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Annual 2015

Model Railroad Planning 2015

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**Starting over
with the N&W** p.10

Former Santa Fe
modeler Gary Hoover
starts over with the
Norfolk & Western.
See page 10.

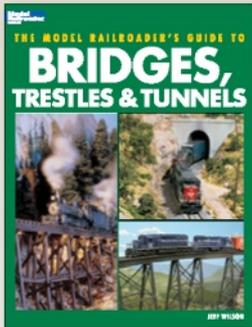
PLUS

N scale East Texas industrial action p.54

Freight railroading in New York City p.62

Model a picturesque dairy line p.34

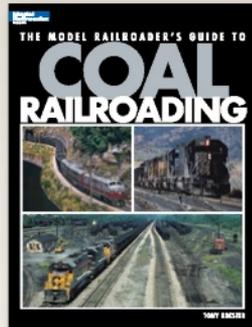
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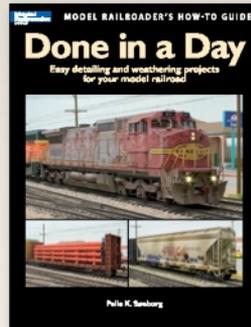
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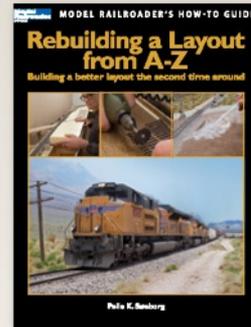
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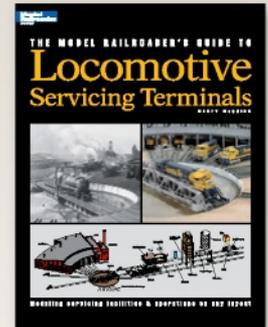
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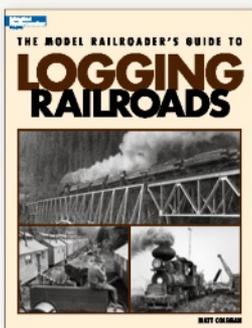
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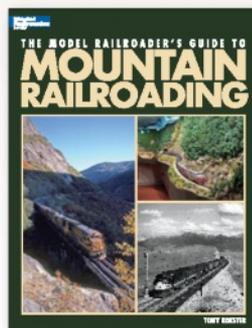
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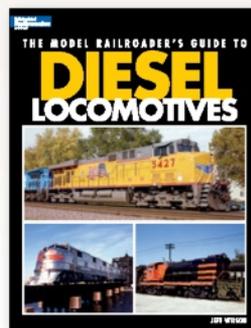
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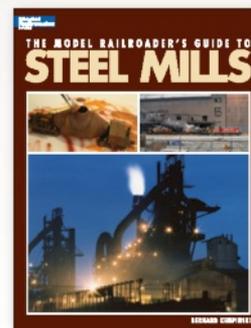
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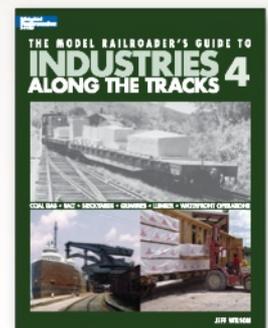
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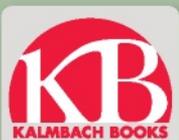
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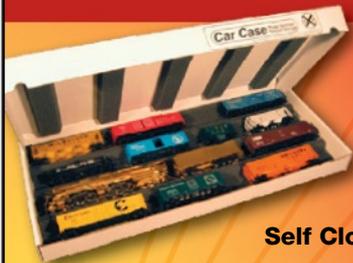
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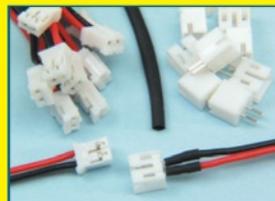
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Model Railroad Planning

2015

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Last year's edition was the 20th issue of *Model Railroad Planning*, which Kalmbach Publishing Co. has produced as a special annual issue of *Model Railroader* since 1995. We're proud of that, ahem, "track" record, but no matter how hard we work to produce a product that you'll find useful, entertaining, and stimulating, you remain the final judge as to how well we manage to meet our, and more importantly your, objectives.

Using that as a yardstick, we successfully negotiated the first two decades and are looking forward to meeting with you here each January for the foreseeable future. Our thanks to each and every one of you, and especially to our contributors and advertisers, for your support.

Moving on

There is a common thread in two of our feature articles this year that might be termed "moving on." Gary Hoover, the author of our cover story, which begins on page 10, describes how and why he decided to dismantle his exquisite Santa Fe layout and build a new one. It's still in HO, but based on the Norfolk & Western in the steam era with a little Virginian electrification thrown in for good measure.

Lou Sassi not only changed prototypes and geographic region but also scale and gauge, as he reports in his story about his On30 (On2½) Sandy River & Rangeley Lakes on page 24.

It just goes to show you that even some veteran modelers enjoy starting over with brand-new challenges rather than resting on their laurels.

Bonus rooms

One of the buzzwords used by Realtors and homebuilders in some parts of the country is "bonus room." This is typically that sloped-walled space above the garage or in the attic. Usually, those with such a space make the most of what they happen to get.

That wasn't good enough for Dennis Daniels. He and his wife were building a new home but couldn't afford to expand the footprint. However, the sloping roof greatly compromised the usable area of the bonus room, and the

family also needed storage space and even a game and TV room. What to do? Turn to page 46 to see his clever space-making solution.

Tempting, isn't it?

Paul Dolkos once again gives us something interesting to ponder in his article about "stubby" peninsulas (page 86). Equally interesting is what Mike McLain didn't do: "But as Mike built the railroad, the sidewalk superintendents suggested that there was room in the wide middle aisle for a long industrial branch. Mike resisted the temptation and stuck with a short peninsula."

I'd hazard a guess that avoiding the temptations that lead to poor layout designs is maybe half of the challenge one faces when planning his or her next model railroad. Using my good friend Bill Wischer's favorite expression, "Let's don't and say we did," as exceedingly good advice, I can easily point to a number of temptations that initially seem a lot better than they usually turn out to be.

Among them: modeling more than one era (a temptation I'm already facing); modeling an extended era (as retired MR managing editor Jim Kelly likes to say, "Modeling 1950 to 1960 means you're really modeling 1960 but doing a lousy job of it."); modeling scenes from someone else's model railroad (better to look to one or more prototypes, as you can apply your own "filters" rather than living with someone else's that you don't fully understand); making your critical "foundation" purchases such as benchwork, subroadbed, and track solely on price (if you can't easily replace it later, do it right the first time using the best available materials); and being overly influenced by what someone else tells you is critically important (be sure each step forward complements your end goals rather than someone else's), to cite a few.

MRP Retrospective

It has long been my goal to revisit the efforts of some of our contributors to provide progress reports. Often as not, we find that our best-laid plans aren't quite as ideal as we initially



Mike McLain resisted the temptation to fill this long, wide aisle with a long peninsula, as Paul Dolkos explains beginning on page 87. Paul Dolkos photo

assumed, and we make course corrections along the way. Even though my own railroad has turned out pretty much as my friend Frank Hodina and I envisioned it in the late 1990s, I've made many tweaks, as I reported in the December 2014 *Model Railroader*, and will continue to do so going forward.

I was therefore delighted when Andrew Dodge came forward with a status report on his Proto:48 (O finescale) Colorado Midland right at the 1-year mark after construction began. This offers both an update on his railroad and a close look at how he managed to accomplish so much in 365 days. Note that we didn't have to update his track plan, as the one we published two issues ago has remained largely unchanged. Good planning pays large dividends.

In future issues, we hope to be able to share more progress reports in a series labeled MRP Retrospectives. I believe you'll find they will offer as many insights as the original articles.

Of course, progress isn't always a good thing in every respect. Most of us can't resist using the layout's surface as a workbench – as the accompanying photo of the west end of Basalt, Colo., on Andrew's Colorado Midland clearly attests. But the more we get done on our railroads, the less of its surface we have for storing and employing our tools and materials.

You're welcome to listen in

Model railroading ignores the usual barriers to communication; at the



The more you get done on your railroad, a.k.a. "temporary workbench," the less area you have in which to store and use tools and supplies. Andrew Dodge photo

typical model railroad convention, you may wind up chatting with folks who earn their keep as television actors and commentators, industry chiefs, politicians, teachers, artists, engineers, members of our armed forces, airline pilots, professional railroaders, professional model builders, historians, race-car drivers, inventors – the range is almost limitless. There are no social or professional distinctions among model railroaders.

One of the great privileges of being a model railroad magazine editor is that I get to talk to many of the hobby's leading lights on a regular basis. I fully realize not everyone has the ability to travel extensively, so I consider it a

primary duty to share with you what I learn from these conversations. I hope that, in effect, this lets you "listen in" on our chats and gain from them, just as I do.

In that sense, each issue of *Model Railroad Planning* is nothing more than a conversation between readers and hobbyists willing to share their hard-won knowledge and experiences. I'll do my best to keep these chats informative and entertaining. **MRP**



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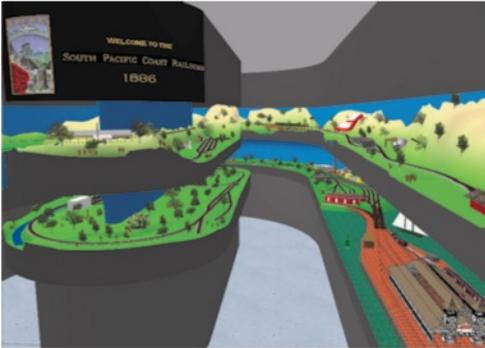
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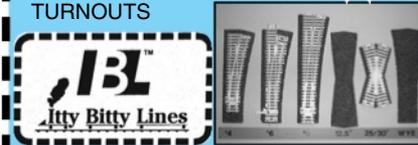
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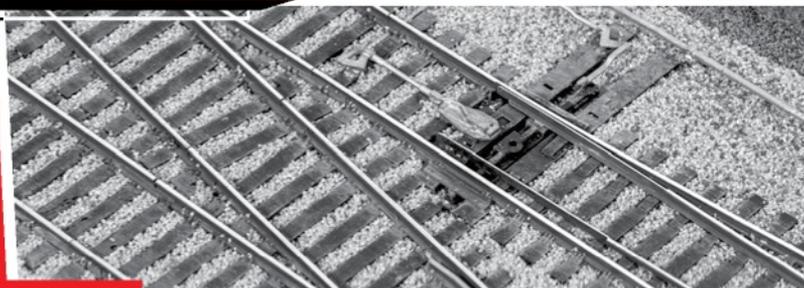
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In search of new challenges

Modeling the Norfolk & Western in the mid-1950s

By Gary Hoover // Photos by the author



Change is coming once again to my basement, where my 1951 Santa Fe layout is slowly being dismantled and replaced with one depicting the mid-1950s Norfolk & Western in HO.

Rather than repeat the two-week marathon demolition job that removed my Missouri, Kansas & Quincy to make

room for the Santa Fe layout, this time I'm removing sections of the old layout only when needed to make room for the new. That way, I'll always have an operational railroad available when I get the urge to run trains.

I chose the N&W as the main prototype for several reasons. I'd never modeled an East Coast railroad, even though I grew up there and vividly

remember the Pennsylvania RR and the Delaware, Lackawanna & Western. Several other candidates were also on my short list, including the Baltimore & Ohio and the Chesapeake & Ohio.

The N&W won because of its diverse steam power and unique branch lines. As a bonus, the N&W's premier passenger train, the *Powhatan Arrow*, was generally limited to five cars



behind a J-class 4-8-4. This makes for an easy-to-operate yet prototypically correct passenger train.

A change in philosophy

The Santa Fe layout was conceived and built to be as prototypically correct as I could make it. That applied to not only the locomotives and rolling stock but also to the structures and

track arrangements. I chose a very tight time frame – Aug. 29, 1951. All that worked very nicely and provided some fun modeling challenges. However, when planning the N&W layout, it soon became apparent that the old philosophy would need to change.

With the Santa Fe layout, modeling the main line between Chicago and San Bernardino, Calif., was fairly

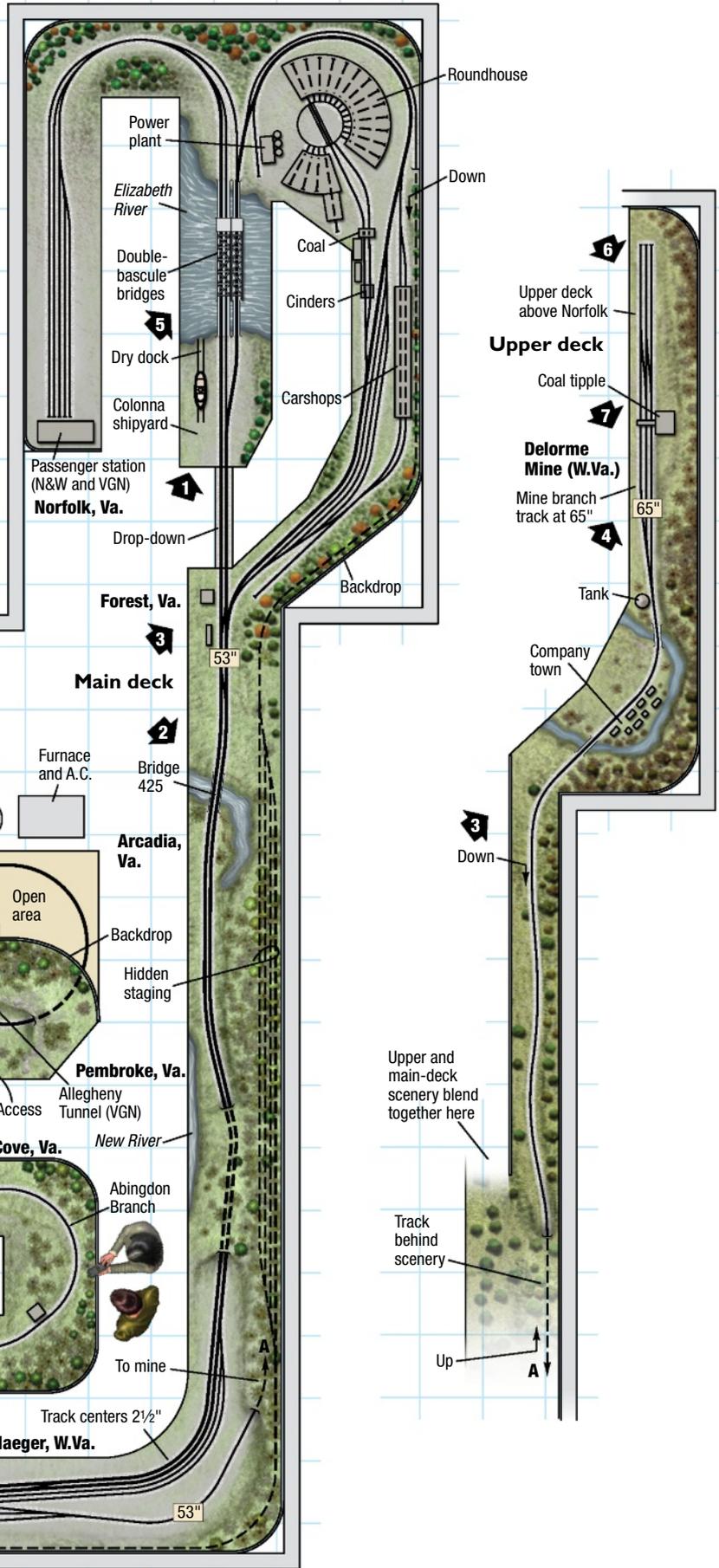
1. In a scene made famous by photographer O. Winston Link, Norfolk & Western 4-8-4 no. 609 crosses under the signal bridge west of the Elizabeth River and passes a tugboat in dry dock at Norfolk. One of Gary Hoover's goals for his HO scale N&W layout is to model several scenes from Link's photographs.

On our website

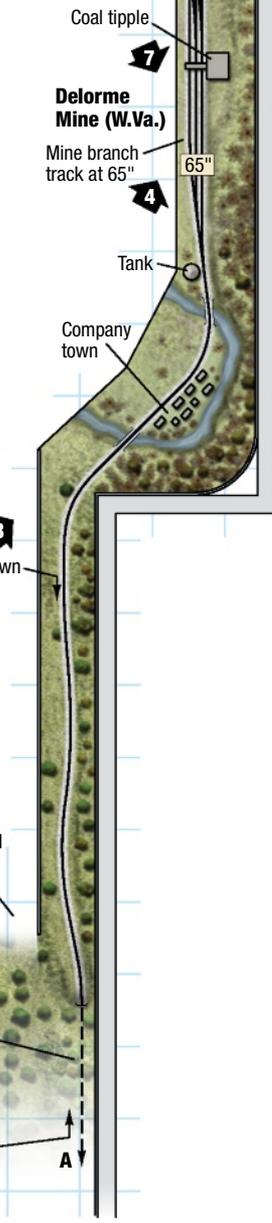
Gary's fascination with O. Winston Link's photography has been around longer than his N&W layout. Read his May 1998 MR article at www.ModelRailroader.com.

Norfolk & Western

HO scale (1:87.1)
 Layout size: 24x49 feet
 Scale of plan: 3/16" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Rick Johnson and Roen Kelly
 Find more plans online in the
 ModelRailroader.com Track Plan Database.



Upper deck





2. This scene on Gary's layout models another classic O. Winston Link photo, taken at Arcadia, Va., at bridge no. 425. It took quite a bit of technical expertise for Link to take synchronized-flash night exposures of moving trains.

straightforward. Chicago was on one end of the basement and San Bernardino was on the other, with Raton, N.M., in the middle. This matched the prototype perfectly.

The N&W prototype wasn't as easy, since it offered mainline modeling opportunities and also several distinctive branch lines, each with unique geographic features. And what N&W layout would be complete without the obligatory mine run to the well-used coal tipple?

So, early in the planning stages, I employed modeler's license on some scenes. I'm sure that I'll be hearing cries from some visitors proclaiming "You can't get there from here!" when they see a coal drag pass through Abingdon, Va., only to arrive a bit later at Williamson, W.Va. But those are the types of compromises that sometimes need to be made within the confines of four concrete basement walls.

Another decision made early in the planning stages was choosing a more generous time span to model, mostly because the prototype made it easy to do. The N&W was interesting in that it maintained a good portion of its large

steam roster right up to dieselization in the later half of the 1950s. It's therefore prototypically correct to run the A, J, Y, K, and ancient Z-class locomotives in that period. Even the unique experimental coal-fired steam turbine *Jawn Henry* was grinding the rails into the mid-'50s.

I also found obtaining dated photos of the N&W a bit more challenging than it was with the Santa Fe layout. That's one of the reasons I chose 1954 through late 1956. This also opened up some opportunities for modeling a portion of the Virginian Ry., including its Norfolk, Va., passenger operations.

Operationally, the N&W layout will be similar to the Santa Fe layout where three to four operators will probably be the maximum. The mine run and the Abingdon Branch, with their associated switching, could easily keep two crews busy. Yards at Norfolk and Williamson, plus the mainline activity, would employ two more operators. Unfortunately, I wasn't able to work in any significant mainline grades for helper operations, which is a big part of the N&W prototype. Compromise strikes again.

The layout at a glance

Name: Norfolk & Western

Scale: HO (1:87.1)

Size: 24 x 49 feet

Prototype: Norfolk & Western

Locale: Virginia and West Virginia

Era: 1954–56

Style: multi-deck walkaround

Mainline run: 120 feet

Minimum radius: 30" (N&W), 27" (Virginian Ry.)

Minimum turnout: no. 8 (main), no. 6 (yard)

Maximum grade: 3.8 percent

Train length: 7 feet (passenger), 11 feet (freight)

Benchmark: 1 x 4 open grid

Height: 46" (Virginian), 53"

(main), 65" (upper deck)

Roadbed: Cork on 3/4" birch plywood subroadbed

Track: code 83 flextrack

Scenery: extruded-foam insulation board

Backdrop: tempered hardboard

Control: Digitrax Chief DCC



3. The upper deck of Gary's N&W layout, above the Norfolk area, is supported by heavy-duty shelf brackets with additional angled braces. The bracket mounting tracks are screwed into 1 x 4s that extend from the rafters to the floor.

Choosing a season

While the era for the N&W layout is spread out over a few years, the season is locked in as late fall/early winter. I did this for several reasons. First, many of the photos and movies showing steam action in the '50s appear in seasons with no leaves on the trees. It's possible that this was because colder weather makes for more dramatic steam effects. Nevertheless, I've always thought photos with a steam locomotive as the subject have a more interesting "mood" when set in a more subdued season. For black-and-white photos, this is even more important.

