton and Bill Neale explain how the operations of railroads working this plant can be effectively modeled on a HO or N scale layout. L.R. Bolton photo

Western RR (later Canadian National) and the New York Central (later Penn Central, Conrail, and now Norfolk Southern).

Some background

Post Cereals was founded in 1895 as the Postum Cereal Co. by C.W. Post. After acquiring several other food brands, including Jell-O gelatin in 1925, Baker's Chocolate in 1927, Maxwell House Coffee in 1928, and Birdseye Frozen Foods in 1929, Post Cereals changed its name to General Foods Corp. In 1985, General Foods was acquired by Phillip Morris Companies. Phillip Morris merged General Foods with Kraft Foods to form the Kraft General Foods Division in 1989.

But wait, there's more! A 1995 reorganization changed the name to Kraft Foods. In 2007, Kraft divested



There's no mistaking the owner of 20 Building at the Post plant in Battle Creek, Mich. This industry has been a longtime fixture in the city. Two Airslide covered hoppers are visible at spots 67 and 66. Stan Sienicki photo

busy Post Cereals, which then merged with Ralcorp Holdings, becoming Post Foods LLC. In 2012, Ralcorp spun off Post Foods; today it is a stand-alone entity known as Post Holdings Inc.

Through all the changes, the complex known locally as Post has been an important customer of the railroads serving Battle Creek.

An interesting era

The mid-1970s saw the greatest variety of rolling stock serving the plant. Raw materials arrived by boxcar, covered hopper, tank car, and refrigerator car. Outbound shipments of cereal were still predominantly in 40-foot boxcars. The plant received occasional hopper shipments of coal, by then a back-up fuel.

For motive power, the GTW employed Alco S-2 or S-4 switchers for first- and second-trick (shift) switching assignments. The railroad also used EMD NW2 and SW9s, but they tended to be concentrated where General Motors plants were switched.

Penn Central crews switched Post on the third trick (midnight–8 a.m.) with an ex-NYC EMD GP7 or GP9.

Crews from the GTW usually did not use a cabooses, as it was a short shove on the main line to return to the City Yard. Penn Central crews used one of the NYC 18000-series transfer cabooses, as they had to run from Hinman Yard on the east side of Battle Creek to Rumley Yard on the west side.

Modeling an earlier era would substantially reduce the variety of rail cars. Inbound shipments, such as grain, would be in boxcars. There were no specialized covered hoppers. Moving the era closer to the present lessens the amount of rail traffic, with trucks handling more traffic, including most outbound loads.

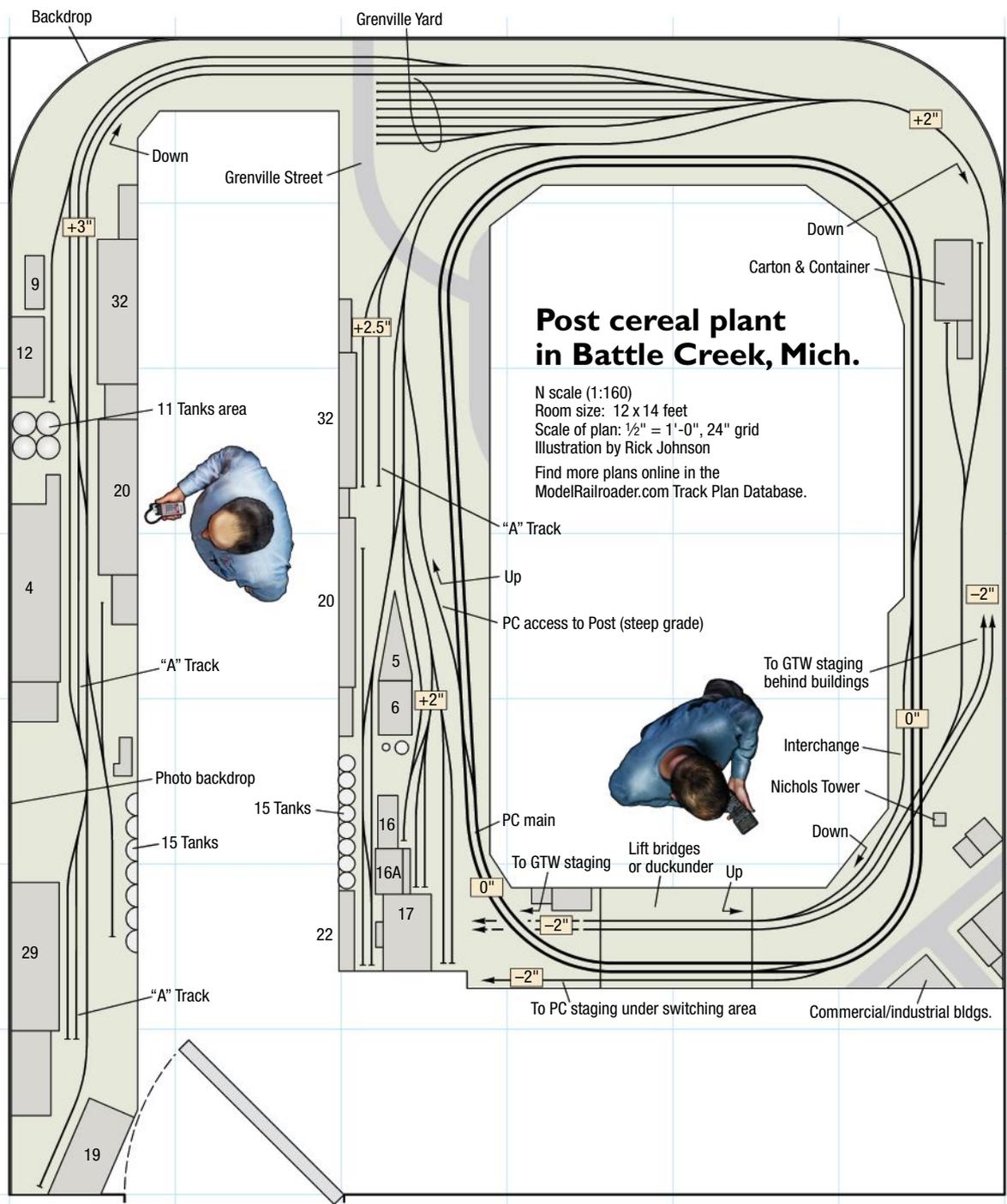
Operation at the cereal plant

A typical shift for the GTW Post Assignment in 1975 would find the engine crew reporting for duty at the Battle Creek enginehouse. The switch crew went on duty at the City Yard office. The engine crew inspected its locomotive (usually an Alco S-2, nos. 8091-8111 and 8119-8121, or an Alco S-4, nos. 8082-8090 and 8196-8205), then departed on the outbound enginehouse track. The outbound took them to the City Yard office, where they met up with the switch crew. The City Yard and adjacent Verona Yard were used to switch cars destined for Battle Creek's cereal plants. (In addition to Post, Battle Creek is home to Kellogg's and Ralston Foods.)

Near the yard office, there was a scale track used for weighing cars loaded with bulk commodities. Cereal required clean boxcars for loading. To accommodate this requirement, Verona

Learning points

- A layout that focuses one large industry rather than several smaller ones may provide very interesting switching challenges.
- Era choice is important if traffic and equipment variety are important considerations.
- One industry may be switched by two or more railroads, enhancing modeling opportunities.
- A switching layout is a good choice for a modest space such as a spare bedroom.
- Each scale offers different advantages and disadvantages that should be carefully weighed before picking one for a given modeling project.



Track plans at a glance

Name: Post cereal plant
Scale: HO (1:87.1) or N (1:160)
Size: 12'-0" x 14'-0"
Prototype: Grand Trunk Western and Penn Central
Locale: Battle Creek, Mich.
Era: 1970s
Style: single deck
Mainline run: not applicable
Minimum radius: 30" HO, 18" N
Minimum turnout: no. 6
Maximum grade: HO: 2 percent
 HO, N: 3 percent
Train length: not applicable

Yard included a cleaning track. A yard transfer air-brake test was made after moving the engine onto the track designated by the City Yard yardmaster for cars destined for Post.

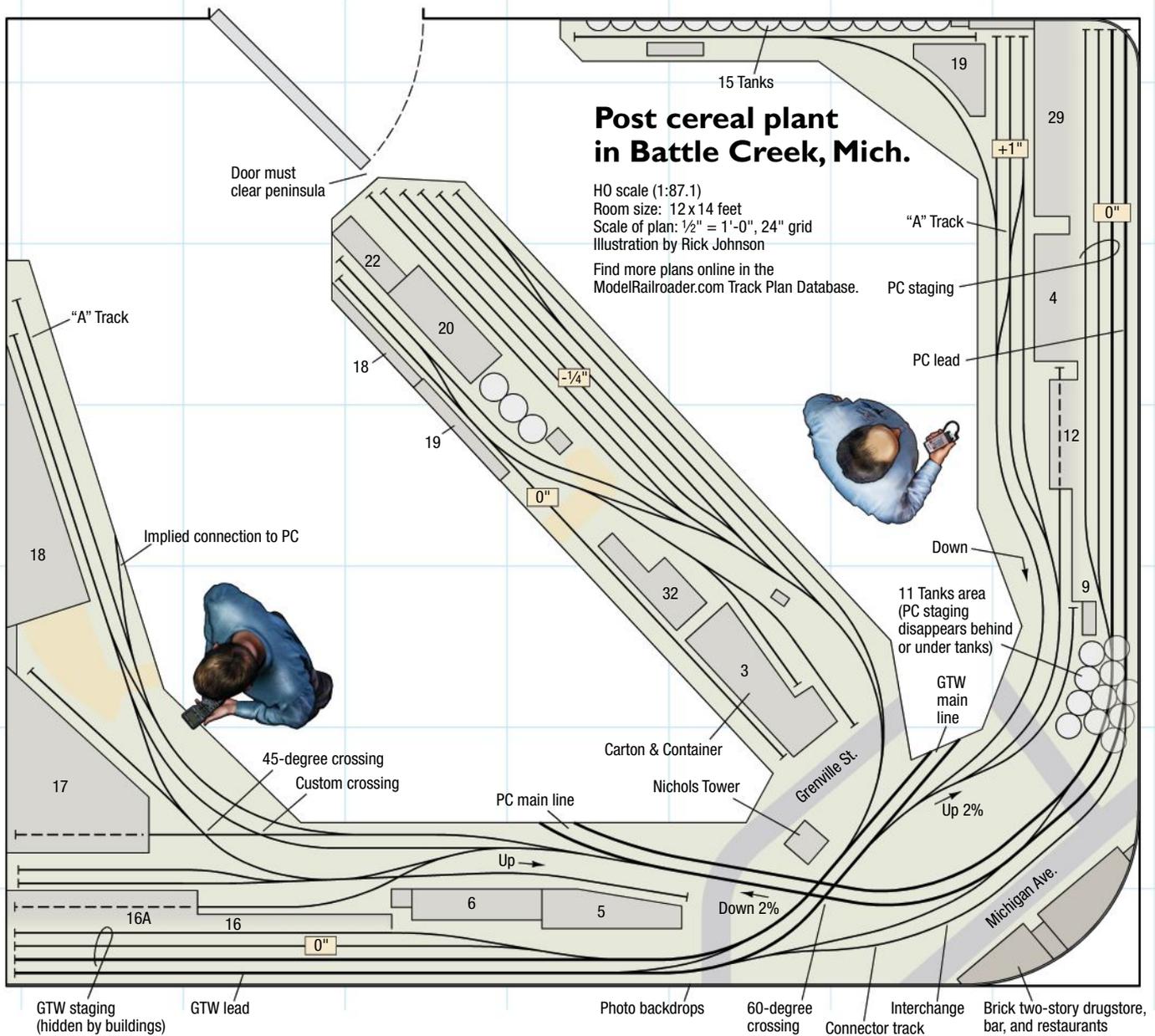
Trains entered the eastward main track from the City Yard at a hand-thrown switch, so the yardmaster requested permission for the movement from the train dispatcher and then relayed the orders to the crew.

Automatic Block System (ABS) rules were in effect on the main tracks, but movement from City Yard to Post was against the current of traffic. Since yard limits were also in effect on the eastward main track, the Post Assignment could run west on it, clearing by

the time any regular (scheduled) trains were due to leave Battle Creek station. In 1975, this would be only no. 64, Amtrak's *Blue Water Limited*.

Once on the main, the Post Assignment pulled west to Nichols Tower. If it was not "lined up," the engineer sounded four short blasts on the single-chime air horn to get the attention of the Penn Central tower operator. Upon receiving a signal, the train pulled just west of interlocking limits over a hand-thrown switch, which provided entry to Post.

In addition to opening the switch, the crew also had to open a gate and derail before shoving into Post. A short shove past the Carton and Container



Division brought the train to the in-plant Grenville Yard.

At the yard was a shanty where the conductor contacted the GTW yardmaster to report the train was clear of the Main Track. He also contacted the coordinator at Post for instructions about the day's switching movements.

After the crew received the switch lists, they classified inbound cars into the 13 tracks. Every track in Post except the Hole Track was an uphill shove from the main line; cars wouldn't roll away when being pushed in, but had to be secured so as not to roll out.

For the rest of their shift, the crew pulled and spotted cars as required by the lists. With more than 80 spots, it

took an experienced conductor to get everything lined up properly.

At the end of the shift, switch list instructions directed the crew to leave off-spot cars as follows: empties in Tracks 4 and 5; outbound cars for the other railroad in Tracks 6 and 7; and unspotted inbound cars in Tracks 8, 9, and 13. The crew took outbounds via GTW with them, merely reversing how they got to Post.

Penn Central crews worked out of Hinman Yard east of Post after their Main Yard closed. The railroad's entry was off the eastbound no. 2 main. A crossover between the main tracks allowed access when running on westbound no. 1 main. A Post watch-

man controlled a gate on the PC connecting track into the cereal plant.

PC crews received switching instructions the same way as their GTW counterparts. When switching was completed, off-spot cars were handled per the switch list instructions described previously. Outbound shipments via PC went with these crews and handled to Hinman Yard or Rumley Yard.

A map was included on the switch list that crews received from the Post Coordinator. It was printed upside down from a normal map; perhaps because both railroads entered Post from the north, the map was drawn as the railroad crews viewed the plant.



S-4 8084 pulls a load from 29 Building; CRDX 5424 is leased by General Foods for cereal loading only. To the left is 4 Building; 20 Building is at right. The GATX tank car at spot 81 probably holds vegetable oil for the “fat tanks” to the right. The blue silos hold corn and oat flour. L.R. Bolton photo



This view down a man-made canyon between buildings looks west at an Airslide covered hopper at spot 67 alongside 20 Building. 5 and 6 Buildings are at right; 15 Tanks are to the left. Stan Sienicki photo

Traffic evolution

The Post facility underwent almost continuous change during the 20th century. In the early 1900s, production buildings were added as demand for breakfast cereal surged. Architectural details and construction techniques reflect the advances made during the period. Equipment changes for more efficient production drove changes to the facility during the middle of the century. This is most evident in exterior overhead walkways, conveyers, and pipes to move ingredients and finished product between buildings.

New distribution warehouses were constructed in 1983 and 1993. Prior to that, production occurred on the upper

floors, with warehousing and shipping on the lower level. The opening of new distribution warehouses moved the shipping functions away from the rail-served production buildings into truck-friendly structures. The actual switch-list map in use in 1975 was last updated March 1960, so I redrew it to reflect the track arrangement in 1975.

Cereal shipped in 40-foot boxcars out of Buildings 4, 16, 16A, 17, 18, 29, and 32, since door spacing was set for this size of car. General Foods had a fleet of leased 40-foot plug-door boxcars to augment the cars supplied by the railroads.

Individual doors for loading the cars at the buildings were identified by spot

numbers. Where an “A” track is shown at a building, boxcars were also loaded on them by spotting the cars with their doors lined up with cars already spotted on adjacent tracks, then using metal plates to span the gaps between the car doorways.

For example, the coordinator might specify 10 boxcars be spotted at 29 Building for loading. This would be indicated on the switch list as spots 56, 57, 58, 59, 60, 56A, 57A, 58A, 59A, and 60A. The boxcars would have to be arranged in the correct order at Grenville Yard before shoving toward 29 Building, as precious little room for lining up cars at the spots was available. Spots on the map not used for cereal loading were for receiving material for the production processes.

What the map and description of spots don't show is that the entire complex is built on a hillside, with the northwest corner of the property at the lowest elevation, rising to the highest point in the southeast corner. Entering Post from the Grand Trunk Western was an uphill shove to reach any of the spots. Spotting loaded grain hoppers when the rail was wet or slippery with spilled grain was quite challenging. Judicious use of air- and

handbrakes, along with knowing where to find derails, was also necessary to complete switching tasks.

A model of this facility could have grades on the approaches to the spots to capture the feel of the prototype, then level off at the spots to prevent runaway cars.

The cereal loading spots along Buildings 4, 29, and 32 were covered by huge awning or shed structures to protect the finished product from the elements while being loaded. These structures would probably have to be eliminated or made removable to provide access on a model railroad.

Check Wikipedia for more historical information on General Foods, C.W. Post, and Post Cereals and the Willard Library at www.willard.lib.mi.us/historical/bcphotos, which contains many photos of the Post plant. Much of the information on Post operations came from interviews with retired Grand Trunk Western yardmasters, conductors, and engineers who were responsible for switching Post.

Developing the plans

Track plans for the Post facility have been developed for a bedroom-sized space, as the size is ideal for a switching layout. Larger rooms usually lend themselves more mainline-oriented layouts, so a 12 x 14-ft. space works very well.

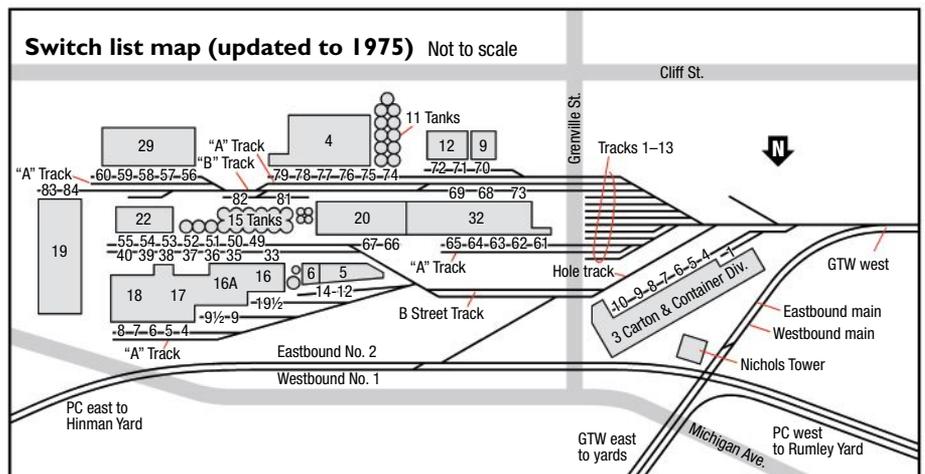
These two switching layouts are based on a railroad that serves a single primary industry, and not the usual variety of miscellaneous individual businesses. With more than 100 spots in the Post plant, the prototype's switch job was challenging and time-consuming. Making the plans in both HO and N scales provided an interesting contrast and shows just what it takes to model a large prototypical industry in either scale.

Of course, large structures are needed for either scale. Quickly made mock-ups can initially stand in for permanent models. However, much of the fun of running either of these layouts will be the pushing and pulling of cuts of cars through the "canyons" between detailed industrial buildings.

Recently, some trend-setting modelers have been building layouts considerably lower than the usual chest level. Doug Tagsold's Toledo Terminal is one of these. Operators sit in rolling office chairs and run their trains. This allows a prototypical appearance to the operator when seated and easy access to track behind structures when standing up. Since these two Post Cereal plants have



This is the north side of 16 Building (center) and the corner of 16A at left, with spot 9 boarded over; spot 9½ is out of sight to the left. At right-center is covered spot 19½ for unloading coal for the powerhouse. Between 6 Building (right) and 16 is a coal storage silo and tall stack. The track in the foreground leads to spots on the north side 17 and 18 Buildings. Stan Sienicki photo



many tracks with buildings on both sides, maybe a lower layout height would be a good choice.

The variety of levels and complexity of track makes this industry visually interesting. Building it on a table top with all the track at the same level would remove some of the visual interest, but would make it consider-

ably easier to achieve a prototype-based layout with plenty of operational possibility for multiple people.

Some of the staging on the N scale version is predicated on the main lines being lower than the industrial areas, allowing the staging yards to develop under the scenic portions, so building the entire layout without elevation

Use of spots on switch-list map

The switch-list map on page 41 shows where the railcars of various ingredients to make cereal and boxcars to be loaded with finished product were to be spotted in the Post plant. Each spot has a specific function, having either a loading door or facilities to unload raw materials from the cars.

This list details each spot, giving an indication of its function as well as the type of cars that served it. While the

plant's primary purpose was to produce one type of product, it saw a wide variety of railcar types, adding a lot of operational interest.

What you can't see from the map, or even this list, is some of the spots were located at different levels within the plant. Where cars might be spotted on the lowest floor for loading on one side of a building, raw materials might come in on a second or even third floor on the other.

SPOT	BLDG	COMMODITY/PRODUCT	REC/SHIP	TYPE OF RAILCAR	NOTES
1	3	Wax	R	Tank	Wax used to make bags & boxes moisture resistant.
Unknown	South-west of 3	Coal	R	Hopper	Coal was stockpiled on the ground. It was reloaded into hoppers and shuttled to Spot 19½ as needed.
4-10	3	Cardboard and paper board	R	Box	
		Boxes	S	Box	C&C also produced boxes for other companies.
4-8	17 & 18	Cereal	S	Box	
9,9½	16 & 16A	Cereal	S	Box	
12, 14	5	Cereal	S	Box	Spot 13 was eliminated to allow spotting 50-foot cars. The north side of the building was known as the MC House (for NYC subsidiary Michigan Central), and the south side as the Grand Trunk House.
		Coloring and flavoring	R	Box	
19½	6	Coal	R	Hopper	6 Building is the powerhouse. Coal was dumped into a covered pit, then conveyed into a concrete silo until fed to the boilers.
33, 35 and 36	16 & 16A	Cereal	S	Box	
37-40	17 & 18				Used to hold empty boxcars for loading at Spots 33-36.
49, 50	15	Wheat, rice, and corn	R	Covered	15 Tanks is a large concrete elevator for storing and supplying Durum wheat to 17 Building; red and white wheat, corn, and rice to 29 Building.
	Tanks			Hopper	
51-55	22				Spots 51-55 primarily used to hold loaded covered hoppers waiting to be unloaded at 15 Tanks. The spots along the north side of 22 Building would occasionally be used to receive maintenance items such as pipe, structural steel and stainless sheet.
56-60	29	Cereal	S	Box	
61-65	32	Cereal	S	Box	
66, 67	20	Oat flour	R	Airslide Covered Hopper	
68	32	Granular sugar	R	Airslide Covered Hopper	
69	32	Corn flour	R	Covered Hopper	Unloaded with a portable conveyor
70	9	Animal feed	S	Covered Hopper	9 Building was primarily vertical steel tanks for storing and loading feed.
71, 72	12	Animal feed	S	Box or Covered Hopper	12 Building is the Feed Plant where cereal-making by-products are mixed to produce animal feed.
73	32	Tang drink mix	S	Box	
74	11	Rice, grits, bran and wheat	R	Covered Hopper	Auger ran under track allowing unloading on "A" Track, Spot 74 A. 11 Tanks supplied Buildings 4, 20 & 32.
75-79	4	Cereal	S	Box	
81	20	Salt	R	Covered Hopper	A salt pit was located at the southeast corner of 20 Building.
81	20	Vegetable oil	R	Tank	Storage units called "fat tanks" were also located at the southeast corner of 20 Building.
82	15	Corn syrup	R	Tank	On the south side of 15 Tanks were storage tanks where corn syrup was unloaded.
Unknown	South of 22	Liquid sugar	R	Tank	On the south side of 22 Building was a spur track where liquid sugar was unloaded for Buildings 17 and 18. The spot did not appear on the switch list.
83, 84	19	Raisins, nuts	R	Refrigerator	Other fruit was also delivered to 19 Building. In the 1960s, 19 Building contained a dehydration plant where fruit and shrimp were freeze dried.

changes would eliminate the staging as designed. Perhaps a nearby closet or adjacent room could be used.

N scale plan

In N scale, almost the entire industrial plant can be modeled track-for-track. Even a rudimentary continuous run can be built using the Penn Central main line. The continuous run would require a duckunder or removable bridge or gate to allow

access to the center aisle. The track completing the continuous run could be omitted and the layout operated without it. However, a lift-out, swing gate, or duckunder is easily constructed, and the continuous run adds access to the majority of staging for the layout.

I split the three levels of the Post plant so that the highest one runs along the wall to the left of the plan. The middle and lower levels are on the

peninsula that extends into the center of the room. By putting the yard along the second wall, the yard can be placed with the same relationship to the plant as on the prototype. This will make the switch job a little easier.

The area behind and below the structures can be used to stage both the Penn Central and the Grand Trunk Western trains. GTW switched first and second track, while PC worked the plant on the third track. Since the

railroad switched Post once a trick, the staging is more than adequate.

If the builder decided to simplify the railroad, it could be built without staging, and the short modeled sections of both railroads could hold the shifter job as a visibly staged train.

However, the extra track in staging could come in handy. What modeler does not have more cars than he can possibly use on his or her layout? The hidden staging also adds intrigue to what is a really a fairly simple layout.

The Grand Trunk job would pull out from either staging yard at the ends of the railroad. It would pull or back into the main yard area adjacent to Greenville St. and start work. Many of the cars in the yard are either “off-spot” and awaiting the shifter to move them to the positions required, or they are outbound cars awaiting pickup. The outbound cars would need to be sorted into PC or GTW destinations, then east or west. Newly arrived cars might be placed off-spot, while the off-spot cars already there would be spotted at specific doors in the plant.

The Penn Central switch job would come out of staging and traverse three sides of the railroad before backing onto the ramp track connecting the PC to the Post track. It would probably back down to the yard and, like the GTW job, do its set-up work in preparation for spotting and pulling the loads and empties inside the plant.

HO scale plan

Using HO scale instead of N obviously consumes the room space at a more rapid pace, so the design of the prototype must be compressed and manipulated to fit. In this case, the yard has been pulled forward, adjacent to the middle level of industrial tracks. The upper level runs along one wall and the lower level along the other. The yard also has substantially fewer tracks, which might make the switch job more of a challenge.

Including both the Penn Central and the Grand Trunk Western, along with Nichols Tower, is easily accomplished in N scale. For an HO plan, it requires some creative manipulation.

The lower-level Post track is off the PC and not the GTW lead, as in the prototype. It sits 180 degrees away from the other levels and the yard. This requires the switch job of one railroad to traverse the connector between the lines and to switch on the other railroad's track. With joint switching rights, the two lines would have shared some track, so this arrangement does not seem too



GTW's City Job, led by an ex-Santa Fe caboose and Alco S-4 8084, crosses the Penn Central at Nichols Tower with cars from the Ralston Plant. At the end of its trick, GTW's Post Assignment crew would shove outbound cars past Nichols Tower, but usually not with a caboose. L.R. Bolton photo

far-fetched. Additionally, it creates a 3-legged puzzle that should intrigue those who enjoy switching.

To make this back-and-forth arrangement work, the staging track nearest the wall should be kept empty. It's actually an extended switch lead that allows the engines of one railroad to utilize the other railroad's track and reach the entire plant. There are three staging tracks at each end that can hold 6- to 7-foot long trains. These tracks would allow a three-trick switching by each railroad. Again, the GTW switched for two shifts and the PC worked the third.

All of the industrial track is captured one way or another, although many of the tracks are shorter than those on the prototype. The Carton and Container spurs run the opposite direction from the prototype, but they occupy an important empty space that would not have been usable otherwise. The prototype Post track is arranged to minimize runarounds and double-spots. This design has more switching challenges than the prototype does, but that is often a good thing for our model railroads.

Summary

One of the most enjoyable aspects of creating an industrial landscape is the opportunity to construct visually and operationally interesting track arrangements. The HO version of this prototype includes some custom trackwork. If that is too challenging for the builder, those specific track elements can be eliminated or modified to accommodate the use of commercial products. The N scale layout can be

built almost entirely using existing off-the-shelf track and other components.

Both layouts have adequate aisle space for two or three operators; many more would hamper operation. Perhaps a three-man PC crew could take on the switch job for one of the railroads, doing all the work for that railroad and that trick. After that crew completes its work, a second crew could run the GTW job. Working as a team, the engineer, conductor, and brakeman could work the entire plant, pulling, spotting, and sorting cars.

Attempting to squeeze and twist an enormous industry like this Post Cereal plant into a 12 x 14-foot space is a challenge. Many more permutations than those shown here are possible.

These provide an examples in two popular scales of what might be a reasonable and fun model railroad to build and operate based on a very interesting prototype. **MRP**

Larry Bolton's interest in model railroading began 50 years ago with a Marx train set and a father who took him to watch trains in Niles, Mich. He worked for the Grand Trunk Western and Canadian National for 33 years as an engineer and as a supervisor of engineers and rules examiner before retiring in 2010. He and his wife, Janice, live in Battle Creek, Mich.

Bill Neale, a model railroader since childhood who has earned his Master Model Railroader certificate from the NMRA and is an active member of the Pennsylvania RR Technical & Historical Society, is modeling PRR's Panhandle line in HO scale.

5 layouts, 4 scales in 14 x 34 inches!