Another, perhaps more selfish, reason for modeling the late fall/early winter is the foliage. Modeling the Appalachians generally means modeling zillions of trees, which can be time-consuming to say the least.

One can get away with fewer trees in a scene if they have little or no foliage.

When looking at a scene of bare trees, one tends to see through individual trees to the point that they blend together more naturally. The larger open space in between isn't as noticeable as a scene with full-foliage trees where all one sees is the canopy. This isn't to say that my N&W layout is almost treeless. Rather, it gets away with merely billions of trees as opposed to zillions.

Finally, choosing the late fall/early winter allows for applying a light dusting of snow in shady areas. I had a snow scene on the Missouri, Kansas & Quincy layout, and I really enjoyed it. The high mine area will probably be the spot for Old Man Winter to make an early visit.

Inspiration from Link

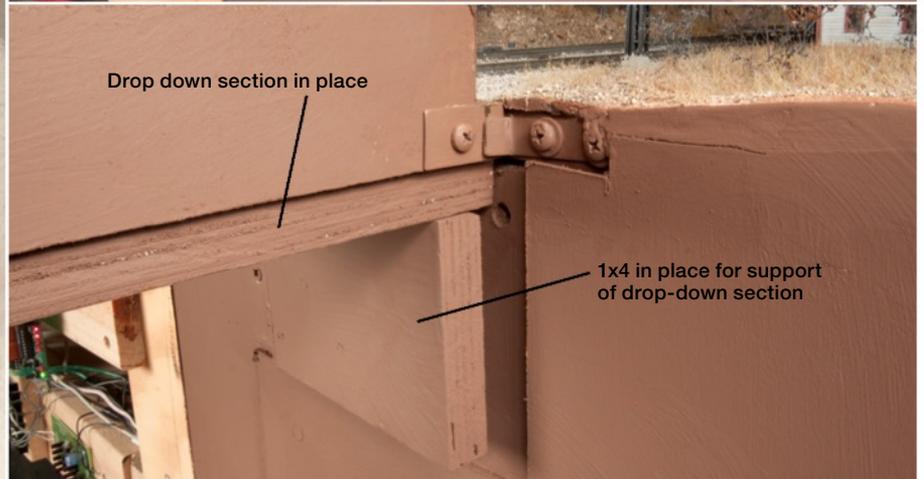
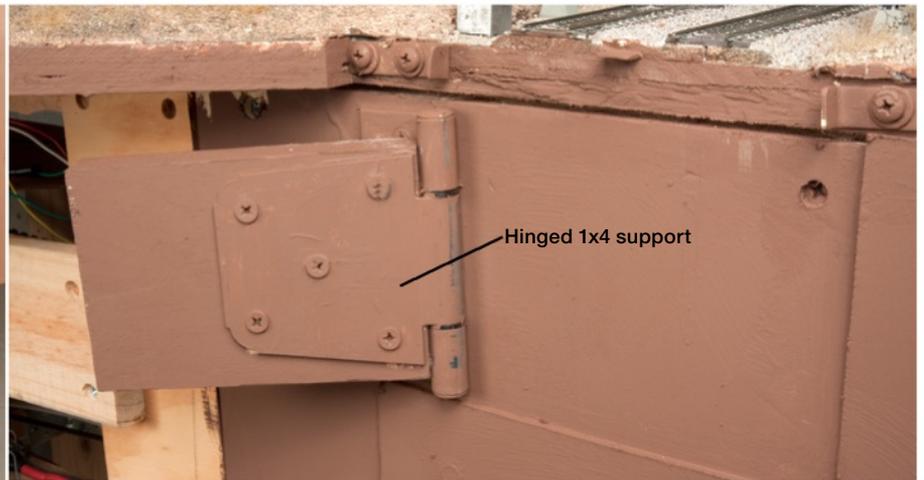
I've long been an admirer of O. Winston Link, who created masterful and often haunting images, mostly at night, of Norfolk & Western steam in the 1950s. Link's photos are inspiring not only from a composition standpoint, but are also truly technical masterpieces, given that the trains were usually moving and the photograph had to be made using multiple synchronized flashbulbs.

One of the planning goals of the new N&W layout was to have scenes that re-create some of Link's most famous railroad photos. One could devote an entire layout to this theme alone, but compromise due to space limitations is always necessary. Nevertheless, at the least I'll include the Elizabeth River tugboat scene, "Bridge 425 Arcadia, Virginia," and the famous drive-in movie theater scene.

The Abingdon Branch

While the N&W had several interesting branch lines, the Abingdon Branch is my favorite. It ran from Abingdon, Va., to West Jefferson, N.C. Steam power on this branch was typically a 4-8-0 Mastodon pulling a baggage car, an ancient coach, and possibly a few freight cars. The towns along the route all had that rural America appearance where honest, friendly folks worked hard, yet lived the "simple" life.

Indeed, the Norfolk & Western passenger trains often provided the only way in and out of the area for many locals. So impressive was this branch that it was where many of Link's rare daylight railroad photos were made, some in color, as seen in Thomas Garver's book of Link photos,



Gary is a fan of hinged drop-downs, which he's used on most of his recent layouts. This drop-down connects the Norfolk and Forest scenes. A heavy-duty door hinge supports the double-track section. A short segment of extension cord carries power to the tracks. A hinged 1 x 4 segment provides additional support when the drop-down is in position.

The Last Steam Railroad in America (Harry N. Abrams, 1995).

My plan for the Abingdon branch is to construct it as an enclosed room linked to the main line at Abingdon by a drop-down wye.

Adding the Virginian

One feature that I always try to work into a layout is more than one prototype. The Virginian filled the bill perfectly. The VGN was a roommate of the N&W at the Norfolk passenger terminal. On my layout, I'll have Virginian passenger train No. 3 with its PA-class 4-6-2 Pacific and three heavyweight passenger cars spotted at the Norfolk terminal. The Virginian's main line also crossed the N&W in several locations.

Never having modeled anything under catenary, I was intrigued by the electrified portion of the Virginian. As luck would have it, the Norfolk & Western's Blacksburg branch crossed over the electrified Virginian at Merrimac, Va. So a small loop of the electrified Virginian will be modeled at this location.



4. To keep the weight on the suspended upper deck to a minimum, Gary constructed the scenery, including the rocks, from foam. Before scratchbuilding or kitbashing key structures, Gary makes cardboard mock-ups like the one seen here. When he's satisfied with the configuration, he builds the final structure.



Learning points

- The challenges presented by the design and construction of a new layout may offset the loss of even a well-designed and constructed predecessor.
- Modeling a specific prototype does not preclude making reasonable compromises to achieve a specific goal.
- Dismantling an old layout in sections as a new layout is being built can support continuous operation.
- A second deck can provide a location for a branch line.
- Adding segments of another railroad can add visual and operational variety.

supported using heavy-duty shelf supports mounted to 1 x 4s extending from ceiling to floor.

I chose to scenic the upper deck before moving to the lower deck. The thought was that any scenery “drip-pings” during construction of the upper deck could do no harm if the lower deck was still unfinished and most track not even laid.

In retrospect, that was a mistake. Finishing the lower deck, including track, turnouts, and scenery, would have been better, since that would have afforded the easiest access. A thin plastic tarp could have been laid over the lower deck while the upper deck was being worked on.

Scratchbuilding fun

As with most any model railroad that re-creates a particular prototypical scene, scratchbuilding or kitbashing structures is a pretty much a given. Personally, I find scratchbuilding one of model railroading’s greatest rewards.

The process starts with collecting the reference photos from books, magazines, and historical society databases. Next, the structure’s overall size needs to be determined so that it closely represents the prototype and still blends into the available space. I often make cardboard mock-ups of the structure, then adjust the size.

Final construction begins with making scale drawings of each wall on graph paper to ensure the walls and windows will be square. I make a paper copy of the final drawing and use rubber cement to attach it to the wall material, then cut out the wall along with the windows and doors. I apply rubber cement thinner and peel off the

5. A streamlined 4-8-4 accelerates out of Norfolk with the N&W’s premier passenger train, the *Powhatan Arrow*, and crosses the Elizabeth River on its way to Williamson, W.Va., and Cincinnati.

Yes, this is another spot that isn’t prototypical for mainline trains, but the challenge of modeling trains under overhead wire was just too hard to resist. Power for Virginian freights will be three-unit EL-3A “square heads” for 1954 or a set of General Electric EL-C streamliner locomotives for a more modern appearance.

Adding an upper deck

All of my previous layouts had a single deck plus staging yards under the main line. One reason for this was photography. Back in the days of film cameras, the final image was simply what the camera was pointed at. That

made it very challenging to photograph a lower deck without showing the upper deck’s support structure.

With today’s digital cameras and the wonders of photo-editing software like Adobe Photoshop, the upper deck can easily be cut out of a photo and a nice sky pasted in. For the new layout, it became apparent early in the planning stages that the only way to include a mine branch was to build a second deck above Norfolk.

I made the upper deck’s scenery from lightweight materials such as extruded-foam insulation board for both the base terrain and the rock carvings. The entire upper deck was



6. Mine work continues into the night as a full moon begins to rise over the horizon. “Night” photography, with or without later photo-editing effects, can create a very interesting mood and show a layout in a different “light.”

cutting guide. The structure is then assembled and painted.

As with the Santa Fe layout, I hope that some of the N&W scratchbuilt structures will inspire others to give scratchbuilding or kitbashing a try. I fear that this is a part of the hobby that’s in danger of becoming obsolete, with an attendant loss of satisfaction that such endeavors foster.

On to the building stage

There’s a philosophy in the manufacturing world that suggests that, for every project, there comes a time to fire the engineers and get on with the building phase. That philosophy certainly holds true for model railroads. With the planning complete, my new N&W layout has entered the building phase and will provide years of model railroading fun – at least until I start planning the next layout! **MRP**

Gary Hoover lives in St. Louis, Mo., with his wife, one son, and two golden retriever “grand dogs.” He is an aerospace engineer and a master scuba diver; he also enjoys shooting target pistols.



7. Mine runs required traveling deep into remote mountain valleys. In the days of steam power, that meant stopping for water. Here, a Y3 2-8-8-2 passes the tank near Delorme, W.Va. It will take on water during the return trip to Iaeger, W.Va.



Union Pacific no. 1983 commemorates fallen-flag Western Pacific as it and a regular UP unit idle away with an Oakland-to-Stockton train. The San Francisco Bay Bridge looms in the background. Prototype photos by Steven M. Welch

East Bay in the present day

Accommodating broad radii, modern traffic, and a pesky side garage door on an HO scale layout

By **Byron Henderson**//Model photos by the author



On a beautiful December morning, Amtrak *San Joaquin* No. 711 originating in Bakersfield heads south through Jack London Square less than a minute from terminating in Oakland. (The train is routed via Sacramento and Richmond, so it arrives into Oakland from the north.) On the layout, multistory low-relief structures similar to the large buildings in the background of this photo conceal a ramp descending to staging.



Until Toyota shut down the NUMMI (New United Motors Manufacturing Inc.) plant in Fremont, Calif., the Warm Springs Local made a regular street-running appearance on its way to Oakland Yard with auto carriers in tow. BNSF Ry. GP60M no. 124 sports the freight warbonnet paint scheme as it and a GP39 trot 42 cars through Jack London Square.

Although a detached single-car garage seems like a significant amount of space for an HO railroad, my client's desire for broad radii to support long, modern-era freight and passenger rolling stock meant that the available square footage was used up quickly. On-layout destinations were desired for container cars, tank cars, lumber flats, and modern mechanical reefers, along with at least one station for modern Amtrak and regional passenger lines.

Fortunately, the client's preferred East Bay (Oakland, Calif.) locale provides examples of all these elements. I originally hoped to accurately capture a few prototype scenes. But the realities of aisle space, minimum radius, and the need for long ramps to subterranean staging meant that I could use these real-life scenes only as inspirations, not replicate them

accurately. The notable exception is the famed street running down Oakland's Embarcadero past Jack London Square, the site of Amtrak's station. Low-relief buildings will conceal one of the ramps to staging.

Made for ops and railfanning

Everywhere else, scenes are more freelanced but create destinations for

the desired traffic. The main line forms a continuous run, with staging joining the oval at two points. This matched up well with the owner's desire to have an easy means of "railfanning the layout" when the mood strikes, but with the capacity for more purposeful operations as well. Double-track main lines are found in many locations in the area, and combining these with



Custom layout builder Rick Fortin finishes joining the peninsula sections, which were built in his shop an hour's drive away. Note that the long intermodal tracks are still

only loosely in place – since they bridge section joints, Rick elected to put off laying these tracks until after the sections were joined in the final location.

The layout at a glance

Name: East Bay
Scale: HO (1:87.1)
Room size: 13'-8" x 23'-3"
Prototype: Union Pacific and BNSF Ry.
Locale: San Francisco Bay area
Era: present day
Style: multi-deck walk-in
Mainline run: 100 feet
Minimum radius: 32"
Minimum turnout: no. 6 (main), no. 5 (industries)
Maximum grade: 2.5 percent
Train length: 15 to 18 feet
Benchwork: open grid
Height: 49" (visible)
Roadbed: cork
Track: code 83 flextrack
Scenery: ground cover on plywood
Control: NCE Digital Command Control

crossovers made it easier to accommodate fun-running or ops, as the crossovers provide runarounds to switch various industries.

The around-the-room plan includes a peninsula that I was able to use both for a necessary mainline curve and also to add length to the curving ramp descending to staging. Custom builder Rick Fortin (www.layoutbuilders.com) elected to build the layout in free-standing sections incorporating both the visible deck and the staging below. This necessitated substantial clearance above staging to make joining the hidden staging tracks easier when the sections were installed. This, in turn, meant accommodating long ramps in order to avoid overly steep grades.

A flip and a swing

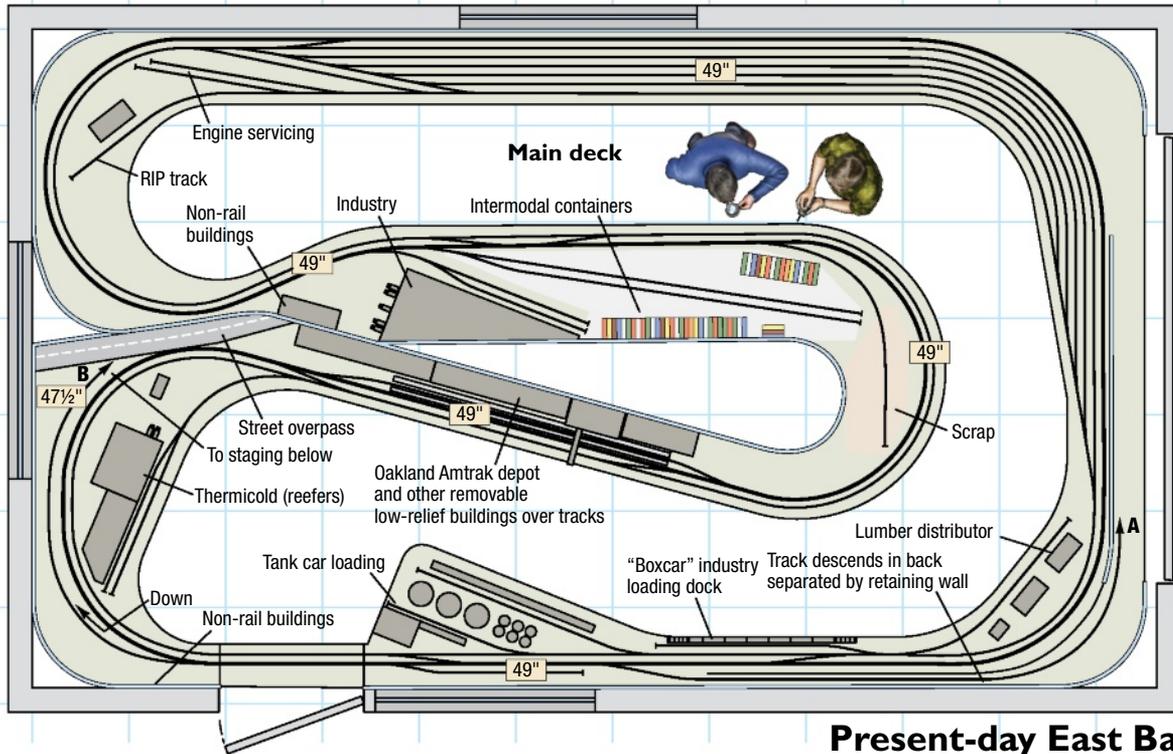
Initially, the side door to the client's garage opened inward. This created a challenge in allowing for aisle space and the desired broad radii, as well as creating a need for steep grades to get mainline tracks "up and over" each

other at the cramped base of the peninsula. But the owner was able to find a way to securely mount the side door so that it would swing out, which allowed the final plans to make much better use of the space.

Rick used a couple of interesting tricks to make the resulting swing gate work better. The gate is actually hinged some distance away from the entrance, allowing it to swing farther out of the way. This required adding an access hole in the door to reach switch-motor controls behind the gate. He added a small tab to guide the gate to the proper position. Interlocks cut track power to adjoining sections while the gate is open.

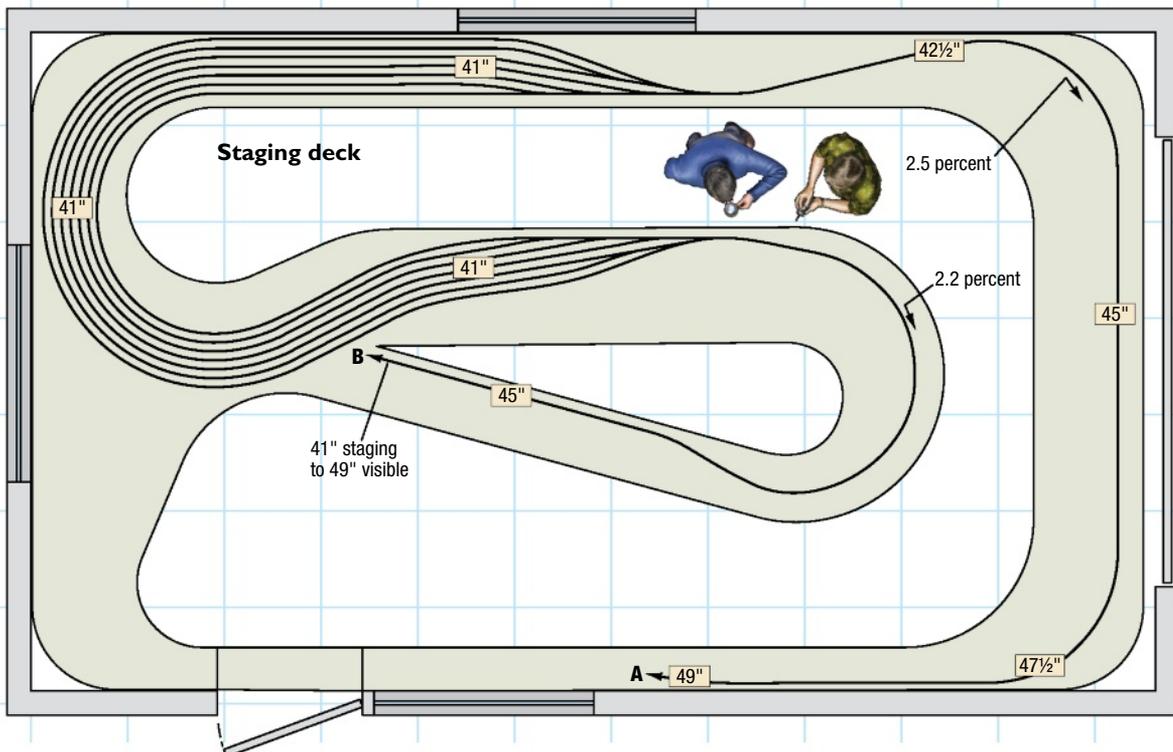
Industries and operations

Rail-served industries reflect the types of businesses active today – and the client's rolling stock inventory. Although it's small compared to prototype intermodal yards in Oakland, some fair-size cuts of cars may be spotted at the container



Present-day East Bay

H0 scale (1:87.1)
 Room size: 13'-8" x 23'-3"
 Scale of plan: 1/4" = 1'-0", 24" grid
 Illustration by Rick Johnson
 Find more plans online in the
 ModelRailroader.com Track Plan Database.



Learning points

- Modeling a modern railroad may require broad curves.
- Changing the direction a door opens may open up more layout space.
- Designing a layout to accommodate both train watching and realistic operations is practical.
- Building flats can conceal ramps to and from hidden staging yards.



terminal. And stacks of containers are a handy way to hide one side of the peninsula when viewed from the other aisle. There are a number of refineries and chemical plants in the East Bay area, and these are suggested by the industry near the entrance door. Other industries allow for switching modern reefers and boxcars.