All of this in the footprint of a bookshelf

By Bill DeBuvitz

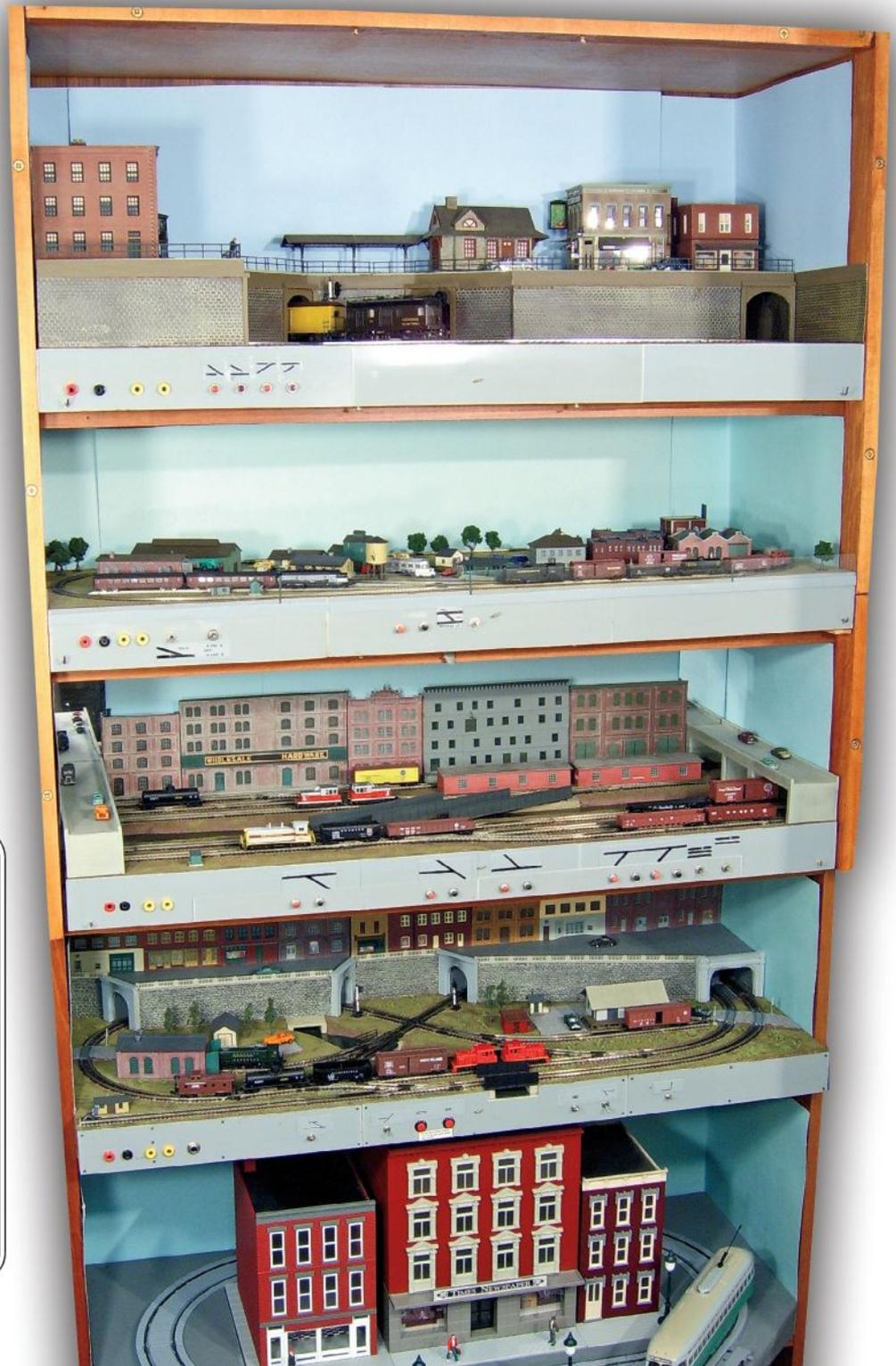
Photos by the author

Are you an armchair model railroader who thinks you don't have enough room for a layout? How about a layout in a space of 14 by 34 inches? How about five layouts in that same space? You don't even have to choose your favorite modeling scale!

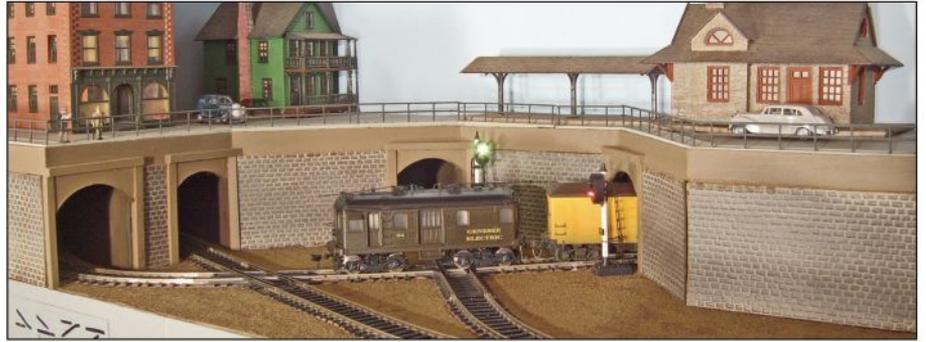
The trick is to think vertically. I have a "normal" HO layout, about 6 x 8 feet, but I like to experiment with other scales. This led to the five layouts shown here. Building them was fun, and it gave me a chance to try different scenery techniques before I used them on my main layout. And, believe it or not, they are fun to operate. Here's a description of each one.

Learning points

- You just *thought* you didn't have enough space for a layout!
- Small, stacked layouts provide the opportunity to try working with several scales and/or gauges.
- They also allow you to experiment with various scenery techniques before embarking on a larger project.
- Traction (electric) railroads and trolley lines make the required sharp curves appear more prototypical.



For the top shelf, I decided to build an HO traction layout. It's a figure-8 plan with two sidings. As one would expect in HO, there were a few surprises along the way, but I was pleased to find that even some brass models can easily handle the 5½"-radius curves.



This Z scale shelf was the second shelf I built. I was curious about Z scale and bought a MicroTrains train set and was very surprised with the operation of the F7 locomotive. It ran smoother than most of my N scale locomotives. I then bought a GP9 for switching.

This shelf has a loop with seven sidings and a reverse branch. I installed uncoupling magnets under the tracks, and discovered that reliable hands-free switching is practical.

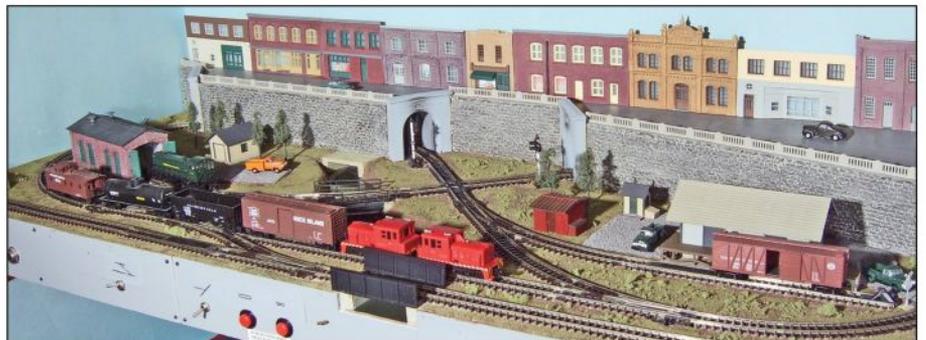


This middle shelf was the first layout I built on this bookshelf. It's an N scale switching layout. I have MicroTrains uncoupling magnets under the tracks, so I can do hands-free switching as I move cars from one side of the river to the other.



This N scale shelf was the last one I built on this bookshelf. I wanted to have an layout that offered continuous running. This layout has a figure 8 within a loop and four sidings.

Some of my eight-wheel locomotives can handle the sharp curves, but I do most of my switching with two Bachmann Plymouth diesels wired together for better power pickup (see November 2009 *Model Railroader* Workshop).



The O scale traction layout is on the bottom shelf. I bought some ETS-Semafor trolley track and a powered Corgi PCC Car at a train show. The layout projects out a bit from the 14" x 34" footprint because of that passing siding.

The interurban station on the right is a recent addition. It nicely disguises the track as it disappears behind the city buildings and provides a second stop for the cars.



Simple plan, plenty of action!



This plan, equivalent to two 4 x 8 sheets, follows prototype practices to create operating interest

By Lance Mindheim//Photos by the author

In the real world, seemingly simple tasks can get complicated in a hurry. In the photo above, note the spacer boxcar required between the locomotive and chlorine tank car. The street behind the tank car is protected by fuses.

The engineer can't see the conductor and must operate accordingly. Before even starting the move, all gates

and derails must be unlocked and opened.

Copying some of these prototype practices adds interest and essentially stretches the size of a model railroad.

When it comes to model railroad design, simplicity and operational interest are not mutually exclusive. Lean, open, efficient designs that closely match the prototype approach,

There's more going on than readily meets the eye as a CSX crew switches in Miami, Fla., on January 10, 2010. Note the spacer boxcar behind the GP39-2. Unseen are gates to be unlocked, derails to remove, grade crossings to be protected, and speed restrictions to be observed.

where safety and efficiency are major concerns, can produce very satisfying experiences in terms of operational interest and visual appeal.

Model railroaders often make things unnecessarily difficult for themselves during the design process. There's a tendency to try to re-create the wheel when, in reality, many of the design problems we face were solved by

professionals in the engineering and operations departments of the full-size railroads. These 1:1-scale master designs are fully documented and easily accessible through aerial photos, publicly available track charts, Sanborn fire-insurance maps, and other sources. All we have to do is copy them and shorten the track lengths for model use.

The disconnect comes from what are often opposing viewpoints between the prototype and the modeler. Railroads design their track so that operations can be carried out as efficiently, fluidly, safely, and profitably as possible. By contrast, we model railroaders are in the entertainment business. We want a railroad we find satisfying and enjoyable.

Achieving this is so important to us that we often begin the design process from a negative, panic-oriented viewpoint where we tell ourselves we won't be sufficiently entertained unless drastic measures are taken. We shoehorn in more of everything, only to find the result doesn't look too much like the real world we originally set out to model.

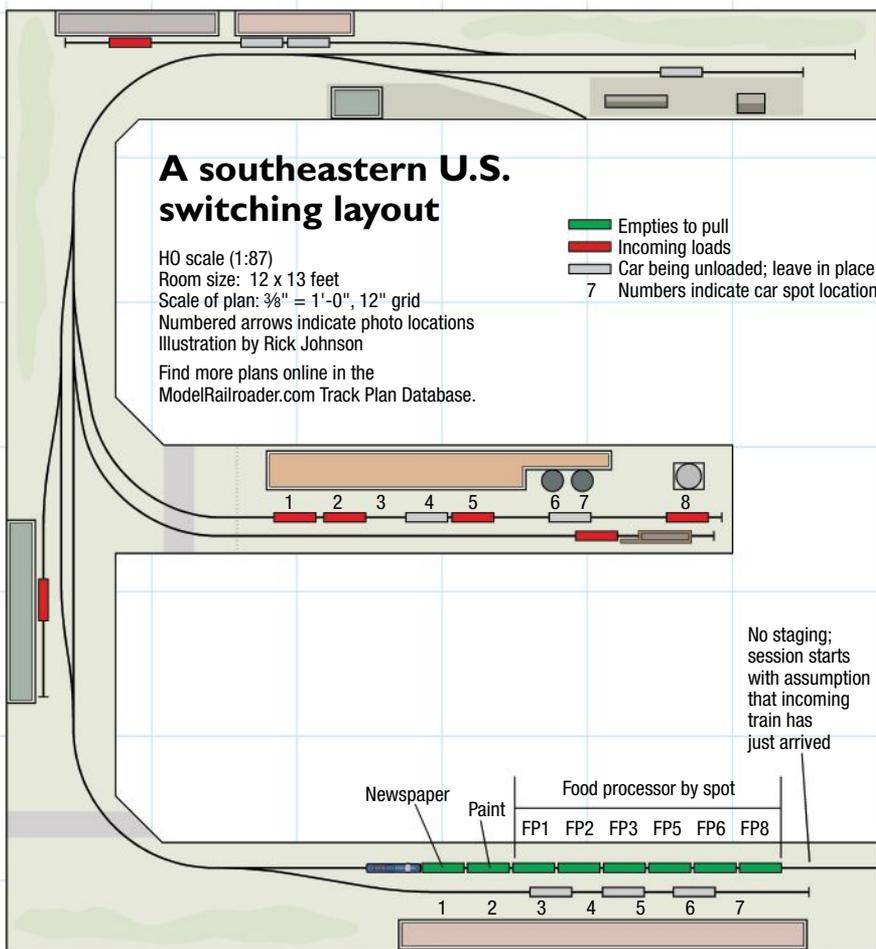
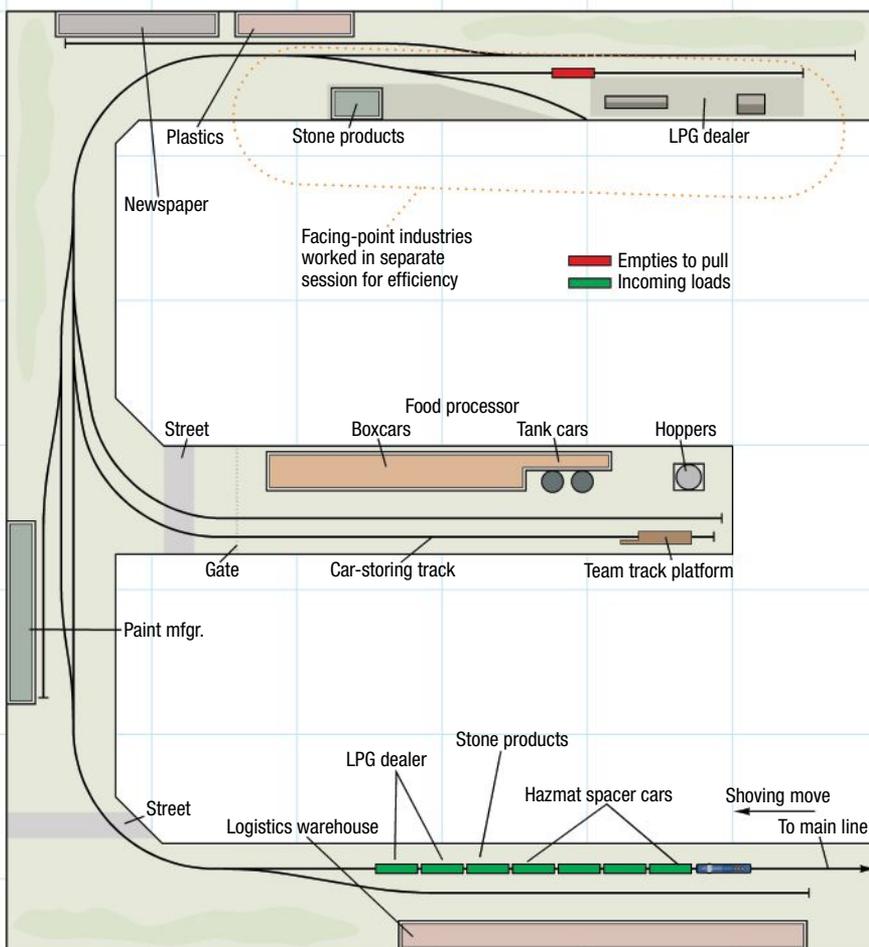
What we're overlooking

It actually doesn't take much space to create an affordable, easily built, realistic, and satisfying model railroad.

In the course of their daily operations, full-size railroads employ dozens of fascinating, easy-to-model steps that increase the length of time it takes to get things done. Many modelers don't work these steps into their operating sessions simply because they're unaware of them. If as modelers we can expand our knowledge of these procedures and modify them for model railroad use, what was once a brief train-running experience becomes a longer, entertaining re-enactment of the railroading we find so fascinating.

The track plan at a glance

Name: CSX industrial branch
Scale: HO (1:87.1)
Size: 12'-0" x 13'-0"
Prototype: composite plan based on CSX
Locale: Southeast
Era: modern
Style: single deck
Branchline run: 31 ft.
Minimum radius: 24"
Minimum turnout: no. 6
Maximum grade: none
Train length: not applicable





Learning points

- The more we understand and copy prototype operations, the less layout square footage it takes to keep us entertained.
- Copying prototype track arrangements by employing Layout Design Elements (visually and operationally recognizable models of actual locations) is a path to successful layout design, even if the railroad as a whole is freelanced.
- Selecting suitable industries greatly enhances the operating potential of a model railroad.
- Full-size railroads go to great lengths to avoid complicated switching puzzles.

org) resource. General searches on Google and YouTube also yield a wealth of information.

Here's the takeaway point: The more you understand and copy how an actual railroad works, the less track it typically takes to keep you entertained.

The SPPA layout

With only nine turnouts, the Simple Plan, Plenty of Action (SPPA) layout would be both simple and inexpensive to build. The standard 24" curve radius could be easily formed with Atlas sectional track pieces. At 64 square feet, the surface area is equivalent to two 4 x 8-foot plywood sheets. The layout is 18" wide, so a benchwork could be constructed by ripping two ¾"-thick 4 x 8 sheets lengthwise, or on shelf-bracket-supported hollow-core doors.

Selecting industries

Industry selection for a model railroad can make or break the plan when it comes to realism and operational interest. Newcomers to the hobby, influenced by ads and catalog covers, might include a mine, a harbor, an old industry, or all three. But if we want to model an actual railroad, we should let the real world be our guide.

Staying within the realm of plausibility, we want industries that are typical and have operational interest. An aggregate loader may be prototypical, but shoving 100-car trains beneath the tipple at 2 mph would get tedious in a hurry. However, a food processor, warehouse, or freight house requiring specific cars at certain loading doors offers more fun per square foot.

In short, have at least one or two industries that are not only plausible



Cars often must not only be delivered to the proper industry but also placed at the proper spot (often a door or unloading facility) within that industry. This food producer receives covered hoppers of plastic pellets for packaging, boxcars containing food ingredients and packaging materials, and tank cars of vegetable oil. Nothing is shipped outbound by rail.

So what procedures and practices are talking about? Will they sap the fun out of modeling? Certainly not! The starting point is simply to increase your knowledge. At that point, you can pick and choose what to copy and modify, and what to skip. Knowing about the procedures lets you make informed decisions.

Where to begin

The first place to start would be speed limits. Railroads limit coupling speed to 4 mph and shoving moves to 15 mph, and in general they like to keep speeds on industrial and branch lines in the 10- to 15-mph range. Just running at scale speeds will stretch the length of your layout.

Another prototype procedure is the brake test. Waiting 15 minutes for this may be a bit much for many operators, but allowing a minute or two after cutting a new car into a train would make operations more relaxing.

Grade crossings are another example. Many municipalities get testy when their streets are blocked when a local is going about its switching. To keep the locals happy, the train must be broken at grade crossings so traffic can pass.

Hazardous loads such as chemicals and flammable gases, by rule, must be separated from the locomotive by spacer cars.

Finally, rail customers are very particular about where a car is spotted. They get unhappy when the tank car they ordered is dropped 50 yards from the unloading hoses and in its place is a boxcar of cans for the loading door on the next track over.

Obtaining needed knowledge

Modeling meets and online forums are often populated by professional railroaders who are happy to pass on information. The Operations Special Interest Group is another (www.opsig.org)

but are dependent upon specific car spots. Following this logic, the SPPA plan includes two large, multi-spot industries (warehouse and food processor), along with a half-dozen smaller industries.

As you follow along, you'll see that as straightforward as this plan is, it will produce multi-hour, sophisticated operating sessions. Avoid the temptation to add additional turnouts and rail-served industries to the plan. Doing so would detract from the appearance of the design and simply be excess capacity that probably would not be used.

Operating the SPPA

I'm an advocate of holding frequent operating sessions, even if they are short, impromptu, solo ones by the layout owner. In addition to improving overall reliability, frequent running keeps us engaged in the hobby, which is what it's all about in the first place. The SPPA could be operated two ways. One is a 30-minute, after-dinner session where the layout owner just switches an industry or two. The second scenario would be the full-blown "show," a more formal session.

You may be surprised to learn that the full session would likely exceed two hours and reach that length through a methodical, rhythmic, un-frustrating series of choreographed events. Let's take a look.

The track plan shows the setup and staging for a session that's likely to exceed two hours. In the real world, not every industry would be switched every day. Also, to minimize the need for runaround moves, the industries with trailing-point switches would be switched one day, the industries with facing points switched another.

For our purposes, the session will involve switching one "complex" industry (the food processor) and two smaller industries. The session starts with the train pre-blocked on the main. No staging is needed, since we can assume the train just arrived on the scene at the start of the session.

Although there are a number of ways to handle a job, the conductor would likely make quick work of the two smaller industries to get those out of the way first. Note that at the newspaper plant, the plastic pellet hoppers will have to be pulled first and re-spotted when you're done. You did remember to take the time to release the hand brakes before moving the cars, didn't you? Did you reset the handbrakes on the spotted cars before leaving the area?

Planning vs. design

A distinction should be made between planning and design. They aren't the same. Planning has to do with strategic issues, such as your overall objectives, as well as self-awareness. If you don't know what you want your model railroad to do for you, it's pretty hard to come up with a satisfying design. Only after those key strategic issues have been addressed can you start with the simpler design factors such as curve radii, track arrangements, needed structures, and more.

Failure to address the more introspective strategic planning issues first puts you at risk for correctly drawing the wrong layout. By that, I mean a design that is technically correct and yet doesn't target your true interests, lifestyle, and circumstances.

High on the list of strategic planning questions to ask ourselves is how long do we really want a typical operating session to last? How long do we typically want the "show" to run? Be realistic. If it's two or three hours, do you need a design that takes eight hours to operate? As a rough rule of thumb, assume a complex, multi-spot industry (five or more spots) takes 75 minutes to work. Assume that swapping a load for an empty takes about 15 minutes by the time you clear grade crossings, unlock gates, and wait for your conductor to complete these tasks and return to the train. This means that a design with one complex industry and three small industries would produce a 2-hour session. That's four industries. Double that number to eight to allow for variety from session to session.

Bottom line: A well-designed layout with eight industries should serve up two-hours-plus operating sessions. If two hours is the burnout point for you and your guests, do you need a layout jammed with 20 industries? Food for thought. – *L.M.*

Once the two smaller industries are switched, the conductor would turn his attention to the more involved task of switching the food processor. Here we have the common situation of having to deal with cars that are still being unloaded blocking access to empty cars that need to be pulled and incoming cars that need to be spotted.

The conductor would likely pull all of the empties and still-to-be unloaded cars and temporarily put them on the sorting track – known as the "grand pull." After that, it's just a long but simple sequence of shuttling back and forth to spot the incoming loads and replace the original still-to-be-unloaded cars.

As you go about your work, you need to make sure the grade crossing isn't blocked for significant time periods. You might want to have the crew lay some fuses in the street for additional crossing protection as you work (see "Add simulated fuses to your operating session" in the January 2010 MR). When you're done, hand brakes need to be set on all of the cars. Once you have your work done and are ready to head back to the yard, you'll need to perform an air test. On the prototype, that would take about 15 minutes; I usually allow just a few.

Notice that the turnouts at the LPG plant and the stone products dealer

have their points facing in the opposite direction. For the sake of efficiency, the railroad would likely switch these on a different day. This two-industry session would work well when you're in the mood for a short operating session.

Remember that for these facilities, you'll be shoving, so speeds would never exceed 15 mph. Frankly, shoving or not, industrial park switching speed limits are generally 10 mph. Also, since you will be bringing in loaded LPG cars, you must have five spacer cars between the LPG loads and locomotive at all times.

Simple, realistic, and fulfilling

I hope it is now evident that the SPPA combines in a compact package a simple to construct, highly realistic layout that provides relaxing yet fully engaging operating sessions that can challenge and entertain you for several hours at a time. **MRP**

Lance Mindheim is a frequent contributor to Model Railroader who lives in Silver Spring, Md., with wife, Cathy and son, Zachary. He's a civil engineer and owner of the Shelf Layouts Company Inc. (www.shelflayouts.com), a custom layout design and building firm. His Miami-based HO scale Downtown Spur layout appeared in Model Railroad Planning 2009.

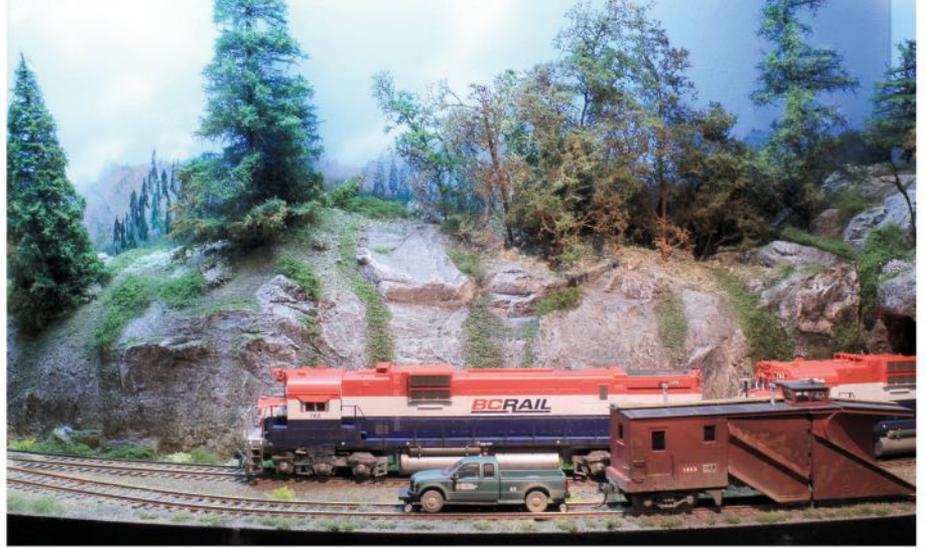


Rugged mountain scenery and big power pulling a long train help to disguise the fact that what appears to be big-time railroading set in British Columbia actually takes place on a short, cleverly folded figure-8 main line.

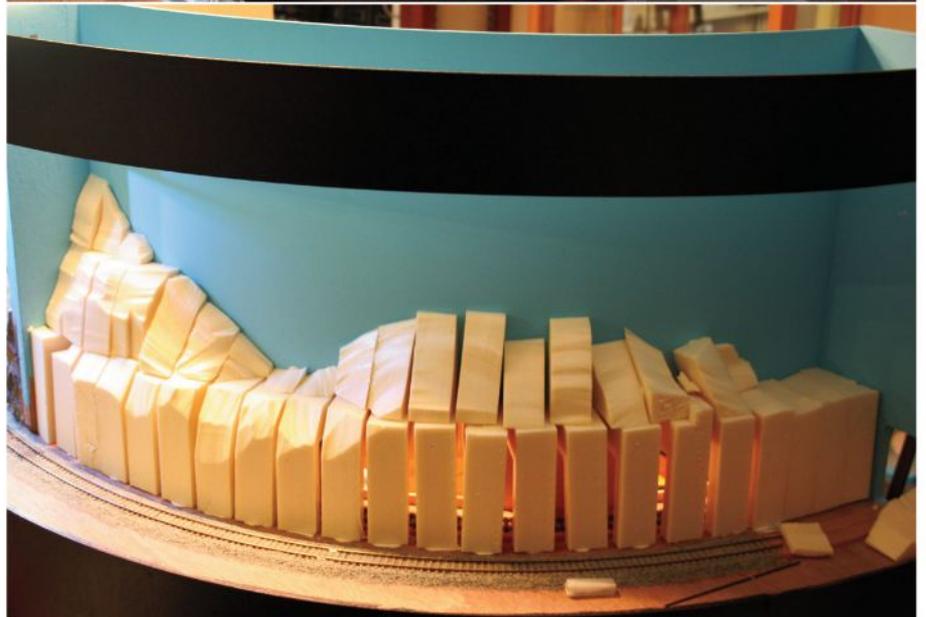
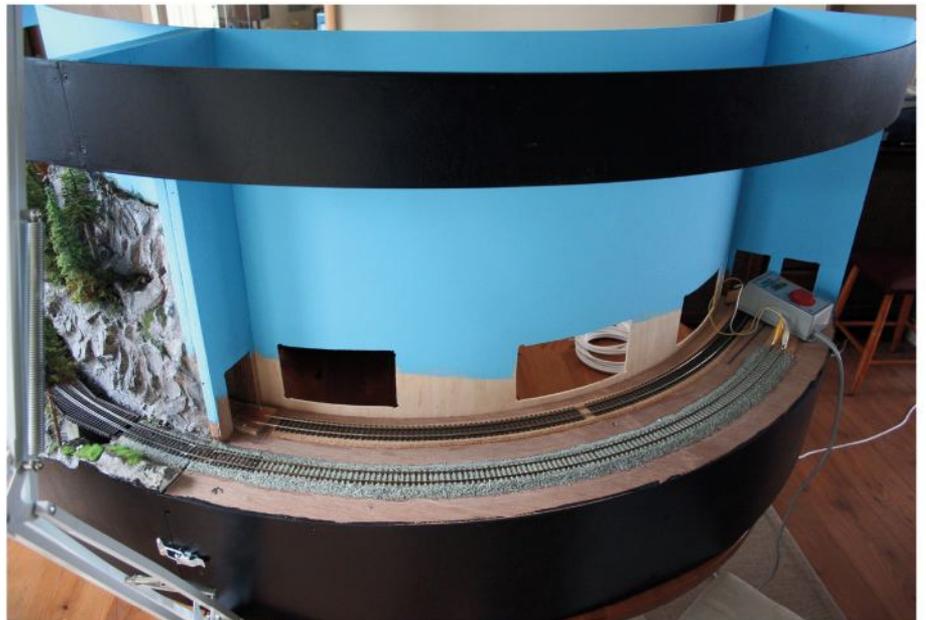
Big train, small layout

An exhibition layout that delivers more than meets the eye

By Erik Block and Evan Daes//Photos by the authors



Colorful six-axle locomotives convey the drama of long trains winding through the rocks, but four-axle power operates better on the sharp curves and crossing. A short siding adds scenic interest and could be used set off or pick up a car.

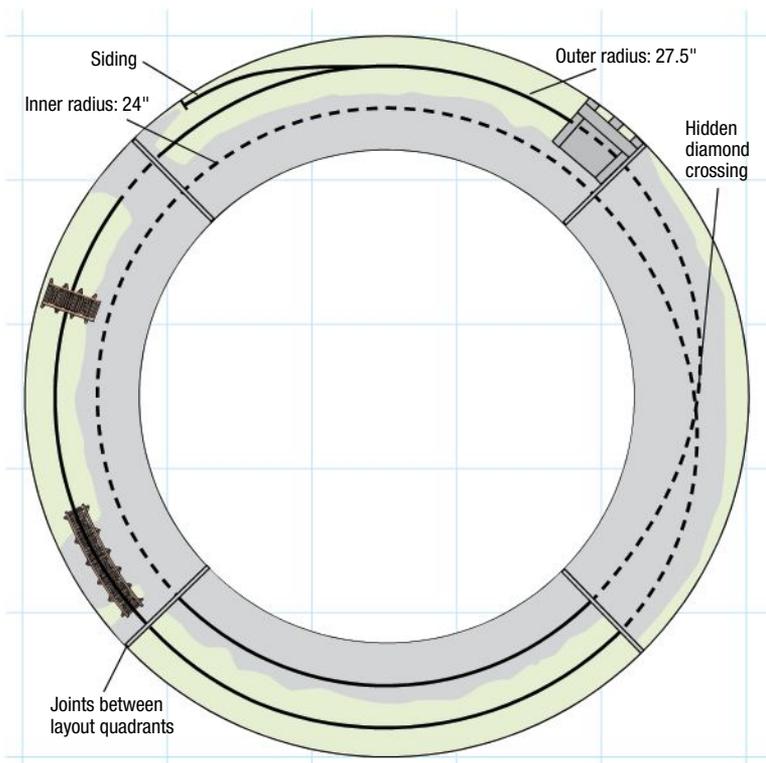


Segments of the inner and outer “loops” are visible in the top photo. Vertical layers of lightweight foam insulation board were sculpted to straddle and hide the inner loop as well as become the basic scenery landforms (bottom).

Even though our home is in Belgium, we both love modern North American trains and landscapes. And it’s our ongoing dream to run long trains in HO scale.

One previous project was a large logging layout, the Nitinat River Ry., but it couldn’t accommodate long trains. Moreover, we quickly learned about the difficulties of moving it to display at model railroad shows. Two trucks were needed to transport it, which added significantly to the cost.

So this time we sought a more practical and creative solution. Evan also wanted to enter the design in a competition for small layouts. After a lot of brainstorming, he proposed a “round” railroad. The new exhibition layout would be small, yet capable of handling a long train, giving visitors a



The layout at a glance

Name: Beautiful British Columbia
Scale: HO (1:87.1)
Size: 5-foot-diameter cylinder
Prototype: BC Rail
Locale: British Columbia
Era: 1998
Style: single deck
Mainline run: 26'-6"
Minimum radius: 24"
Minimum turnout: no. 5
Maximum grade: none
Train length: 13 feet
Benchwork: aluminum frame
Height: 51"
Roadbed: cork
Track: handlaid and Peco with concrete ties
Scenery: plaster-impregnated gauze and Sculptamold over foam
Backdrop: thin plywood
Control: Model Rectifier Corp. Prodigy Advance DCC

Portable BC Rail exhibition layout

HO (1:87.1)
 Layout size: 37" x 5'-0"
 Scale of plan: $\frac{3}{4}$ " = 1'-0", 12" grid
 Illustration by Jay Smith
 Find more plans online in the ModelRailroader.com Track Plan Database.

sense of big-time railroading in North America.

A portable design

The result of these goals was a portable layout set in the late 1990s that's only about 10 square feet. The layout is essentially a 1.6-meter (about 5-foot) diameter cylinder.

The track arrangement is simply a folded-over figure 8. It's designed so viewers see only the bigger circle on the outside and not the smaller one inside. At four meters (13 feet) long, the train is almost the same length of the inner circle's track. If you could see the action at the hidden crossing, you'd find that the caboose barely clears the diamond before the lead unit roars across.

The layout consists of four pie-shaped sections. Each section has its own hand-painted backdrop. We chose light-emitting diodes to illuminate the layout since they give off less heat and last longer than fluorescent or incandescent lighting.

The train is visible on three sections of the layout; the fourth section is

disguised as a rock cliff with the crossing hidden underneath. Here, the train goes from the visible outer circle to the hidden inner circle.

The shallow scenery, rugged rocks, and painted backdrops provide a sense of depth and make the railroad – and the train – look even longer.

Lightweight construction

Moving this layout to exhibitions is easy as the layout is supported by a lightweight aluminum frame. The layout itself is made of cardboard, plywood, and particle board. Lights and cables are already in place in every section and just need to be plugged in.

We can set it up in only 10 minutes. It takes us longer to get all of the rolling stock out of the boxes and on the rails.

Prototypical scenery

The scenery is based on the BC Rail (now Canadian National Ry.) line along the coast between North Vancouver and Squamish, B.C. Here, full-size trains pass through a series of tunnels, which proved beneficial. On our layout, we use tunnels between the sections and to cover the joints between two modules.

The main challenge we faced was that the depth of each module is only 20cm (8"). The rocks and landforms had to be thin to maintain adequate

clearances. We made the basic landscape structure with Styrodur, a lightweight foam insulation board used in construction (similar to extruded-foam insulation board). We covered the foam board with Woodland Scenics and Noch plaster cloth. We then used Amaco Sculptamold to shape the landscape and rocks. We colored the rocks with washes of pigments and acrylic paints.

Once the rocks and other landforms were dry, we covered them with scenic materials from Woodland Scenics, MiniNatur, and Anita Decor (from Germany), as well as natural materials. We made most of the trees out of twisted wire, static grass, and Woodland Scenics foam.

Learning points

- Group brainstorming, in this case quite literally "out of the box," can point to workable solutions.
- The folded figure-8 design gives long trains a surprisingly long run and puzzles viewers, who see the track plan as a simple loop.
- The cylindrical design allows the layout to be built as four pie-shaped wedges that are easily and quickly assembled at a train show.
- LED lighting increases reliability while reducing heat output and power consumption.

Despite the layout's small size, we managed to incorporate several different scenic views. Each section is literally a world of its own.

An exhibition layout

Of course, a layout of this design is strictly for shows. You can't switch, although we did add one short siding in the front where a car could be set out or picked up to add some drama.

We can run only one big train or two smaller ones in the same direction, but this is perfect for exhibitions. People like to ask questions, especially about the rocks. It isn't easy to monitor the train all day, but that's OK. The train runs and we talk!

This simple design could therefore be useful as a pattern for others who take their layout to exhibitions or train shows. **MRP**

Erik Block and Evan Daes are members of a group of modelers called Branchlines and Backwoods that is interested in American railroading. Erik is a professional zookeeper. Evan is a Belgian RR catenary inspector. Both are married to spouses who support their hobby interests.



These two photos show the exhibition layout sans skirting (top) and with the layout's LED lighting system turned on (bottom). The four pie-shaped sections rest atop the aluminum framing shown in the top photo.



A Chicago & North Western commuter train behind General Motors' Electro-Motive Division E8 no. 510 heads through West Chicago, Ill., in 1978 with a long consist of bi-level commuter cars. Note the blanked-off Mars light housing.

North Western's Chicago commute

Making the most of a narrow space with a multi-pass layout

By **Byron Henderson**//Photos by Mark Llanuza

The Chicago area has a well-deserved reputation as a railroading hot spot. Freight operations were and still are extensive, transcontinental passenger traffic centered on the Chicago hub, and an impressive network of commuter lines extends across the region. Capturing even a portion of this activity in HO in my client's mid-sized space of about 160 square feet was challenging.

Building on commuter traffic

In this case, it helped that the layout was to be focused on the Chicago & North Western (C&NW) commuter

traffic from North Western Station to the western suburbs. This push-pull system was well known for keeping rebuilt General Motors' Electro-Motive Division E units in operation until the late 1980s and early 1990s hauling commuter coaches for the C&NW and later Metra.

Although freight operating potential was also to be incorporated into the layout, my first order of business was developing a layout schematic that offered the longest runs possible between passenger stations. It helped that North Western Station was stub-ended. This made it compact in

both real life and in model form and a logical terminus for the layout itself.

Since some commuter runs ended at Wheaton, Ill., this was a reasonable point for the western end of the visible layout. Stub-ended staging beyond Wheaton would accommodate a few commuter trains and is made practical because of the push-pull nature of the train sets.

Multiple passes to the rescue

While many layout designs strive to have trains pass through each scene only once, clearly this approach would not provide long runs between the

The layout at a glance

Name: Oak Park & Western
Scale: HO (1:87.1)
Size: 8'-0" x 20'-2"
Prototype: Chicago & North Western
Locale: Chicago and suburbs
Era: late 1960s to 1970s
Style: around the walls with lift-out entry
Mainline run: 85 feet
Minimum radius: 27"
Minimum turnout: no. 6
Maximum grade: 2.5 percent
Train length: 6 to 10 feet

desired half-dozen commuter stations. The long, relatively narrow space didn't allow for a central peninsula when aisles were included. Fortunately, the door to the room opened out, so bridging the entrance would be relatively straightforward.

I opted instead for a multiple-pass schematic, with commuter trains circling the room twice. An around-the-walls layout with the aisle in the middle is usually the best choice in relatively narrow rooms. This also allowed a broader minimum radius to suit the long passenger equipment.

To provide some visual separation of the multiple laps, I started with the "outer" loop at a slightly higher elevation and the "inner" loop a bit lower and in front. I also tried to set scenes together in a way that allowed them to complement the scene on the other lap, as I discuss below.

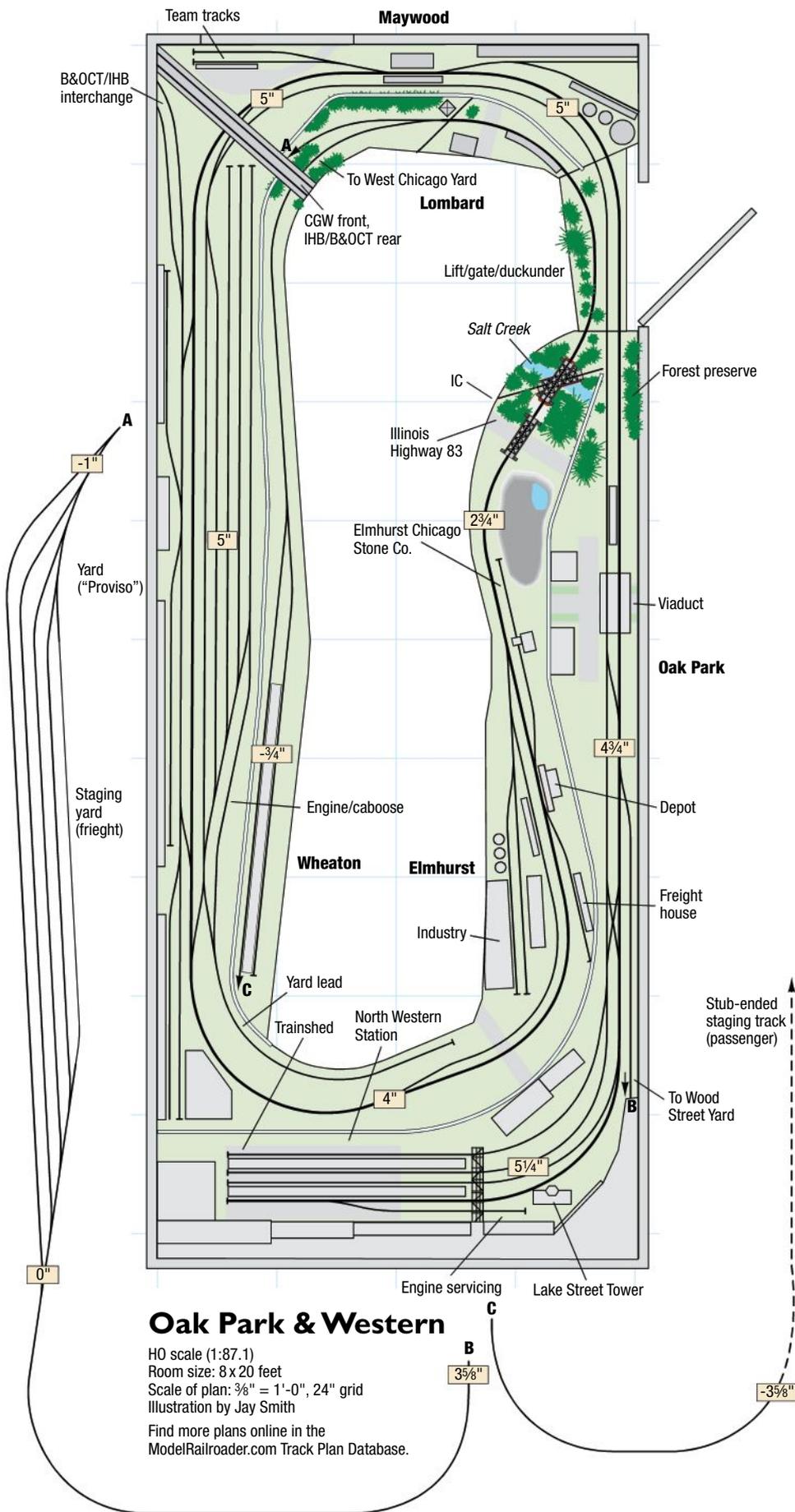
Don't forget the freight!

Freight trains operated along these same lines, so I looked for ways to overlay the freight traffic onto the rough layout footprint I'd developed.

The client's primary desire was for local switching operation with just a bit of through freight. This allowed me to plan for a much smaller scope for the freight facilities than would be required to truly reflect the considerable freight activity in the area.

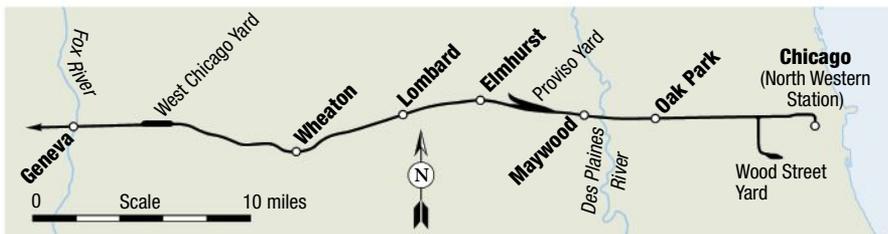
The desired operating pattern for freight trains was to include through trains from the east and west making setouts and pickups in a visible yard, from which local freights could operate. And if possible, the layout should reflect some interchange operation, in keeping with Chicago's status as a major interchange point.

Freight traffic from Wood Street Yard to the south joined this line just west of North Western Station and





A sea of C&NW bi-level commuter cars at North Western Station in downtown Chicago await the call to duty on a misty, foggy day in 1975, when the C&NW was the only Chicago railroad making a profit on commuter operations. Metra has since taken over those operations in the Windy City.



CNW Chicago Commuter Line

carried on to the east through massive Proviso Yard to West Chicago Yard and beyond.

Making a split

As I played around with different staging scenarios, I thought that I would get the most benefit from representing Wood Street Yard and West Chicago Yard with one double-ended staging yard. However, this arrangement potentially shortened the end of the commuter run.

Rather than having the commuter trains and freight trains share the same staging yards, I unprototypically separated the west end of the commuter and freight lines. This allowed me to include the Wheaton station by overlapping it with the visible freight yard. Moreover, it was a good balance between the conflicting trade-offs. As part of this trade-off and a consequence of laying out the multi-pass main line, the freight connection from Wood Street Yard connects from the north rather than the south – another useful compromise.

North Western Station

A trip around the layout from east to west allows us to look at some of the design decisions. North Western Station is compressed but resembles

the real arrangement in a number of details, including the left-hand turn as trains depart. Its actual location among multistory buildings allows the use of low-relief buildings and flats to provide an interesting visual contrast with the less-dense areas to the west.

Passenger trains departing westward from North Western Station pass a near-scale representation of often-photographed Lake Street Tower, with the tall building flats concealing the Wood Street staging lead to the rear. The famous Chicago El (dummy tracks on a bridge) passes above the tracks leading from the yard. A compact passenger engine terminal somewhat suggests the real thing, but it requires the farthest-back track to be empty for engines to cross over in the station throat and back down into the switch-back connection to service. This would happen rarely in model operation.

Continuing westward, a double crossover adds some trackwork interest (and a signaling opportunity for the client, who counts that as a major interest). Passenger tracks are joined by the line from staging representing the connection to Wood Street Yard. Crossovers allow passenger trains to move between main lines as needed and a second crossover allows freight trains entering from Wood

Street to move to the left-hand main (this is the C&NW, after all!).

Oak Park was a key location for the client, who once lived nearby. Here the track crosses a viaduct with apartment buildings in the foreground. Just beyond, a slightly undersized concrete platform provides a location for a passenger station stop.

Maximizing multiple laps

Continuing westward, the tracks pass through a wooded area suggesting the forest preserves. Most of this will be represented on the backdrop, although the trees for the Salt Creek crossing scene in front and below help add to the wooded ambience. This doubling-up of scenic elements helps turn the downside of side-by-side scenes on different laps to a bit of an advantage. The woods could also be extended across the lift-out or swing gate that crosses the room entrance.

At Maywood, a compact depot and small platform between the tracks provide another commuter service location, and there is also some freelanced freight switching activity. A curved crossover guides westward trains under the overhead railroad tracks, which cross above on embankments and bridges.

In another “doubling-up” opportunity, these same physical overhead rails represent the side-by-side Indiana Harbor Belt (IHB) and Baltimore & Ohio Chicago Terminal (B&OCT) tracks on this lap of the C&NW main line and suggest the overhead crossing of the double-track Chicago Great Western (CGW) on the second lap.

Proviso in name only

The freight yard is ridiculously small to adequately suggest the massive Proviso yards, but it should be reasonably functional to originate a local and support local industry switching and interchange. If the cognitive dissonance is too much, one could always dub it Northlake, Erie Street, or Stone Park, which would give those in the know an idea where it's supposed to be located in the real world without the expectations that come with naming it “Proviso.”

The yard has one double-ended track that can be used as an arrival/departure track, as well as a through connection to the north that segregates the switching of the freelanced industry (flats) from the main. The other yard tracks are stub ended to provide more usable length. Interchange with the IHB/B&OCT takes place at one end of the yard nearest the overpass.

A short utility track paralleling the yard ladder would be a good place for parking the yard loco and/or a local engine and a caboose. A yard lead extends to the west to keep freight work from interfering with through trains (passenger or freight), important in light of the busy commuter traffic.

Starting the second lap

Beyond the yard, the main is single track and descends steeply into Elmhurst. Elmhurst includes passenger platforms and some industry switching, including a large freelanced industry at the aisle and the stone quarry that existed in real life. The grade moderates to 1 percent through town. This grade is necessary for clearance elsewhere but may require “chocking” cars during switching.

Beyond Elmhurst, the track descends sharply again through the prototypical crossing of Highway 83, the Illinois Central, and Salt Creek. This scene could be quite deep, extending several inches below C&NW track level, if desired. Creating a heavily forested scene in the area will help blend it visually with the forested scenery on the upper lap to the rear.

Lombard is squeezed into a bit of room left on the lower lap. A small passenger platform provides another commuter stop, and a freelanced at-grade crossing with another railroad, such as the Soo Line or Elgin, Joliet & Eastern, rates an interlocking tower and offers the opportunity for simulated signaling.

Separated staging

Unlike real life, the railroad splits at Lombard, with the freight line ducking under the tracks overhead (now representing the Chicago Great Western) to return to staging (“West



It was a great night to stay off the roads and take the train home as C&NW no. 412, an EMD F7A, paused in the blowing snow at Arlington Heights on Jan. 14, 1979. Three feet of snow fell that night.

Chicago”). Passenger traffic carries on to Wheaton, where most commuter trains will lay over before the return run eastward to North Western Station. There is an extension of the main line to one or more additional hidden stub-end staging tracks below Oak Park to provide for occasional passenger service to the “end of the line.”

To keep the overall grades as manageable as possible, the clearance above freight staging is very tight. This would require hand throws in the yard above or careful remote placement and linkage of switch machines. This is not a trade-off I would recommend for every layout, but it was acceptable for this client to coil in as much main line as possible. Any restaging work needed between sessions would require the trains to be pulled out onto the visible layout, re-staged as necessary, and then placed back into staging.

Freights amid commuters

The track plan supports three or four commuter train sets (or more) in fairly rapid shuttle runs back and forth across the layout from North Western Station to Wheaton, with the occasional run on to the western commuter staging below Oak Park. The push-pull nature of the real-life system doesn't require any turning or re-working of consists, so the frequency of commuter runs is up to the preferences (and number) of the operating crew.

Freight operations will take some track time as well. Through trains from the east and west (staging) might set out and pick up cars in “Proviso.” Either a dedicated yard job or the local

freight will make up trains from these setout cars and the interchange cars.

A local originating from Proviso (either the local job or a separate crew) can work the industries in each direction from the yard. There are a couple of tight spots on the layout (including the lack of a runaround at Maywood) that will demand some advance planning for the freight crew.

When the local returns, outbound cars could be organized in the yard for an east block, a west block, and IHB/B&OCT interchange cars. Alternately, separate east and west locals from staging could use Proviso as a central interchange point. Much of the local switching must take place around the commuter parade, so it might be worth setting aside some “overnight” time in the schedule when the locals may work without commuter traffic.

Focus and priorities

In a modest space for an HO layout encompassing this much territory and traffic, it's important to clearly identify priorities and address those first. In this case, optimizing the layout for the commuter traffic and then seeking to squeeze in some freight switching meant a few compromises. But the resulting flashes of yellow E units on the morning and evening commutes will be a great reward! **MRP**

Byron Henderson is a regular MRP contributor, custom model railroad designer (www.layoutvision.com), and editor of the Layout Design Special Interest Group's Layout Design Journal. For more information visit ldsig.org.

Learning points

- In a narrow room, placing the layout against the walls and the people in the middle is often a winning approach.
- A design based on multiple passes through a scene offers longer mainline runs and more separation between locales.
- Differences in elevation help to separate multiple laps.
- Where scenes on different laps are directly in front of one another, placing similar scenes together may offer scenic opportunities.



I. A T-1 helper shoves against a westbound coal drag on the steepest part of the 2.6-percent grade up to Locust Summit on Jim Hertzog's Reading Co. layout. The scene is only 9" wide, but is a focal point of the layout.

Slogging up to Locust Summit

Helpers and mine runs play major roles on the Reading

By **Jim Hertzog**//Photos by Mike Rinkunas

Slogging is a word not often heard today. But it's appropriate when describing the Reading Co.'s train movements up the demanding Locust Summit grade west of Gordon, Pa. The trains, many heavily laden with anthracite (hard) coal, would climb the 2.6-percent grade at little more than a walking pace.

Although I never personally witnessed this daily battle of man and machine against nature, photographs from the 1940s and '50s confirm the show was spectacular. Replicating it in miniature was my primary objective when designing my HO scale layout based on the Reading in the coalfields.

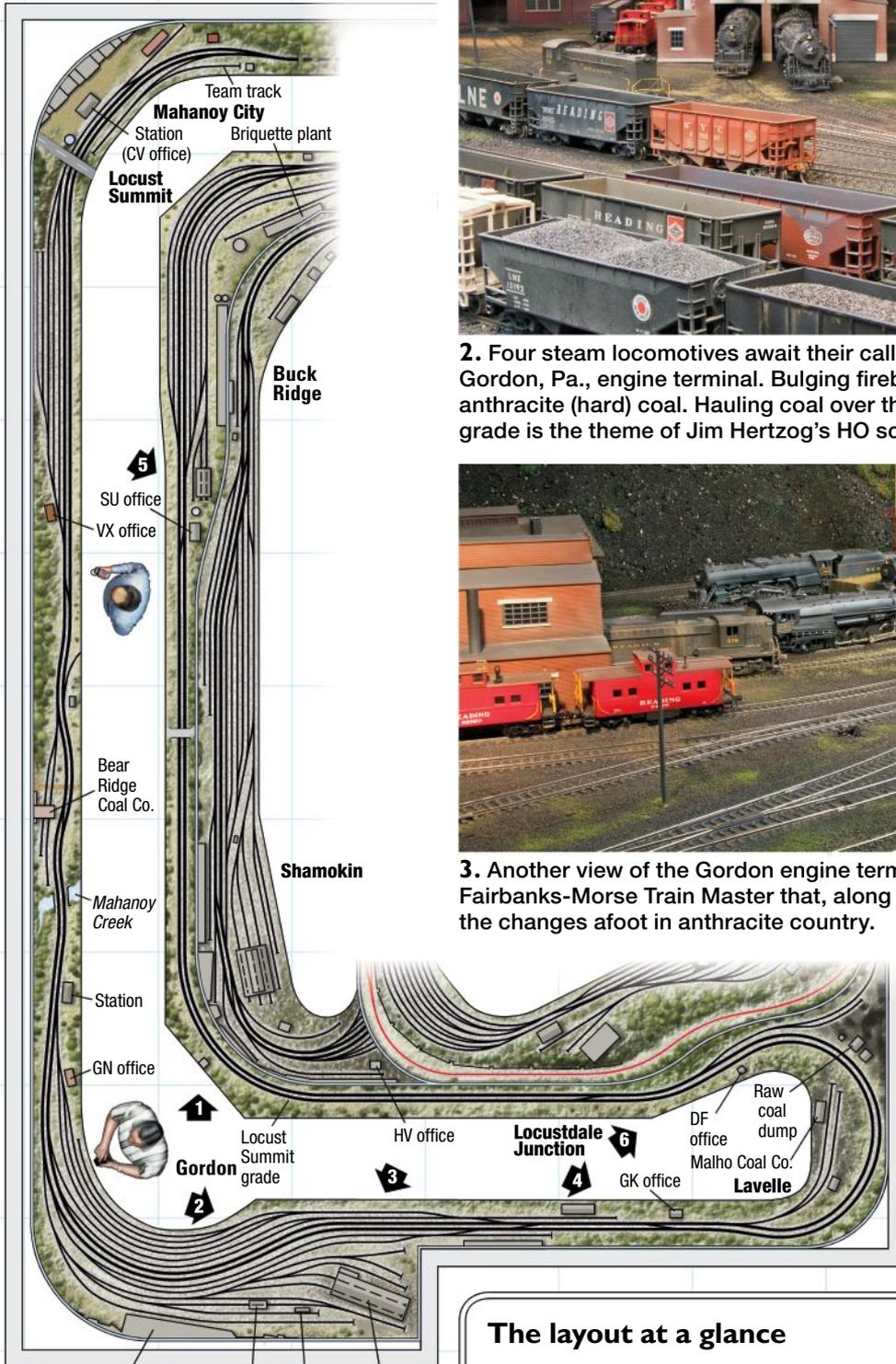
The base at Gordon

Gordon, Pa., was very important to the Reading's anthracite operations. It was ideally located between the larger railroad centers of Tamaqua and Shamokin (see *Model Railroad Planning 1998*). With its modest yard and notable engine facility, Gordon served mainly as a base for helper movements and for dispatching mine runs.

My initial planning focused on modeling only the six miles of railroad from Gordon to Locust Summit with appropriate staging areas. Sandwiched between these two points would be the fierce Locust Summit grade. Although traffic would be primarily coal trains, a

few symbol freights and a handful of passenger runs would fill out the schedule. Train speed would be slow and deliberate in both directions, given the severity of the grade and the yards located at each end and the use of helper locomotives on the climb up to Locust Summit. I envisioned that the layout would keep six to eight people busy for several hours.

Through research, conversations with former employees, and actual site visits, I became aware that modeling more of the railroad's anthracite operations would make a fascinating layout. Armed with this knowledge, I decided to expand the layout design



2. Four steam locomotives await their call to service at the Reading Co.'s Gordon, Pa., engine terminal. Bulging fireboxes accommodated slow-burning anthracite (hard) coal. Hauling coal over the Reading's daunting Locust Summit grade is the theme of Jim Hertzog's HO scale railroad.



3. Another view of the Gordon engine terminal includes a brutish 2400-hp Fairbanks-Morse Train Master that, along with a pair of Baldwins, is a portent of the changes afoot in anthracite country.

Reading Co. Shamokin Division

HO scale (1:87.1)
 Room size: 31 x 40 feet
 Scale of plan: 3/8" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Rick Johnson

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

The layout at a glance

Name: Reading's Mahanoy and Shamokin branches
Scale: HO (1:87.1)
Size: 31 x 40 feet
Prototype: Reading Co.
Locale: eastern Pennsylvania
Era: 1952-57
Style: walk in
Mainline run: 310 feet
Branchline run: 75 feet
Minimum radius: 30" main and branch

Minimum turnout: no. 6
Maximum grade: 2.5 percent
Train length: 12 feet
Benchmark: open grid
Height: 48" (staging at 45") to 61"
Roadbed: cork and Homasote on 1/2" plywood
Track: code 83
Scenery: plaster gauze
Backdrop: painted 1/8" hardboard
Control: Lenz DCC



Learning points

- Helpers can add considerable visual (and now auditory) interest to operations while extending the time required to travel over a given length of main line.
- Helper grades have to be an integral part of the initial layout planning process.
- Choosing to model a helper base that also supports mine runs doubles the action potential.
- Very narrow shelves (9" wide on Jim's railroad) are adequate for many between-town mainline runs, even as part of a key scene.

radius I could achieve was about 25", too tight for the brass T-1 4-8-4 locomotives I planned to use.