BNSF Ry. and Union Pacific criss-cross the area and share trackage rights in many places. We took advantage of this by hosting both Class 1 roads' trains, with some interchange and the make-up of locals in the large modeled yard. Space constraints demanded that the yard be curved, but most tracks have straight sections near the ladder to ease coupling and uncoupling chores.

The yard is freelanced, so I wasn't constrained in the ladder arrangement. I took MRP author Don Mitchell's advice to orient the ladders to make it easier for operators to see the ends of cuts of cars on each track. A small engine facility and repair-in-place (RIP) track completes the yard and provides a place to display extra motive power.

Rick also took advantage of the fact that the sectional garage door could be opened to add an industry along the back of the yard at upper right, where the plan shows only the ramp track descending to staging. All operations can be handled without opening that door, however.

Progress report

While much detail work is still to be completed, the basic layout is installed and ready to host traffic typifying that seen in the real-life East Bay in the present day. **MRP**

Byron Henderson is a regular contributor to MRP, a custom layout designer (www.layoutvision.com), and editor of the Layout Design Special Interest Group's Layout Design Journal (www.ldsig.org).

As Rick started work on Byron's plan, he realized that hinging the swing gate at the door frame would limit the width of the opening into the room. So he offset the hinges, allowing the gate to swing completely clear of the entranceway. A wooden flange forms a bearing surface for a matching slide underneath the edge of the gate, and a thin tab fits into a slot formed by a piece of hardboard to resist any twisting. A hole through the deep gate allows fingertip access to the slide switch behind the fascia that controls a switch motor.



Access to the staging ladder below the visible yard is through portholes in the hardboard fascia. Open-grid benchwork is below the staging yard level; vertical supports from this grid for the visible deck are tucked behind the fascia.



Although the layout was designed to be contemporary, there is precedent for steam making an appearance. On April 22, 2009, UP Northern 844 prepares for a run to

Stockton via the Altamont Pass, with a little diesel help if needed. The yard tracks and backdrop of stacked containers are reflected in the layout plan.



The yard ladder is aligned to provide a better view of the end of each string of cars. The circular holes routed into the fascia allow access to slide switches controlling the

Tortoise by Circuitron motors that move switch points. These holes will be dressed up at the end of construction with bezels made from PVC pipe fittings.

New home, new scale, new gauge

Aging eyes focused on a larger scale

By Lou Sassi//Photos by the author

On Feb. 5, 2009, my wife, Cheryl, and I locked the front door to our home of 37 years in upstate New York for the last time, got in our car, and drove 1,000 miles south to North Carolina. Cheryl retired from General Electric in Schenectady that January, and I had already retired from the Burnt Hills Ballston Lake school system nine years earlier. We had been discussing the possibility of leaving New York for a warmer climate for quite a while. Both sons were grown and pursuing their careers, our oldest married with two children. We were empty-nesters; the time had finally come to make our move.

There was one glitch in our desire to move that seemed to concern everyone

in the family but me. That was the HO scale West Hoosic Division model railroad that occupied almost all of our 23 x 36-foot basement. It had been 34 years in the making and had served its purpose of keeping me busy during those long, cold Northeast winters.

But now it was time for more than a change of climate. I was getting older, and my eyes were not what they were when I started construction of the WHD in 1975. Crawling under the layout to reach its two pop-up access hatches wasn't helping my back much, either.

The lure of O scale

I have been photographing model railroads all over the United States for my friends at Kalmbach Publishing Co. for almost 30 years, and I've been

privileged to see model railroads of all scales and gauges. I was drawn to O scale. Everything just seemed more impressive because of its bigger size.

It's said that O scale is twice the size of HO, but when you take into account the volume of the subject you're viewing, it's almost eight times the size. O scale is therefore easier for aging eyes to see, which is particularly helpful when working on or adding details to something, be it structures, vehicles, scenery, whatever.

In the late '90s, Bachmann released its On30 (On2½) Forney locomotives and rolling stock, all very reminiscent of the fabled Maine 2-footers. I purchased a Digital Command Control (DCC) sound-equipped engine and ran it on my HO railroad (On30 has the





same track gauge as HO standard gauge). I was hooked!

Since I was working on my fourth scenery book (*How to Build and Detail Model Railroad Scenes, Vol. 2*, now out of print) for Kalmbach at the time, a quick call to Jeff Wilson at Kalmbach Books gave me go-ahead to devote the last three chapters of the book to the construction of a 2 x 6-foot layout section depicting Strong, Maine, in the early spring of 1935. Strong is home to the prototype 2-foot-gauge Sandy River & Rangeley Lakes RR.

I then ordered another Bachmann Forney and a dozen freight cars, all of which I sent to my friend George Micklus to be painted and lettered for the SR&RL while I started construction of the railroad.

As work progressed, I realized how much fun I was having with the larger scale. Before it was finished, I decided, whether or not we moved south, I'd tear down the West Hoosic and build a completely new layout in 1/4" scale using the original Strong layout section as a starting point.

Modeling western Maine in the South

When we arrived in North Carolina, we rented an apartment and immediately started house shopping. There are a couple features of most newer Southern houses that surprised me. Generally speaking, they don't come with basements. They do, however, almost always have a "bonus room." This is usually above the garage and,

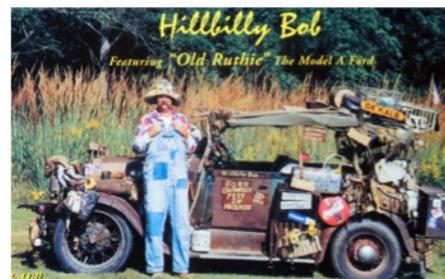
1. Bachmann's On30 Forney – accurately based on a Sandy River & Rangeley Lakes prototype – and rolling stock made modeling the largest of the Maine 2-footers in a larger scale attractive for author Lou Sassi. Here no. 16, detailed and painted by George Micklus, rolls up to the freight house at Strong, Maine.

depending on the size of the house, can be about 20 to 30 feet long by 15 to 20 feet wide. While the size is conducive to a modest model railroad, the negative factor is, being on the second floor, at least two of its four walls are usually knee walls about 4 feet high.

The house we eventually purchased has a bonus room above a two-car attached garage. It's 16'-6" by 22'-0" with the longer dimension having the



2. Forney no. 8 pauses for water at Strong on a brisk spring day with visible hints of a rough winter still in evidence. Rich Cobb built the depot from a Banta Models kit, and Lou scratchbuilt the water column.



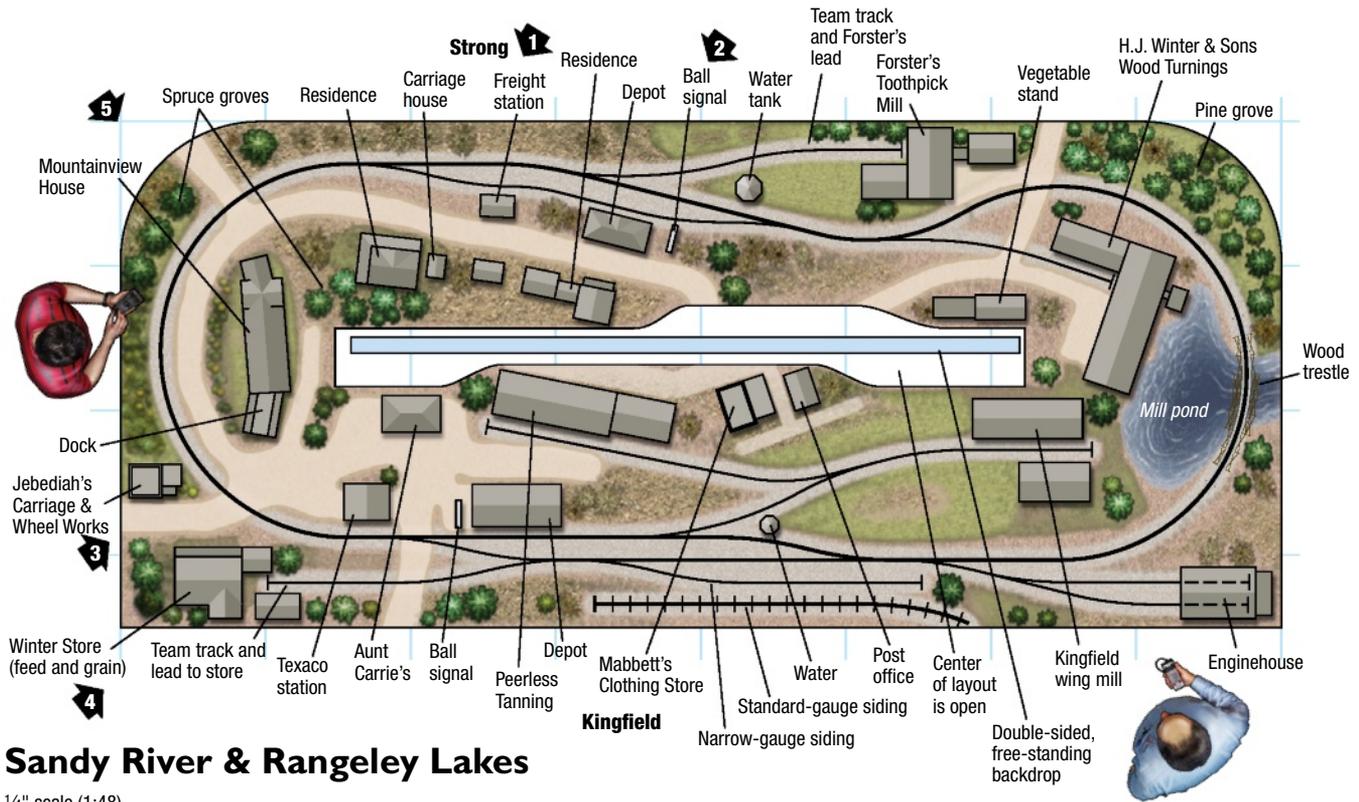
3. Adams Street is the hub of what little activity there is in Kingfield. This sunny afternoon, Arnold the pig eludes his master and Jim Clark takes a nap on the porch of the Winter Store, both oblivious to the passage of no. 16 with Dana Aldrich at the throttle. Tom Staton detailed the car to match a postcard (above).

knee walls. One end wall and one knee wall have double-hung windows; those on the knee wall are in a dormer.

I didn't see any of this as a problem. After crawling under my old layout more times than I can remember to reach the two previously mentioned pop-ups, which seemed to be getting lower and smaller, I could cope with knee walls and windows.

I also realized that filling a third of our home's living space with one of my hobbies, as I had done up North, was fine as long as I was pursuing that hobby. But since one reason for moving to warmer weather was to be outside enjoying that weather, the prospect of spending too many hours in my railroad room, no matter where it was located, didn't appeal to me.

So the "bonus room" approach was looking better and better. When I was working on or operating the railroad, it would be in a reasonable-size room flooded with natural light from plenty of large windows. The windows would also allow fresh air to enter when I desired. The downside was that those same windows and knee walls made an around-the-room



Sandy River & Rangeley Lakes

1/4" scale (1:48)
 Layout size: 7x16 feet
 Scale of plan: 3/8" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Rick Johnson and Roen Kelly
 Find more plans online in the
 ModelRailroader.com Track Plan Database.

approach to layout construction a lot less feasible.

I therefore decided to make the layout freestanding and place it in the middle of the room. It measures 7 x 16 feet with a 2 x 10-foot central opening in which I built a two-sided, freestanding backdrop. On one side of the backdrop is a photo depicting early spring at Strong, Maine, and on the other is a photo of late summer farther north in Kingfield. Both photos, supplied by Bill Brown of LARC Products, are 10 feet long by 3 feet high, self-sticking, seamless vinyl.

The starting point for the layout was the 2 x 6-foot Strong section. Strong was built on two of Woodland Scenic's Mod-U-Rail 18 x 36-inch modules (see the July 2014 *Model Railroader*). I used the same tabletop construction technique for the rest of the railroad, increasing the width from 2 to 3 feet on the Kingfield side.

My 60-year-old eyes aren't what they were three decades ago. For that reason, I decided not to handlay the track as on the West Hoosic. I opted instead for Micro Engineering code 70 and code 83 flextrack along with the company's no. 5 assembled turnouts (see the June 2014 *Model Railroader*).

On my HO railroad, I'd used a milled Homasote roadbed called Homabed. Fortunately, California Roadbed also makes Homabed for O and On30.

I use reworked Caboose Industries HO "High Rise" switch stands to line the turnouts, as I explained in the October 2013 *Model Railroader*. I made the layout 43" high, which allows me to reach all the switch stands easily.

Other key decisions

You may have noticed I incorporated only the villages of Strong and Kingfield into the design of the layout rather than trying to model the entire 112 miles of the SR&RL. The track from Strong to Kingfield and back is a closed loop, rather than point-to-point.

I found that building the West Hoosic as a point-to-point railroad was fine for operating the railroad, which I did regularly. However, when hosting visitors during conventions or when friends stopped by, point-to-point running became a liability rather than an asset. Casual visitors were more interested in just seeing trains moving rather than observing an in-depth operating session.

My primary operating interest has been, and still is, moving cars from interchange to industry and back to interchange, thus keeping myself occupied for about an hour. Multi-train meets, dispatcher panels, car-card systems, signal systems, etc., while

The layout at a glance

Name: Sandy River & Rangeley Lakes
Scale: On30 (1:48 proportion on 30" gauge track)
Size: 7 x 16 feet
Prototype: SR&RL 2-foot-gauge
Locale: western Maine
Era: 1935
Style: island
Mainline run: 40 feet
Minimum radius: 31"
Minimum turnout: Micro Engineering no. 5
Maximum grade: none
Train length: 4 feet
Benchwork: Woodland Scenics' Mod-U-Rail modules
Height: 43"
Roadbed: Homabed on extruded-foam insulation board
Track: Micro Engineering On30 code 70 and 83 flex
Scenery: "Ground Goop"
Backdrop: 1/8" PVC on 1/8" hardboard
Control: NCE radio

interesting and challenging, weren't (and still aren't) for me.

When I built the West Hoosic, I took a less-complicated-is-less-stressful approach. The towns of Bennington and Williamstown were modeled after John Allen's Timesaver portable



The original Strong benchwork was made using Woodland Scenics Mod-U-Rail components. Lou salvaged lumber from his HO layout and purchased new lumber for the remaining benchwork. All legs have leveling screws.



Lou erected a self-supporting framework for the backdrop that fits between the two halves and attached a laminate of 1/8" tempered hardboard and 1/8" PVC panels to both sides. Nothing is attached to the room walls.

Suppliers and manufacturers

- **Rich Cobb model builder** (www.nyow.org)
- **Artista** (www.artista.com)
- **Bachmann** (www.bachmanntrains.com)
- **Berkshire Valley Models** (www.valleymodeltrains.com)
- **Caboose Industries** (www.cabooseind.com)
- **Evergreen Scale Models** (www.evergreenscalemodels.com)
- **Grandt Line** (www.grandtline.com)
- **Homabed** (www.calroadbed.com)
- **Kappler Lumber** (www.kapplerusa.com)
- **LARC Products** (www.larcproducts.com)
- **Micro Engineering** (www.microengineering.com)
- **MinuteMan Scale Models** (www.minutemanscalemodels.com)
- **Northeast Scale Lumber Co.** (www.northeasterscalelumber.com)
- **Scenic Express** (www.scenicexpress.com)
- **Sterling Models** (www.sterlingmodels.com)
- **Tichy Train Group** (www.tichytraingroup.com)
- **Woodland Scenics** (www.woodlandscenics.com)

switching layout. As the WHD layout came closer to completion, I also incorporated John's tab-on-car system to govern car movements.

I designed the On30 layout to work the same way. There's an interchange (adjacent narrow- and standard-gauge sidings where lading is moved between cars, known as breaking bulk) with the Maine Central in Kingfield. (The interchange was in Farmington on the full-size SR&RL.) I also store the one caboose needed for an operating session on that track.

I placed team-track loading platforms on both the long siding to the Winter Store in Kingfield and Forster's Toothpick Mill in Strong. This makes it necessary to move cars spotted at those loading platforms before being able to pick up or spot cars at the industries. While not a duplicate of the prototype situation, this approach

does complicate car movements. And there was a loading platform at the Daggett & Mill Store in Strong on the single-track main line to Kingfield on the prototype SR&RL.

I took a less-is-more approach when it came to acquiring locomotives and rolling stock for the new railroad. My old WHD could be operated with about 50 to 60 freight cars, and there was room in the two enginehouses for only six locomotives. Despite this, by the time I tore down the layout, I'd acquired close to 20 engines and almost 300 cars, including two sets of passenger cars.

While it was nice to have all that equipment, it wasn't really necessary. So when I dismantled the railroad, I put everything but three locomotives, 10 freight cars, and two cabooses up for sale. For the SR&RL, I decided that three Forneys, about two-dozen freight cars, two cabooses, and two passenger

cars would be more than enough equipment. Not having any storage tracks makes it easy to stick to that rule of thumb! Whatever isn't involved in an operating session is stored in a cabinet in the railroad room.

Bigger isn't always better

With all of the positive remarks I've made about my move to O scale, you're probably wondering whether there are any disadvantages to switching to the larger scale. I guess that depends on how much railroad you want to create in the allotted space. When it comes to structures and scenery, yes, everything is bigger and is going to take up substantially more room.

But when it comes to the trains, an On30 Forney isn't a whole lot bigger than an HO Mogul (2-6-0) or Consolidation (2-8-0). Bachmann On30 freight cars are only slightly larger than most HO cars, and in my case, since a typical train has only 5 to 10 cars, the space needed is modest.

Initially, I felt that working in O scale in the early 21st century was a lot like working in HO scale in the 1960s. Everything related to the trains and their surroundings was commercially less plentiful. But I've found suppliers for many of the things I need.

To name a few, Kappler makes an assortment of wood siding. Both it and Northeastern Scale Lumber Co. have a multitude of stripwood sizes that can be used in O scale. Evergreen and Plastruct carry strip and tubular

On our website

Registered users can see video of Lou Sassi's Sandy River & Rangeley Lakes at www.ModelRailroader.com.

Learning points

- Relocating, increasing physical limitations, or both, may prompt construction of a new layout and provide the opportunity to rethink scale, gauge, era, theme, etc.
- One needs to consider both the positive and negative factors of moving to a different scale.
- Modeling a narrow-gauge railroad doesn't make the structures smaller, but it does allow for shorter trains, hence shorter yards and passing tracks, and sharper curves.
- The commercial support for On30 (1/4" scale, 30" gauge) and good-running equipment offset the 6" gauge error and related compromises.

styrene that will work in O scale. Plastruct also makes brick sheet stock. Tichy Train Group and Grandt Line both carry O scale doors, windows, railings, and gingerbread.

I recently replaced a roof made from plastic sheet stock on one of my farmhouses with some excellent peel-and-stick shingles from MinuteMan Scale Models. Berkshire Valley has a variety of structure kits and a multitude of interior and exterior details, and telephone/power lines.

While not as plentiful as they are in HO, figures and vehicles are available. I happened upon a display of O scale soft-metal, painted period figures made by Arttista in a hobby shop in Mt. Airy, N.C., and cleaned out the display. Bachmann also makes a line of O scale figures that are useful for populating building and car interiors and background scenes. See "Suppliers and manufacturers" on the facing page.

About a third of the structures on the railroad are from commercial sources. The Strong depot is a Banta Models kit, the Mountain View House is a kitbash of two Bar Mills Idaho Hotels, and Jebediah's Carriage & Wheel Works is a Bar Mills kit built by Bar Mills owner Art Fahie. The rest were scratchbuilt for me by Rich Cobb of The O&W Shops from photos and drawings I supplied. Rich is a professional model builder and has been building structures for me for over 25 years.

Once I receive them from Rich, I add details and weather them to my liking. Many are composites of buildings I've seen in my travels (like Peerless Tanning Co.), while others are condensed versions of their prototype counterparts (the Winter Store).



4. Two layers of thick foam atop the wood Mod-U-Rail framework created the base for the railroad and scenery. The size of O scale structures takes a bit of getting used to for those moving up from a smaller scale.



5. The 1/4"-scale, 30"-gauge SR&RL is nearly complete. Its freestanding, island construction allows ready access on all four sides. Lou set the track elevation at 43" to ensure easy reach-in access.

One aspect of working in O scale that concerned me was adapting my HO scale scenery techniques to the larger scale. In fact, they haven't changed dramatically. I still use "Ground Goop" covered with dirt and gravel for my O scale countryside. Woodland Scenics and Scenic Express ground foam, flocking, and electrostatic grass still work beautifully for creating O scale grass, weeds, and brush.

I build hardwood trees using Scenic Express's SuperTree material applied to their Super Sage. All evergreen and many hardwood trees on the railroad were supplied by Sterling Models.

A rewarding experience

While my approach to building and operating the On30 Sandy River & Rangeley Lakes isn't for everyone, it works for me. It provides an outlet for my creative juices while allowing me to re-create a region and place in time of which I've always been fond. **MRP**

Lou Sassi is a frequent contributor to MRP, Model Railroader, and Great Model Railroads. The second edition of his Kalmbach book, Basic Scenery for Model Railroads, was recently released.



An engine terminal with a busy roundhouse is an attention getter. Rick De Candido capitalized on that fact by building a layout that includes locomotive and passenger-car servicing areas supported by staging decks that move vertically.

An engine-terminal layout

A multi-deck staging yard feeds this busy urban facility

By Rick De Candido//Photos by the author

Many model railroaders complement their layout and operations with an engine terminal of some kind. However, an engine terminal can be a model railroad on its own with plenty of operating potential.

My engine terminal layout is freelanced, but I've located it in an actual place. According to John C. Dahl, writing in the New York Central Historical Society's *Central Headlight*, "When the NYC opened Central Terminal passenger station (Buffalo, N.Y.) in 1929, a '... new roundhouse and shop complex were proposed but never constructed.'"

Just west of the actual Central Terminal, a relatively open space existed where a small engine terminal could have been located on the east side of Fillmore Avenue – see the concept map on page 32. Essentially, I'm building the roundhouse and servicing facility that never was.

A turnaround engine facility

In the late steam era, maintaining enginehouses did heavy repairs, boiler washes, and federal inspections. Turnaround enginehouses quickly serviced locomotives for their next assignment and made minor repairs.

Fillmore is of the latter type. Being squeezed into a small area south of Lindbergh Drive and east of Fillmore Avenue, the roundhouse design called for a larger angle between the radial tracks. This helps, since most model roundhouse kits, including the Walthers modern roundhouse kit that I used (no. 933-2900), are configured this way. On the prototype, a Railway Express Agency building was located nearby, so a passenger-car switching operation could easily be integrated into my plan.

Island on wheels

The layout is essentially an island on wheels that can be rolled into a

corner of the room when not in use. The tables are bolted together but can be separated in the event that I decide to change residences, in which case the foam board scenery and tracks would be cut at the joints and patched up later.

A caster is installed on each leg of the table – 12 in total. I lay rubber floor pads on the floor on each side of the layout for standing comfort during work and operating sessions. To keep dust off the models when not in use, a fitted cover encloses the layout and staging elevators.

The island design provides plenty of space for up to five operators to work without getting in each other's way. In addition, my plan for operations is to follow a work sequence that is displayed on a large-screen TV to eliminate the need for paperwork. The normal working positions of the operators will allow them to view the screen and operate their trains accordingly.

Feeding operations are two separate staging elevators at one end of the layout. One elevator is dedicated to the engine terminal and stages locomotives and the terminal service trains on two levels. I located a manual turntable on the lower level for turning the locomotives.

The other elevator connects to the passenger car switching operation and contains passenger cars and express cars on two levels.

Staging elevators

Because I live in a condominium, space is at a premium. The layout is 12 feet long, so when it came time to incorporate staging, I really only had about 4 feet to work with after leaving space for an aisle at one end. For operations, I wanted to include staging for locomotives, the terminal service trains, and passenger consists. So I turned to experts for some guidance.

My favorite *Model Railroader* special issue is *How To Build More Layout In Less Space*. I applied the idea of a staging elevator (normally located along a wall) and put it on wheels. The elevators also provide side-to-side motion. The vertical and horizontal motions are guided by ball-bearing drawer guides, which provide precise, smooth travel in both directions.

As nice as it is to stack the rolling stock and motive power on different levels by using the elevating feature, the real space saver is the horizontal motion. Each deck of the elevator moves back and forth like a transfer table, and that allows elevator tracks to be aligned with any adjacent parallel tracks on the layout.



The roundhouse was truncated to fit on a portable layout section, but this allows realistic views of the detailed interior. Rick added fire-hose reels with water piping, fire axes, a firewall separating the roundhouse into two sections, clerestory walkways, hard-wired lighting, gantry crane, ladders, fire extinguishers, oil-drum garbage cans, carts – and a happy workforce.

Engine terminal statistics

Service time: Terminals such as this one serviced 50 to 70 locomotives each day. The turnaround time was about an hour and a half. Inspection and filling the tender took about 15 minutes. Adding coal and sand took another 20 minutes. Dumping the ash pan and washing a locomotive consumed 25 minutes. That's an hour total. Fifteen stalls could be used for repairs.

Coal: A typical tender coal refill was 22 tons. The daily requirement for 50 locomotives was therefore 1,100 tons, the capacity of 20 55-ton hopper cars. The capacity of the coal dock was 300 tons. This required a lot of switching, as the coaling station could accommodate only four hoppers at a time. Coal was delivered five times each day around 12:30 a.m., 4:30 a.m., 10:30 a.m., 2:30 p.m., and 7:30 p.m. There was also a steam plant that consumed 110 tons per day (two 55-ton hopper cars).

Cinders: Typically 10 percent of daily coal tonnage was converted to ashes (cinders) in locomotive fireboxes. That's 110 tons, or roughly two gondola loads, that had to be removed from the engine terminal per day.

Sand: A typical locomotive sand bin had a 20-cubic-foot capacity. The daily sand requirements were 1,000 cubic feet – one 40-foot drop-bottom gondola in the era before sand arrived in covered hoppers.

Diesel fuel: Diesels were rare at this time, and the NYC didn't have permanent refueling facilities until well after World War II. However, Alco HH-600s operated in Buffalo, so I included a concrete pad for diesel servicing. The fuel is delivered by fuel trucks as required.

All times are real (no fast clock). – Rick De Candido

Runaround moves are easily made with this motion, and they require much less space than doing the same on a traditional single-level staging yard. For example, the two levels in the engine terminal staging elevator

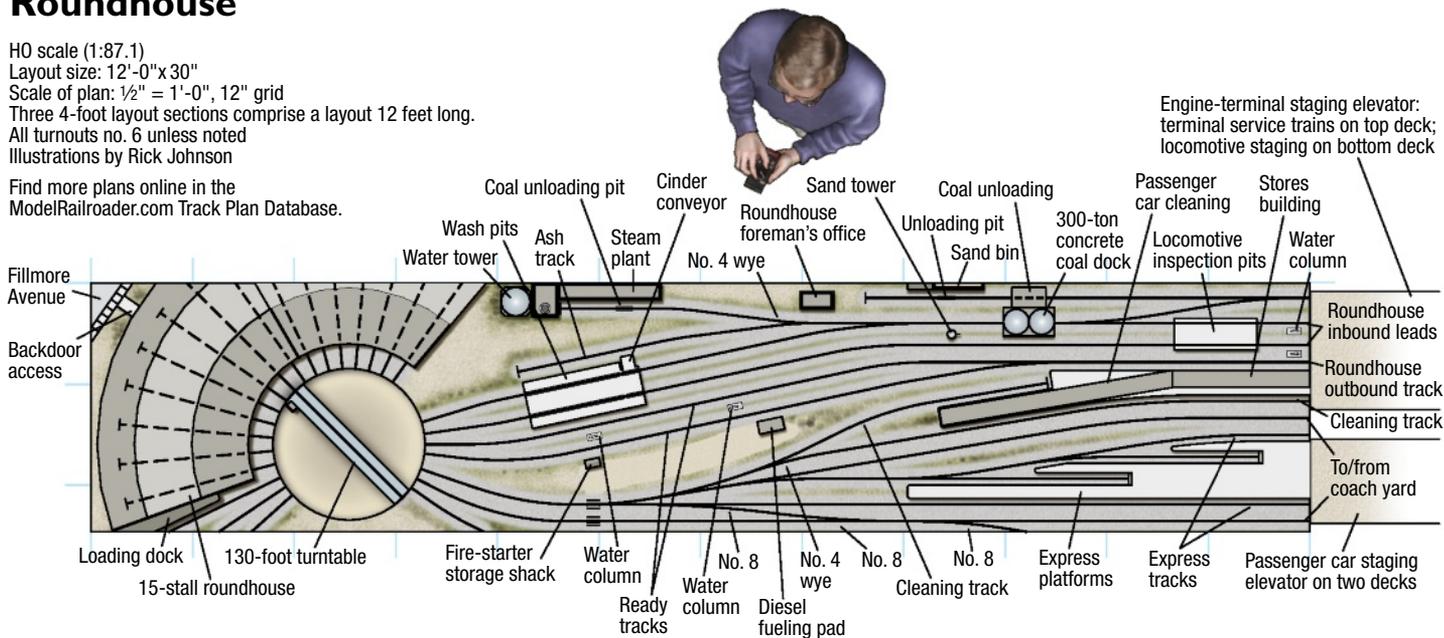
compress at least 8 feet (and probably 12 feet or more when one considers not having to include turnouts and tail tracks) of linear staging into 4 feet.

The elevators are raised and lowered by an automotive scissors

Fillmore Avenue Roundhouse

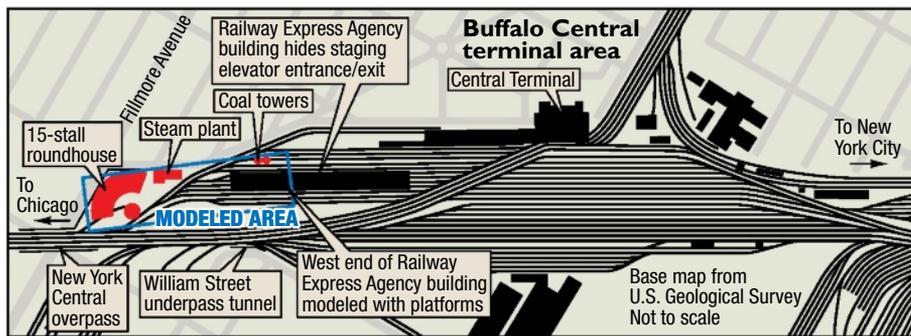
HO scale (1:87.1)
 Layout size: 12'-0" x 30"
 Scale of plan: 1/2" = 1'-0", 12" grid
 Three 4-foot layout sections comprise a layout 12 feet long.
 All turnouts no. 6 unless noted
 Illustrations by Rick Johnson

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



The layout at a glance

Name: Fillmore Avenue Roundhouse
Scale: HO (1:87.1)
Size: 2'-6" x 12'-0" plus two 4-foot staging elevators
Prototype: New York Central
Locale: Buffalo, N.Y.
Era: summer 1942
Style: single deck plus two-deck staging
Mainline run: not applicable
Minimum radius: 42" main; 32" elsewhere
Minimum turnout: no. 6
Maximum grade: none
Train length: not applicable
Benchwork: 4-foot tables
Height: 42 1/2"
Roadbed: 1 1/2" extruded-foam insulation board on 1/2" plywood
Track: Peco code 83
Scenery: groundcover only
Backdrop: none
Control: Digitrax radio Digital Command Control



themselves to extra detailing. For example, I added clerestory walkways, fire-hose piping, extra structural bracing, fire walls, electrical lines, lighting, drop tables, workbenches, machine tools, cranes, ladders, and more to its modern roundhouse kit.

Extra detailing isn't limited to the interiors, of course. For instance, the inspection pits could have a shanty so written reports could be sent by pneumatic piping to the roundhouse. Numerous small structures can be included, such as fire-hose huts, tool sheds, a hostler's shanty, and yard lighting.

Operations

To ensure that the design of the layout would support plenty of realistic locomotive action, I did a lot of homework on how locomotives were serviced, as I documented in "Engine terminal statistics" on page 31.

The New York Central June 7, 1942, system timetable and the New York Central June 7, 1942, Buffalo Division employee timetable provided the basis

for choosing time periods to operate. I can backdate operations to the late summer of 1940 and bring them forward to the summer of 1944.

Since operations will be in real (1:1) time, the hostler can easily manage the servicing of multiple locomotives. The engine terminal is laid out so that the locomotives can be inspected and watered first as they enter off the staging elevator. Then coal and sand will be taken on at the coaling and sand towers. The fire will be cleaned and ashes dumped at the cinder pit. Last, the locomotive will be given a virtual cleaning at the wash pits. The fully serviced engine can then be turned and sent out to the ready track.

If inspectors report minor faults for a particular locomotive and determine that it needs to pay a visit to the roundhouse, then the fire will be dumped at the ash/cinder pit and the engine moved under residual boiler steam. On the prototype, once an engine is spotted inside the roundhouse for servicing, the direct steam system would be connected to the boiler to

jack. Two arms, which swing out of the way when raising or lowering the elevator, precisely hold the elevator at the correct rail height. Plexiglas side shields provide protection to the models without being overly intrusive.

Structures

Most of the structures are from the Walthers Cornerstone engine servicing facility series. These excellent kits lend



The layout and staging elevator are portable. They tuck into a corner of the room when not in use, and fitted sheets protect the models from dust, as shown above. The layout is easily deployed for operations in about 10 minutes. Only the engine terminal staging elevator is shown; the elevator

for the passenger terminal has not been built yet. Light-emitting diodes illuminate the lower locomotive staging level (turntable at right end). Rick will add a hood over the staging elevators disguised as the Railway Express Agency building.

Learning points

- An engine terminal can itself be an entire operating layout.
- A staging yard (or two) is still needed to accommodate equipment entering or leaving the engine facility.
- Adding a second deck to a staging yard or a second staging yard can greatly enhance operational possibilities.
- Staging tracks that move horizontally to align with the entrance/exit track save considerable space compared to an actual yard.
- A rudimentary turntable is needed to turn locomotives heading into staging before they can return to the layout.

keep it heated while minor repairs were made. At Fillmore, the variety of motive power requirements provides plenty of action for my operators.

In addition to locomotive movements, switching inbound loads of coal and sand and outbound cars of cinders are needed to support all of the activity, as detailed in “Terminal operations” at right.

As suggested in the same sidebar, the challenge for my crew and me will be to support the unmodeled terminal with timely servicing of locomotives.

Standing on its own

Both an engine terminal that’s integrated into a large layout and one that stands alone in limited space can be impressive and rewarding modeling projects, and both can provide challenging operations. As I complete

Terminal operations

Locomotive operations

- Service yard switchers from layout and staging: inspection; add water, coal and sand; dump cinders and blow down (steam), or fuel, sand and cooling water (diesel); wash and turn engines; return to staging or work area.
- Locomotives from servicing area to roundhouse for light repairs/lubrication; dump the fire (steam), turn engines and run into roundhouse.
- Service steam locomotives arriving from staging: add water and make an inspection; add coal and sand; dump cinders and blow down boiler; wash the engine; turn it on the turntable; move it to the ready track; when called, move it back to staging.

Terminal servicing operations (from engine terminal staging elevator)

- Deliver loaded coal hoppers to unloading pit behind coaling tower; return empties to staging.
- Deliver loaded coal hoppers to steam plant; return empties to staging.
- Deliver empty cinder gondola to pits and return full one to staging.
- Deliver sand to service track (in between coal deliveries) from staging and return empties.
- Move boxcar/flatcar loads to roundhouse rail-height dock from staging via turntable.
- Spot gondola inside roundhouse for scrap collection.
- Deliver boxcar loads to stores building.

Passenger car operations (from passenger car staging elevator)

- Switcher pulls passenger consists from staging and begins to break down train.
- Coaches, parlor cars, sleepers, solariums, observation cars moved to cleaning/stores tracks.
- Express cars moved to Railway Express Agency platforms.
- Observation and solarium cars turned.
- Switcher assembles passenger train consist and moves it to passenger platforms (staging). – R. DeC.

the Fillmore Avenue Roundhouse, I look forward to enjoying many hours of realistic operations with my friends. **MRP**

Rick De Candido is an injection mold and plastic part designer who lives in

Mississauga, Ontario, Canada. He enjoys studying and modeling the New York Central, Canada Southern, and Toronto, Hamilton & Buffalo in 1930 to 1945. Rick thanks fellow model railroader Steve Bourdon for helping him prepare this article.



The depot at Mount Upton, N.Y., which survives today, was built by the New York, Ontario & Western in 1881. The long track curving off to the right is the creamery spur on the track plan and the shorter curved siding leads to a coal shed. This picture dates from the O&W years before the October 1941 sale to the UVRR. Walter G. Rich collection, courtesy John Taibi

Unadilla Valley: Modeling a New York dairy line

A scenic HO short line for a shared family space

By **Iain Rice**//Artwork by the author

Most times when you read a layout-design story, its potential for interesting operation heads the priority list. Often, the object is to pack in the maximum number of operational opportunities – towns, depots, yards, interchanges, industries, and railroad facilities such as engine terminals – together with the longest possible mainline run.

Unfortunately, unless the available site is large, the resulting layout can often look somewhat crowded and cramped, with track strewn every which way and structures packed tightly together – fun, certainly, but not very realistic or natural looking! Such a layout also demands a lot of structures and equipment, usually calling for the use of easy-to-build kits, assembled structures, and/or ready-to-roll (RTR) trains. This can

leave things just a little short on individuality.

For many modelers, intensive operation is the name of the game, and what the finished layout looks like is a secondary goal. But there are those of us who like to mix somewhat lower-key running with the chance to just sit back and soak up the ambiance of a convincingly modeled and visually pleasing scene, viewed from a natural angle and carefully presented and lit.

Such a style of layout lends itself particularly to historical/prototypical modeling and the showcasing of scenic landscape and interesting or quaint structures. Think Jack Burgess' Yosemite Valley or Paul Dolkos' former Boston & Maine-based Woods River (although both accommodated very realistic operation suited to the prototypes represented).

It's also an approach that works particularly well where a model railroad has to be integrated into a domestic setting rather than occupying a dedicated space. That's the case here, where the railroad sits at one end of a moderate-sized family room. The face the layout presents to the room is very much akin to a well-framed and -executed landscape painting, something that can appeal to those not interested in model railroads as such.

Such a layout also offers a different set of modeling challenges, even when, as proposed here, the modeler uses modified RTR equipment and a goodly proportion of kitbashed structures. The design, however, is very much based on an actual prototype, the scenically spectacular Unadilla Valley RR in central New York State, and aims to stick as close as possible to the spirit of this picturesque original.

If you're so minded, it would be possible to model the UV much more closely by using scratchbuilt structures, equipment built from resin or wood kits, reworked engines, and handlaid track. That would be a much more demanding but equally satisfying project. What I'm proposing here is a little more pragmatic, but should still catch the character and relaxed atmosphere of this dairy-country backwater.

The Greater Unadilla Valley

The Unadilla Valley RR was a classic rural short line that figured in Lucius Beebe and Charles Clegg's immortal book *Mixed Train Daily* (p. 246). The railroad was incorporated in 1889 and re-incorporated in 1892, by which time it had managed to build three-quarters of a mile of track!

But by 1895, the UV had completed a 19-mile route that ran from an interchange with the Delaware, Lackawanna & Western's Richfield Springs Branch at Bridgewater, N.Y., following its namesake river southward to reach New Berlin, N.Y., and a junction with the New York, Ontario & Western's Wharton Valley Branch to Edmeston. This line was itself an extension of the O&W's New Berlin branch, which left the O&W main just north of Sydney (the interchange with the Delaware &

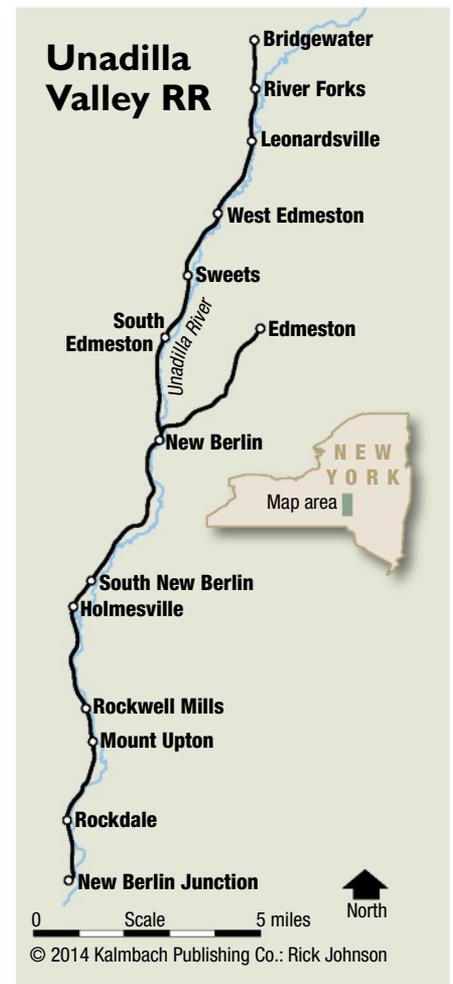


H.D. Runey photographed UV no. 7 "dragging her train up the grade at New Berlin Junction, N.Y., where the profitable little carrier connects with the New York, Ontario & Western" on May 8, 1946.