Instead, I settled on several longer engine-servicing leads. I was also able to increase the number of yard tracks from five to seven, with a total capacity of about 90 cars. Within the yard limits (a distance of nearly 30 feet), there are several sidings that serve three raw coal loading wharves, a wood products company, a feed mill, and a team track. Five tracks are dedicated for engine service, including two that enter the scratchbuilt brick enginehouse.

Most westbound trains stop to pick up a helper engine, usually a class K-1 2-10-2 or one of the renowned class T-1 Northern's. Several eastbound trains also have to stop to release their brake retainers, which had previously been set at the top of Locust Summit. (Trains powered by diesels with dynamic brakes have eliminated most, but not all, of these stops.) A few road freights are required to stop to pick up and set out cars. The main line must also be kept clear for the six scheduled passenger trains, four of which stop at the station.

A typical day at Gordon

During an operating session, up to 24 trains will originate at, terminate at, or pass through Gordon. Six are passenger trains, 13 are symbol freights, and four are mine runs. Because the Reading had a less severe route to Newberry Junction via the Catawissa branch, several of these priority symbol freights would have avoided the Locust Summit grade. On my layout, however, all these trains pass through Gordon.

Let's take a closer look at the trains that call Gordon home. The originating

4. No. 3006, a K-class 2-10-2, is shoving hard on a westbound coal drag as it leaves Gordon Yard. Once the pride of the fleet for moving priority freights, the Santa Fe types have been bumped to the coal region to finish out their remaining years. Note the big chunks of raw hard coal in the hoppers.



5. At SU Office at Locust Summit, the helper cuts off of the westbound it assisted out of Gordon. The crew will get permission to cross over to the eastbound main and run light back to Gordon to await the next assignment.

to include more of the Reading's Shamokin Division. My original design grew to fill the entire basement and includes five yards, two staging yards, three helper districts, 15 coal-loading sites, and 300 feet of mostly double-track main line. My favorite area part of the layout remains Gordon and the climb up to Locust Summit.

Gordon Yard

Just like its prototype, Gordon is in a valley midway along my layout's main line. Heading east toward Saint Nicholas and Tamaqua, the railroad

climbs a 1.1-percent grade. At the west end of the yard, the main begins its arduous 2.6-percent climb toward Locust Summit and Shamokin. Gordon Yard is not the largest yard on my layout, but during an operating session it's a very active place on the railroad, demanding the full attention of the yardmaster and the dispatcher.

My version of Gordon Yard is situated in a corner and alcove in my basement. I originally intended to use the alcove for the enginehouse and wye used for turning the locomotives. I soon discovered that the best wye

mine runs are the responsibility of the yardmaster. During an operating session, three trains are called: the Alaska Crew, the Natalie Crew, and the Gordon Western. A fourth mine turn, the Shamokin Eastern, stops to set out local cars on its run eastward to Saint Nicholas. Symbol freight GB-4, known locally as the Bridgeporter, originates at Gordon and leaves early each day, mostly with loaded hoppers bound for the ports near Philadelphia. A set of EMD F units or a Fairbanks-Morse Train Master usually handles this job.

Also stopping at Gordon are symbol freights PN-7 and counterpart NP-8, which run daily between Philadelphia and the end of the line at Newberry Junction, just west of Williamsport. These two trains act as road locals, picking up and setting out as required and helping keep the yard fluid.

The only other train to work Gordon is TWM-1, the westbound local, which originates at Tamaqua and runs to West Milton (Newberry staging). It takes any leftover cars not picked up by PN-7. Gordon can quickly become a bottleneck if the yardmaster becomes too comfortable.

The mine runs

Symbol freight GB-4 (Gordon-to-Bridgeport) originates at Gordon. The train is primarily loaded hoppers destined for a yard near Philadelphia, where they are classified for delivery to the docks along the Delaware River. Since the coal is weighed and classified at Shamokin, this run-though train usually stops at Tamaqua only to drop any locals or interchange cars for the Lehigh & New England. It will return as BG-3 later in the session with empty hoppers for the yard crew to classify.

The Shamokin Eastern is usually the first coal train to arrive in Gordon. It's a turn that takes weighed and processed coal from Shamokin to Saint Nicholas. On the head end will be a block of Gordon locals, frequently including several cars of coal for the massive coaling tower at the locomotive-servicing area.

This train sometimes arrives with a helper that has assisted from Shamokin and will then push it east to Saint Nicholas. The helper will return light to Gordon and wait for the Shamokin Eastern's return to Shamokin to help with its large block of westbound coal.

The Alaska Crew takes empty hoppers to the Alaska Colliery located near Mount Carmel Junction. Since it's mostly empty cars, this turn is one of the few dispatched from Gordon to ascend the Locust Summit grade



6. The Potts mine crew waits on the Ashland branch at Locustdale Junction for passenger train No. 91 to pass on the main line. The mine run will then take its load of raw coal to the processing plant at Locust Summit.

without a helper engine. After working the Alaska mine and then delivering carloads of raw coal to Locust Summit, the power usually returns as a caboose hop to Gordon.

The Gordon Western begins its assignment running eastward as a caboose hop to the coal yard at Saint Nicholas, where it will pick up a large block of westbound coal. Returning downgrade to Gordon, the train will pick up additional loaded hoppers to fill out to maximum tonnage. The train will get a rear helper and head west for Shamokin, then return with loaded eastbound hoppers that will become tomorrow's GB-4.

The Natalie Crew is an interesting mine run that leaves town late in the day bound for the un-modeled Natalie Coal mine on the Mount Carmel branch. It's a bit atypical, with a large head-end block of unprocessed raw coal that's been gathered by the yard crew. This coal will be set out at the large processing plant at Locust Summit. The rest of the train is empty hopper cars for the Natalie mine. This train doesn't return to Gordon but instead terminates on the branch, implying that it's working the mine. Special operating instructions require a mid-train helper be placed behind the loads and in front of the empties.

Attacking the grade

Leaving Gordon, the layout is only 15" wide, which is sufficient to include two mainline tracks, two sidings, and

background mountain scenery. The ascending grade is purposely kept under 0.5 percent. The main line then makes a giant horseshoe curve near the Malho Coal Co. at Lavelle with a minimum radius of 34'. Just past Lavelle is Locustdale Junction, where the Ashland Upper Route branch heads off to the Potts Mine, which is represented by staging.

The climb then gets serious for the next 40 feet, with grades averaging between 1 and 2.5 percent. Although the Locust Summit grade is one of the layout's focal points, it's depicted on a shelf only 9" wide. The westbound uphill track is liberally "dusted" with Floquil Antique White paint airbrushed on to simulate heavily sanded rails. (I tried powder chalks, but prefer the painted effect.)

The backdrop along the right-of-way depicts some areas of dense foliage, along with the ubiquitous culm, or waste piles, as well as a highway overpass and a narrow-gauge mine girder bridge.

I hope you've enjoyed reading about the rationale behind my railroad and viewing the action as seen through railfan Mike Rinkunas' camera. **MRP**

Jim Hertzog and wife, Gerri, live in Mertztown, Pa. He is a sales engineer for a precision sheet-metal fabricator. Jim's primary interest is prototypical operations based on the fallen-flag anthracite haulers. The Hertzogs enjoy travel and visiting antiques shops.

Modeling the same town on two decks

A 'vertical' junction to handle interchange or swap cars

By Tony Koester//drawings by Jay Smith

Choosing one – and only one – prototype to model or to use as a basis for freelancing can be among the most difficult decisions we face. I hedged my bets a bit when I opted to model my old hometown favorite, the Nickel Plate Road, by also modeling its interchanges with several other local favorites, notably the Monon and the Chicago & Eastern Illinois. That allowed me to model some different motive power and equipment to simulate the crossing of “foreign” railroads.

But modeling a few locomotives and maybe a caboose and passenger car or two doesn't really do justice to the “other” railroads.

A key aspect of flatland railroading is the interchange of freight cars between crossing railroads. An interchange is really a “universal industry” in that cars of any type can be spotted on an interchange track. There's not even an industry structure to build, yet it can generate substantial amounts of traffic.

Loading or unloading cars

A removable cassette can be used to remove a cut of, say, unloaded cars spotted at an industry and to replace them with loaded cars without actually removing or adding loads or handling the cars. The sketch at right shows boxcars, but flatcars or gondolas would be better choices, as their loads are visible. Elsewhere on the railroad, the cassette holding the unloaded cars could be plugged into another industry that would receive loaded cars and return the empties.

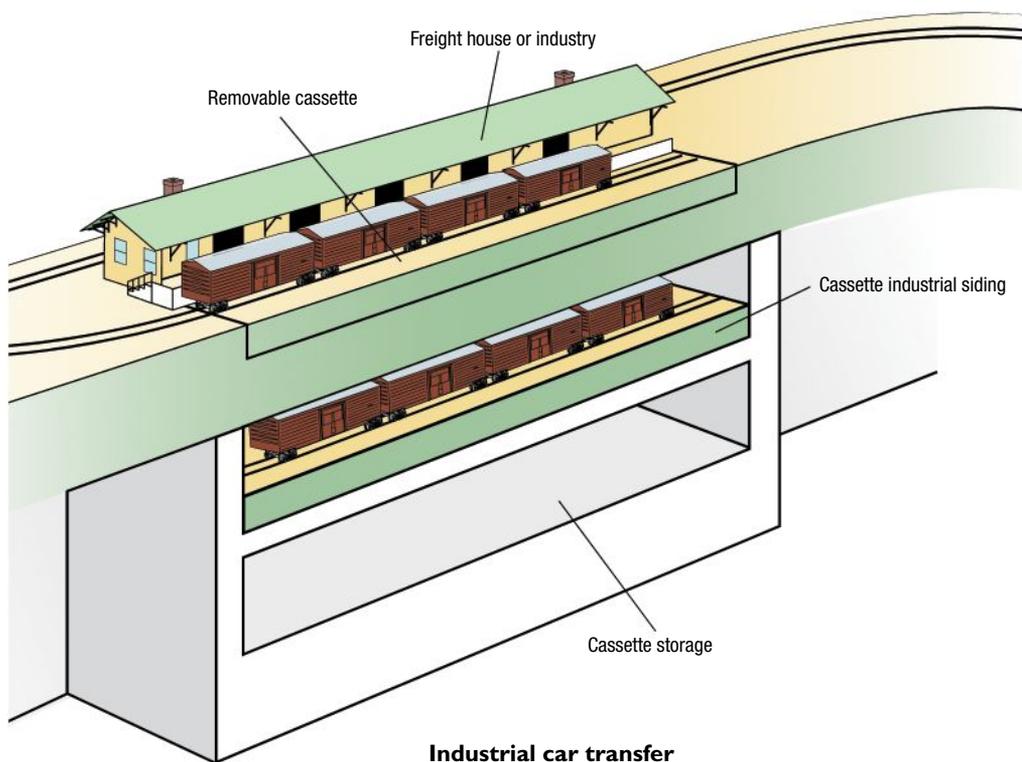
This approach could be used to swap certain types of cars on and off the railroad, as all the waybills would remain correct for cars originally routed to, and now from, that track.

Solving two problems at once

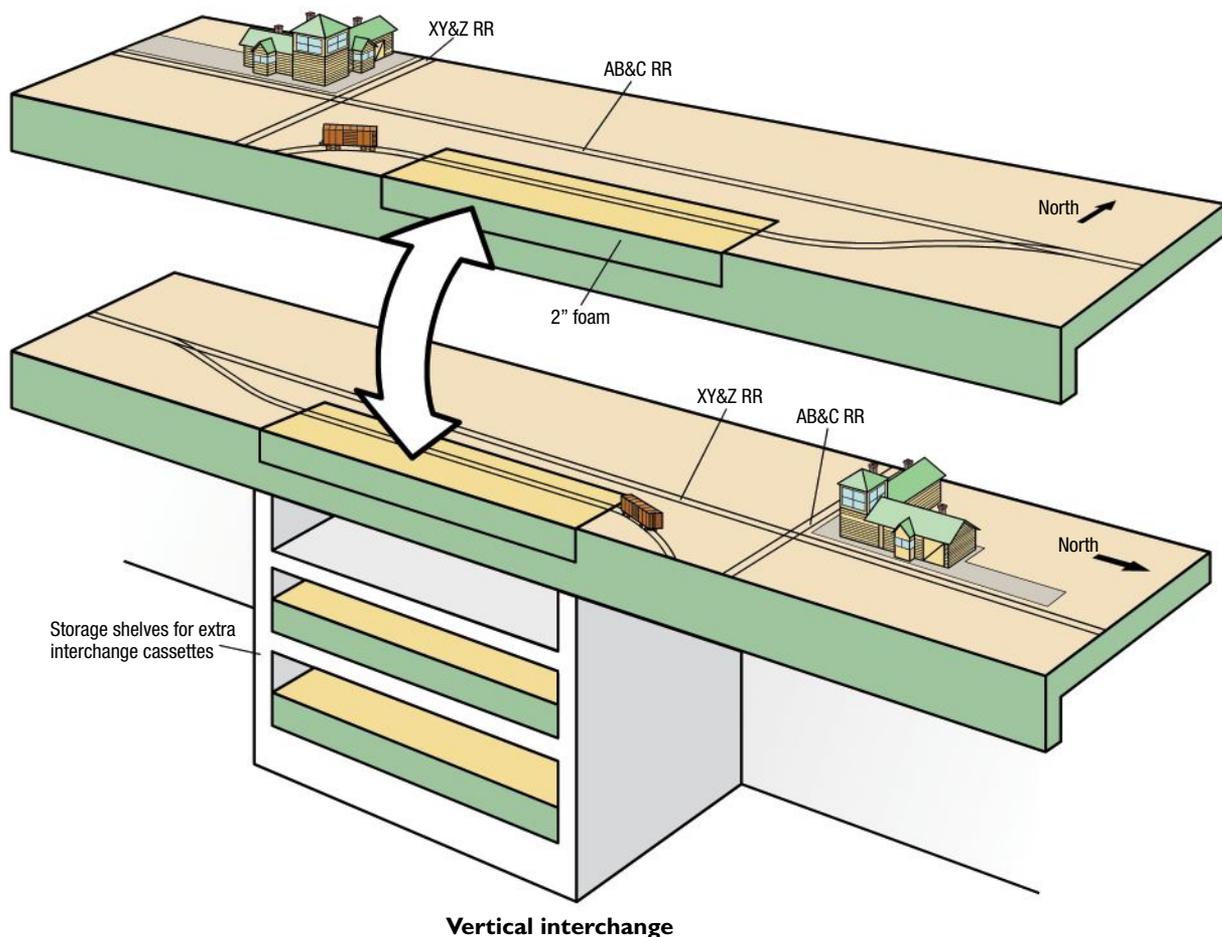
So we're trying to solve two problems simultaneously: How do we model

not one but two favorite railroads while taking advantage of the potential traffic-generation that occurs regularly at a busy interchange?

There is a way we can have our cake and eat it too: Model the town where these two railroads crossed and interchanged traffic twice – once on a lower deck and again on an upper deck



An industry could receive loaded open cars, and then return empties after the cassettes were swapped. A second related industry could use the same cassettes to swap inbound empties for outbound loaded cars.



Vertical interchange

Interchanging cars between two railroads, one modeled on each deck, could be handled with removable cassettes. Additional cassettes would allow variations in the traffic to be introduced between or during operating sessions.

(see sketch above). The main line of the AB&C railroad and its end of the interchange track serve as the active route on the upper deck, while the two lines swap roles and directional orientation as the XY&Z's main track becomes the active railroad on the lower deck.

By shifting the lower deck's crossing diamond off to one side, we can model a portion of the extended interchange track in the quadrant diagonally across from the combined depot and interlocking tower. And by making part of the interchange track a removable cassette, perhaps nothing more than a length of 2"-thick blue or pink foam, we can actually interchange cars between the two active railroads.

A set of storage shelves below this interchange can store additional cassettes, thus acting as a small fiddle or staging yard, depending on whether the cassettes are swapped during or between operating sessions. The cassette track wouldn't even have to be

powered, as the locomotive could use a "handle" of other cars to reach in and pick up or set out cars without moving onto the cassette.

What's the catch?

There's no such thing as a free lunch; you always have to give something to get something. In this case, you may need to build the same depot-tower scene twice, although that could be an easy kitbashing project. And instead of having your favorite railroad achieve the maximum possible mainline run across two decks, you have split the territory and given each of your favorite railroads half as long a run.

But that could be sufficient for each railroad's needs. And you've doubled your modeling and operating opportunities in the same space. **MRP**

Tony Koester has been the editor of Model Railroad Planning since its inaugural issue in 1995.

Learning points

- A second deck provides space to model two favorite railroads, with one on each deck.
- Removable interchange cassettes allow cars to actually be interchanged between the two otherwise separate railroads.
- The interchange swap can be done between operating sessions as a staging yard or during sessions like a fiddle yard.
- Key structures might have to be modeled twice, and the mainline run of each railroad would be half as long as modeling only one of the two railroads on two decks.
- Staging cassettes can also be used in other ways to "load" cuts of cars spotted at an industry.



Choosing the right place at the right time

Why and how era choice affects layout design

By James McNab//Model photos by the author



1. The appearance and arrangement of the elements on James McNab's Iowa Interstate HO layout were set by the era he chose to model.

When designing a model railroad, there's no bigger decision than choosing a relatively tightly defined era to model. Era choice affects every other decision, from what motive power should be leading your trains to what color to paint fire hydrants and stop signs. Many of today's better prototype or prototype-based modelers place era choice at the forefront of every decision.

Too often we allow less-important factors, such as season (think fall foliage), to overly influence our choice of modeled era. I suspect many of us choose modeled eras that recall a specific time or event, perhaps when we first came in contact with a prototype railroad at a grade crossing. Fond memories from our youth may weigh heavily on our choices.

While there's nothing wrong with allowing a model railroad's era to serve as a time machine back to a nostalgic period, it should work in harmony with the other factors. Consider, for



2. What would be a simple crossing with a narrower, less-busy street in earlier eras has additional protective devices in a later era. Modern crossing signals, fiber-optic cable markers, and electrical boxes are just some of the many inexpensive details that help firmly establish the modern era of the Grimes Line.



Favorite prototype scenes, such as the Newton Switcher ("Tramp Job") crossing the Grimes Line's ballasted-deck girder bridge over Hickman Road, led James to model the Iowa Interstate. But it took extensive research to select the era that best met his design and operational goals. Justin Hardecopf photo

example, car traffic levels and which shippers and receivers were still active in a given period.

By defining our modeled era first, we can eliminate the possibility of conflicting messages or anachronisms from overwhelming our railroads. The Union Pacific in 2000 looked and acted a lot different from the UP in 1990, much less than in 1950. A '55 T-Bird will be at home on a transition-era layout but will be out of place on a modern-era one unless you're modeling a classic car show. The more tightly we define our modeled era, the more decisions are made for us as layout designers, builders, and operators.

I kept my modeled era in the forefront of every decision I made as I designed my HO scale Iowa Interstate Grimes Industrial Track layout. Though I had certain operational goals I wanted to meet, I found my choice of era played a huge role in what I could or should model. That, in turn, affected every other decision I made. By having a narrowly defined era, it ended up

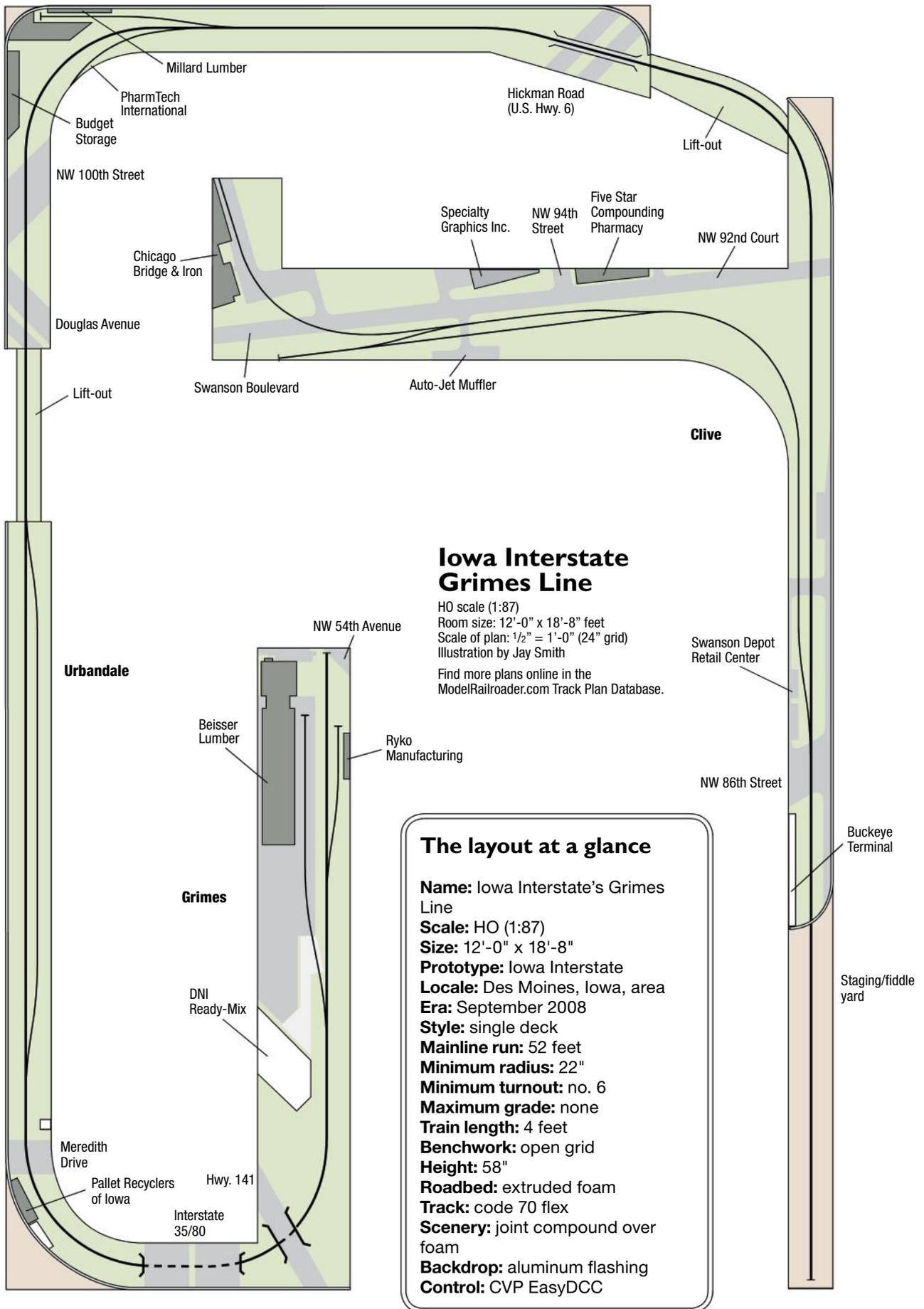
Learning points

- Considering era first can narrow down the myriad choices facing the layout designer and builder.
- Narrowing the era depicted on the railroad can save money by avoiding purchases that could create anachronisms.
- Practical considerations about era choice – can you obtain or build a needed type of car or locomotive? – remain.
- A slight era shift may create dramatically different modeling opportunities and challenges.

complementing the overall layout design process instead of competing with it.

The chicken or the egg

When planning a new layout, we generally start with the idea of emulating one or more of our favorite





3. Commercial and business signage is a fast and simple way to establish not only the locale but also the era. Appropriate images, such as this scratchbuilt billboard along NW 86th Street, enhance the modeled era at little cost.



Iowa Interstate no. 704 pulls two empties from the Chicago Bridge & Iron steel plant in Clive, Iowa, in April 2011. Car movements at CB&I naturally change over the course of a year. Picking a time when the car movements peaked will enhance operation. Justin Hardecopf photo



If you're looking to develop a small, highly detailed car roster in a reasonable amount of time, select an era when car movements were reduced. In this photo, IAIS no. 709 leads a single center-beam flat car past the concrete plant in West Des Moines. Justin Hardecopf photo

prototypes. We then select a town, area, or region that's served by the prototype – what MRP editor Tony Koester calls “Layout Design Elements,” or LDEs – to model. Once the LDEs are selected, era comes into play as we pick the time period and region in which to place our prototype.

But what if that process were reversed? Since we've established that era affects everything on a prototype-based model railroad, then shouldn't our modeled time be selected first in the process? (See “The era chose me!” on page 68.)

If your layout goals involve certain procedures that reflect a specific time frame, such as timetable and train-order operations or ACI labels, then you should probably select an era when these were in place. It may mean your favorite section of prototype

railroad won't be included in your new plan, but it could also ensure that every LDE works toward the overall goal and purpose of the layout.

So should era come first in the design process? It may come down to a chicken-or-egg process when planning your layout. But before you declare the selection of LDEs complete, consider what would happen to your plan if you selected your era first. Then rework your layout giving era the top priority. You may find that you come up with a completely different design.

Traffic balance

For any layout that's focused primarily on realistic operation, traffic levels should serve as the primary benchmark in choosing your modeled era. Ask layout builders what led them to choose their modeled eras, and I'll

bet you'll get a lot of answers along the lines of “I like the way it looks at that time of year.” We seem to favor that rich, green season, usually late spring to summer.

But those warm months with the trees in full bloom may not be the time when the best variety or quantity of freight traffic is moving. If you model a Midwest granger line, you may find that the fall grain rush better meets your operating goals. On your prototype, wintertime may mark peak car movements while offering unique modeling challenges. Don't assume that the summer months are the best time in which to set your layout without doing your homework first.

On the flip side, you may be better served by an era with lower traffic levels. If you're modeling a time when your prototype had cars and

“The era chose me!”

When visitors ask how I chose the modeled era on my IAIS Grimes Line layout, I usually respond that “I didn’t choose it; the era chose me!” Since I had such clearly defined design and operational goals, it immediately narrowed down my options as to what era to depict.

The main factor was the closing of Geneser Feed & Grain at the north end of the Grimes Line in the summer of 2008. By not including Geneser, I could allow the entire plan to better fill the space with less compression, as shorter trains would be the norm. I could also get by with a smaller car fleet, since I didn’t need to model the extensive roster of covered hoppers that would have served Geneser. So the first benchmark, after July 2008, was in place.

The second benchmark came when the city of Clive decided to widen University Avenue at NW 86th Street. The Grimes Line runs parallel to University, and the crossing was protected by a set of simple flashers. Since

the busy NW 86th Street crossing had no gates, stop boards were placed on both sides of the road. Trains had to stop and ensure protection was active before proceeding, adding time to their run. After the road project was complete in April 2009, a full set of crossing gates was installed and the stop boards removed.

Since I wanted to include the stop boards procedure on my layout, I now had a second benchmark: before April 2009. By identifying just two key design and operational factors, my choices for a time period to model were narrowed down to a 9-month window.

The final factor was a personal one. I felt I could make more convincing scenery in late summer than try to tackle the brilliant hues and colors of autumn without overdoing it. Additional research on car movements and available motive power led me to my modeled time: September 2008. – *J.M.*



Geneser Feed and Grain in Grimes, Iowa, would ship its last loads in 2008. Modeling a time after that affected the design of James’ layout. Justin Hardecopf photo



The stop boards are visible as IAIS 703 eases up to NW 86th Street in Clive, Iowa. Modeling this on James’ layout required an era when it was active. Justin Hardecopf photo

locomotives in storage, you can get by with a smaller roster. This can help you build and maintain a more manageable roster without robbing a bank to fund the purchases. Selecting an era when traffic was down, either historically or due to economic factors, can give you the opportunity to build a smaller, higher-quality fleet of motive power and rolling stock.

The right balance of industries can also affect the choice of a modeled era. Rail-served industries will naturally come and go over the years. While you want to select an era with a decent balance of online industries, there’s no magic formula for the correct number of customers to make a successful model railroad.

On my own layout, I found that if I selected an era after two key customers had closed, it allowed me to create a better representation of the prototype with less compression. The two customers were located at the far ends

of my prototype’s line. Since I no longer needed to represent those two industries on my layout, I was able to shorten my modeled area from 11 miles to less than 5 miles. I also could simplify my track plan.

Changes through the years

Over the years, railroads often modify their physical plant, either by adding more tracks to better serve their customers or by abandoning and removing tracks to reduce maintenance costs. If you no longer need to operate 25-car trains of covered hoppers, you no longer need sidings and spurs long enough to serve trains of that length.

Eras when these spurs were out of service are easily represented on your layout by weed-covered tracks or rotting, sun-bleached ties. You may think including these unused tracks in your plan is a waste of space and modeling time that could be better

used toward other projects. However, these small projects can be added at a minimal investment of effort and money and serve as visible reminders of the history of your railroad.

Motive power is also subject to era changes as new locomotives are purchased and obsolete models demoted or retired. As better, more efficient power comes online, the railroad may partake in a kind of locomotive hand-me-down, with former mainline power ending up on secondary lines and industrial tracks. It may be correct to have that GP38-2 on the main in April, but not in August!

On our website

James McNab has uploaded videos of his HO scale IAIS layout to the User Videos section of our website. Registered website users can watch them at www.ModelRailroader.com.



4. Allowing space for scale-width roads is an important era design factor, since modern roads are wider to allow for increased traffic. The eight lanes of highway overpass for Interstate 35/80 required nearly two feet of space to model.