Hudson's Binghamton-Schenectady main) and ran up the southern portion of the Unadilla Valley.

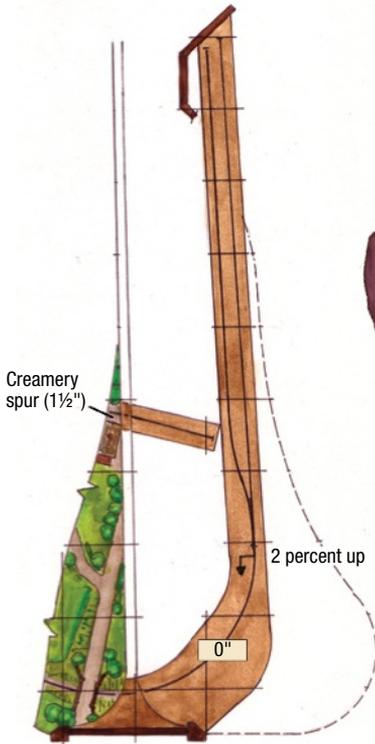
After an initial period of prosperity, the UV, like many a rural railroad, declined somewhat. In 1936, it was bought by the H. E. Salzberg Co. of New York. In 1941, the Salzbergs also bought the O&W's New Berlin branch and the associated Wharton Valley line and rolled the whole lot logically together into a much-enlarged Unadilla Valley RR. It's the post-1941 "Greater UV" that has inspired this design, fashioned from information gleaned from the pages of one of my favorite railroad books, *The New York, Ontario and Western Railway and the Dairy Industry in Central New York State*, by Bob Mohowski (Garrigue House Publishers, 1995).

In addition to its well-documented history, the UV has a lot else going for it as a modeling prototype (see also www.unadillavalleyrailway.org). It's set amid the hills of scenic Chenango County in the pastoral heart of New York State, a beautiful landscape of steep-sided yet rounded hills flanking deep river valleys where crystal-clear water flows between pasture-lined banks, all set among deciduous woodlands. The towns are made up of classic white-clapboard and cedar-shingled homes, with high-spired churches and ample tree-shaded greens.



New York State's Unadilla Valley

H0 scale (1:87.1)
 Layout size: 10 x 15 feet,
 plus a viewing aisle along one side
 Scale of plan: 3/8" = 1'-0", 12" grid
 Illustration by Iain Rice
 Find more plans online in the
 ModelRailroader.com Track Plan Database.



Staging below Edmeston
 Access below fascia



The isolation of the Unadilla Valley amid the rolling terrain of Chenango County, N.Y., is well illustrated by this frigid December 1958 photo by Jim Shaughnessy, taken when GE 70-tonners and ex-O&W EMD NW2s hauled the freight.

Modeling UV equipment

The railroad itself had real shortline charm, resolutely steam-powered well into the 1950s with a wonderfully mixed roster: an original American (4-4-0) named *Pendragon*, a classic Ten-Wheeler (4-6-0), a second-hand Camelback Mogul (2-6-0), and a pair of small-driven Prairies (2-6-2s). All that with wooden passenger cars and a four-wheel-bobber caboose on the tail of the freight! Even when it eventually acquired diesel power in the form of a brace of GE 70-tonners, the UV decked them out in a gorgeous cream, orange, and black paint scheme, the standard Salzberg colors.

For motive power, I'd look to Bachmann's Spectrum wooden-cab Baldwin 4-4-0 to stand in for the UV's One Spot and its 52"-drivered Ma & Pa Ten-Wheeler as the UV Six Spot, although it never sported Walschaerts valve gear. Con-Cor wooden cars could form the passenger trains.

The track plan at a glance

Name: Unadilla Valley RR
Scale: HO (1:87)
Size: 10'-0" x 15'-0" plus front viewing aisle
Prototype: Unadilla Valley RR
Locale: New York State
Era: 1950s
Style: walk-in with vignettes
Mainline run: 34 feet
Minimum radius: 30" (main), 24" (spurs)
Minimum turnout: no. 6 (main) no. 5 (engine-house lead)
Maximum grade: 3 percent

Three-scene layout

My layout plan includes three scenes based on locations on the post-1941 UV: the main yard, depot, and engine terminal at New Berlin; and the stub-end Wharton Valley branchline terminal at Edmeston; and the picturesque town of Mount Upton, shown in the photo on page 34, which lies south of New Berlin on the former O&W line down toward Sydney.

The track arrangements for the three locations follow the prototype quite closely, although inevitably somewhat simplified and compressed. The only real liberty I've taken is the junction for Edmeston faces north toward the UV's depot and yard at New Berlin rather than south toward the old O&W depot.

Each scene is discrete and self-contained, united by simple, short linking tracks that ignore the several miles of right-of-way and intermediate locations that should separate them. North- and south-end staging completes the layout. There's a ruling grade of 3 percent, mostly confined to the "link tracks" joining the scenes.

Why three self-contained scenes rather than a single, all-embracing one? I offer several reasons, both practical and philosophical. For starters, the various scenes that I've cherry-picked for my design are in reality some distance apart. In a conventional layout design, this would call for quite a lot of mainline running between them to permit anything approaching timetable operation. But making each location a completely separate stand-alone scene – effectively, each a mini layout – means it can function quite independently both visually and operationally.

This neatly gets over the missing geography, even if it does negate running by timetable. Besides, the UV timetable – never amounting to more

Scene composition

I've already likened a layout conceived as a self-contained scene to a 3-D painting and suggested the application of artistic principles of composition. Basically, there are three underlying concerns: proportion, perspective, and visual balance. In compositional (rather than scale-modeling) terms, proportion is concerned with the overall shape of the model – the relationship between its length, height, and depth – as well as the way that the space within the scene is divided up.

There's a lot of theory as to "ideal" proportions, but a couple useful rule-of-thumb guidelines for modelers are the Rule of Fifths for overall scene height and the Rule of Thirds for dividing up the actual scene.

Rule of Fifths: This suggests that a good proportion for the vertical height of the scene – the distance between the lower layout fascia and the upper lighting valance – is roughly two-fifths of the visual length of the scene when looked at from the normal viewpoint. This is typically a couple of feet back from the front of the model. At that sort of viewing distance, the visual length – the amount of any layout you can actually see without moving your head or your person – is around 4 to 5 feet, suggesting an overall scene height of between 19" and 24".

Rule of Thirds: This rule relates more to the way that our nicely proportioned space is sub-divided, suggesting that a ratio of one-third/two-thirds is more visually pleasing than either a half-and-half or quartered division. Rather than the horizon line being positioned halfway up the backdrop, it will look better if it's set at around one third of the scene height.

Similarly, a dominant element in the scene such as a large structure or prominent landscape feature will sit more happily on a "thirds location" within the width or depth of the scene. That's not to say it can be located only at one- or two-thirds distance from the edges of the scene; the thirds division can simply be repeated for each third of the whole to give a series of thirds sub-locations. This means that you usually have to move a scenic element by only an inch or two to position it at one of these visual "sweet spots."

Perspective and horizon line: For a convincing, natural-looking scene, it's also important to take perspective into account. That revolves around the horizon line, to which all perspectives in a scene – be it real, modeled, or painted – relate. The vanishing point, which is the spot at which all the lines of perspective come together, is always on the horizon line. The position of that horizon line is in turn determined by our (or the camera's) eye level, with which the horizon always coincides.

This is why the horizon appears in a different relationship when you look at a landscape from a height rather than from ground level. In model composition terms, what's important is that the horizon line is in the right relationship to our eye level when we're looking at the model from our normal viewpoint.

So for a well-proportioned and natural-looking scene, we need an eye-level horizon line on our backdrop at around one third of the scene height, which in turn points us to the approximate distance above the floor at which the layout should be mounted. My own standing eye level is about 62"; with a scene height of 21" and the horizon line a third of the way up, I'd be aiming for a nominal track height of around 54" to 55", pretty much on the normal National Model Railroad Association (NMRA) recommendation for walkaround operation. If I wanted to operate while seated, a tall barstool would drop my eye level by only an inch or two, which is within the tolerance for a natural-looking viewpoint. But if my intention were to operate/view the layout seated on a normal-height chair, I'd adjust the mounting level to suit.

Visual balance: A model railroad is made up of a series of visible elements – landscape features, structures, and so on – that have different "visual weights" depending on their size, color, texture, and prominence within the scene. A big structure, or a smaller but brightly colored object, obviously hits high.

Achieving good visual balance is all about distributing these elements within the scene so that they present a balanced view. Be careful how you position the various elements, and adjust color or detail levels so things cancel out. – *Iain Rice*



Nothing about the Unadilla Valley was overpowering in scope. Two of its modest fleet of steam locomotives, 4-4-0 no. 1 (left) and a 2-6-2 Prairie, pause between runs at the New Berlin engine terminal. Walt Kierzkowski collection

than three round trips a day – wouldn't generate that much action anyway.

Separating the scenes visually means each can be considered like a framed picture, where the edges of the scene are clearly defined by a top and bottom fascia joined by vertical wings that act as horizontal view blocks. This is similar to a showcase-style shadow-box layout, but on a somewhat larger scale.

"Containing" a scene like this has a number of advantages in visual terms. For example, it makes it simple to

arrange a complete, continuous top-to-bottom, edge-to-edge backdrop with wide-radius coved corners. This arrangement greatly favors realism, following a natural line of vision and being easy to light effectively with no awkward angles or corners. By extending it to all the edges of the scene, this avoids a jarring end-of-the-sky.

Treating the scene like a framed landscape viewed only from one direction – the front – allows the basic artistic rules of pictorial composition to be applied for a natural and pleasing result. This in turn makes it relatively easy to achieve good proportions and visual balance between elements of the scene. It also facilitates a convincing perspective and aids the use of proportional reduction (selective compression) and color recession to enhance the depth of realism within the scene. For a review of these visual aspects of design, see "Scene composition" on page 37.

Defining the edges of the scene also makes it possible to edit the contents, cutting off the lines of sight to hide things that you'd rather leave unseen – the point where a track dives off through a hole in the sky or takes an uncomfortably tight curve in an unlikely direction. In prototype-modeling terms, being able to chop off part of the scene can also disguise

the fact that you haven't been able to include a structure or feature that should be there, but for which you just don't have space or sufficient modeling information. Often, a large structure at the edge of a scene can be represented by a side or end wall, with the frame cutting off the view of the missing part.

The other virtue of linked-scene layouts like this is that each scene can be a stand-alone structure as well as a discrete visual unit. This makes a multi-scene layout more flexible in both construction and use. The scenes can be built independently as self-contained projects, often in sequence, which helps speed progress through the layout-construction phases. This helps maintain interest through greater variety in the modeling diet and spreads the costs.

A layout comprising self-contained sections is also far more adaptable than a monolithic design. It can readily be extended or reconfigured, while scenic sections of the size suggested here are relatively easy to move, making the layout far less vulnerable come the need to relocate.

Layout presentation

We often "frame" model railroads with a contoured fascia that matches the landscaping along the front edge, usually matched to a valance that both

Learning points

- It's important to balance operating and scenic objectives to match your personal preferences.
- It's practical to model the "spirit" of a railroad even when prototypically accurate models aren't readily available.
- Short lines usually ran smaller motive power and passenger equipment, which means trains fit into shorter yard, passing, and staging tracks.
- Applying the Rule of Fifths and the Rule of Thirds improves the overall balance of a scene.
- The horizon should always be at the viewer's eye level.



At the Lackawanna connection in Bridgewater, N.Y., UV's daily train has arrived, its engine has been turned, and the milk cars are being shoved to the DL&W train in the background. Edward H. Bennett Jr.

conceals the layout's lighting and defines the top of the scene. For my discrete scenes, I've added side fascias or wings to complete this picture-frame effect. Taken together with any below-benchwork drapes or cabinetry and set off by suitable lighting, these adjuncts form what I term "layout presentation," something I regard as an integral part of the overall layout design.

As with a well-chosen picture frame, good layout presentation complements the modeling and sets it off rather than competing with it. I suggest a muted satin paint, either a neutral gray or perhaps a shade of brown or green related to or contrasting with the colors within the scene. This often works better than either visually dead and dominant plastic painted flat black

or "busy" wood paneling coated with a gloss varnish.

Discrete-scene operation

Discrete scenes call for a rather different style of operation to the normal follow-that-train walkaround arrangement, although a version of this is still possible for one-person operation. But when several people are available, the three scenes can be operated independently and simultaneously, with trains being passed from one operator/scene to another.

This is a common style of operation in Britain. The convention is that when a train is ready to leave one location for another, it is offered to the operator at the destination, who – when he's ready – will move the train onward to his location. In other words, you're

normally moving trains toward you, although in this case, the New Berlin and Mount Upton operators would also run trains in and out of the north- and south-end staging.

Much the same would apply during solo operations, but the operator would move from one location to another as required. Digital Command Control (DCC) is an ideal format for this type of operation, as throttle assignments can be swapped between locomotives as required.

With a roster that never rose above five engines and managed for the most part with two or three steam locomotives, this would hardly be onerous! **MRP**

Iain Rice, well known internationally for his flowing and creative track plans, is a regular contributor to MRP.



365-day progress report

How a veteran modeler gets more done faster

By **Andrew Dodge**//Photos by the author

My article in *Model Railroad Planning 2013* described my plans to model the fabled Colorado Midland in O fine-scale, or Proto:48. I'd now like to share a progress report as the railroad passed its one-year anniversary.

Several modelers have repeatedly commented to me, "Boy, you work fast!" I don't consider myself any faster

than a lot of other modelers. However, I've learned that by making a good plan, sticking to it (although not slavishly), and focusing on moving a project forward as you would do professionally, I've been able to enjoy seeing the Colorado Midland layout more than half finished within one year. This success is due to planning, time management, and multitasking.

Setting the stage

Starting a new layout is simultaneously an exhilarating and a daunting proposition. It's a new adventure with different things to learn while applying lessons already understood. My prototypical representation of the Colorado Midland is my seventh layout. My first layout was on a 4 x 8 sheet of plywood with sectional track



I. As on the prototype Colorado Midland, Arkansas Junction on Andrew's O fine-scale version can be a bustling place. He wisely scratchbuilt the needed fleet of steam locomotives before starting the clock on layout construction.

and Plasticville and cardboard structures. Each successive layout provided important lessons on what is required to create the desired result.

My first O scale layout was based on the 3-foot-gauge Denver, South Park & Pacific RR in 1882, as I described in MRP 1997. I started work on it in the late 1980s and completed it by 2009. It took at least 20 years to scratchbuild the cars and structures, handlay the stub switches and track, and even build several locomotives.

I couldn't be sure that I'd have another 20 years to build the Midland. My friend Steve Barmash asked that very question one day, which helped crystallize the time-element issue. He felt it would take me at least 10 years to build just my locomotives. I didn't want to wait 10 to 15 years before I could see Colorado Midland trains plying the Rocky Mountains in my basement.

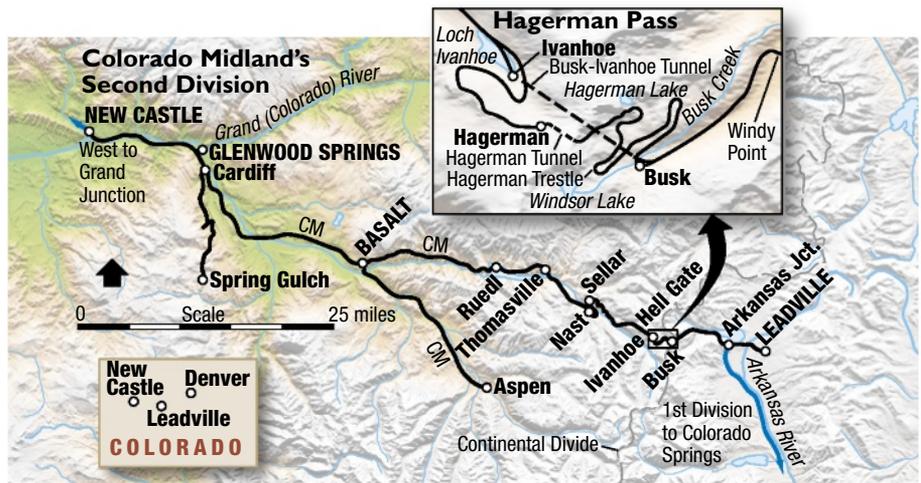


Illustration by Rick Johnson

I knew that what I could do today, I might not be able to do at some point in the future. I needed to streamline my modeling process and make the work progress as swiftly as possible.

Organizing the project

Good planning has made all the difference. I spent several months in late 2009 deciding which places on the Colorado Midland I wanted to model and how I could display each location to its best advantage. Stations on the wrong side of the track, towns not in their proper order, and other compromises hurt the effectiveness of modeling a prototype.

On many occasions, I've heard modelers say that modeling a prototype is easy and not much beyond a slavish adherence to reality. Quite the contrary! The prototype modeler must be creative enough to craft a believable representation of a full-size railroad in a space totally inadequate for any true reproduction. He or she has to replicate something using feet instead of miles, and inches in place of feet of elevation. I wanted my visitors to actually feel like they are in each location and not rely on a suspension of disbelief.

Like all too many modelers, in the initial planning stages I tried to put too much into the layout. I most wanted to model the area west of Leadville to Basalt, Colo., but I also was enamored with including the resort at Cascade or Green Mountain Falls, both of which were in the Ute Pass area just west of Colorado Springs. I tried repeatedly to fit one of these into my plan, but doing so required so much space that other parts of the layout would have been shortchanged. It also became obvious that having only one station in one division and all the rest in another would create unmanageably complicated operating scenarios.

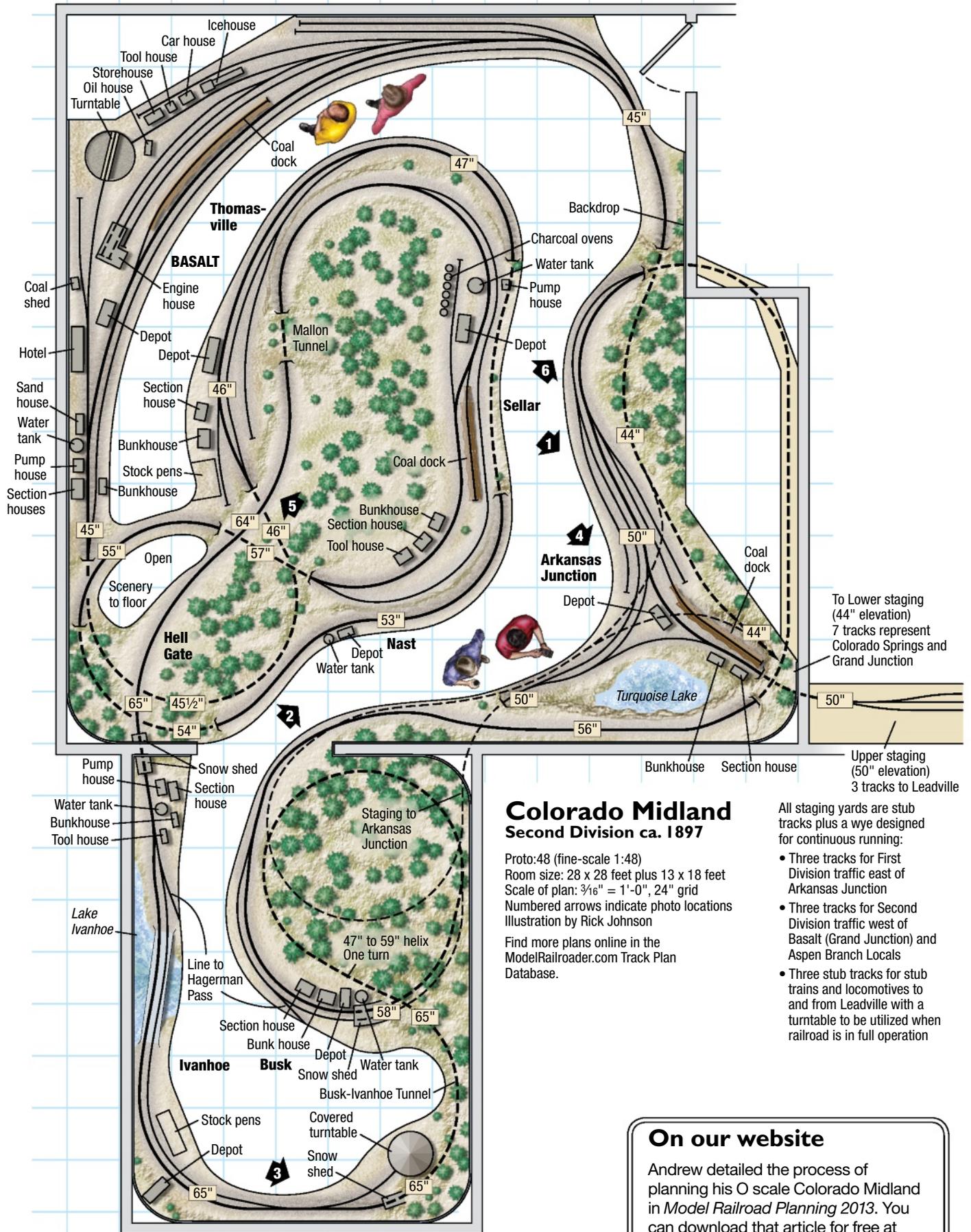
Besides the correct placement of towns or modeled areas, one of the most important aspects that hadn't been a major issue with my earlier layouts was train size, and hence the length of my yard and passing tracks. Since I wanted to replicate the operations of the prototype, the shorter sidings I had used in HO_{n3} and On₃ would be totally inadequate in O scale. Each passing track for the Midland had to accommodate two locomotives and enough cars to warrant the use of helpers or pushers.

This would necessitate 12-foot-long passing tracks and at least twice that much space between stations. Otherwise, the size of the train would overwhelm the layout both visually and operationally. By modeling 19th-century railroading, however, train length worked in my favor. A five-car Midland passenger train with two locomotives would look great and fit into a reasonable space.

Through this planning process, I believe I've achieved a higher degree of fidelity to the Midland than I did with my On₃ version of the DSP&P. Every minute of time I spent in planning was therefore well worth the effort, because when I was done, I had the design for a layout that has required only one or two minor modifications during the building phase. I could spend my time building models rather than having to go back and redo areas two or three times.

Starting with a clean slate

Once my design for the Midland was finalized and I'd completed building my 11 locomotives, several freight and passenger cars, and my Plexiglas-core buildings (see the April 2014 *Model Railroader*), it was time to break with the old and start afresh. The swan song for my Denver, South Park & Pacific came in the summer of 2012.



Colorado Midland Second Division ca. 1897

Proto:48 (fine-scale 1:48)
 Room size: 28 x 28 feet plus 13 x 18 feet
 Scale of plan: 3/16" = 1'-0", 24" grid
 Numbered arrows indicate photo locations
 Illustration by Rick Johnson
 Find more plans online in the
 ModelRailroader.com Track Plan
 Database.

All staging yards are stub tracks plus a wye designed for continuous running:

- Three tracks for First Division traffic east of Arkansas Junction
- Three tracks for Second Division traffic west of Basalt (Grand Junction) and Aspen Branch Locals
- Three stub tracks for stub trains and locomotives to and from Leadville with a turntable to be utilized when railroad is in full operation

On our website
 Andrew detailed the process of planning his O scale Colorado Midland in *Model Railroad Planning 2013*. You can download that article for free at www.ModelRailroader.com.



2. This panorama looking toward Arkansas Junction with Nast at left and Sellar with its trestle coal dock beyond the upper curve shows progress at the one-year mark. At this point, most track had been spiked down, and some areas had finished scenery.

The layout at a glance

Name: Colorado Midland Ry.

Scale: Proto:48 (O fine scale)

Size: 28 x 28 feet plus 13 x 18 feet

Prototype: Colorado Midland

Locale: western Colorado

Era: 1897

Style: single-deck walkaround

Mainline run: 300 feet

Minimum radius: 46"

Minimum turnout: no. 6

Maximum grade: 2 percent

Train length: 10 feet

Benchwork: open grid

Height: 44" to 63"

Roadbed: 1/2" plywood plus 1/2" Homasote

Track: handlaid code 100

Scenery: screen wire and plaster with real dirt and rocks from locations modeled

Backdrop: hand-painted watercolors on drywall

Control: NCE Digital Command Control



As of January 2013, Andrew had sorted lumber salvaged from his On3 layout by size and had finished preparing the room. Organizing work and materials proved to be a great time saver, he said.

I held two weeks of open houses and operating sessions and thoroughly photographed the On3 layout.

Upon my return from a research trip to Colorado in August, the layout was abandoned. Because the Midland would include distinctly different design elements and starting with a clean slate is almost always quicker and easier than trying to rework something old, everything came down.

When I was finished, I'd organized all my dimensional lumber by size and length. With stacks of precut 1 x 4s, it would be exceedingly efficient just to pick up a piece of the correct length instead of repeatedly figuring how to get the most out of an 8-foot board. The 1 x 6s would come in handy for

some framing, but most of the clean boards would serve another purpose I'll explain later. It was like having a "kit" with all the correct lumber.

When considering how best to do the benchwork in order to keep costs and time requirements as low as possible, I built the foundation of the layout with 2 x 3s, readily available in any lumberyard or home-improvement store. I devised a system of rectangular boxes and installed cross boards every 16 inches, much like a deck for a floor. I used my plans of the layout and took measurements as to how wide each box needed to be while still keeping the legs away from people's feet.

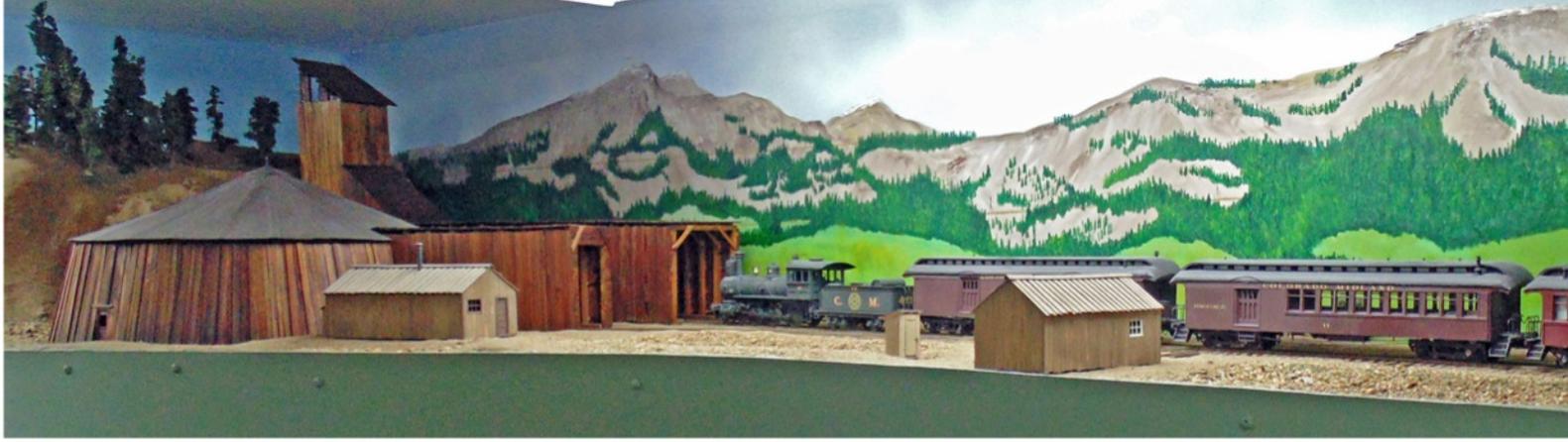
The lengths of each box were set by the same criteria. I could build each of the five major areas of the layout literally in a couple of hours. The cross pieces in each box would support the 1 x 4 risers.

For boxes attached to the walls, I used 2 x 3 legs angled back from the outside edge of the box to the base of the wall, forming a triangle that would further reduce the possibility of people kicking the legs. This also would increase the visual and psychological openness of the room.

With the boxes screwed to each other and some fixed to the structural walls in the train room, it has proven to be more than adequate structurally, cost effective, and quick and simple enough for anyone to construct.

Things I recycled

Since I was changing track gauge, but not scale or time period, I could reuse a lot of structures and scenery items from my South Park layout. This saved a lot of money and allowed me to shorten building time in a number of areas by weeks or even months.



3. A passenger train heads east into the Busk-Ivanhoe Tunnel behind a covered turntable at Ivanhoe, Colo. Andrew cut all of the scale lumber from fine-grained pine and redwood salvaged from his former layout's benchwork and from the construction of his house.



4. Ten-Wheeler no. 28 passes near Turquoise Lake on its way to Busk with an ornately lettered consist typifying the modeled era.

Learning points

- Modeling 19th century railroading means small equipment and shorter trains, thus decreasing needed yard and passing track length.
- Detailed planning was the major key to saving time.
- Operating the railroad realistically was made easier by modeling towns in only one division.
- Building needed equipment for the new railroad before dismantling the old layout lessened the down time between operating sessions.
- Careful, detailed track planning avoided the need for later time-wasting changes.

I didn't stay with O scale just so I could reuse stuff, but it would have been shortsighted if I'd failed to take advantage of the situation. For example, I can use all my old figures, horses, and wagons, a real time saver.

Recycling trees has been the biggest help in expediting my project. In the early years of my South Park layout, I created a good many Jack Work-style

evergreen trees. However, I needed hundreds of trees to complete my scenery. I employed the bottlebrush method because they looked fuller, I could make many instead of just one at a time, and they were easier to handle and plant. I temporarily stored these trees upright by sticking them one next to another into 4-foot-square foam board sheets.

Another real timesaver was the reuse of electronics. Wiring my old layout was tedious with all the double-pole, double-throw (DPDT) toggle switches required for a direct-current block system. Although I'm operating the layout with direct current, I plan to convert to Digital Command Control, so my wiring is straightforward with no toggle switches.

I grew up when twin-coil switch machines were the standard, but in the early 1990s I transitioned to slow-motion motors. Both types have their advantages; the deciding factor was my need for all the machines to have a low profile. Since twin-coil units were less than an inch high, they won. I sat in my shop mounting and wiring a dozen or so machines at a time, then just screwed them in place with short drywall screws. I color-coded all wiring to save countless hours during

installation and, more importantly, to ease troubleshooting problems.

My late and much-missed friend Gordon North fabricated train indicator lights for my hidden staging on the DSP&P, which came in handy on my new project. Although I didn't see the immediate need for the indicators, I'm glad I saved them.

When the time came to wire the hidden staging wye under the Arkansas Junction area on the Midland, I realized that Gordon's gift was going to keep on giving. It's critical when operating through a hidden wye to know exactly when a car or engine enters or clears a switch point. I installed the light-emitting diode (LED) indicators in recessed panels, along with the switch machine toggles, below the fascia so a crew member can tell exactly where a train is.

Modeling materials

Starting with a clean slate in the layout room was an important reason for the speed I was able to achieve in building the Colorado Midland, but at least as important was my decision to pre-cut my scale lumber. I cut boards for the snowsheds, the freight platform at Arkansas Junction, the covered turntable at Ivanhoe, and my ties.

I already had a radial-arm saw and a band saw. The raw material was some of the 1 x 6s from the South Park layout, as well as a lot of redwood scrap left over from building my home.

After I bought a fine-tooth blade for the radial-arm saw, in one four-hour period I cut all the ties I'd need for weeks. Previously, no matter how many hours I spent trying to calculate how much lumber would be needed for a building, I inevitably came up short



and had to wait for more to be delivered. Now I could cut whatever I needed, and I could cut odd-sized lumber that wasn't commercially available, such as 7 x 14s for trestles.

Constructing my own turntables was another inexpensive timesaver. I needed a covered turntable at Ivanhoe, used only for turning a locomotive 180 degrees, and a gallows-style table at Basalt with two separate leads. The Basalt facility was primarily designed to turn helpers after returning from Ivanhoe. These types of turntables aren't commercially available, and the covered table at Ivanhoe had to operate without the operator being able to see what was happening inside the shed.

I had designed a similar turntable for my Boreas Pass enginehouse, so I ordered some brass stock from an online metal supplier and went to work on other projects. When the brass arrived, I took the round stock and made spindles to carry the tables and collars to fit into base plywood. No ring rail was needed, because the gallows operates without one and the table at Ivanhoe would never be seen.

From MSC (www.mscdirect.com), I ordered a thin roller-bearing unit to be placed between the spindle and the collar of each turntable to aid in the smooth movement of the turntable. Although the Ivanhoe project required less work on the turntable and more on the snowshed, and the Basalt table necessitated a lot of work to drill and install more than 100 carriage bolts, the two jobs took only three weeks.

Time management

One of the first lessons I learned in the workplace was to organize one's work and manage one's time. As a former Pontiac engine mechanic working on commission and as a homebuilder dealing with weather issues, I learned how to stay several steps ahead of the game.

While scratchbuilding my locomotives, I found the best way to make



5. The importance of placing mock-ups or Plexiglas cores of structures as a track-location aid is illustrated by this view of Basalt with the hotel at left, the depot, and the enginehouse.



6. The prototypical wheel width and contour used on Andrew's O scale trains is evident in this photo of Ten-Wheeler no. 18 on an eastbound passenger train negotiating a 48"-radius curve approaching Arkansas Junction.

constant progress was to set certain times aside to work. Whether it was 30 minutes in the morning before leaving for work or coming home in the evening and working until 8 p.m., time management made all the difference in moving the Midland project along. Yes, I spend time with my wife, and I try to spend 10 hours every day with two of my young granddaughters.

Another important tool in managing one's time is the art of double- and triple-tasking. As modelers, we have to wait for paint to dry, plaster to set, and so on. To avoid these delays, I always have a list of other jobs.

For example, I use real dirt and stones for my ground cover. Because the material is natural and has been stored in plastic bags, I must anticipate when I will need the different bags of dirt collected for each location on the layout. It must first be dried, which takes several days, and then sifted for size before it's usable. This involves only a little anticipation as to when you will need it, but failing to do so quickly curtails progress.

Keeping an eye on the goal

One of the beauties of model railroading is its multifaceted nature and the wide range of individual skills each of us brings to the table. I realize that you may prefer different methods than the ones I use, but I hope sharing my approach to achieving my ambitious goals has been of value to you.

Age and declining physical abilities are inevitable facets of life. For anyone who wishes to complete one or more of their model railroading ambitions, setting achievable goals and allotting time is critical. After cutting 12,000 ties and driving more than 22,000 spikes so far, I still have a long way to go. But I'm looking forward to the day when double-headed steam locomotives once again work their way over the Colorado Midland. **MRP**

Andrew Dodge is retired from his career as a teacher, education specialist at the U.S. Holocaust Museum in Washington, D.C., and historian for the U.S. House of Representatives. He enjoys working with 1½"-scale live steam.



Raising the roof for a railroad

Expanding the attic “bonus room” met everyone’s needs

By **Dennis Daniels**//Photos by the author



Like many others, I have long believed that my dream layout would depict the rail line that ran through my hometown. My first memories were of the orange-and-white Illinois Central diesel-electrics running along the Aberdeen Subdivision through Starkville, Miss. In 1972 came the merger with the Gulf, Mobile & Ohio, and black-and-white and red-and-white GM&O power began showing up. The Gulf & Mississippi bought the line in 1985, and MidSouth Rail acquired it in 1988. In 1994, MidSouth was purchased by Kansas City Southern, which still owns the line.

I wanted to model the Aberdeen Subdivision and its operations through Starkville between the rail yards in Louisville and Artesia, Miss., in the 1972 to 1994 time frame. Doing so would require a fairly long mainline run, so I would need considerable space and probably enough headroom for a multi-deck layout.

First things first

We were designing a new home, so I was able to revise the basic plan to accommodate the railroad. The first consideration was to design a room with enough space to meet my require-

1. Raising the roof an extra 4 feet in an attic enhanced the combined railroad and family room of Dennis Daniels' home. The railroad nicely complements the living space.

ments. The only real options were either basement or attic space, as I couldn't afford to add the square footage on the main level of the house. Since basements are very uncommon in the South, that left the attic. However, I also had to reserve part of the attic for storage.

I selected the area above the garage and two children's bedrooms as the location for what we call a bonus room.

I would have to provide access off this room to the attic storage space. This left me with two givens that I would have to plan around for a layout: a stairwell going up to the bonus room, and a door to reach the storage area.

As is the case with any attic or basement intended for a model railroad, the stairwell needed to come up in the middle of the room to leave the perimeter for the layout. I was able to move bedrooms and hallways in the first story to make room for the stairwell to reach the room above and to have it centered in the room. The attic access door location was one I could not change, so the layout design would need to accommodate it.

The next challenge was to get the maximum amount of headroom and usable space in that attic room. The size of the room was a function of house width and roof pitch. The house was 25 feet wide, a fixed dimension. The only adjustment I could make to get the room bigger was to the roof. I started off choosing a 12/12 pitch roof, a 45-degree angle. For every foot in from the outside wall, the roof/ceiling went up one foot. So the 6 feet of required head-space would come at a point 6 feet off each outside wall.

This meant 6 feet of unusable space left on each side of the layout room,

The layout at a glance

Name: Aberdeen Sub

Scale: HO (1:87.1)

Size: 21 x 59 feet

Prototype: IC, ICG, G&M, MidSouth, or KCS

Locale: Mississippi

Era: 1985 to 1994

Style: multi-deck

Mainline run: 380 feet

Minimum radius: 30"

Minimum turnout: no. 4

Maximum grade: 3 percent

Train length: longest siding is 65 feet

Benchwork: hollow-core doors and open grid

Height: 44" to 60"

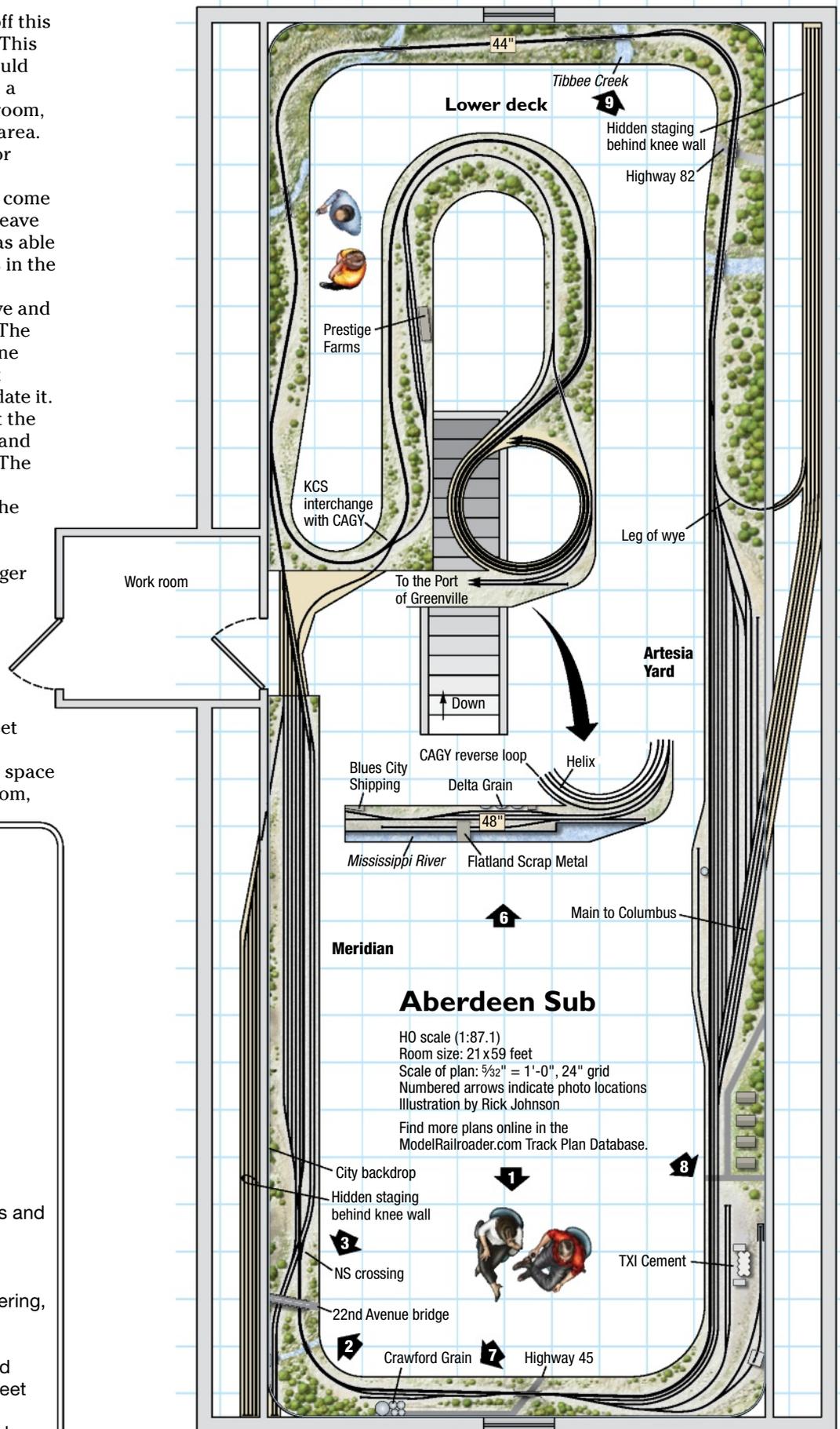
Roadbed: cork

Track: Atlas and Micro Engineering, codes 55, 70, and 83

Scenery: plaster shell and extruded-foam insulation board

Backdrop: Komatex plastic sheet stock, digital photos

Control: NCE Power Pro Digital Command Control



Aberdeen Sub

HO scale (1:87.1)