Newer power may also be easier to acquire in model form, since manufacturers usually release more popular models of locomotives. If your prototype ran unique or rare motive power during your modeled era, you may have to resort to extensive kitbashing and detailing to create an accurate locomotive roster. Should you find that intimidating or lack the time to accomplish such tasks, a slight era shift may ease that chore.

Lineside updates

One of the best ways to establish your modeled era will be properly replicating a town's road grid and street traffic. Everything from the make and model of cars to road widths and street signs will change depending on your modeled time. As towns grow over the years, automotive traffic naturally increases. This leads to grade crossings being updated, with cantilever signals and gates replacing crossbucks and stop signs. Having era-appropriate traffic-control devices will help establish your layout's time frame.

Road widths and lane markings have been standardized for some time in the United States, but signs for surrounding businesses are era-specific. Manufacturers offer a wide variety of era-appropriate signs and billboards for use on your layout. Make sure that the product or service being advertised is appropriate for your era before you add it to your layout.

Lineside details are a great way to further establish your modeled era.



5. Progress on James' IAIS Grimes Line layout has reached its namesake town of Grimes, Iowa. The fenced-in main warehouse of Beisser Lumber is visible, along with the aggregate yard of the non-rail-served DNI Ready-Mix plant.

Street signs, fiber-optic markers, and electrical boxes are just some of the small and inexpensive details that are either available commercially or easily scratchbuilt. Including these details will contribute to the overall plausibility of your layout.

Now is the time

The choice of modeled era your layout will depict is not one to take lightly. There's no perfect era to model, nor is one better than the other. Each offers unique modeling opportunities,

and each offers challenges in layout design, construction, and operation. An effective model railroad design features a balance of operational and visual attributes that determine and reflect a modeled era. Observing them carefully will help you set your layout in the desired time and place. **MRP**

James McNab is an award-winning producer and video editor with more than 300 credits to his name. His article on layered scenery techniques appeared in the October 2013 Model Railroader.



The town of Floresta, Colo., behind the couch, is an attractive addition to Bill and Mary Miller's basement family room.

Staging yards you can live with

They need not be
barren eyesores

By Paul J. Dolkos
Photos by the author



One of the most popular approaches to layout planning is a point-to-point railroad that runs from a staging yard over a modeled section and then into another (or a combined) staging yard. Typically, the staging areas exhibit very basic construction – a slab of plywood with parallel tracks. Moreover, we often install them in out of the way, hard-to-reach locations, usually underneath the layout or in a back room. I’ve even seen one in the rafters, above the ceiling tile. Staging yards are usually not much to look at, which is one of the reasons they end up where they do.

From staging to stunning

When Bill and Mary Miller were planning their On3 Colorado & Southern layout, they employed the point-to-point concept. The staging areas at each end included a three-track yard plus a turntable at the far end to turn the locomotives. They were really just simple shelves along the walls of a basement family room adjacent to the layout area. To the Millers’ credit, they put the staging out in the open where it was readily accessible.

Even though the layout crossed a “political boundary” into the family room, Mary – like Bill, a National Model

Railroad Association Master Model Railroader – agreed to this plan because the staging was relatively unobtrusive. Bill even veneered the edges of the staging shelves to make it look more like furniture. Indeed, that seemed to work quite well.

But that was only the beginning. Putting even a modest shelf for staging in the family room was a little like allowing a camel to stick its nose into the tent.

When regular operating sessions began, the Millers and their operating crews soon realized that it would be beneficial for the staging yards to be configured as operating terminals. Trains could do more than just terminate. Each road crew would have to do all the things that a professional crew does when a train ends its run: hostile locomotives into the servicing area, perhaps classify cars if no yard engine is on duty, complete the paperwork, and so on. This is far more interesting and realistic than just running a train into a dead-end siding.

Time for Plan B

Bill began working up some alternative plans that included a passenger station, yard tracks, engine terminal, and even some industrial sidings for each end of the railroad. The two areas would still function as staging, but



Gunnison, Colo., on the opposite side of the family room, is built into a former closet. Bill and Mary described how they modeled this portion of the layout in the Rear Platform section of *Model Railroad Planning* 1999.



The Floresta yard is detailed with many of Mary's hand-painted figures. Across the tracks is the Colorado Fuel & Iron coal breaker, which was the largest anthracite breaker west of the Mississippi River.



Bill Miller moves a passenger train around the Gunnison Yard. In front of the train is the track entry into Gunnison from the main layout room; it comes through a wall of the former closet shown on the previous page.

there would be a lot of operating potential without significantly increasing the layout's square footage.

In Gunnison, Colo., at the east end of the railroad, the track entered through a side wall of what was a

formerly a closet [see page 98 of *Model Railroad Planning 1999 – Ed.*]. The closet space, not being long enough to accommodate any significant amount of track, became the town's business district. The space in front of the closet

Learning points

- Converting bland staging yards into active terminals enhanced both operations and appearance.
- Even when a railroad is relatively well developed, it pays to keep an eye open for enhancement possibilities.
- Minimal living space was lost, even with an On3 railroad.
- A well-detailed model railroad can complement rather than detract from the appearance of a family living area.

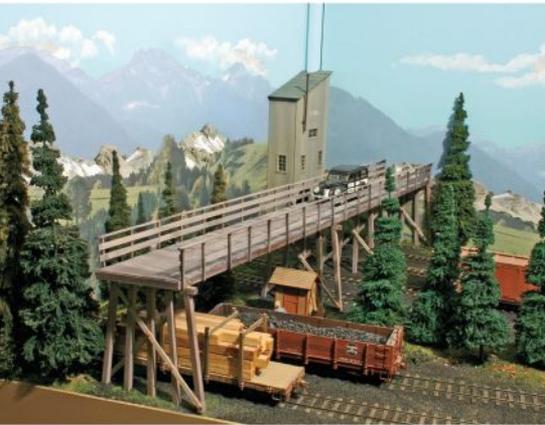
and the walls on each side of the closet were used for the yard and staging.

On the other side of the room at the west end of the railroad, the staging shelf was widened from 18" to 27".

This provided room for the terminal tracks for the town of Floresta. Each of the areas now requires a full-time yardmaster during operating sessions, and they have become highly sought-after assignments.

Manageable even in O scale

One might surmise that open staging takes a lot of space. Since the



A road bridge was installed to hide the end of the Gunnison yard and interchange tracks where they end at a wall.

Millers' railroad is 1/4" scale, it could be considered a worst-case example. This fully visible and now-active staging area takes about 2 x 20 feet on each side of the room, highlighting the space efficiency of shelf configurations.

It helps that the Millers run relatively short trains and small locomotives. Working in HO or N scale, a similar space would yield a sizable terminal area that could comfortably handle trains of 15 or 20 cars. Such configurations would be ideal where a low-density route terminates, has a connection with another railroad, or portrays the area as a junction or division point.

If traffic is heavy, creating the potential for yard congestion, an arrival track or two could be added outside the yard area where inbound trains can wait, which would follow prototype practice. If there is a requirement for trains running beyond the terminal, then some conventional staging tracks could be added, as the Millers did at the west end of their Floresta terminal.

Win-win

The best thing about the Millers' approach is that the functionality of the family room has been retained. The two upgraded, active, and fully scenicked staging areas are out of the way, yet they make the space more interesting and welcoming, even for visiting non-model railroaders.

The camel seems to have snuggled all the way into the tent, but it's turned out to be nice company. **MRP**

Accomplished model railroader and photographer Paul Dolkos is a regular contributor to Model Railroad Planning, Model Railroader, and Great Model Railroads magazines.

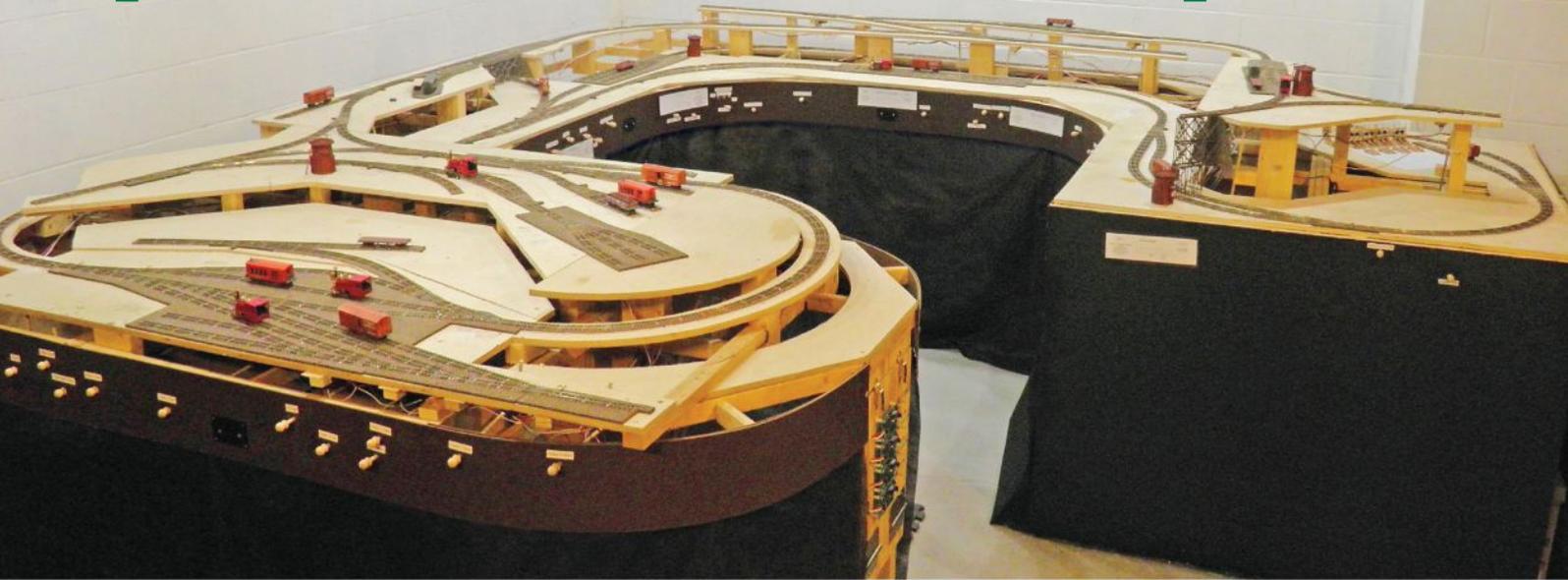


Bill does some yard switching in the Floresta terminal yard, which was upgraded from a simple three-track staging yard on a shelf.



At the west end of Floresta (seen on the right), the Millers are installing an extension to serve as the connection at Delta Junction with the Rio Grande. The shelf is removable so it can be stored between operating sessions.

Enhancing a published track plan



An Atlas plan and prototype track maps inspired this 1870s Colorado narrow-gauge layout

1. This view of the HO_n3 Blackhawk & Central City RR shows lower Blackhawk in the left foreground, upper Blackhawk above it, and Central City's elevated wye at right rear, which is reached by a switchback.

By Ryan Moats//Photos by the author



2. The yard at lower Blackhawk has three double-ended tracks and two storage tracks. The main continues to upper Blackhawk at lower right.

My layout lives in an 1,100-square-foot unfinished basement where it shares space with my woodshop and storage for my war game collection. In addition, the “real-estate negotiations” involved building a set of cabinets to provide general storage space. Bottom line: The layout would live on top of the cabinets.

The important dimension is the 11 feet from the corner to an 18" bump-out for the front door. This dimension exactly matched that needed for Track Plan 205, “Narrow Switching Railroad for Tight Spaces” [see opposite page – Ed.] from Atlas’ *Custom-Line Layouts for HO Scale Railroads, 2nd edition* (Atlas Model Railroad Co., out of print). This became the genesis of the layout.

I’m a narrow-gauge fanatic, but I have a younger son who is more interested in watching continuous running. I therefore decided to build the switching portion of the layout as narrow gauge and negotiate for two additional “blobs” on the end to install

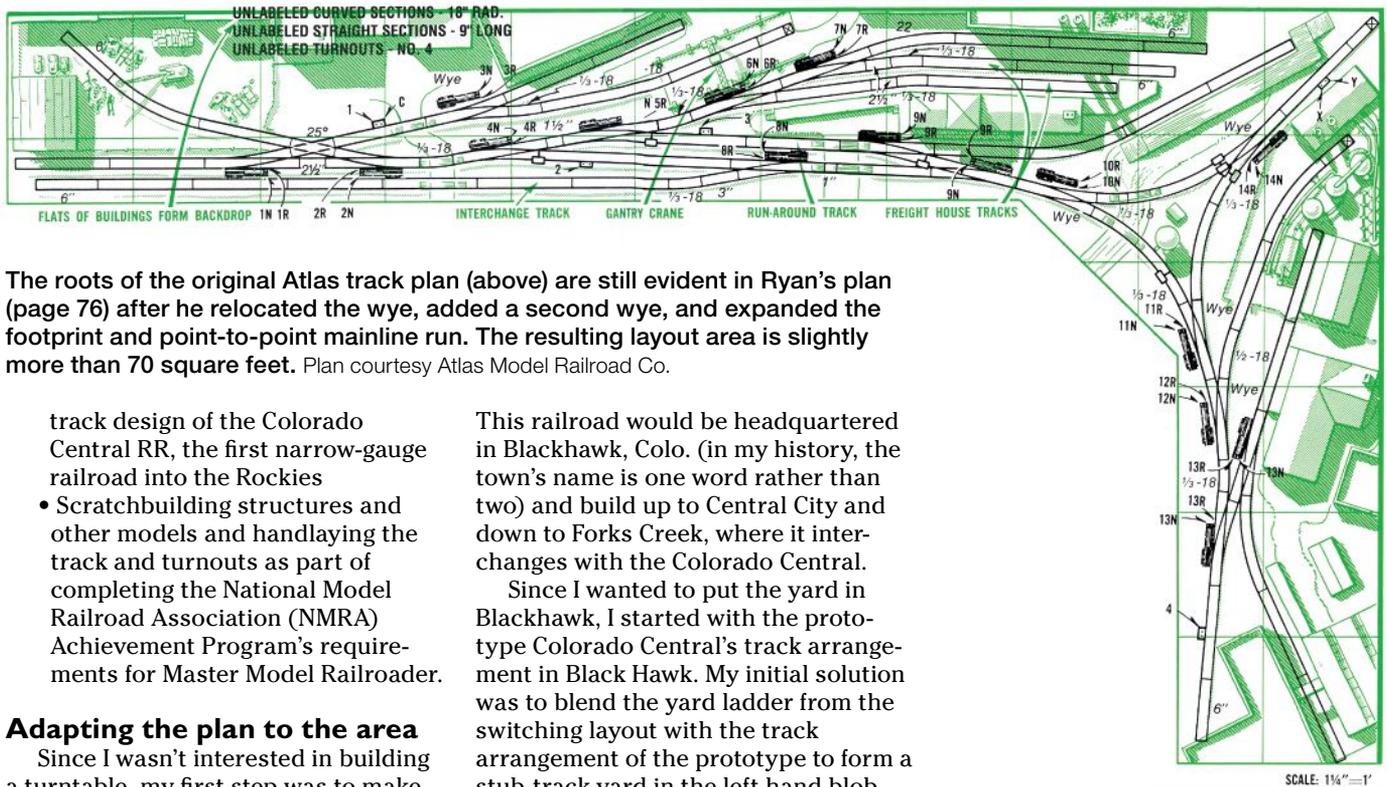
a dual-gauge loop for continuous running. The resulting area is slightly more than 70 square feet.

By the time I finished my initial construction, but before I started adding scenery to the layout, my interest in model railroading had grown from switching puzzles to more prototypical operation. With my son’s interest in model railroading waning, the continuous-running loop was now just taking up valuable space.

As fate would have it, I had to remove the wye and the corner cabinet under it because of water damage caused by a series of thunderstorms. To avoid a repeat, I moved the remaining cabinets in a foot from the walls, which reduced the available space to about 65 square feet.

The reduced space led me to reset my priorities to:

- Constructing a point-to-point model railroad that would allow for prototype-based operations
- Backdating the layout to the 1870s
- Incorporating both the practices and



The roots of the original Atlas track plan (above) are still evident in Ryan's plan (page 76) after he relocated the wye, added a second wye, and expanded the footprint and point-to-point mainline run. The resulting layout area is slightly more than 70 square feet. Plan courtesy Atlas Model Railroad Co.

track design of the Colorado Central RR, the first narrow-gauge railroad into the Rockies

- Scratchbuilding structures and other models and handlaying the track and turnouts as part of completing the National Model Railroad Association (NMRA) Achievement Program's requirements for Master Model Railroader.

Adapting the plan to the area

Since I wasn't interested in building a turntable, my first step was to make room for the wye tracks that anchor the original Atlas plan. Rather than keep it in the corner, I rotated the Atlas plan 90 degrees counterclockwise and placed the wye away from the corner in the left-hand blob.

The second consideration was the impact of the construction practices of the CRRR on my layout standards. The minimum radius the CRRR used was a very tight 40 degrees (a little more than a 20" radius in HO scale), and the ruling grade for the railroad was a stiff 4.5 percent. Given the amount of available space, I also looked at the 2-foot-gauge Gilpin Tramway, which had a minimum radius of 60 feet (8.3" in HO). I decided to blend these two and use a radius of 16". The only exception is an 18"-radius curve at Beaver Brook to create a passing or runaround track.

Given the CRRR's operating speeds (5 mph running west and 10 mph running east), transition curves (easements) or superelevation would not be necessary. Since I planned to handlay all of the turnouts, I chose no. 4 two-way stub and no. 4 three-way stub turnouts as my standard, both of which have a diverging radius of 99 feet (13.5" in HO).

Yard location and design

Having established these standards, I considered yard location and design. I'd already built a set of cars, and when it came time to letter them, I named my new pike the Blackhawk & Central City.

This railroad would be headquartered in Blackhawk, Colo. (in my history, the town's name is one word rather than two) and build up to Central City and down to Forks Creek, where it interchanges with the Colorado Central.

Since I wanted to put the yard in Blackhawk, I started with the prototype Colorado Central's track arrangement in Black Hawk. My initial solution was to blend the yard ladder from the switching layout with the track arrangement of the prototype to form a stub-track yard in the left-hand blob. After a discussion with some local modelers, I connected the stubs by a length of track that includes some additional storage spots to support runaround moves.

Industrial tracks

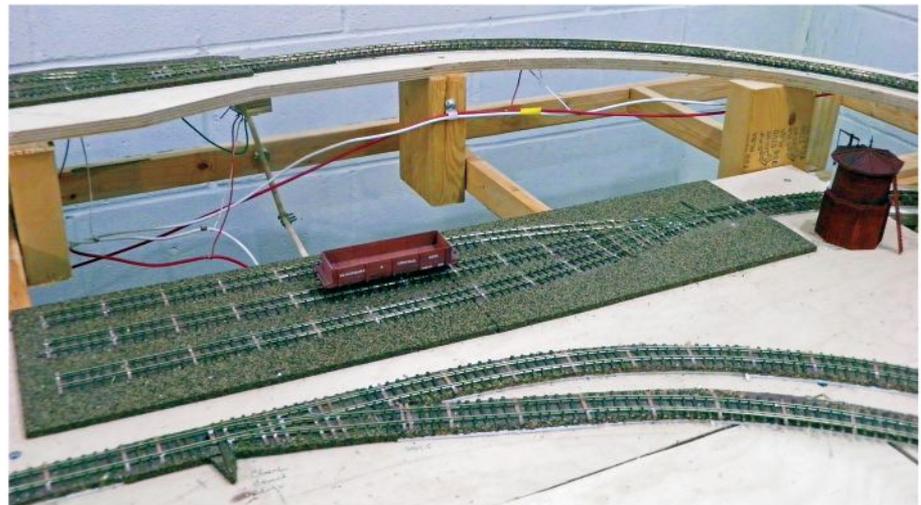
I replaced some of the industry tracks on the original Atlas plan with prototypical CRRR spurs. While the CRRR built up the Clear Creek, my B&CC would be building down that creek, so I had to consider how this might affect the track design. As a result I had to include runaround tracks in several places.

During planning, I treated the industry tracks as modules and moved

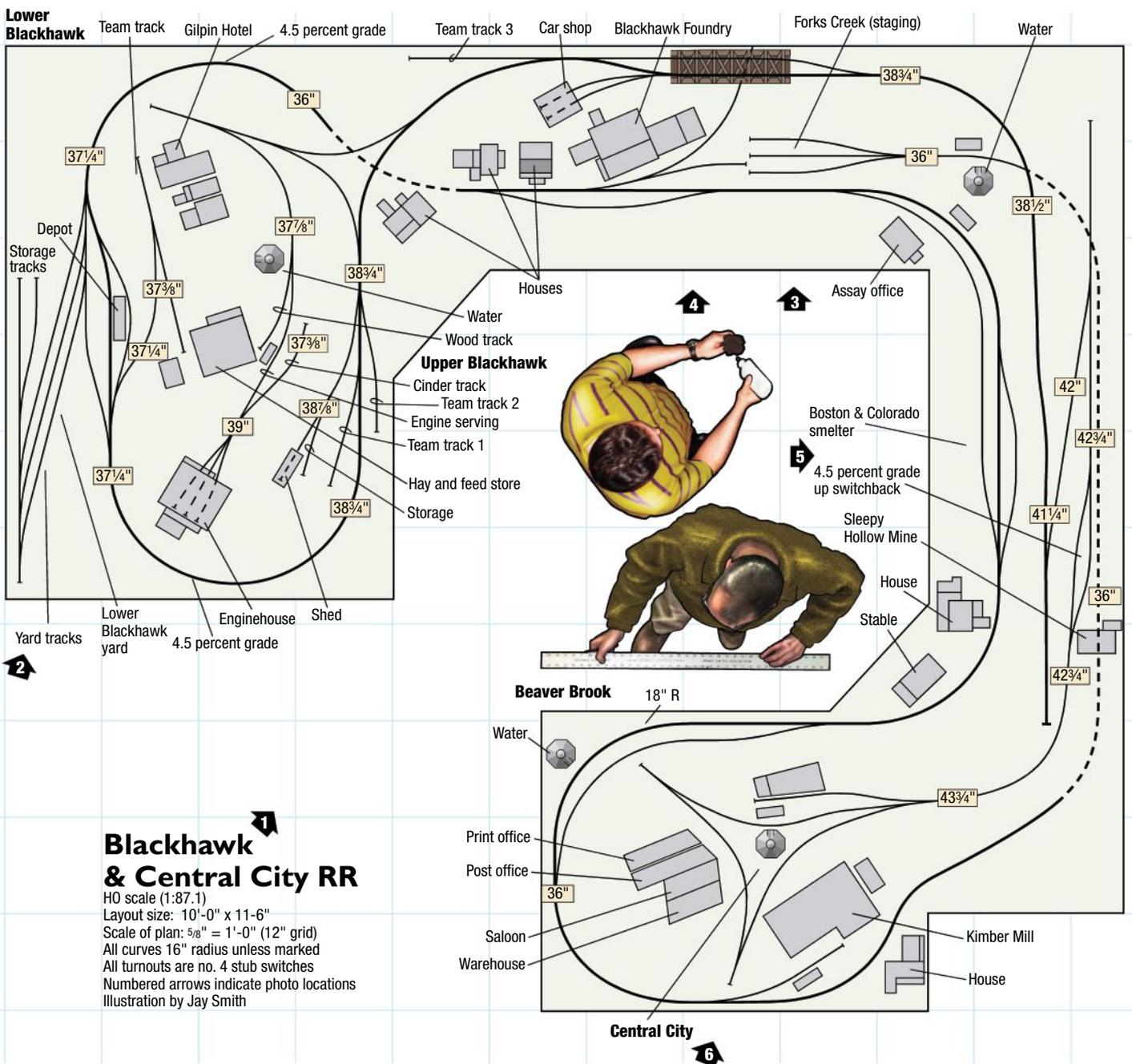
them around the layout until I was happy with their locations. The sites of these industries, combined with the curve standards, drove the routing of the main line.

Folded-over main line

It was becoming obvious that the main line was going to fold over itself, so this was a natural point to incorporate the CRRR's grade standards. I put the major grades on the transitions between industry modules, which should ease operation. I also included short "to-scale" grades for industry spots and tracks that were farther away from the operator. This would provide the operator with the feeling of



3. The stub-ended yard at Forks Staging feeds one end of the railroad. It will be hidden from view when the scenery is complete.



Blackhawk & Central City RR

HO scale (1:87.1)
 Layout size: 10'-0" x 11'-6"
 Scale of plan: 5/8" = 1'-0" (12" grid)
 All curves 16" radius unless marked
 All turnouts are no. 4 stub switches
 Numbered arrows indicate photo locations
 Illustration by Jay Smith

The layout at a glance

Name: Blackhawk & Central City RR
Scale: HO_n3 (1:87.1, 3 foot gauge)
Size: 10'-0" x 11'-6"
Prototype: based on Colorado Central RR
Locale: Colorado
Era: 1870s
Style: single deck
Mainline run: 87 feet
Minimum radius: 16"

Minimum turnout: no. 4 stub
Maximum grade: 4.5 percent
Train length: 1 to 2 feet
Benchmark: open grid
Height: 36" to 44"
Roadbed: cork on plywood
Track: handlaid code 70
Scenery: to be determined
Backdrop: to be determined
Control: NCE DCC with radio cabs

standing in Clear Creek and looking up the slope.

These small grades include the engine-servicing track, an addition that came from reading John Armstrong's *Track Planning for Realistic Operation* (Kalmbach Publishing Co.), which I located off the tail of the central wye of the original plan. While this necessitated shrinking the length of some of the remaining industrial sidings, I felt that it was a better use of space. I could then include another locomotive watering location, an ash track, a three-track enginehouse, and most of the Blackhawk industries, which were served by team tracks.

Learning points

- Every track plan has to start somewhere, and a published plan may provide the basis for an enhanced plan tailored to your specific needs and space.
- Adapting a carefully chosen plan to embody the main features of a prototype railroad is practical.
- Connecting or otherwise tying a freelanced railroad to one or more prototype railroads enhances its plausibility.
- Using Layout Design Elements from specific prototype locations helps to ensure workable, realistic designs for similar freelanced locations.
- Treating industry tracks as modules and moving them around until pleasing locations were found proved helpful.

Towns along the main line

The next part of the layout design was the routing of the track up to Central City. Here I followed the prototype and used a switchback placed in the narrow right-hand part of the layout, with Central City being in the center of the right-hand blob. Since I didn't have a mine in Central City, I augmented the switchback with a siding to access Sleepy Hollow Mine.

Rather than just have stub tracks or runarounds in Central City, I put in another wye so I could turn engines.

The last part of the design was to finish the run from Blackhawk to Forks Creek. Here again, curve standards drove the routing of the main line. There would be a long hidden straight run behind the switchback that would emerge at the Forks Creek interchange, modeled by three stub tracks, whose ends would be hidden by scenery.

The end result is a total of more than two scale miles of track.

Changing times

Several of my industry spots have changed names as research has verified what industries were in the Black Hawk and Central City areas in 1870. In addition, my plans for scenery have changed. I've realized that leaving the run from the Kimber Mill to Forks Creek visible with a canyon wall on the back side of the switchback would allow me to model the run up the Clear Creek gorge – a salient feature of the CCRR prototype.

Despite my changes, the roots of the original Atlas plan are still evident. I



4. The spur that will serve Blackhawk Foundry ducks under the high trestle that leads to Central City. Two tracks for a small car shop branch off the main above the site of the foundry.



5. The Boston & Colorado Smelter sidings are located on the lower level in front of the switchbacks that allow the B&CC to climb up to Central City. The gondola marks the location of Sleepy Hollow Mine.



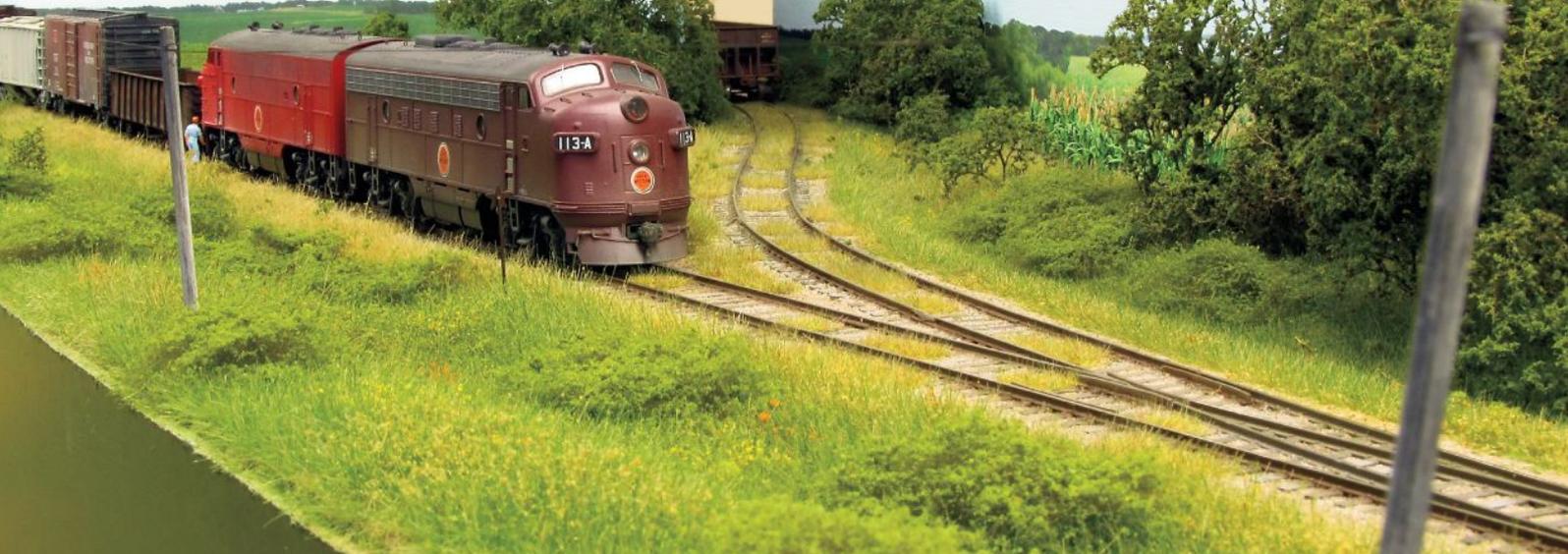
6. Central City marks the high end of the layout, where a wye allows locomotives to be turned for the trip back through Blackhawk to Forks staging.

hope the Blackhawk & Central City will encourage others to modify a published plan to better fit their own goals and available space. **MRP**

Ryan Moats is a senior software engineer at IBM. His interest in Colorado narrow gauge dates to his youth, but

serious modeling efforts began when he joined the NMRA in 2006 and began building his basement layout. His experience with assembling a plastic model mine kit was so frustrating that he decided that he could build a better model from scratch. The rest, as they say, is history.

Space-saving wye-less wyes



Modeling the functions of wyes in less space

By Jason Klocke//Photos by Clark Propst

Wyes are important features on most prototype railroads. They connect branch lines to main lines as well as allowing locomotives or entire trains to be turned. It's often difficult, though, to find enough space for a full-size wye on our model railroads. That was the case with my HO scale Chicago Great Western Rochester Branch layout. However, I found a way to model the functions of a pair of wyes I needed without taking up all that space.

Modeling and era choices

I chose to model the CGW's Rochester branch on my layout because of its iron ore operations from the 1940s until 1967. Mining was uncommon for this part of the Midwest, so it adds a bit of variety to granger railroad operations. For more information on the topic, see the book *More Chicago*

Great Western in Minnesota by John Luecke (Grenadier Publications, 2009).

I also have family ties to the area and am familiar with the towns along the line. The branch produced much needed tonnage for the CGW, especially the iron ore operations around Ostrander. During the mining season, it wasn't uncommon for the Rochester-McIntire train to pick up 40 to 50 loads nightly. Extra jobs were also called at times to move additional ore tonnage.

An operating hub

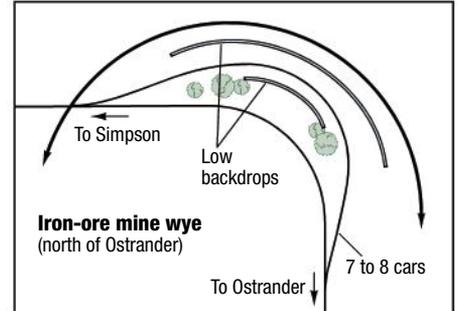
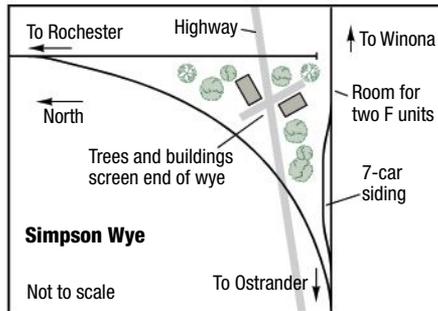
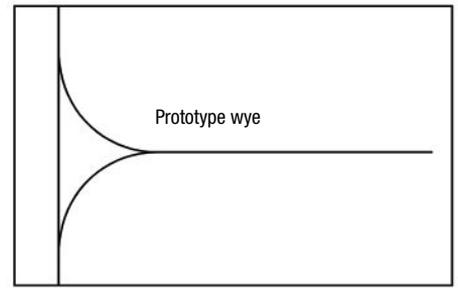
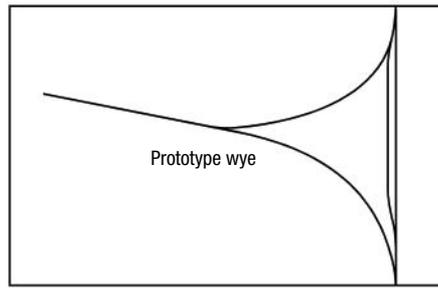
In 1890, the Winona & Southwestern Ry. built a railroad line west out of Winona, Minn., on the Mississippi River to Simpson, a hamlet 7 miles south of Rochester, Minn. There it turned south toward Iowa. The builders had hopes of reaching the rail hub of Omaha, but like many early railroad endeavors, the track ended short of the

Jason Klocke had to figure out how to compress a couple of wyes into his HO Chicago Great Western Rochester Branch to create realistic switching for trains like this southbound Rochester-to-McIntire Turn at Ostrander, Minn.

original objective. In this case, the W&SW ended at the farming community of Osage, Iowa, and an Illinois Central connection.

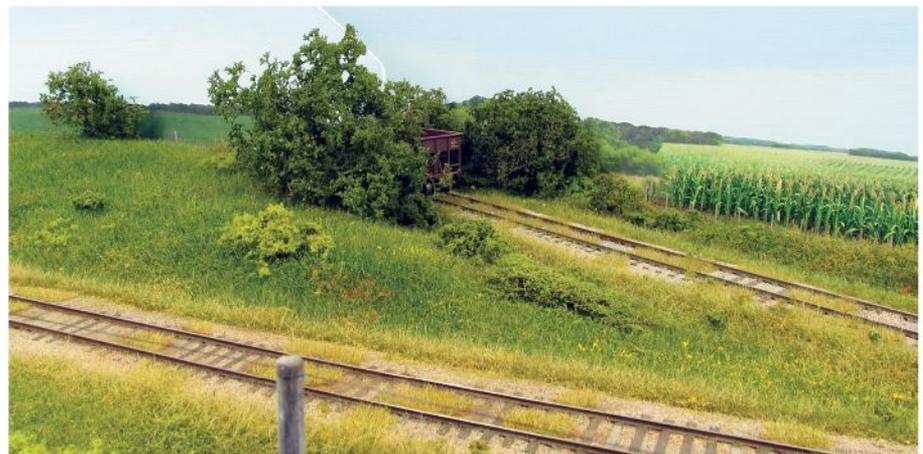
The W&SW crossed the Chicago Great Western's main line between Minneapolis and Chicago at McIntire, Iowa. After the CGW took over this railroad, the McIntire crossing was replaced with switches that turned the former W&SW line into its Rochester and Osage branches.

Rochester was the operations hub for the district. From there turns ran south to McIntire and Osage and east to Winona through a wye at Simpson [see map]. Northbound trains returning from McIntire would set out cars for Winona on a siding in the Simpson wye. Conversely, trains returning west from Winona would leave their southbound cars at Simpson for trains out of Rochester on their way to McIntire.



Learning points

- Except for the ability to turn locomotives or trains, the operational functions of a wye can be modeled without the space-eating tail track.
- A wye where cars were left for mainline trains to pick up serves as a busy industry.
- A low view block can mask the truncated tail track.
- It's important to use cars and locomotives as a means of gauging the "wye's" track length to ensure there's enough room to meet operational objectives.



A low backdrop screens the view of hoppers hidden on the south leg of the "wye" at Ostrander, which simulates the Hanna Mine Spur. The CGW shoved cars back for 9 miles to the mine and pick up iron ore loaded in triple hoppers.

Iron ore was mined in southeastern Minnesota near the town of Ostrander, so the CGW built a line eastward to the open-pit mines. The lines were connected by a wye north of Ostrander, with the main line running north-south and a lead to the mines heading east.

Trains bound for Rochester would shove empties to the mines using the north leg of the wye. Southbound trains would back in through the south leg of the wye to pick up loads of ore.

Throughout the summer, 30 to 100 two- and three-bay standard hoppers were loaded daily and shipped out to Granite City Steel in Granite City, Ill.

The "wye" at Ostrander

I wanted to capture the operations on this unique section of railroad, but didn't have room for the wyes. Instead, I devised plans to incorporate the operations at each location without using any space-eating wyes.

The wye-less wye at Ostrander is just a siding spaced well away from the main line with its center hidden from view by a low backdrop. The backdrop hides the standing cars and missing wye tail track, but still allows easy access to the hoppers for loading.

Rochester trains heading south toward McIntire can back into the south leg of the siding to pickup any outbound loads (seven hoppers). On the return trip to Rochester, the "Turn" sets out empty hoppers in the north leg of the siding, simulating the prototype's backing movement to the mines. In reality, the hoppers are just being pushed out of sight behind the view block.

The "wye" at Simpson

Construction of the Simpson wye started with the siding along the south leg of the wye. I placed two EMD F units (called "motors" on the CGW) on

the siding's tail track to ensure there was enough headroom to make a runaround move. Cars from Winona are placed on the siding by hand prior to an operating session. They're picked up by the southbound train out of Rochester to McIntire. On this train's return trip to Rochester, Winona setouts have to be blocked behind the motors. The motors then head into the wye siding, cut off the Winona cars, and back out onto the south leg of the wye. Seven 40-foot freight cars were used to set the distance between the siding turnouts.

Where the main line curved to the left (north) to parallel the other wall, I placed the turnout that led into the 3-foot-long east leg of the "wye-less" wye [see drawing]. A train returning from Winona can be staged on this short section of track with its southbound cars and placed on the south-leg siding. Houses and trees conceal



At the north switch of the Ostrander wye, empties are shoved in behind the low backdrop that's camouflaged with shrubbery to hide the cars and give the illusion of empty cars being delivered for loading at the mine's wash plant.



The Winona Local is at the west end of the Simpson wye preparing to set out cars on the run-around track at left. The train is westbound and sitting on the Winona main. These cars will be picked up later by the Rochester-McIntire Turn and taken to McIntire for pick up by mainline freights. Jason doesn't model the line to Winona, so it and the east leg of the wye disappear behind the backdrop.



This overview of the Simpson wye shows (left to right) the Winona main, runaround track, and Rochester-McIntire main. Jason made the soybean rows in the foreground by coating large brown pipe cleaners with Noch leaves.

the disconnected east end of the wye. With this arrangement, it is practical to replicate the switching moves of both the McIntire and Winona Turns.

On the layout, all the loads from the Rochester branch, outbound cars from the Winona branch (which are placed on the layout at Simpson), plus the iron ore loads from the Hanna Mine Spur at Ostrander, are picked up by the southbound Rochester-McIntire way freight and taken to McIntire. There the cars are picked up by the mainline manifest freights for forwarding to all points of the compass.

This allowed me to model a segment of the CGW main line between Oelwein, Iowa, and St. Paul, Minn., which was a heavy tonnage corridor for the CGW. In my era, it was standard procedure to run consists of six F units (9,000-hp) on these road freights between St. Paul and Oelwein pulling trains of 150 or more cars.

The McIntire yard, where the branch to Rochester begins, was a small affair with only three yard tracks and a siding. The CGW didn't assign a yard switcher to this tiny northern Iowa town of 200. This meant that the various branchline and mainline train crews had to spend many hours using their road engines to sort their own cars to make the work down the line more efficient.

This yard is the center of operations on my HO layout and, as on the prototype, many cars move through this yard, feeding the branch to Rochester and Winona (via Simpson wye), and heading off the branch for other points on the CGW such as Omaha/Council Bluffs, Kansas City, Chicago, and Minneapolis-St. Paul.

An operational success

Having a main line feeding a branch this way gives a more prototypical feel to the entire layout. Visiting modelers have enjoyed operating the layout and seeing the cars move from the main line to the branches and back again.

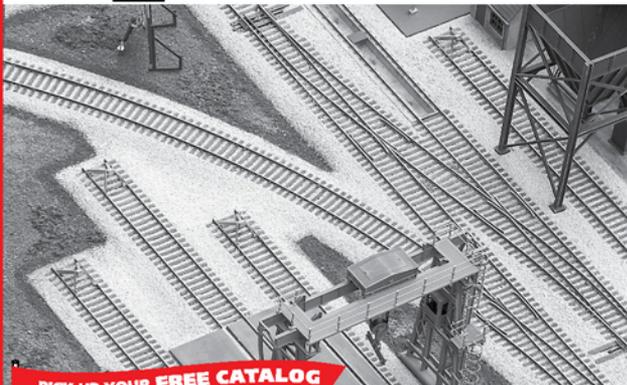
I have been researching the area I model for about six years and have been in the process of building the layout for the past five. It is now about half finished. **MRP**

Jason Klocke, 35, lives in Humboldt, Iowa. He's worked for several railroads, including Iowa Interstate and now Canadian National, where he is a locomotive engineer. The Chicago Great Western has been a life-long interest. He enjoys reading, biking, and scratchbuilding structures and detailing freight cars and locomotives.

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P20543



No-so-dumb dummy tracks

Tracks not trod by moving trains can still add interest

By Paul J. Dolkos//Photos by the author except where noted

When we lay track, it's reasonable to assume we plan to run trains on it. But we may want to include some track that functions only as scenery; no train will ever ride those rails. "Dummy" track may help reinforce our layout's story or provide interesting scenic options.

Years ago, I visited an HO scale layout in Baltimore that depicted that city's busy Pennsylvania Station. The builder, Fred Wirth, pointed out some tracks in the station complex that were not connected to the other station tracks, but this wasn't obvious to the viewer. They stopped under a bridge at one end and stubbed behind the station building at the other. This enabled Fred to include additional platform tracks without devoting space to more turnouts in the crowded station throat.

At the time, I'd never given any thought to installing non-operational track, but this seemed like a really novel idea. Now I see more and more opportunities to employ the concept.

For example, we could add some non-serviceable tracks to visually bulk up a freight yard. Or, since many of us have more locomotives than we operate, a line of "out-of-service" engines could be parked on a disconnected length of track. They would probably receive more attention there than in a wall cabinet.

A competing railroad

Another idea for including dummy tracks is to represent a parallel or competing rail line. Doug Gurin

On Paul Dolkos' prototypically freelanced Boston & Maine layout, he created an interchange with the St. Johnsbury & Lamoille County RR where it crossed Paul's B&M. The crossing track was not operational, but it justified an active interchange.



A Boston & Maine local freight picks up cars on the interchange of Paul's former HO railroad. Since any type and quantity of freight car can appear on an interchange track, it's regarded as a "universal industry."

discussed this in *Model Railroad Planning 1996* ("Modeling competing railroads," p. 64). I agree with Doug's "O&LD vs. NEW" idea that this right-of-way should scenically contrast with the operational track. If the operating railroad is highly maintained, then the scenic treatment of the other line should suggest a one-train-a-day, weed-grown branch, or vice versa.

An even stronger contrast would be created by short stretch of a heavy-duty electrified railroad such as the Pennsylvania, Virginian, Milwaukee Road, or Great Northern. Or it could represent an interurban or trolley line. The point is to clearly establish a separate identity for the "scenic" track.

If the scene location has some depth, one might introduce forced perspective by representing the other railroad in a smaller scale – installing a

stretch of N scale track on an HO railroad, for instance.

Diamond crossings

Where space is at a premium, one can install a dummy railroad track crossing your line at grade. On a narrow shelf, this requires little more than a foot or two of track running from the backdrop or wall to the aisle edge. A photo glued to the backdrop showing the track continuing into the distance would be better than a plain blue sky, but there is no way to disguise the abrupt joint between the 3-D modeling and 2-D photo other than to hide it under, say, an overpass. Space permitting, it's therefore more convincing to have the far end disappear around a curve or behind a building rather than to have it come to an abrupt halt against the backdrop.



Learning points

- Unpowered tracks not connected to the operating railroad offer scenic and even operational opportunities.
- A “dummy” competing railroad, perhaps modeled in a smaller scale in a forced-perspective scene, could make effective scenery.
- Most crossings between two railroads can be modeled with one railroad represented by a dummy track, and the interchange (“universal industry”) at most crossings can add substantial amounts of traffic.
- A dummy engine-servicing or storage track can provide a place to display extra locomotives.

Perhaps one day we'll be able to buy an “interlocking in a box” that allows us to program in the crossing (dummy) railroad's train schedule and – assuming the interlocking limits are not occupied by a train on the active railroad – knock down the home railroad's signals at predetermined intervals, and even play a sound bite of the dummy railroad's wheels hammering across the diamond.

Another, much simpler, example of obtaining clearance across a diamond is on John King's 1949-era Baltimore & Ohio Shenandoah Valley Subdivision where it crosses a dummy Norfolk & Western line. The scene is still under construction, so there are no signals yet. But all B&O trains stop as if the crossing signal is red. John has placed a coin there (minimum investment: one penny) with instructions. Flip the coin: heads, you can proceed; tails, wait a minute and try again. The purpose of Jim's and John's procedures is to create an event during a run that stretches out the trip.

Multiple crossings

I have seen prototype railroads, particularly in the Midwest, where three or more railroads cross at grade in close proximity. In Griffith, Ind., five different railroads crossed; at the tower location alone, three lines converged, two of them double-tracked. This required eight diamonds, some of which were in a city street.

It's a very impressive track arrangement that wouldn't take up much layout space using dummy tracks for all but the operational railroad, much as Mike Schafer has done on his

To illustrate the illusion of foreign-road traffic created by a dummy crossing, Paul posed a freight crossing the Boston & Maine.

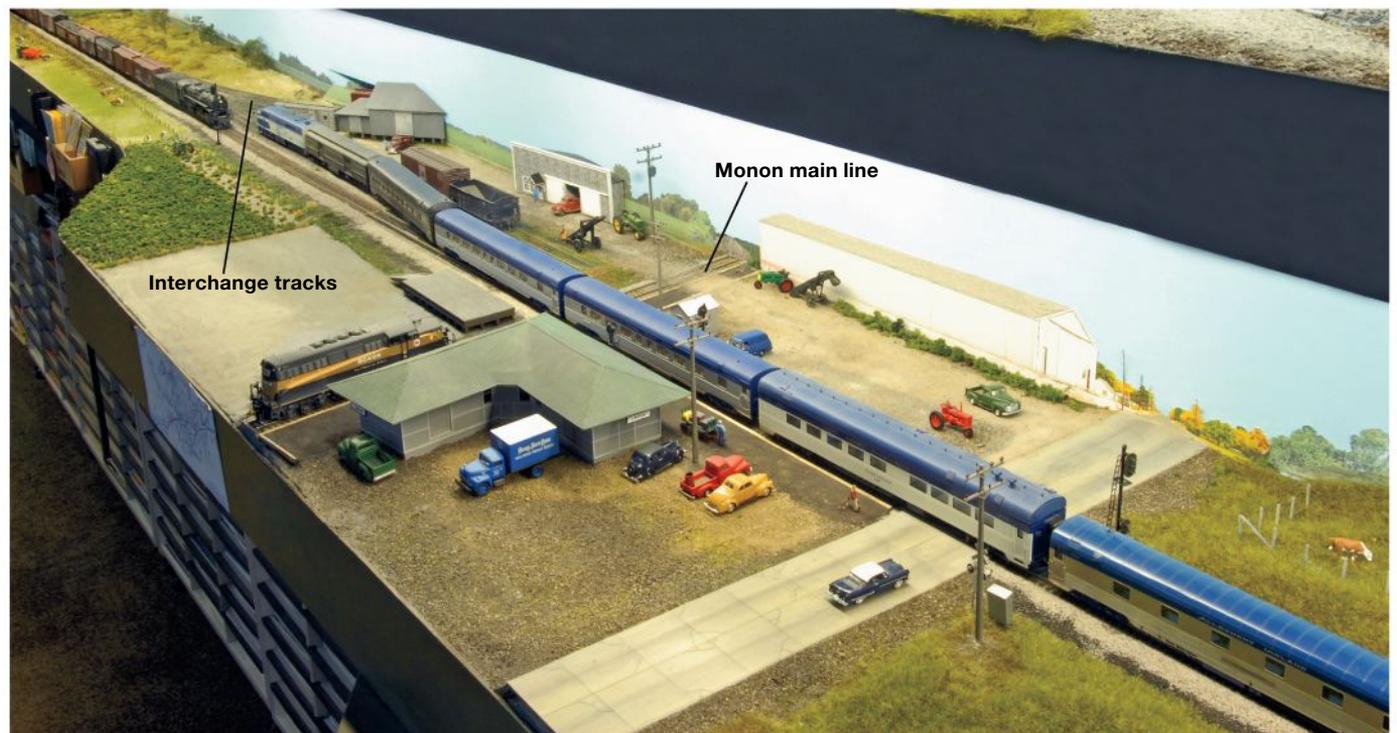
The only electrical consideration is that the dummy-track rails don't bridge the active line's electrified rails in the center of the diamond. This also applies to dummy rails that bridge the space between parallel active tracks.

Scenic details at a diamond crossing almost always includes some sort of signal system, although it may be just a set of stop signs or a gate that swings across the track. Other scenic items at the crossing that may be appropriate are an interlocking tower, a joint (perhaps L-shaped) depot, a maintenance shed, or other facilities.

The signals or gate at the crossing can be operational, requiring train crews to go through a procedure to obtain clearance across the diamond. The late Jim Graham's S scale railroad had a motorized gate at a dummy UP crossing blocking the way when a train approached. To swing the gate into the clear, the crew would push a button on the fascia. It activated a circuit that would open the gate or not, pseudo-randomly. One had to wait one minute to make another request. Eventually, the gate would swing open and the train could proceed.



The Illinois Central crossed over the part of the Monon that Lance Mindheim modeled in N scale. This non-operational stretch of the single-track IC disappeared around a curve and stubbed at the benchwork edge. Just out of sight on the left were two operational spurs designated as interchange tracks, but the connection was imaginary.



A short stretch of the Monon's Chicago-to-Louisville main line crosses the modeled Nickel Plate Road's St. Louis Division at Linden, Ind., on editor Tony Koester's HO scale model railroad. The active interchange tracks continue behind the backdrop; each track holds 30 cars. Tony Koester photo



A foot of flextrack behind the Monon freight house at right in Frankfort, Ind., on Tony Koester's HO scale Nickel Plate model railroad provides a visible but disconnected destination for cars interchanged to the Monon, represented by the short dummy track crossing the Nickel Plate at left. Tony Koester photo



Truncated and unpowered radial roundhouse tracks allow a wider aisle. The cutaway roundhouse could display a scene of a locomotive being repaired or inspected between runs. Tony Koester photo



This smashboard crossing gate at a CSX-Norfolk Southern diamond at Dock Junction in Brunswick, Ga., photographed in February 2010, could serve as a prototype for an interesting, possibly operating, trackside detail at a dummy crossing.



A dummy interurban line paralleling the "steam road" you're actually modeling – like Iowa's Charles City Western alongside the Rock Island at Marble Rock in November 1963 – could add scenic interest and possibly an operating interchange.

prototype-based freelanced Illinois & St. Louis (MRP 2005, p. 24).

Elevations and interchanges

Another crossing scenario is a railroad on a bridge crossing above another line. Which one becomes the dummy line and the other operational depends on the benchwork configuration and the scene envisioned. Again, you may want to consider how the two railroads can be visually differentiated.

A scene where two railroads cross may also be an interchange point. You don't necessarily need to make a connection with the other track. On the prototype, the connection was often out of sight of the crossing. But the interchange provides switching activity for the active railroad.

Less is more

Incorporating dummy track on a model railroad provides an opportunity to model interesting scenes that are otherwise may not be practical, and perhaps even in a smaller scale. It enables you to simply hint at the presence of track without the need for physical connections. While you might say you're struggling to squeeze in just the track arrangements you want to operate on, suggesting complexity may be better than actually creating it. Less can be more! **MRP**

Paul Dolkos, a frequent contributor to Model Railroader and its special issues, models Baltimore's harbor and industrial areas in HO and keeps an eye out for interesting design ideas on other layouts.

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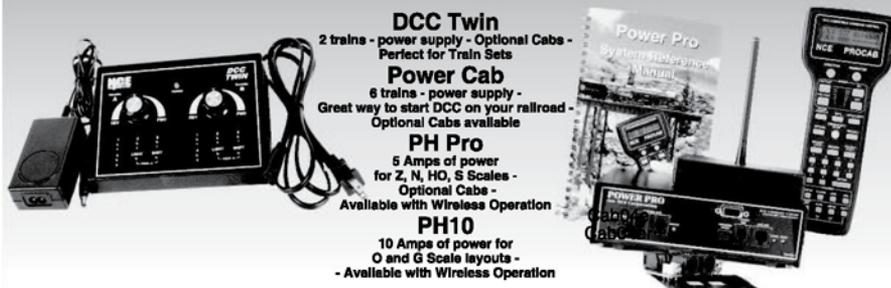
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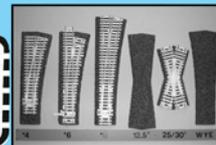
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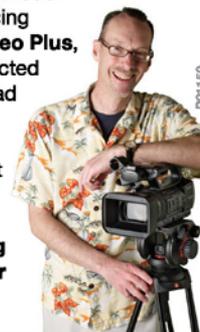
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A passenger terminal in 15x18 feet



Careful planning and slip switches help this HO track plan fit a big-city station on narrow shelves

By K. Clarke Crandell

As a model railroader, I'm always looking for more layout space. My workshop is in a basement room that's underneath a new addition to my home. Separated from the rest of the basement, this six-sided room also was the ideal space to add around-the-walls staging for my model railroad. The room still serves as my workshop, but my plans for an unscenicked staging yard have expanded into this track plan for a stub-end passenger terminal and adjoining coach yard.

Throughout the project, I referred to the third edition of *Track Planning for Realistic Operation* by John Armstrong (Kalmbach Publishing Co.). I've read this and previous editions cover-to-cover countless times, and the book continues to provide indispensable guidance and information.

Track plan design

The room's entrance allows enough space for an aisle and narrow bench-

work for the double-track main line that connects to the rest of the layout.

The tracks into the terminal curve along the walls with radii of 36" or greater. The broad curves are important, as I plan to run full-length trains of scale 85-foot long passenger cars.

The curves should also be broad enough to handle Electro-Motive Division E-units or other passenger diesels, although I plan to add a locomotive servicing terminal to the layout beyond the yard throat. Inbound passenger trains will stop at the locomotive terminal so that the road power can be replaced by switchers that will then pull or push the trains into the terminal. Outbound trains will also stop at the locomotive terminal to receive their road engines before heading out on the main.

While designing the routes into and out of the passenger terminal, I wanted as much switching flexibility as possible. I also wanted to keep the

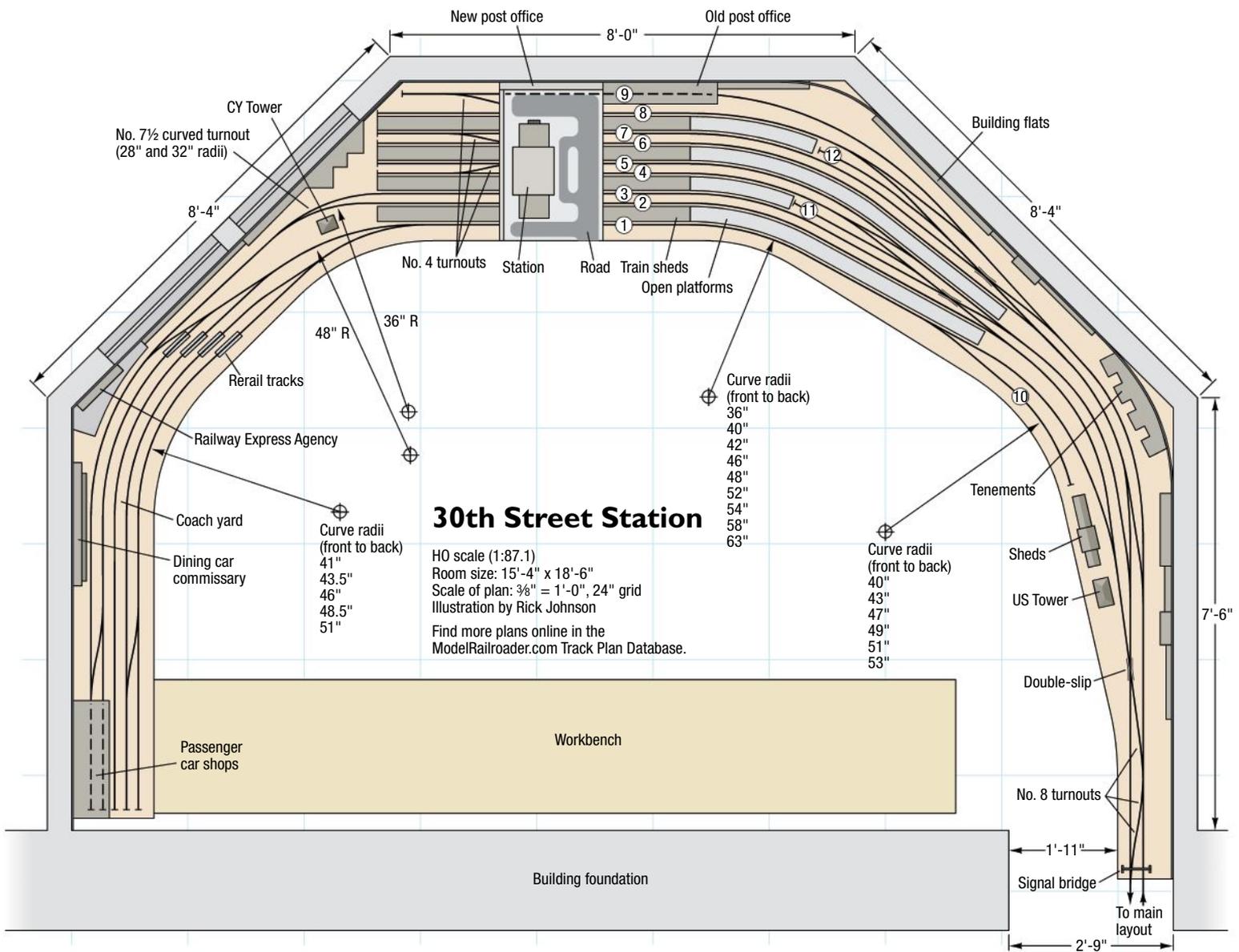
A Pennsylvania RR GG1 pulls a train into one of the upper-level platforms at the Philadelphia 30th Street Station. The main station building visible in the background also has tracks running underneath it, and was the inspiration for K. Clarke Crandell's track plan.