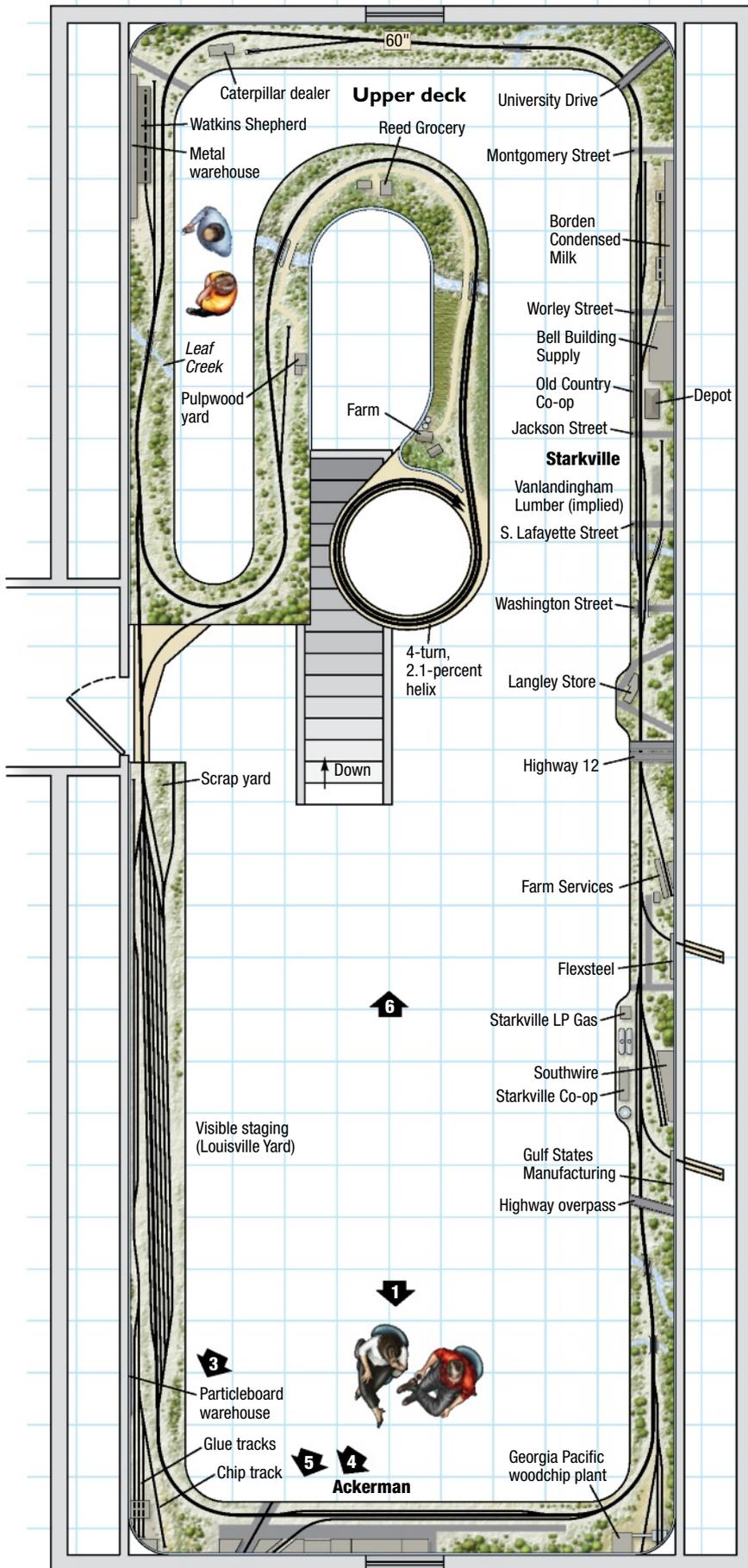
Room size: 21 x 59 feet

Scale of plan: $\frac{5}{32}$ " = 1'-0", 24" grid

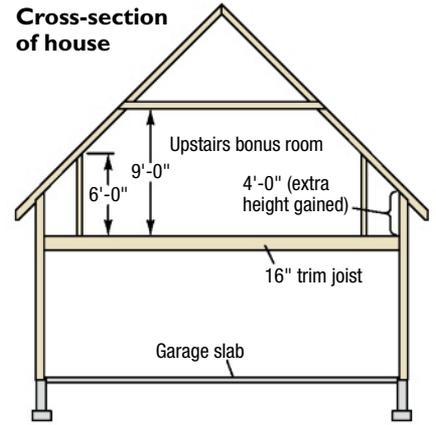
Numbered arrows indicate photo locations

Illustration by Rick Johnson

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



Cross-section of house



with the room being about 12 feet wide running the length of the 60-foot roofline. So I was going to have a layout room that was like a long, wide hallway – 12 x 59 feet after all framing and finish work was done. Not bad, but I could squeeze out a little more space for little more cost.

Raising the roof – literally!

My first thought was to just build a full second story on the home. However, a completed second story brought about an issue with building codes and taxable square footage. So to get this extra space and still keep it as “attic” area, the roof was raised 4 feet higher than would be the case for normal construction. The 6 feet of headspace was now only 2 feet off the outside walls, and the lowest point of the ceiling/roofline was 4 feet off the floor. It also created a 2-foot-wide space behind the walls for storage and staging yards.

At the point where the ceiling/ roofline was 6 feet off the floor, I built a stud wall. This wall defined the layout space and became the support structure for my multi-deck railroad. This left me with a 21 x 59-foot layout room with a stairwell coming up in the center of one end of the room and an attic access door along one long wall.

Choosing an era(s)

It was now time to determine the era I wanted to model: IC, Illinois Central Gulf, G&M, MidSouth, or KCS. The line was fairly rural with few businesses, most of those in Starkville. As I studied the operation and businesses along the line, I realized that over the nine-year period of different owners, not much had changed. Each owner ran the line in a similar manner with the Louisville-Artesia, or LA, Local going from the yard in Louisville through Starkville to the yard in Artesia and back in a day. Occasionally, there would be a through freight, but the main traffic was the



2. Although just starting on scenery and structures, Dennis can already enjoy seeing trains operate through rural Mississippi scenes like this one with an IC GP40 and a well-used GM&O GP35 riding on trade-in Alco trucks.

local. Why not plan the layout to fit all time periods, thus allowing me to run any of the five railroads?

With the time-period defined, it was time to design the layout. Since I was focusing on the LA Local running from Louisville to Artesia and back, the best approach seemed to be a point-to-point model railroad. However, I wanted to be able to run trains continuously while non-modeling friends were visiting. The list of the

must-haves also included the yard in Louisville, the city of Starkville and its businesses, the yard in Artesia, and the bridge over Tibbee Creek, one of my favorite railfanning spots.

A helix above the stairwell

As I started planning the layout, we decided to reserve space in the room for a family area to enjoy video programming and games. This meant I had to plan for a television and

seating space, which would require a lot of floor.

I used 3rd PlanIt track-planning software (www.trackplanning.com). I started by drawing all my must-have elements. I was able to use the program to move these elements around the room to see how I could get the best fit using a two-deck layout design. This included a helix drawn in as a must-have element, a big one at that.

Originally, I had envisioned the helix located where the family area would be. As I was looking for a new space for it, I noticed the large amount of square footage lost by the open stairwell. I had seen a helix designed under stairways – why not put the helix over the stairs?

Testing this idea with 3rd PlanIt showed that it fit perfectly along with an extended peninsula for added mainline length. From there, it was easy to place the must-have items where they would fit in proper order, then filling in the gaps between. The result was a two-deck design with a continuous run on each deck connected by the peninsula-helix via a wye on each level.

As the track plan developed, I decided to add two industries south of the yard at Artesia and a third yard at Meridian, Miss. I also added a



3. This view showing both decks illustrates how effectively photo backdrops can extend a major industrial scene – the Georgia Pacific Louisville, Miss., particleboard plant (top deck) and fill-in behind 3-D foliage (bottom deck).

mid-deck segment modeling the Columbus & Greenville shortline railroad. These additions helped to create a continuous run while adding a larger industry and a short line for more operating interest.

For staging space, I turned to the open 2 feet behind the stud walls. On each side of the room, I was able to get a four-track hidden staging yard behind the walls. Inexpensive security cameras now monitor the hidden tracks as trains move through staging.

Spanning the doorway

The other planning challenge was the door leading to the attic storage space. I looked into the common approaches to bridging a doorway, such as a single-track drop or swing bridge. But the door is at one end of the Meridian yard, so using one of these methods would restrict the length of the yard on the lower deck as well as cause minimum-radius concerns with the helix wye tracks.

Street running



4. An IC “Paducah Geep,” bell clanging to warn vehicles and pedestrians alike, eases out onto a public street in the town of Ackerman, Miss.



5. Dennis uses styrene sheet to elevate the street to match the rail height.

Although not prototypical for the Aberdeen Sub as depicted on my layout in Ackerman, there is some street running along the old GM&O line just north of Ackerman in New Albany. I’ve always enjoyed watching trains share the road with cars and downtown shoppers, so I had to incorporate this element into my layout.

Modeling a street-running scene seemed daunting, but it turned out to be much easier than expected. I started by setting my downtown structures in place along the tracks. I then cut a piece of .125" sheet styrene to the shape and size of the road, including parking spaces, to fit between the buildings and cover the track.

I then painted the tops of the rails where the street would be with black paint. I immediately placed the styrene down where the street would be and pressed firmly on the rails so that the paint would transfer from the rail to the styrene.

I flipped the styrene over onto the workbench where I could see the black marks made by the track. Using a hobby knife blade, I trimmed along the black lines, cutting off all of the black painted area plus a hair more. This left me with three pieces of styrene: each side of the street and the piece that runs between the rails.

Next, I sprayed Ralph Lauren River Rock RR65 “Stone Chasm” paint onto the styrene pieces. This spray paint has a grainy texture and looks like sandpaper. When the paint dried, I put the styrene in place. I then lightly sanded the street, sanding extra in the traffic areas. Next came a light airbrushing of an alcohol-India ink wash along the traffic lanes. I added yellow centerline and white parking space stripes using masking tape and fine-tip paint markers. The styrene was glued down lightly so that it would be easy to take up if the need arose. – *Dennis Daniels*

Learning points

- Thinking outside the box led to making the box (attic) taller.
- Locating the helix above the stairwell was another space-saving idea.
- Doing some homework revealed that modeling multiple time periods, and hence more than one railroad, was feasible.
- Accommodating family, storage, and railroad needs was tricky, but doable.



6. An under-construction photo (top) shows the 6-foot-high knee walls and the helix above the stairwell. The same view (bottom) at a later stage of construction shows the fascia, valance, and skirting.

To overcome these issues, I decided to try something unconventional. For the lower deck, I built an elevator lift section using four heavy-duty drawer slides mounted vertically on square and plumbed 2 x 4s. These slides keep the lift section square and level as it's lifted using heavy rope and pulleys. I needed this section to be sturdy, as it contains several tracks and turnouts, including a yard runaround track with a turnout leading to the helix wye. It also includes a yard ladder with several yard tracks.

I inserted brass screws under the rails on each side of the gap cut for the lift section. The rails were soldered to the screws to keep the tracks in place. With help from the heavy drawer slides and the soldered brass screws, the tracks line up perfectly each time the elevator is lowered.

To provide power, I used extension cord plugs on my power bus for quick



7. Gulf, Mobile & Ohio GP35 602 and IC GP40 3012 switch the Crawford Grain complex at Crawford, Miss. Tall industries may have their tops disappear into the upper-deck structure, but this isn't noticeable from normal viewing angles.



8. Some industries, including the TXI cement plant at Crawford, Miss., are modeled using structures that Dennis has kitbashed from a variety of commercial products.

disconnect/connect when the elevator is raised or lowered. The upper deck has a simple lift-out section with slots that aid in alignment when the liftout is put in place.

Still ahead

The accompanying photos provide a visual progress report. Key scenes and some industries are in place, but few are finished to the desired level of detail. I'm able to host operating sessions, but have little finished scenery in place.

My backdrops are a mixture of painted sky blue and digital images on Komatex plastic, a lightweight material used by sign painters. I've created my own digital images for backdrops by photographing the prototype scene, then stitching multiple photographs together with Adobe Photoshop software to create long backdrop photos. Along rural runs, I simply use a sky-blue backdrop.

The benchwork is a mixture of hollow-core doors and open grid. Over that I have applied various scenery methods, including extruded-foam insulation boards, plaster cloth, and author Lou Sassi's "Ground Goop." [See



9. A long trestle and through-truss span allow this Geep-powered ICG southbound to cross Tibbee Creek on its way toward Artesia Yard.

Lou's book *Basic Scenery for Model Railroaders*, second edition from Kalmbach Books. – Ed.]

I run the layout with an NCE Digital Command Control Power Pro system, and I have equipped my locomotives with SoundTraxx, ESU LokSound, and QSI sound decoders.

But the most important aspect of this project is that the extra thought that we put into vertically expanding

the attic for family and railroad alike is already paying big dividends. **MRP**

Dennis Daniels retired from the Army after being wounded in Iraq in 2005. He and his wife, Teena, have three daughters. Dennis's other interests include shooting sports, horseback riding, and college football. Learn more about the full-size Aberdeen Sub and his layout at www.aberdeensub.blogspot.com.

Texas-sized N scale railroad

Modeling Southern Pacific's
Texas & New Orleans in
East Texas

By **Greg Johnson**

Photos by the author

Designing and building a model railroad involves multiple decisions, punctuated by a lot of compromises. It's a lot easier if you're able to make all of your layout decisions ahead of time and not need to alter them. However, that's rarely a reality.

My Texas & New Orleans railroad, set in East Texas, is a good example of that. It was conceived about four years ago as an HO railroad as plans for a new house and requisite train room were being finalized. With more real estate on the horizon, I had planned to trade the steel mills of Pittsburgh that I modeled on my last layout (the Allegheny Terminal, featured in *Great Model Railroads 2010*) for the Gulf Coast and rolling hills of East Texas.

With ample space allocated for the layout, I'd be able to get back to the influential model railroad roots that fueled my hobby fires some 40 years ago: memories of the 1960s and the railroads around Houston. The new plan would enable me to replicate some of the key industries of the Houston area, as well as offer an opportunity for interesting scenery by modeling a portion of the undulating topography and piney woods of East Texas. It would also offer a lot of urban switching opportunities and some mainline running.

The primary railroad would be the Texas & New Orleans (T&NO), which is what the Southern Pacific's lines in Texas and Louisiana were called until 1962, when the SP officially absorbed



1. Texas & New Orleans train 25 heads west toward Nacogdoches, Lufkin, and Houston on Greg Johnson's N scale layout. The three-car train is more than sufficient to handle the dwindling passenger traffic on the Houston-to-Shreveport run.





2. Cotton Belt FTA-B 919 heads an eastbound daily local that is meeting 218 at Garrison. The local works its way east from Lufkin to Shreveport, mainly serving lumber mills and forest-products industries.



3. A pair of Electro-Motive Division F7s leads Extra 334 East across the Neches River. The bridge shows its heritage as a former swing span from the days when steamboats and iron horses were both vying for East Texas transportation.

them. There would also be interchanges with the Houston Belt & Terminal and Port Terminal RR Association.

For the rural setting, I'd model a slice of the Houston-to-Shreveport SP line. This interesting segment of railroad has a colorful heritage dating back to its days as a 3-foot-gauge railroad. It would offer some mainline operations for those operators who enjoy way freight and manifest action.

House change, scale change

Layout planning was well under way when my designs for a new house and train room were thwarted by the purchase of an existing house that my wife, Paula, fell in love with.

"But there's no train room," she said. "Where will you build your layout?" Having spent 15 years modeling in N

scale some time back, I responded that I would just build the layout in a smaller scale in the upstairs game room.

That decision was a lot easier to verbalize than to implement. The dismantling of a layout plus selling my entire HO inventory was an emotionally and physically daunting task. But if I still wanted to model the railroads of East Texas, it would now have to be in N scale.

I did some investigating and discovered that N scale with code 55 trackwork and Digital Command Control (DCC) decoder-equipped locomotives wasn't all that different than the HO scale I was leaving behind. Visiting retired *Model Railroader* managing editor Jim Kelly's excellent Tehachapi Loop layout in Milwaukee and poring over a handful of copies of *N Scale Railroading* convinced me it could be done.

New layout in movable chunks

After "dumpster-dropping" my previous layouts, I vowed not to do that again. I built my new layout in sections that would be relatively easy to relocate if a move was necessary.

My portability planning would be put to the test at least a decade before I expected: Two years into layout construction, the upstairs playroom was decided to the grandkids for its intended use. This resulted in the construction of a 720-square-foot purpose-built room attached to the garage workshop. The new room would allow some additional Layout Design Elements (LDEs, which are visually and operationally recognizable models of actual locations) as well as be a perfect fit for the main sections of the existing layout.

The layout was built on predominately 1 x 8-foot sections of Gatorfoam subroad-bed I call "Gatorboxes." These ultra-lightweight units are easy to handle, as I confirmed after cutting the scenery and trackwork at the joints and moving them downstairs by myself. Reassembly on top of the same wood benchwork was relatively quick and easy.

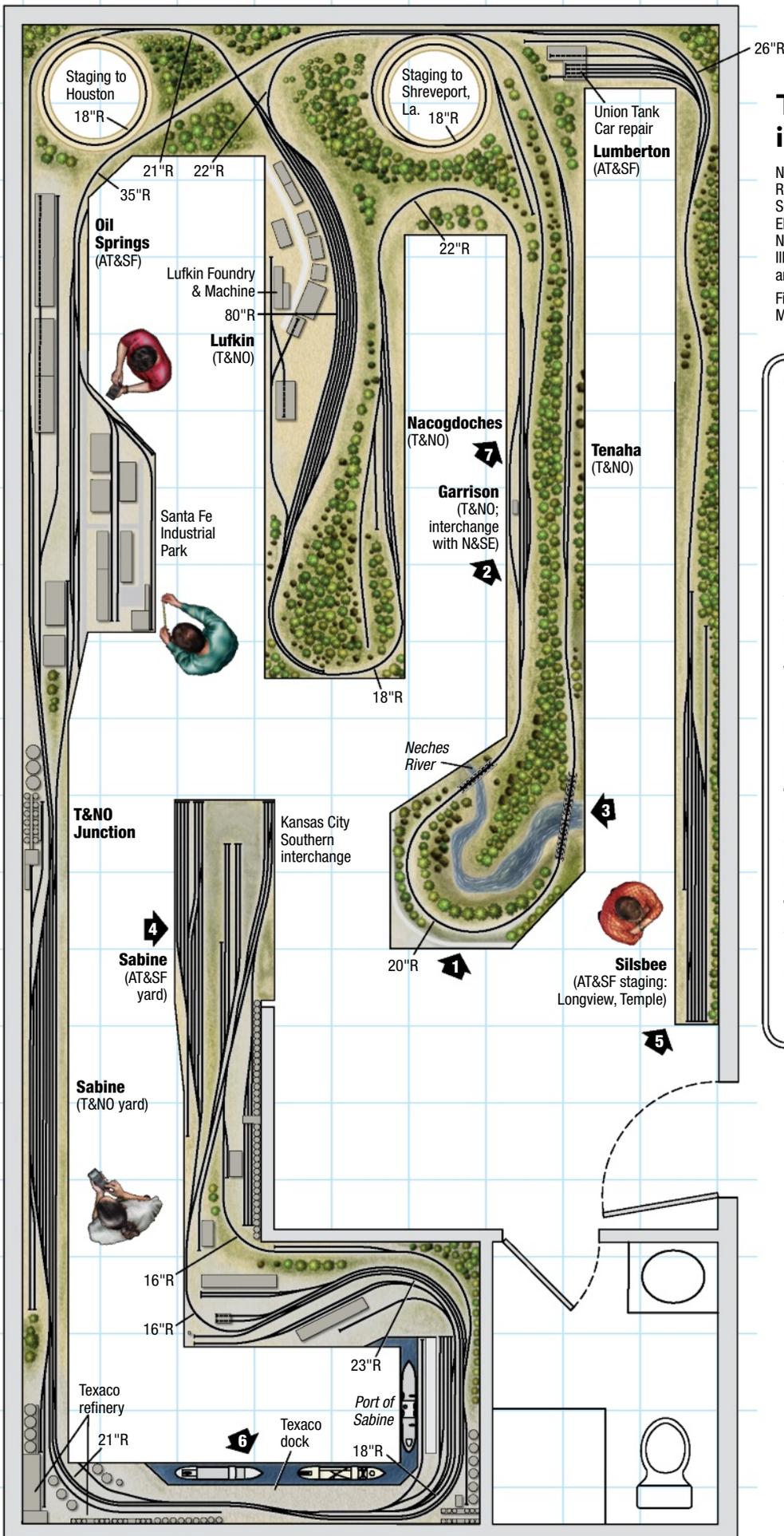
Modeling memories

In the real-estate business, they say that the three most important things are location, location, location. It's the same for choosing a successful locale for your railroad. Aside from being attracted by the magnetic lure of Colorado's narrow gauge railroads, Appalachian coal-haulers, or one of the big-name railroads, most modelers seem to gravitate back to their impressionable youth and the railroads that surrounded them during that time.