Pennsylvania RR photo

arrival tracks (1 to 4) isolated from the departure tracks (5 to 9). To achieve these goals I added tracks 10 to 12, which are used as switcher pockets. In addition to holding a switcher, track 12 is also long enough to serve as a business-car track.

I intended to use no. 6 double crossovers between tracks 2 and 3, 4 and 5, and 6 and 7. I ordered one of the crossovers, and when it arrived discovered that it was more than 18" long. Two-thirds of this piece of track would be hidden by the station, so I chose a different approach. Since the crossovers had to accommodate only the station switchers, a class A5 0-4-0 steamer and a Fairbanks-Morse H10-44 four-axle diesel, I used no. 4 turnouts to make single crossovers.

I'm installing double-slip switches at the yard throat. The slip switches save space on my relatively narrow benchwork and add to the prototypical flavor of a large railroad passenger terminal.



Other design changes occurred after I started constructing this part of the layout. I extended tracks 2 and 3 to run through the terminal to connect with the coach yards and freight staging. After laying Track 1 and the coach yard tracks, I realized I'd have enough space for this connection if I used a Shinohara no. 7½ right-hand curved turnout (Walthers part no. 948-8889). This turnout eliminated the need for a crossover between Tracks 2 and 3, and added flexibility for switching the coach yards.

Since the coach yard would also serve as a staging yard, I added Atlas no. 519 code 83 rereilers to the coach yard ladder tracks. This will make staging long passenger cars much easier and faster.

Modeling ideas

My main modeling interest is the Pennsylvania RR in the steam-to-diesel transition era. Although the track plan

models a stub-end terminal, it's a loose interpretation of the Pennsylvania RR's 30th Street Station in Philadelphia. The station tracks will run under the main building, like the prototype. I don't plan to model the prototype's catenary or upper-level tracks.

I'm going to use Walthers' Union Station (part no. 933-3094) for the main station building, and I'll also need four sets of Walthers' train sheds (part no. 933-2949). I'll scratchbuild the passenger platforms from styrene.

I'm using building flats to represent the "new" 30th Street Post Office as well as the old 9th and Market Street post office [The "new" post office was built in the mid-1930s at the same time as 30th Street Station. – Ed.] I'll elevate the station and the new post office on a sheet of tempered hardboard. The old post office will be along the north wall.

Although I'm still not sure what the rest of my model railroad will look like, I'm happy with the 30th Street station

The layout at a glance

Name: 30th Street Station
Scale: HO (1:87.1)
Size: 15'-4" x 18'-6"
Prototype: Pennsylvania RR
Locale: Philadelphia
Era: late 1940s to early 1950s
Style: around the walls
Mainline run: not applicable
Minimum radius: 36"
Minimum turnout: no. 6 unless noted
Maximum grade: none

scene. I hope my track plan inspires you to add some passenger traffic to your layout. **MRP**

Retired firefighter K. Clarke Crandell has been a model railroader since junior high school. He and his wife live in Stevens Point, Wis. This is his first article for Model Railroad Planning.



Dave Fodness made his tree line starting with bits of Woodland Scenics foliage clusters, added trees made from natural armatures such as twigs covered with the foliage clusters, then Scenic Express SuperTrees lightly coated with either fine foam and/or Noch leaves to create a see-through effect. Dave Fodness photo

South Bend railroading

When I arrived home just a short time ago, I was pleased to see that the mail carrier had delivered my copy of *Model Railroad Planning 2013*. Dave Fodness did a great job of telling his railroad's interesting story, and the images that accompany the text are very well done. Kalmbach's Jay Smith did a great job with the graphics, especially the prototype railroad map of South Bend.

*Dan Lawecki
South Bend, Ind.*

Dave Fodness's article about a branch line meeting a short line was creative and very accessible.

*Joe Brugger
Portland, Ore.*

Just a quick note to say how much I'm enjoying the 2013 issue of MRP. Every year there is an article that surprises me, usually from a modeler I'm not familiar with, and this year it's Dave Fodness' shelf layout.

I'd love to know a bit more about the background trees shown in photo 8: How did he achieved a density with the trees so you can't see through them to the blue backdrop?

*Jeff Halloin
Eau Claire, Wis.*

[I start with bits of Woodland Scenics foliage clusters along the

backdrop/scenery joint to hide that edge. Then, if space permits, I place the first layer of trees using natural armatures (twigs or whatever from our garden) covered with the same foliage clusters. I want this layer to be opaque, and slightly shorter than the next tree layer(s). Last, I place Scenic Express SuperTrees covered lightly with either fine foam and/or Noch leaves to create a see-through effect. – Dave Fodness]

The Missabe Northern

I just received the online version of MRP 2013, another wonderful, feature-filled issue. Jeff Otto's Missabe Northern is an amazingly impressive work. The massive docks contrasting with relatively diminutive locomotives and rolling stock can really be appreciated.

*Art Kuperstein
Langhorne, Pa.*

Disguising turnback curves

While turnback curves can be a problem on a model layout, there are prototype examples – apart from well known examples such as Horseshoe Curve – that lend themselves to either small layouts or Layout Design Elements (LDEs) for larger ones. I used Parsons, W.Va., as an LDE in my N scale plan of the Western Maryland in the July 2008 MR.

I think that prototype turnback curves deserve a future article. I would be pleased to contribute my examples.

Thanks for producing another excellent MRP.

*Richard Lawrence
Kneesall, Newark
Nottinghamshire, U.K.*

After reading Paul Dolkos's treatise in MRP 2013, I am in slight disagreement with the premise that turnback curves are the bane of a model railroader's existence. I won't argue the point about 4 x 8 railroads, but turnback curves are a necessity in the 1:1 railroads' lives. The Rio Grande's (now UP's) "Big 10" curves abutting the Front Range are a prime example. On a map, or possibly on a Google satellite hybrid map, trace the main tracks of any railroad going through mountainous or hilly terrain and I'm sure you'll find a turnback curve or even a near loop used to gain elevation.

*Bob Carlson,
Mount Angel, Ore.*

[As with everything else in life, there are good-looking curves, not-so-good-looking curves, and terrible-looking curves. The editor asked me to offer suggestions on ways to improve the looks of curves that detract from a layout's appearance. – Paul Dolkos]



At the CSX River Street Yard on Bob Springs' and Harry Kelley's 1:29 railroad, shortline East Tennessee Ry. interchanges with CSX, thereby connecting with the North American rail network. Bob Springs photo

Large scale indoors

How refreshing it is to see an author write so well about the pluses of large scale as Bob Springs did in MRP 2013 ("Single-town railroad in 1:29"). But I have a question:

He mentioned that large scale is great for interchange and switching. Is the act of mainline trains dropping off cars to be shunted to various sidings what he meant by interchange?

*Murray Milligan
Medicine Hat, Alberta, Canada*

[Interchange is the process by which railroads exchange cars or



This visual progress report on Andrew Dodge's Proto:48 (O fine scale) Colorado Midland shows that the all-new benchwork and track laying are moving right along. Andrew Dodge photo

blocks of loaded cars and return empty cars to their owners. Our CSX Loganville local job serves the switching needs of rail customers within its specified area; that's the switching part. But at CSX's River Street Yard (at Loganville), shortline East Tennessee Ry. interchanges with CSX, thereby connecting with the North American rail network. This interchange activity requires no additional track or layout space. – Bob Springs]

Enhanced helix

The 2013 issue of MRP was nicely balanced. I especially enjoyed Mike Burgett's herniated-helix article.

*Richard Main
Melbourne, Australia*

Why wyes?

Dan Bourque's article "10 ways to wye" removed a huge mental obstacle I've had to the design of my new railroad. I'm looking at doing the B&O Chicago Terminal, and a wye is an essential part of the operation. Dan offered several solutions I hadn't considered, including using the wye as the start of a helix to a second deck. Of course, that meant I had to go back and buy MRP editor Tony Koester's book on multi-deck design! This is one of the most helpful articles MRP has published. Kudos to Dan.

*Henry Freeman
Tryon, N.C.*

The new Colorado Midland

Andrew Dodge's Colorado Midland design featured in *Model Railroad Planning 2013* ("Test fitting standard gauge into an On3 space") shows the layout entrance ducking under a 45" track elevation. This will probably have to be worked out as a lift-out or drop leaf. Otherwise, the layout should be a spectacular show! Moreover, I admire the courage to scratchbuild 11 steam locomotive models!

*Rick Mugele
La Grange, Calif.*

[Indeed, the entrance will have to be one or the other or a low office chair with casters. As far as modeling 19th century railroading is concerned, there isn't much that has been available commercially. I even had to build the sideframes for each of my tender trucks. Pre-1920s equipment has been largely overlooked in published scale drawings. I had to build my Midland 50-class engines from incomplete Baldwin spec sheets and photos because I couldn't find drawings.

I received a question about whether I was able to reuse some of the benchwork from my On3 railroad. Absolutely not. Since the railroads are different, it would not do the Midland justice to contort it to fit the footprint of the South Park. To produce a representational version of the two railroads required different design elements.

Enclosed is a snapshot of my new layout. I've laid track from Colorado Springs/Grand Junction up to Arkansas Junction and beyond to near Busk – 100-plus feet or so with 17 turnouts. – Andrew Dodge]

UP's Geneva Sub

I enjoy MRP very much, but permit me to point out a small error in the article "Modeling UP's Geneva Sub in N scale" in MRP 2013. Daryl Kruse states that "The former Chicago & North Western's Proviso Yard in the Chicago suburb of Berwyn." The Cicero Yard is near Berwyn, but the Proviso Yard is close to Berkeley.

Far be it for this Australian to correct the locals, but my daughter lives in Oak Park, just a 10-minute walk from the UP main line. When I visit her, I do quite a bit of railfanning.

*Roger Lloyd
Melbourne, Australia*

[He's absolutely right. – Daryl Kruse]

What the doctor ordered

This is my 19th issue of *Model Railroad Planning*, and I rank it right up there with the first and second issues (1995 and 1996), which are my sentimental favorites. Excellent job – exactly what the doctor ordered for a cold January day.

*Sherm Everlof
Phoenixville, Pa.*



Trains on two levels running along a narrow aisle on Steve King's N scale Virginia Midland layout are protected with a large, mountain-shaped fascia. He cut the fascia from $\frac{3}{16}$ " tempered hardboard. Paul J. Dolkos photo

Protective fascia

Keeping trains out of harm's, and elbows', way

A fascia is normally just cosmetic trim along the edge of the benchwork that dresses up the layout. It may also serve as a mounting surface for switch controls or placards with station names or track diagrams. But on Steve King's N scale Virginia Midland layout, one fascia section serves as an impressive shield against errant arms knocking trains to the floor.

Steve installed this fascia piece along a 24"-wide aisle between the end of a peninsula and two narrow track shelves along an adjacent wall. Without

protection, a passing operator's clothing could easily snag a train on the shelves pulling the train to the floor, Steve reasoned.

Initially, Steve thought he would use long fascia pieces to create a protective lip. But the look of two stacked fascias and shelves sans scenery didn't appeal to him. That's when the idea of a large mountain-shaped fascia section that reflects the Appalachian setting of the railroad occurred to him.

The fascia is $\frac{3}{16}$ " tempered hardboard (Masonite) fastened to horizontal

studs to provide a space 2" wide for the track running between the wall and fascia. The hardboard thickness permitted the screw fasteners to be countersunk.

Track access in the middle of the panel is provided with two cutouts. These will be finished with either rock or concrete tunnel liners. Scenery will be blended into the fascia where the two track levels exit on the right. When viewed from other parts of the railroad, Mount Fascia looks like part of the backdrop. — Paul J. Dolkos

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These two photos show some of what Jared Harper found on recent field trips: the Hessdale depot in poor condition in 2009, and the Alma Co-op bulk plant a year earlier. Photos by the author

The value of field trips

The sooner you do it, the more information you'll find

A few years ago, I spent six days in Kansas tying up loose ends in my Alma branch research (see "A practical piece of the Santa Fe" in MRP 2009). Since my last visit two years earlier, the elevator track, the dock track and loading dock, and the passing siding had disappeared. But I discovered the remains of the Skelly and Standard Oil bulk dealers in the bushes and trees.

I also visited the Burlingame Historical Museum and got the names and phone numbers of two people whose fathers drove tank wagons at Burlingame. One told me that the bulk oil plant still exists but has been moved, and she sent me photos.

I visited the 83-year-old Mel Herren who owns the land where the wye was located and on both sides of Mill Creek where bridge 33-C crossed. We used his 4-wheel-drive truck to cross Mill Creek so I could photograph and measure the trestle pilings.

From there I drove down to where the Santa Fe/Rock Island interchange track used to be. The location was difficult to spot because everything was grown over or graded. I spent two hours at the Alma Co-Op bulk plant with my 1966 station plat and a 1942 aerial photo trying to reconcile the two. I thought the plant had been moved east from its 1942 location, but I had confused the post-war Co-Op with the WWII-era Standard Oil plant. This new information enabled me to

get the bulk plant out of the aisle and on the other side of the track.

I visited with Bud and Avis Riggin, who helped me get the details right for my Harveyville Grange Co-Op elevator model. They pointed out that there should be small windows looking out on the scale and a 2 x 12 plank for the person sampling grain to stand on.

I stopped in Eskridge to measure pieces of Alma branch rail on Gary Kemble's property. Gary suggested I talk to Charlie Waugh who identified two unlabeled buildings on the station plat. He also provided construction details such as window and door locations not clear in the photos.

Before heading to the Kansas City airport, I drove to Hessdale to check on the condition of the depot. With every trip, less and less remains.

What have I learned through these field trips?

Do it now: Jump into your research. My first trip to the Alma branch was in 1986. If I'd taken only a few more photos at Eskridge before changes were made to various lumber-yard buildings, I wouldn't have to guess now when building models. When you have a chance to take photos and measurements, do it! Do not think, "I'll come back and do this right later."

Play 20 Questions: Talk to as many train crews and folks who worked in businesses along the railroad as you possibly can, and take

careful notes; better yet, with the interviewees' permission, use a tape recorder. Ask them about consists and how the trains were serviced and operated. Unfortunately, there are some questions I would like to ask, but the people with the answers are gone.

Be relentless: Ask the natives about local businesses, as they might not all show on the station plats and other maps. Until a few years ago, I didn't know there had been three bulk-oil jobbers at Burlingame. Had I known about these back in 1986 when I first made onsite visits, I suspect the remains of these bulk plants would have been more intact. Through interviews with people who worked in businesses or whose fathers owned the bulk plants, aerial photos, and a recently discovered earlier station plat, I will be able to approximate these facilities on my layout. But photos of the facilities in their intact state would have been beneficial.

Also be relentless in tracking down old snapshots and other information such as Sanborn fire-insurance maps.

Fieldwork: As Henry Ford reputedly said, "Get out and get under!" Nothing can replace onsite visits.

Show appreciation: Always thank the interviewee profusely. Usually I take their picture and send them a copy. If a person provides data for a structure, I send them a photo of the model I have built. – Jared Harper

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These stacked stub-ended staging yards allow the easy addition of cars to the railroad or removal between or during operating sessions. This way, train crews do not have to deal with hidden staging.

Realizing an ambitious dream

The Appalachian & Ohio 2.0 hosts test operating sessions

By David Stewart//Photos by Bob Sobol

The 2009 issue of *Model Railroad Planning* featured my article “Starting over with a clean sheet of paper,” the reincarnation of my O scale Appalachian & Ohio in our new home. The article described what is, by any measure, an ambitious project.

The 2,500 square feet of designated railroad space included almost 800 square feet under my garage. The Rear Platform commentary in that issue about “A new thick roof” described how I acquired this additional space. But do such grandiose ideas ever get off the ground?

I am pleased to report that after five years of construction, A&O 2.0 is

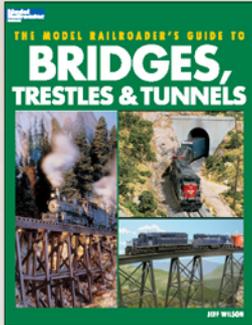
indeed rolling along nicely. The photo above shows a portion of that “garage basement” acquisition now filled with two lower-deck staging yards, an arrival/departure yard, a hump classification yard, an interior-lobe industrial switching district, and a glimpse of what will be the huge International Paper mill. Still ahead: constructing 200 actual feet of appropriate industry building flats!

Thanks to the generous assistance of many, A&O 2.0 already boasts more turnouts and track than 1.0 (May 2006 *Model Railroader*) and is rapidly filling the remainder of what was once a cavernous basement. As the photo

suggests, we’ve been able to operate sections as we build, thanks to the amazing electronics crew that barely manages to keep pace. These “test ops” have enabled us to make some helpful design tweaks along the way. The overall track plan, however, remains the same as presented in 2009 MRP and is proving to be a lot of fun.

Our progress can be viewed at www.aorailroad.com on both the Construction page and the Forum page’s “Crew Logs,” which features typical work-session photos and descriptive text. And I plan to offer a more comprehensive update on the A&O in a future issue of MRP. **MRP**

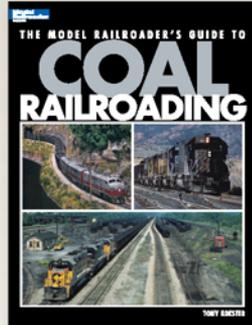
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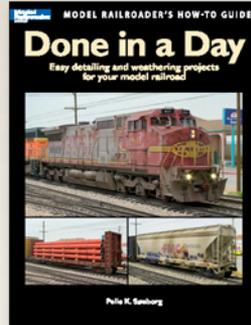
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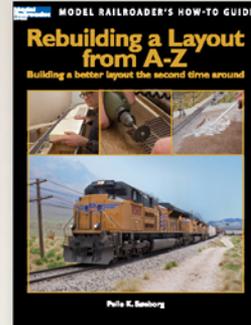
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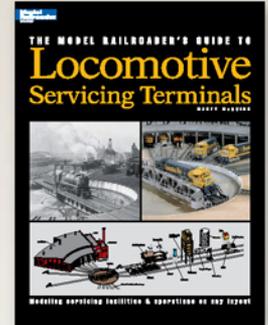
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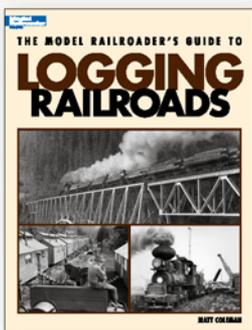
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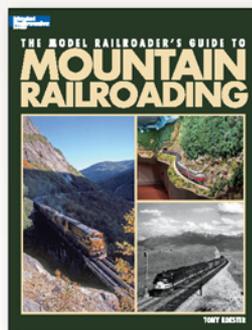
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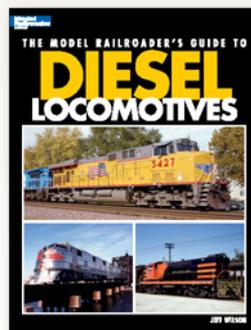
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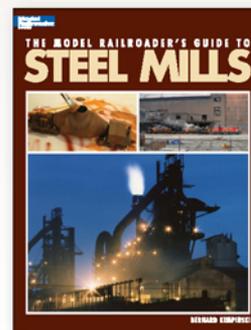
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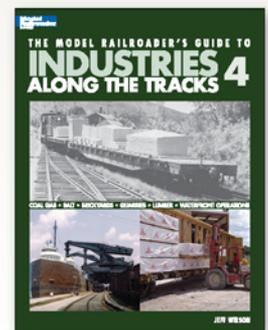
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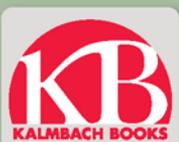
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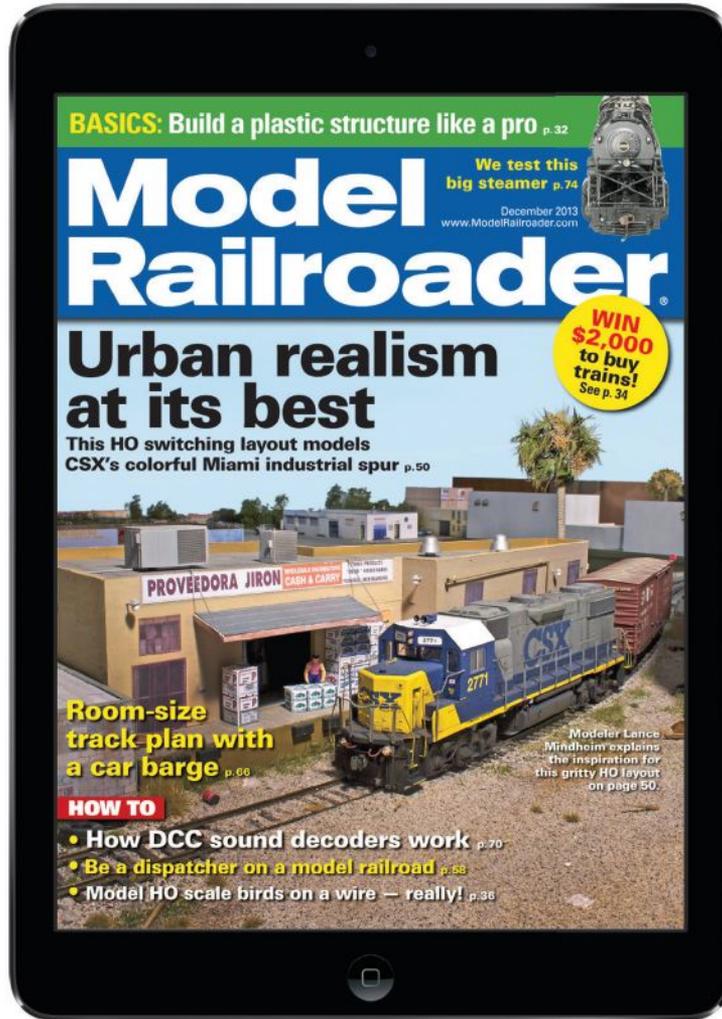
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Lessons from a small yard

Woodsriver Yard is short on space, but big on operation

By Paul J. Dolkos/Photos by author

Most of us want at least one full-service yard on our model railroads where we can classify and sort cars, service locomotives, park cabooses, and represent a number of other support functions.

As I learned in building Woodsriver Yard, shown in **fig. 1**, on my HO scale Boston & Maine layout, a yard doesn't have to be large to be interesting. Let me give you a guided tour and point out some of the features I've included to make my little yard look – and operate – like the real thing.

Classification tracks

Tracks for sorting cars are what makes a yard a yard. Mine includes five parallel tracks where consists for local freights and blocks for through freights are assembled. The distance from the first turnout to the end of the stub tracks is about 10 feet, and the yard capacity is about 70 cars. My longest track can hold 15 or so 40-foot cars. Of course, not much classification is possible when the tracks are filled to capacity. Ideally, I've found the yard operates best if its tracks are less than half full. Then it's easy to sort and move cars around to get blocks in the desired order.

My yard ladder turnouts are hand-built and curved. This enabled me to place the yard ladder snug against the outside of the mainline turn-back curve. I also find the flow of the curved throat and slight curve of the classification tracks attractive.

My classification tracks aren't permanently assigned for cars going to a specific destination. As the yard crew plans their moves, they decide



Fig. 1 Action-packed. Yards don't have to be big to be interesting. The Woodsriver Yard on Paul Dolkos' HO scale layout offers plenty of action in a relatively small space.



Fig. 2 Flexible track assignments. Since there are a limited number of classification tracks in the yard, track assignments by destination must be flexible. Paul's car-card box has a magnetic strip that allows yard crews to easily change assignment labels.

which trains and blocks will be placed on each of the tracks. If there's a block of cars on a track billed to a single destination, then by default that track will likely be selected for any additional cars bound for that destination.

I've placed magnetic labels, shown in **fig. 2**, for the car-card boxes on the fascia. The labels can be easily moved to identify the current use of any track. Sometimes there can be blocks for multiple destinations on the same track. In either case, not permanently assigning tracks by destination adds a lot of flexibility.

Switching lead

Figure 3 shows a key operating element of the Woodsriver Yard – the yard lead (the track that extends outward from the classification yard ladder parallel to the main line). In my yard the lead is a separate track running parallel to the main line. The lead is an important feature, as it permits the yard switcher to work largely independently of departures and arrivals of other trains. The yard job needs to clear the lead only when a road locomotive needs to leave or run into the engine terminal.

When the lead is shorter than the longest cut being switched, yard work is slowed. My lead can hold about 20 cars, but I seldom use its full length. In yard designs where the main line is

used as the yard lead and there are multiple train arrivals and departures, congestion is sure to result.

Running parallel to my classification yard, but separate from the ladder, are two tracks on which arriving freight trains terminate and outbound consists are parked prior to departure. Trains can arrive and depart on the two arrival/departure (A/D) tracks without interfering with the yard job working the classification yard. This proved to be critical to the smooth operation of the yard.

If I didn't have independently accessed A/D tracks, the work would have to stop in this yard each time a train arrived or departed. Ideally, the A/D tracks would be located along the main line beyond the classification yard so operators aren't elbowing each other for aisle space.

My A/D tracks are a tail of a wye coming off the main line. This arrangement allows either northbound or southbound trains to back in so that the locomotives aren't trapped at the stub ends. This makes it easy for the power to run to the engine terminal or get into the clear so the yard switcher can work the train's consist. There's also a crossover from the yard lead to the A/D tracks.

The nerve center of a prototype yard is the building where clerks sort the waybills and make up the switch lists that tell the switcher crews what to do. The yard office normally would be located near the start of the ladder tracks, which, as **fig. 3** shows, is where I placed my office. When there's a lull in operations, the switcher is probably parked nearby, and its crew is inside the office drinking coffee.



The size of the building would depend on the size of the yard, and typically it may house a break room and crew lockers.

Engine terminal

If space is critical, one could do without an engine terminal. When engines aren't in service they can be parked on any open track. But for most modelers an engine terminal is an opportunity to install interesting structures and a great place to show off their locomotive roster.

If steam power is used it's almost mandatory to have a way to turn locomotives on a turntable, wye, or in rare instances, a balloon track.



Fig. 3 Yard lead. The Woodsriver Yard lead is a separate track that runs parallel to the main line so switching can continue as other trains arrive and depart. The train in the foreground is departing to the south. Over the hood of the 1535 is the crossover connecting the lead and arrival/departure tracks. The yard office is also located along the lead.

specific place in a yard to store cabooses. A string of these cars can be an attention-getter in a sea of drab rolling stock. If there's enough space available, include a shed, hoses, and other equipment and materials required to inspect, clean, and service cabooses for the next run.

Turntables take up quite a chunk of space, but being able to store engines on the radial tracks makes it easy to access them.

My engine terminal lacks a turntable – see **fig. 4** on page 6. Locomotives have to line up on the service and storage tracks, so there may be engines blocking the power that's needed for a specific assignment. On the other hand, my nearby wye offers an easy way to turn not only engines but entire trains. It also happens to fit into my space very well.

You probably won't consider a balloon track or reversing loop for turning locomotives unless this track arrangement is already part of the

layout plan. With diesels, turning usually isn't required, and some modern-era modelers have a filled-in turntable pit as part of their scenery.

There are also car movements in and out of engine terminals, including incoming loads of fuel, sand, parts, and supplies, all usually in home-road cars. Outbound loads include ashes and scrap. The engine terminal is an industrial switching complex that the yard crew can work when they're finished in the classification yard.

Caboose track

If you're modeling an era when cabooses were still in service, you probably should have a track or



Fig. 4 Engine terminal. These facilities aren't only a place to park locomotives between runs; they're also a setting for interesting structures, such as a coal tower. This one is based on the Central Vermont's coal tower at Palmer, Mass.

The caboose track should be located where it's convenient to add a caboose to a train or drop it off when a run terminates. A caboose is usually the last car coupled to a consist. It shouldn't be placed at the end of a yard track where cuts of cars are repeatedly shoved against it as the train is made up. Instead, have a switcher tack the caboose on once the train's consist is complete, or back the entire train up to the caboose.

Car repair

At yards that interchange with connecting railroads (and at other points as well), there's often a track or two set aside for freight-car repair,

usually called the RIP (repair-in-place) tracks. Many are modest, with just enough capability to repair a defect so a car can be forwarded to its home-road shop.

Figure 5 shows my RIP track, which includes a wheel crane and some wheelsets. You can make it more than just a bit of scenery and designate it as a car spot. In your car movements, create a bad-order ticket or two and have the yard job move that car to the repair track.

Yards are often places where you find stored maintenance-of-way equipment. This can include old Pullmans rebuilt as dormitories, flatcars carrying earth-moving

equipment, and ballast hoppers. It's a great opportunity to include equipment that's a little different and from an earlier era. And the cars can contribute to operations if you occasionally dispatch a work train.

Industrial track

Clusters of industries are frequently near yards because the location is convenient for railroads to



Fig. 5 RIP track. Many yards have a designated RIP, or repair-in-place track where freight car wheel replacement and other running repairs are performed. At Woodsriver Yard, this activity is suggested by a crane and some spare wheel-sets. The snowplow waits for winter on an out-of-the-way track.



Fig. 6 A working yard. The five-track yard with dual arrival/departure tracks is center left in this photo. The classification tracks are only partly full, making it easy to sort freight consists. At right is a spur that serves six industries. Their structures form a backdrop for the Woodsriver Yard. Note the access road between the yard and engine terminal.

switch, and the adjacent real estate, at least originally, was often available.

Behind my yard I've built a long spur serving six different companies, shown in **fig. 6**. The varied structures make a nice backdrop for the scene. But in some places the spur is as much as 30" from the aisle, making it a bit difficult for shorter people to uncouple cars back there. As a result, we've had some operating sessions where the industrial siding didn't get worked, although another reason is that the crew may have had its hands full getting trains in and out of the yard.

You might want to think twice about concentrating too many activity points so close to one another.

Spreading it out

You can see that there's a lot more to yard operations than simply sorting cars and making up trains. Variety makes yards interesting.

As you plan your own yard, try to lay out the various pieces to minimize congestion. If possible, spread out the elements in a linear fashion to prevent yard crews and road crews from having to stand in the same few feet of aisle space.

Another solution is to include aisles on both sides of a yard. Rather than locating the yard area up against a wall, some modelers have created an open pit behind their yards exclusively for the yard crews. Other crews use

the aisle in the front of the yard. With proper planning, you'll be able to make your yard the nerve center of your railroad. **MR**

Paul J. Dolkos lives in Alexandria, Va. He's a frequent contributor to Model Railroader magazine.

A baker's dozen yard ideas for design and operation

Advice from a modeler experienced in both

By Byron Henderson

If you're planning a new layout or an expansion, congratulations! A few wise choices now can make your yard free-flowing and fun to run.

Model railroaders like trains, obviously, so most of us like to see lots of them run during a session. The effect that those trains will have on yard operations may not be obvious until the layout is built and it's too late to make track changes.

I've had the chance to design and operate many model railroad yards, and yards are among my favorite parts of any layout. Yards provide engaging operating roles and a "railroad" look that I really enjoy. Designing yards according to "best-practice" design principles and applying thoughtful operating procedures can keep traffic moving smoothly and put smiles on your operators' faces.

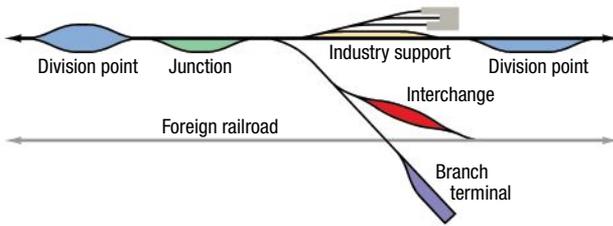
Even if you've already laid all of your track and have no room for expansion, a few operating ideas might make your existing yard(s) work better without rebuilding. Here are a dozen and one ideas you can use when designing a new yard or getting the most fun and efficiency from your existing layout. **MR**

Byron Henderson is a custom layout designer from San Jose, Calif., where he grudgingly lets the family car share the garage with his N scale layout. He's a past editor of the National Model Railroad Association's Layout Design Special Interest Group's Layout Design Journal (www.ldsig.org) and has also written for Model Railroad Planning magazine.

Layout designer and author Byron Henderson shares ideas on planning and operating model railroad yards. Watertown Yard on Jack Gutsch's HO scale Minneapolis & St. Louis layout is a good example of a small but efficient yard layout. Andy Sperandio photo



Yard types and locations



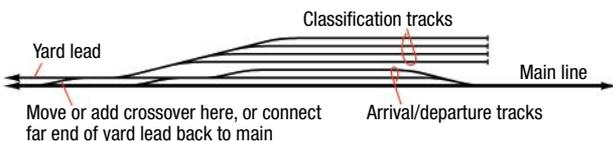
1. Choose the right yard. Many model railroaders I talk with about layout designs focus on “division point” yards, which were often crew-change locations in the steam and transition eras. And with enough space and the right concept, a division point yard can be a rewarding element for a layout.

But most real-life division point yards are huge, and modeling one (or more) is a significant commitment of time and space. I find that many folks who say they need a division point yard actually just want a chance to classify some cars, originate and terminate a few trains, maybe handle some engines and cabooses, and perform a few other yard functions.

As it turns out, there are a wide variety of different types of yards on the big railroads, and many are of a scale and scope that are small enough to be good candidates for modeling. Often one of these other types of yards is a better layout subject than attempting to shoehorn a full representation of a division point into too little space. Instead, the division point yard or yards may be represented by staging.

As the diagram shows, smaller yards can be found at many locations, such as junctions, near interchanges with other railroads, adjacent to large industrial customers, even scattered along or at the end of branches. These smaller yards can offer a lot of operating fun and usefulness without overwhelming other layout elements. So don't automatically decide on a division point terminal, especially when space is tight.

Mainline access



3. Allow departures from classification tracks.

Most layout designers are familiar by now with the concept of a separate switching lead on a model railroad yard. But some ways of connecting a ladder with a yard lead are more flexible than others. When possible, use crossovers that allow trains to depart from (or arrive in) the classification tracks directly as shown in the illustration. This saves at least one back-and-forth pull-and-push for each departure, especially when the yard is double-ended, with ladders at each end.

Visibility on yard ladders

A
Cars on front tracks block view of rear tracks

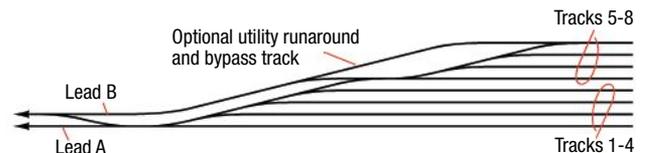
B
Clearance points near ladder are more visible from aisle

2. Orient ladders for visibility and ease in uncoupling. Curved yards are often necessary in the cramped quarters of a typical model railroad. But when possible, provide some straight track at the clearance points near the ladder, where most coupling and uncoupling takes place. In real life, brakemen on the ground often have to push or pull the couplers to allow coupling, but that becomes tedious in model operation. Whether you use magnets or some type of coupler pick, easy and reliable uncoupling increases the efficiency and enjoyment of a model railroad yard.

Veteran layout designer Don Mitchell has pointed out that it's also a good idea to orient the ladder so cars at the end of each successive track are easy to see. This isn't always possible, especially if you're following a prototype track arrangement, but it's worth early consideration in designing your yard.

The two yard throats shown above are roughly equivalent. If we assume that the operating aisle is below the yard in each diagram, configuration B makes it easier for operators to see and reach the critical areas at the clearance points on each track. That's especially true when most tracks are full of cars. And if you plan to operate your switches with ground throws, they'll also be easier to reach from the aisle.

Ladder for two switchers



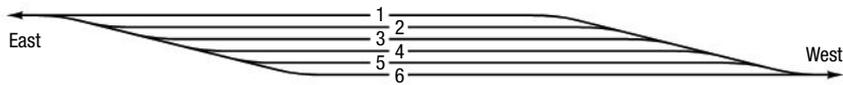
4. Two crews, one ladder. Because of the length occupied by a yard ladder, some designers try to double-up with parallel separate ladders, especially when multiple switch crews will be working. However, the configuration shown in the drawing is favored in many full-size yards and is often more useful. A switch crew on either lead may reach all the tracks easily, but when two crews are working, the crew on lead B can switch tracks 5 through 8 without interruption.

Just as important as providing multiple leads is ensuring that there's enough aisle width along the yard to handle a couple of yard operators as well as the crews of arriving, departing, and passing trains.

Swinging track assignments

“Swinging” track assignments

Milwaukee, Racine & Troy Port Marquette Yard



Lineup at 12:01 p.m., trains on tracks 1 and 2 ready to depart

Track Classification

1	Rockford and west (through)
2	Williams Bay local (west end of track, block ahead of Rockfords for setout by through train) Mukwonago local (east end)
3	Kansas City and west via Santa Fe
4	Chicago & North Western (C&NW) interchange
5	Soo Line interchange
6	“For now” (mixed, but none of the above)

Lineup at 4:15 p.m., earlier trains on tracks 1 through 5 have departed

Track Classification

1	Rockford and west (through)
2	Williams Bay local (west end) Mukwonago local (east end)
3	Open
4	Inbound C&NW interchange (to be classified)
5	Milwaukee Road interchange
6	Port Marquette local deliveries

5. It's better to “swing” yard tracks than build tracks that are too short. In the ideal situation, there will be at least one yard track for each classification (train, block, or destination) to be sorted in the yard. But in the model situation, there isn't always enough room. A number of yard designs have lots of tracks. However, many of those tracks are so short they're unusable, since the yard ladder takes up so much room.

In these situations, it's often better to have fewer, longer yard tracks and change their assignments from one classification to another during a session, as shown here at left. Or, if the eastward local departs early in the session, but the cars for the eastbound through train aren't needed until later, the same track might be used for both. On some railroads this was called “swinging” the yard tracks.

Build in tools for organization



Laying car cards on the layout is unsightly and inefficient. Rick Fortin's HO Santa Fe provides boxes in the fascia for each yard track, and the low-profile Plexiglas rack at left can hold cards for sorting. Byron Henderson photo

6. Build in tools for paperwork and organization. Real railroads burn coal, oil, or diesel, but run on paper. Even computerized operations are notorious paper generators. The same is true for model yards, which require car cards and waybills, switch lists, and other documents to guide the work.

I happen to prefer car cards and waybills because they're easily shuffled to always reflect the order in which the cars stand on the track. But laying the cards out on the yard's surface or leaning them against the cars they represent is unsightly and unrealistic.

Instead, plan places to store cards and tools to make them work better. The photo shows Rick Fortin's HO scale Atchison, Topeka & Santa Fe layout. Rick provided a car card pocket for each yard track, as well as a couple of extras for crews to use as they like.

In addition, simple dividers (sheet styrene tabs with destination and/or block labels) allow crews to keep groups of cars organized. A clear Plexiglas strip purchased from a local plastics house allows crews to occasionally sort out a stack of cards without carpeting the layout with paperwork.

Auxiliary yards



Storage tracks at the White Mountain Paper Co. on Paul Dolkos's HO Boston & Maine railroad serve as an auxiliary yard, relieving the Woodsriver Yard (shown on page 30) of some work. Paul Dolkos photo

7. Call in the auxiliary! Auxiliary yard, that is. If your main yard is too busy, an industrial support yard (see photo), junction yard, or branchline yard might be a good way to share the workload and the fun.

Real-life crews often go on duty and work all day at remote yards serving local industries and interchange tracks without ever seeing the main division point. Instead, these local yard crews organize blocks of outbound cars for through trains to pick up, and deliver inbound cars set out by the passing trains to local industries.

An auxiliary yard can be an interesting new job for another yard crew, add work that lengthens the run for crews on through trains, and relieve the main yard of some burdens – a triple bonus!

Thin the herd



Tommy Holt uses drawers under his staging yards to store extra rolling stock, so his HO scale Western Pacific layout isn't overloaded. Tommy Holt photo

8. Thin the herd. No, not your operators – your rolling stock collection. Some model yards are crowded with cars that rarely or never move during a session.

Some, like maintenance-of-way consists, might be spotted on a little-used spur “out in the country” during operating sessions. Still others of these “yard queens” may be cars that don't operate well or don't really fit the era or theme of your layout. Fix, sell, or trade those cars to clear the decks for active yard operations on all available tracks.

Display cases or storage drawers, as in the photo, are other good ways to deal with surplus rolling stock.

Help for keeping up

9. Help the yard keep up with the road. Pity the poor yard crews. As much fun as they're having making up and breaking down trains, the darn things just keep coming – train frequency being a by-product of our always-too-short main lines. Yard work doesn't scale down like the running length on our compressed layouts, so it can be a struggle for the yard crews to keep up.

One obvious help is providing aisle space and yard leads for multiple crews to work independently. But yards collect kibitzing operators the way kitchens collect guests at a party, so try to keep other operators away from your busy yard crews. If you use radios for communications during operation, using separate road and yard channels minimizes the chatter and lets the yard crews concentrate on the tasks at hand.



When the assigned switch crew finishes their work at Elevator “A” on Chuck Hitchcock's HO scale Argentine Industrial District Ry., they help out with classification switching at the west end of Fifth Street Yard. Paul Dolkos photo

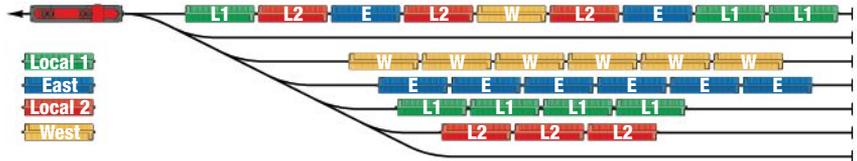
No “cherrypicking” allowed

10. Please don't pick the cherries.

All too often I see model yard crews searching frantically through their paperwork and yard tracks for one last westbound car for a through train that's arriving in five minutes. Finding such a lone car is called cherry-picking and is relatively rare on the real railroads. Railroaders know there will be another train to that destination tomorrow (or in a few hours), so they don't inefficiently dig through the yard to pluck out one more.

In the situation shown in the diagram, the switch crew has been able to keep up with traffic by classifying cars as trains arrive, as recommended in Andy Sperandio's article, “10 tips for freight yard design and operation” in the December 2004 *Model Railroader*. They have just one track of recent arrivals that aren't yet classified, but a westbound through freight is due soon.

Should the crew try picking that lone westbound car from Track 1? Probably not. When a real-life yard crew couples



onto a string of cars, they'll usually handle them all before grabbing the next track. Jumping from track to track to find one or two cars from each is inefficient. So a professional crew would probably leave that single westbound car for tomorrow. There are posted cut-off times for local and through blocks, so crews know in what order to work the tracks for most efficiency.

Unfortunately, the need to cherry-pick an individual car is sometimes forced on model crews artificially by the limitations of some computer car-routing programs. Better to choose a system that allows the crew some flexibility in handling tracks to meet cut-off times without the panic of a scavenger hunt for an individual car.

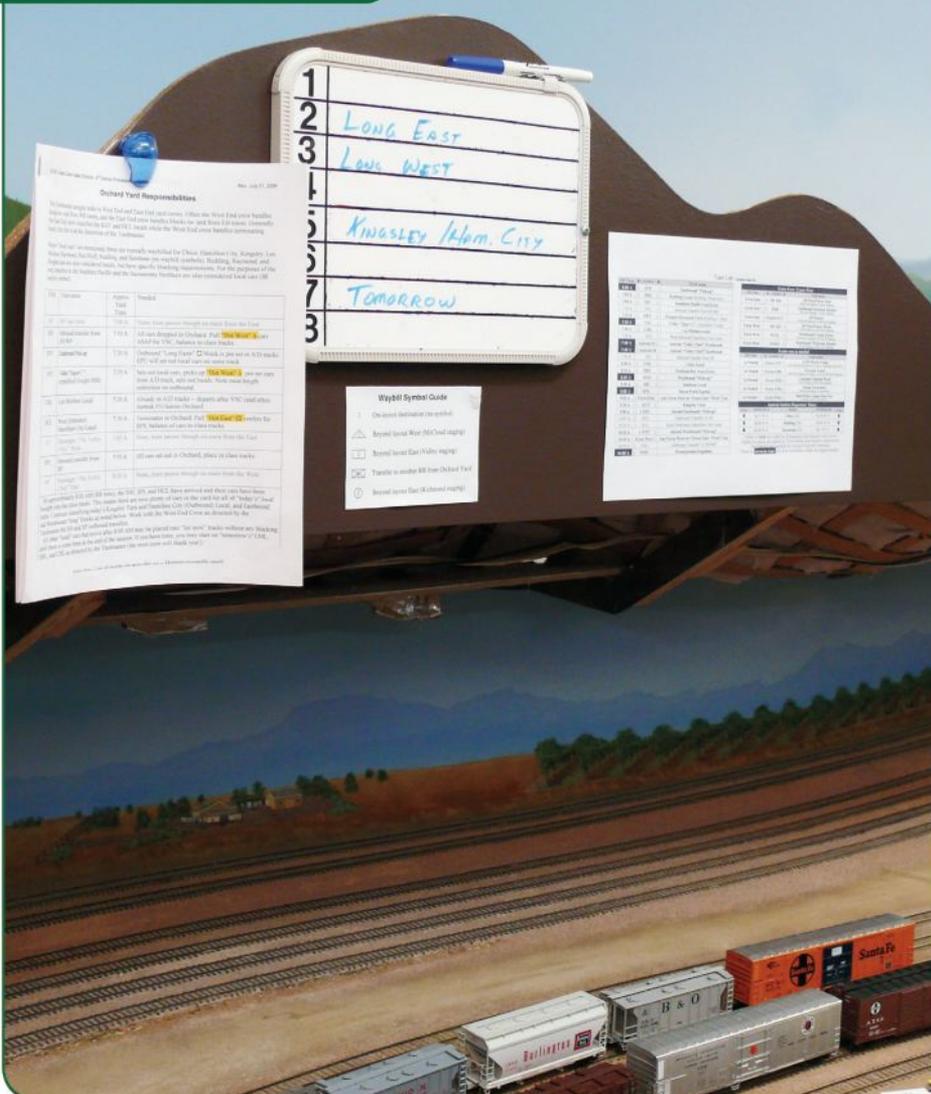
Documentation

11. An ounce of documentation is worth a pound of cure.

And speaking of blocks and cut-off times, you do have clear written guides for your yard crews, right? Real-life crews do the same jobs day-in and day-out, so they may know the yard routine by heart. But model yard crews need extra help in the form of procedure guides, timetables or lineup sheets listing expected arrivals and departures, blocking charts, and more.

Whether you write them by hand or on a computer, you can easily create clear, good-looking materials that provide yard crews with the information they need to work efficiently and enjoyably. This yard documentation should be brief, to the point, and posted or placed where yard crews have easy access, hands-free if possible. The photo from Rick Fortin's layout shows printed yard instructions clipped to the upper fascia, with a train lineup and a white board for noting yard track assignments close at hand.

Rick Fortin uses his upper level fascia to post blocking instructions, an erasable track lineup board, and train schedules for the Chico Yard situated below on the layout's lower level.
Byron Henderson photo



Yard limits

12. Know when (and where) to set limits. The big roads use yard limits to allow yard crews to work on designated sections of main track without clearance from the dispatcher. Rule 93 in many rule books says that within yard limits every train except first class (usually passenger) must move at restricted speed, prepared to stop short of other trains, switches lined against their direction of travel, or other obstructions.

Marking yard limits as shown in the photo lets yard crews work more easily and reduces the dispatcher's workload. Yard limits also slow the passage of through trains, often a good thing.

When you set yard limits, take note of crossovers and other tracks that yard crews need to use, and allow room for pulling out long strings of cars.



The engineer of this Denver & Rio Grande Western 2-8-2 knows that passing the “Y”-shaped yard limit sign at left obliges him to run according to the provisions of Rule 93. Doug Tagsold took the photo on his On3 layout.

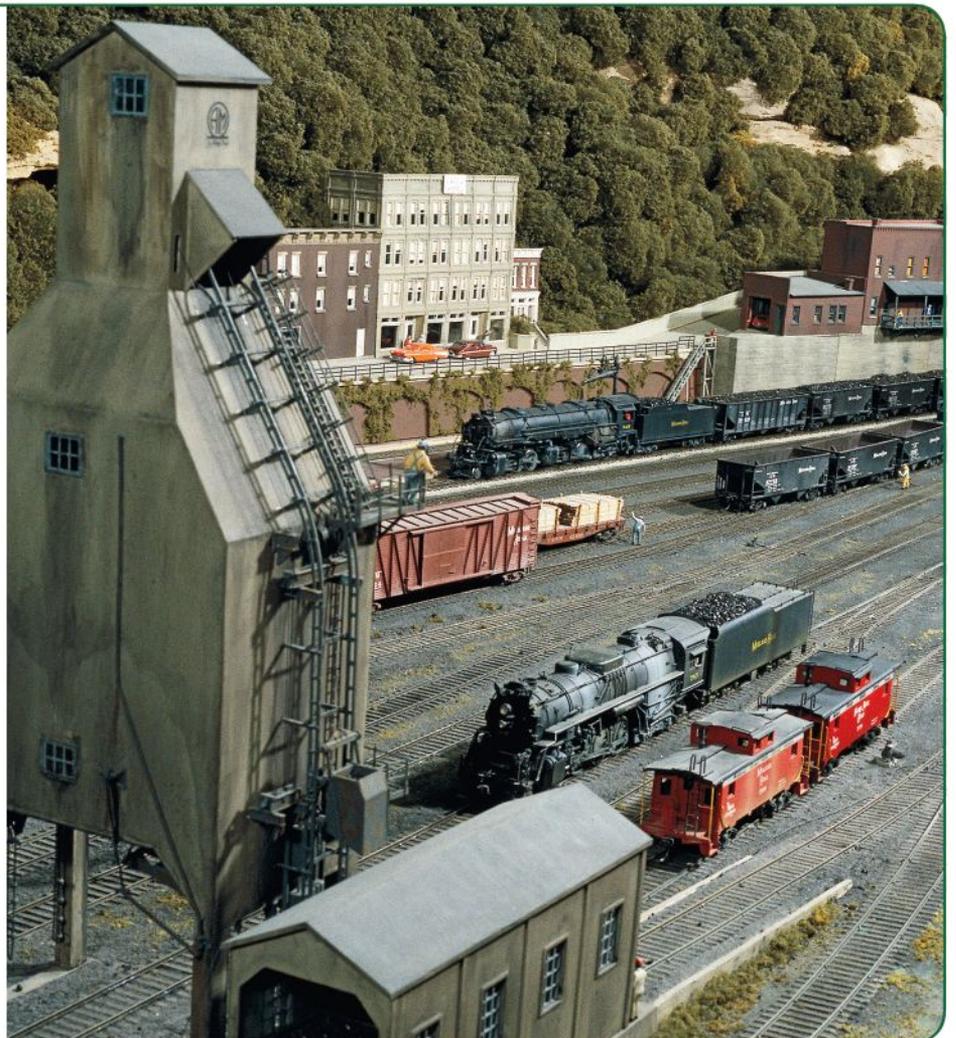
Stage for relief

13. Stage when you can, yard when you must. You can always ease the yard's workload by asking the yard to do less work. As in the photo, some trains can bypass the yard.

In other situations, look for trains that can be blocked and staged before a session rather than being built in the yard. Railroading is a round-the-clock business, so it's reasonable to have some pre-blocked trains out on the road to start a session.

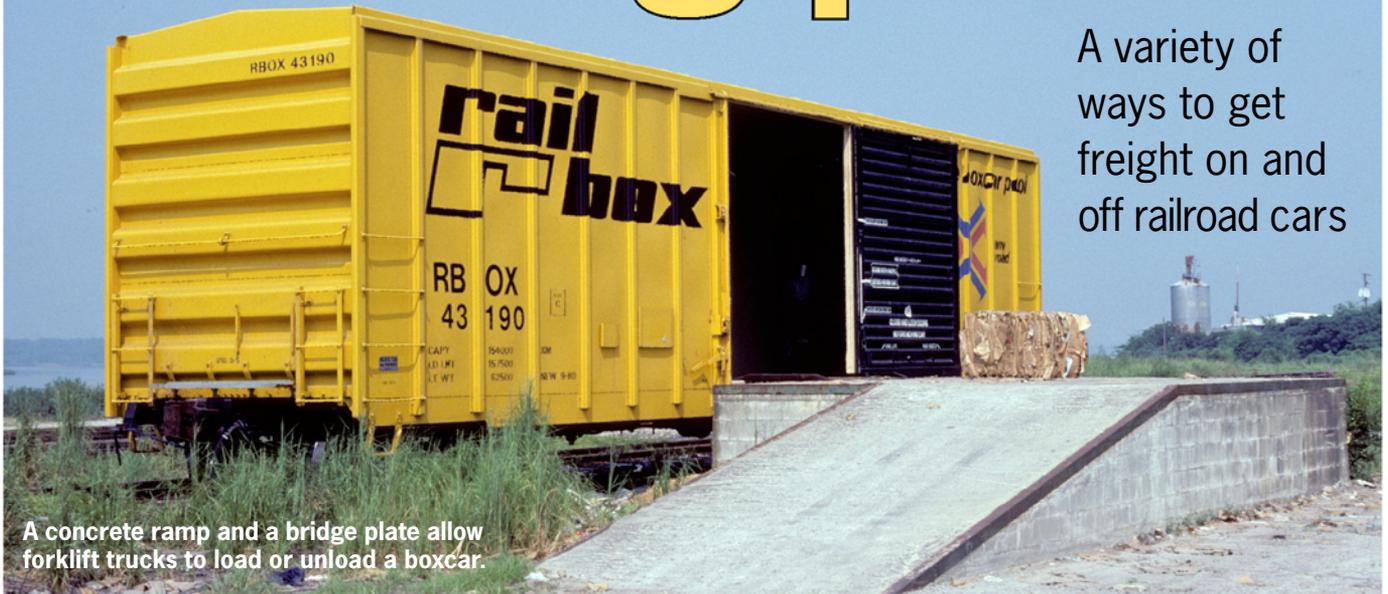
Or you can preset the first couple of outbound blocks in the yard as if the preceding crew had done the work on an earlier shift. For that matter, simply give “today's” crew the task of leaving the yard lined up for the beginning of the next session. Think of your operations as an ongoing process rather than starting every new session from scratch.

Coal trains on Tony Koester's HO Allegheny Midland by-passed the Sunrise, Va., freight yard, going to and from staging tracks representing a separate coal terminal. Tony Koester photo



Loading points

A variety of ways to get freight on and off railroad cars



A concrete ramp and a bridge plate allow forklift trucks to load or unload a boxcar.

by Paul J. Dolkos
Photos by the author

The point where commodities are loaded or unloaded is the feature we most want to replicate on a model industry. The rest of the structure, no matter how large or attractive, is just part of the supporting scenery. These photos show some of the ways freight cars are loaded and unloaded. 

Now on ModelRailroader.com

Additional photos and descriptions of other freight car loading points are available on the Model Railroader Web site at www.modelrailroader.com.

FREIGHT DOORS



The Robinson Terminal Warehouse in Alexandria, Va., had weather protection around this door where paper rolls were handled in 2006.



In 2000, a single sliding wooden door still serves a farm supply dealer's storage building in Chester, Vt., and it has a short access ladder.

EXTERIOR FREIGHT PLATFORMS



The classic platform of the early 20th century was built of heavy planks supported by joists and timbers resting on concrete piers.



Contemporary freight platforms are often made of concrete. The extended roof provides some weather protection while loading or unloading boxcars.



A curved concrete platform and a matching awning followed the curve in the spur that served this fertilizer plant in Berkley, Va., in 1987.

TEAM TRACKS



The Baltimore & Ohio's public team track in Berkeley Springs, W.Va., had a driveway for public access, but it regularly handled Westvaco Corp. pulpwood. To take care of this regular customer, a truck scale was built nearby to weigh the arriving truckloads of pulpwood.



In Baltimore, Md., CSX offers a modern version of a team track devoted to handling bulk tank car and covered hopper car shipments of food-grade commodities. Note that the various transfer pumps and controls are housed in retired 20- and 40-foot shipping containers.

BULK MATERIAL

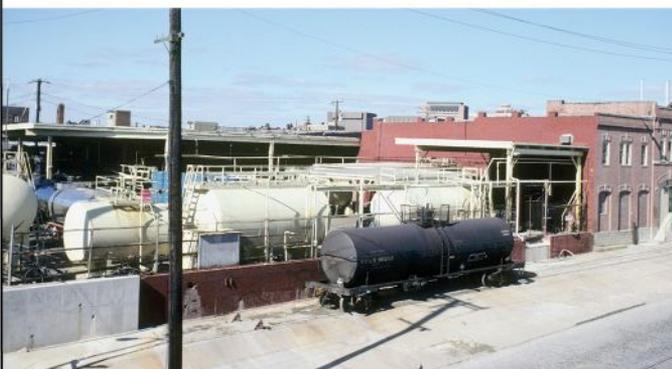


Drop pits are commonly employed to unload hopper-bottom cars at coal or gravel yards and feed mills. Steel beams support the track crossing the pit. A conveyor or auger lifts the material out of the pit and transfers it into storage bins. Dump pits may be open or grated, and many have covers to prevent accidents.

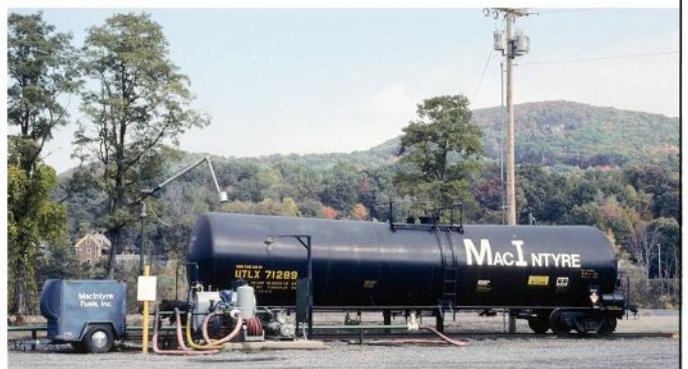


At Laurel Sand & Gravel in Annapolis Junction, Md., a steel-sheathed drop pit feeds crushed stone into an extensive conveyer system that moves bulk materials to nearby storage piles. The high platform gives workers a safe vantage point where they can see into the open hoppers and control the unloading process.

LIQUID COMMODITIES



Hose connections and underground pipes transfer the tank car's chemical load into storage tanks inside the wall at the Inland Leidy plant in Baltimore, Md. Many chemical commodities require special handling.



Here's a small rail-to-truck fuel oil transfer system that MacIntyre Fuels built on a spur at Bellows Falls, Vt. Gravity and the small electric pump system, mounted on a concrete pad, did most of the work in 1995.

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