In my case, it was the railroads in and around Houston, Texas, and the Gulf Coast. Southern Pacific (SP); Atchison, Topeka & Santa Fe (ATSF); Rock Island; Missouri-Kansas-Texas (MKT); and St. Louis Southwestern (Cotton Belt) were the faces of the railroading that I became familiar with.

My chosen locale is the geographically challenged and nearly table-flat Gulf Coast. Not until you travel 80 to 100 miles from the Gulf do the undulations of the East Texas piney woods become obvious.

What we Houstonians lack in geographic diversity is more than made up for by the rich and varied industries of the region. Within 25 miles of Houston are refineries, chemical plants, paper mills, heavy manufacturing, lumber mills, rice dryers, cotton compresses, distribution warehouses, docks, barge terminals, and ship yards. There even was



Texas & New Orleans in East Texas

N scale (1:160)
 Room size: 18'-0" x 39'-0"
 Scale of plan: 1/4" = 1'-0", 24" grid
 Elevation constant at 56"
 Numbered arrows indicate photo locations
 Illustration by Greg Johnson, Rick Johnson, and Roen Kelly

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

The layout at a glance

- Name:** Texas & New Orleans
- Scale:** N (1:160)
- Size:** 18'-0" x 39'-0"
- Prototype:** T&NO (Southern Pacific)
- Locale:** East Texas
- Era:** mid-1960s
- Style:** single deck walk-in plus staging
- Mainline run:** T&NO, 125 feet; Atchison, Topeka & Santa Fe, 110 feet
- Minimum radius:** 18"
- Minimum turnout:** no. 10 (main), no. 7 (yard and industry)
- Maximum grade:** None
- Train length:** 7 feet
- Benchwork:** Gatorfoam boxes on poplar framework
- Height:** 56"
- Roadbed:** Homabed
- Track:** code 55
- Scenery:** plaster gauze and Sculptamold
- Backdrop:** roll vinyl
- Control:** NCE Digital Command Control

Gatorfoam construction



I used **Gatorfoam** for the first time on my previous HO Allegheny Terminal for the benchwork under a large town. Before using the material, I cut off a square foot of the material, tossed it in the swimming pool, and left it overnight. It came out perfectly flat and unaffected by the moisture. I was sold.

To make the layout sections, I rip long sheets into 4" strips for the sides, ends, and cross-members of my "Gatorboxes." I cut everything with standard wood-cutting saws. I glue the pieces together with Liquid Nails for Foam. For pieces 36" or shorter, I use a hot-glue gun. The tops

are secured to the frame sections with Liquid Nails as well. Construction is very fast. For this layout, most of my boxes were 1 x 8-foot and weighed about 5 pounds each. I joined the sections to each other with long no. 10 bolts and fender washers.

A 4 x 8-foot sheet of 1/2" material weighs about 7 pounds. It's perfectly flat and dimensionally stable. The cost in my area is about \$55 per sheet. That's only slightly more expensive than a sheet of good 3/4" plywood and 1/2" Homasote – and 1/10 the weight. Transporting Gatorfoam home is also much less of a burden. – *Greg Johnson*

an integrated steel mill, but it closed in the mid-1980s.

My challenge in re-creating the railroad and industrial atmosphere of the 1960s would be to take the most interesting of the available industry mix, combine that with plausible railroad operations, and try to make it all as realistic and fun to operate as possible.

Modeling decisions

The first big question was whether to model actual Houston locations. Modeling specific Houston scenes would be problematic, as the railroad needed to transition to rural real estate in a relatively short distance. Transitioning from a large industrial city like Houston

to the woods of East Texas in only 6 feet requires artistic license. For the HO plan, this would mean city-to-country was only a train-length away.

On the N scale plan, I designated Houston as a hidden staging location. I then created the prototype-based but freelanced town of Sabine. Sabine is a combination of the towns of Beaumont, Port Arthur, and Baytown with a bit of Houston thrown in to add spice to the mix. By creating my own port town, I wouldn't be tied to the constraints that rigidly modeling any of the actual towns would bring. Sabine, like the real town of Beaumont, features SP, ATSF, Missouri Pacific (MP), and Kansas City Southern (KCS) operations. It also has a deep-water port and nearly all of the

industry types I mentioned above, so it is my prime source of inspiration.

The stub-end Santa Fe station area and freight yard were influenced by the Santa Fe's long-vacated terminal in Beaumont. The United Kingdom's Great Western Railway stub-end terminals provided additional influence.

In the Beaumont area, the SP and Santa Fe shared trackage rights for several miles north of town as they each ran north to the rolling hills and piney woods. This scenario would work perfectly for the N scale layout, because revision two, with its downstairs location, offered a much larger space for the layout.

This meant that the Santa Fe activity could be expanded into its own

60 feet of main line with two passing sidings and a visible staging yard at one end. The other end terminates in the town of Sabine, creating a true point-to-point railroad for operational purposes.

Ports and ships

My Port of Sabine is a microcosm of the Port of Houston. Hugging its banks on the layout will be the Texaco refinery, a Dow Chemical plant, and a DuPont facility. These all lie just around the bend from other typical Gulf Coast port industries: a wharf/warehouse complex, cotton compress, and a grain elevator.

Rail service to the port industries will be provided by a mini version of the Port Terminal Ry. Association (PTRA) that serves Houston's port. The PTRA was unique in that during the period I'm modeling, motive power was provided by the participating railroads, which created a splash of colorful paint schemes. This will allow me to utilize a variety of SP, ATSF, MP, and KCS switch engines in port switching duties.

There's nothing like ships to bring a port to life. I'm fortunate to have found on eBay some approximately 1/16"-scale vessels to use on the layout. This is slightly smaller than N scale (1:192 rather than 1:160), but the difference is imperceptible. So far I have purchased a Liberty ship, T-2 tanker, and a mid-1960s Texaco tanker. These are full-hulled, assembled models that are reasonably priced and hand-built. I'll turn them into waterline models, add details, and weather them.

Yard transfers and industries

The linear design of Sabine allows for separate SP and ATSF yards, along with added interchanges with the Kansas City Southern and Missouri Pacific. These interchanges will add additional work for train crews as they transfer cuts of cars to and from each yard, transfer point, and the port itself. The expansion of this concept on the layout is partially due to the influence of Jim Senese's Kansas City Terminal with its multiple railroad interchanges ["Five railroads, four yards, one city: Kansas City Terminal" in *Model Railroad Planning 1999 - Ed.*].

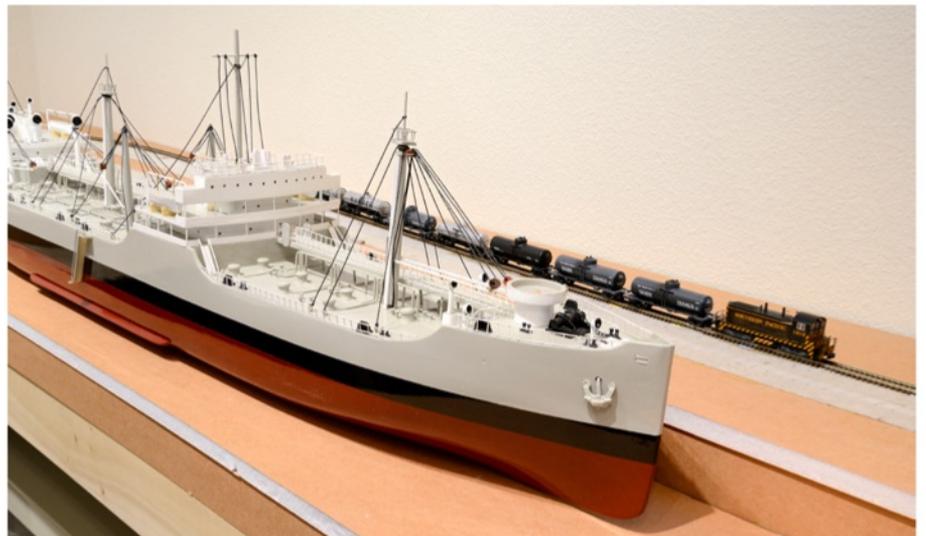
The T&NO main line from Houston to Shreveport was built to tap the ample timber resources of East Texas. Lumber mills and pulp-loading facilities dotted the landscape until the old-growth timber was completely harvested. The lumber industry also spawned some interesting industries, primarily in the town of Lufkin, which I included on the layout. Lufkin was



4. On occasion Greg likes to place 3-D elements on the under-construction layout to see how they work, as in this aerial view of the depot area in Sabine.



5. This 15-inch x 26-foot shelf, under the cabinets and bookshelves, provides additional Santa Fe mainline running as shown here on the way to the visible staging yard at Silsbee. The layout visually complements the room.



6. A World War II-era T-2 tanker sits at the future location of the Texaco Refinery loading docks. The double-track main line will bisect the refinery at this point.

Trees set the scene

Accurate scenery does wonders to convey a sense of locale. In East Texas, that means rolling hills covered with pine trees. To model the region convincingly requires lots and lots of trees. Green puffballs don't look like yellow pine trees, nor do pointy fir trees look like East Texas pines. The only convincing way I've found to create convincing pine trees is by the wire-armature method.

The problem with making wire-armature trees by the hundreds is that it's time-consuming. Fortunately, I found ready-made wire-armature trees that are the spitting image of East Texas pines on eBay for about 30 cents per 4" tree. I have more than 600 on the layout now, mostly scaling out to about 60 feet high in N, with another 600 or so to install. Without the availability of these cheap trees, I wouldn't be modeling the piney woods of East Texas in N scale. The HO layout would have required fewer trees, but they would have been more expensive or time-consuming to build. – G.J.



7. Two recently repainted Alco RSD-4s lead local freight 218 into the siding north of Nacogdoches as it prepares to interchange cars with the Nacogdoches & Southeastern. The N&SE's ancient Shay simmers in the background.



This 1985 view shows the line-up of trains in the Santa Fe Silsbee yard. Of note is the overall appearance of the trackwork in this busy yard.

home to lumber mills; a foundry (which closed in 2009); a metal fabrication company, Lufkin Industries; a pine-resin chemical plant; and a large paper mill.

The most interesting of these industries was the Southland Paper Co. mill. It was famous as being the first

paper mill in the country to use the pulp from Southern pine trees in paper making. Over the years, the plant produced millions of tons of newsprint for papers all around the country. The Southland mill finally closed in 2010 as the need for newsprint diminished. The

Southland facility was switched by the Angelina & Neches River RR (A&NR) with steam until the mid-1960s.

My town of Lufkin will feature the foundry, lumber mill, Lufkin Industries, and the Southland mill complex. The original mill buildings used masonry construction and should be easy to replicate utilizing modular wall sections. There'll also be an interchange with the A&NR and the Cotton Belt, both of which interchanged with the T&NO in Lufkin. Other online T&NO industries will include grain elevators, warehouses, team tracks, and the like.

Design and construction

Changing from HO to N would allow more railroad in less space, but there were other design considerations such as layout height. If I were building the HO scale version, I would have chosen a height of 50" to 52" and used a scene-dividing backdrop. For the N scale layout, I've chosen to eliminate the scene-dividing backdrop from the center of the peninsula and raise the layout height to 56". Trees 3" to 4" high will form a sufficient view block.

So far, using tree lines as scene separators on adjacent aisles has worked well. Yes, you can see the operator on the next aisle, but a 6-footer or shorter person can't see the other train or scene through the trees. The perimeter of the room will reuse hand-painted vinyl backdrop sections from the layout I built upstairs before moving to the downstairs train room.

East Texas is well populated with pine trees. Finding a source for the hundreds of them I'd need became a major concern. See "Trees set the scene" at top left.

As a photographer, I hated dealing with lighting balances on previous layouts, so there are none on the T&NO. For illumination, I installed three rows of 12-volt track lights on the ceiling. The lights are dimmable, but at full intensity they can be used to provide photographic illumination, although my preference is for high-power strobes.

The layout will feature many believable-sized industries. In HO these structures would be large and require much more detail. The most difficult of these to model accurately would be the refinery. On the N scale layout, my scene depth is about 12" for most of the layout, and the area where the petrochemical plants will be is only about 6" deep.

My plan is to use a combination of kit parts along with a lot of custom

Learning points

- Keeping a positive outlook toward required change can work wonders.
- Modeling childhood memories continues to be a popular approach to prototype-based modeling.
- Those who haven't modeled in N scale for a decade or more are in for a pleasant surprise.
- Modeling larger industries is more practical in a smaller scale.
- Modest deviations from the prototype usually don't detract from the finished product.

laser-cut pieces to create the crowded refinery look. I plan to place these structures in front of plastic mirrors or actual refinery photographs. For N scale models, my experience suggests that the level of required detail will be less than that needed for HO models.

An added bonus of changing scales is the inclusion of the Union Tank Car repair facility on the Santa Fe-to-Silsbee line. This large industry will offer a destination for many tank cars of all types and road names. Moreover, the rural portion of the HO version would have had shorter sidings and more compressed online industries.

My Santa Fe line will also include the Santa Fe Industrial Park, which features several industries and multiple spots. The inspiration for this facility is taken from the Santa Fe's industrial park on its Houston-to-Alvin, Texas, main line. During the 1960s, the industrial park in Houston could keep a switching crew busy for several hours every day.

I'm always looking for ways to save time and effort during layout construction. This led me to utilize ½" Gatorfoam (www.graphicdisplayusa.com) for the subroadbed under the entire layout. See "Gatorfoam construction" on page 58.

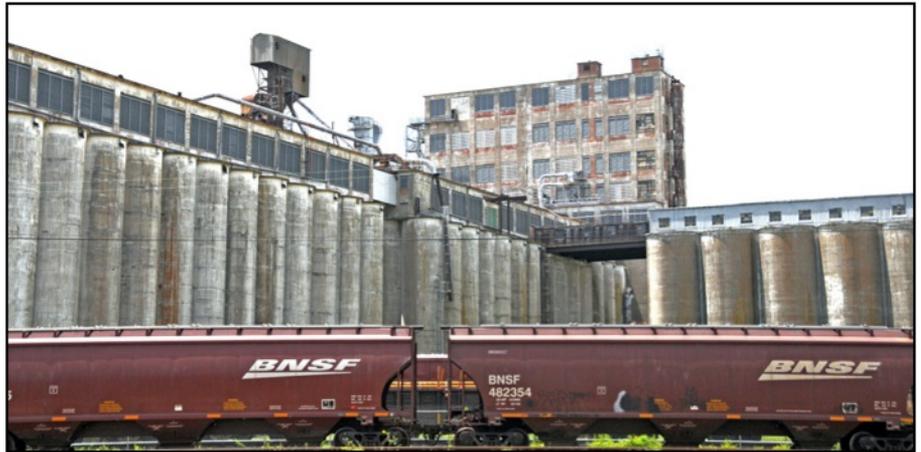
The Gatorfoam sections are flat, so I've cut out or built up the baseboard as needed to create elevation changes and to add scenic elements such as rivers and streams.

Era selection

Choosing an era to model has been a moving target. Originally, I planned to model the mid-1950s with zebra-striped Santa Fe Geeps and black-widow SP units. The year 1955 would allow the operation of two or three Santa Fe gas-electrics as well as two SP passenger trains.



This pulpwood load shifter in the Santa Fe yard at Silsbee was used to straighten the pulpwood that was loaded onto flat cars.



This photo shows the Port of Houston Grain Elevator in 2013. This elevator was built in the early 1950s and originally designed to unload boxcars.

My era selection has now shifted to the mid-1960s, primarily due to my familiarity with the trains of that time. That period was still dominated by the 40-foot boxcar, although newer car types such as American Car & Foundry Center Flow covered hoppers as well as more 50-foot cars were becoming commonplace.

I hate the thought of leaving my Sabine depot tracks empty, so I'm doing a little bit of passenger proto-freelancing. I plan to have a prototypical remnant of the KCS's Kansas City to Gulf Coast passenger trains Nos. 15 and 16, the *Flying Crow*, share the depot with my purely fictitious "Baby Chief," a two-car Sabine-to-Somerville connection with the *Texas Chief* to Chicago.

Enjoyable research

I've had a great time doing the required research for this layout. I've gathered dozens of photographs of Gulf Coast and East Texas industries.

Along with the photographs, I have copies of many Sanborn fire-insurance maps of the area. While at the Library of Congress doing other research, I've made copies of many rare and unique East Texas maps and photographs.

All of this research combined with my own "eyewitness accounts" has given me a great blueprint to work with. Although the journey has taken a couple of unexpected twists and turns along the way, I'm looking forward to bringing East Texas railroading to life in N scale. **MRP**

Greg Johnson has been a model railroader since 1968. His previous layouts have been featured in Model Railroader and Great Model Railroads. Greg lives in Friendswood, Texas, with his wife, Paula. He is owner and CEO of a valve service company in Houston. His other interests include playing the drums and blues harmonica, industrial archeological research, and photography.

Modeling New York City's 'High Line'

Evocative but compact scenes depict railroading
in a dense urban setting

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



1. A New York Central Alco HH-660 is about to duck under the iconic Bell Tower on the 30th Street Branch along the west side of Manhattan. The motorized vehicles in the street follow magnetic strips and have operating lights.





2. The High Line’s double-track main ran between and through towering structures. Two trains can continuously circle the series of layout sections and disappear from view behind a foreground structure.

An episode of *CSI:NY* inspired our latest exhibition layout, three connected sections that provide views of parts of the famous High Line in New York City – more formally, the New York Central’s 30th Street Branch – as a follow-on to the cylindrical exhibition layout we described in *Model Railroad Planning 2014* (“Big train, small layout”).

The first section, which is largely finished and shown here in a series of photos, has what was once the Bell Laboratories Tower as a highlight. The second section, already under construction, will have a harbor scene as its main theme. The third will feature the meatpacking district. The fourth section may feature Uneeda Bakers.

The scenes are separated with black panels on which we have mounted period photos that give visitors a sense of how the line looked like in the 1940s.

High Line history

The 30th Street Branch from the Bronx to St. John’s Park was rebuilt as part of the West Side Improvement Project. The railroad had run down the west side of Manhattan Island since 1847, but as traffic increased, so did the danger; 10th Avenue acquired the nickname “Death Avenue.”

For a while, riders on horseback were used to escort freight trains, but the New York Central, City of New York, and state government decided to build a 13-mile-long partially elevated double-track railroad. In 1930, it cost about \$200 million, equivalent to several billion dollars today. After the branch was completed, 105 street crossings were eliminated.

Until 1981, part of the branch ran above the west side of Manhattan between Gansevoort and 34th streets. The elevated section was only about 2 miles long and came off the main line at 34th Street, where it was below grade, and climbed to 30 feet above street level as it snaked its way south to St. John’s Park at Clarkson Street. The trains ran above the streets, between and through several buildings. Meat products, milk, and mail were delivered to lower Manhattan. New York Central’s colorful Pacemaker boxcars were frequent visitors.

By the 1950s, delivery by truck was becoming more convenient and economical, and the branch’s days were numbered. The last train on the High Line – three carloads of turkeys – ran in 1981.

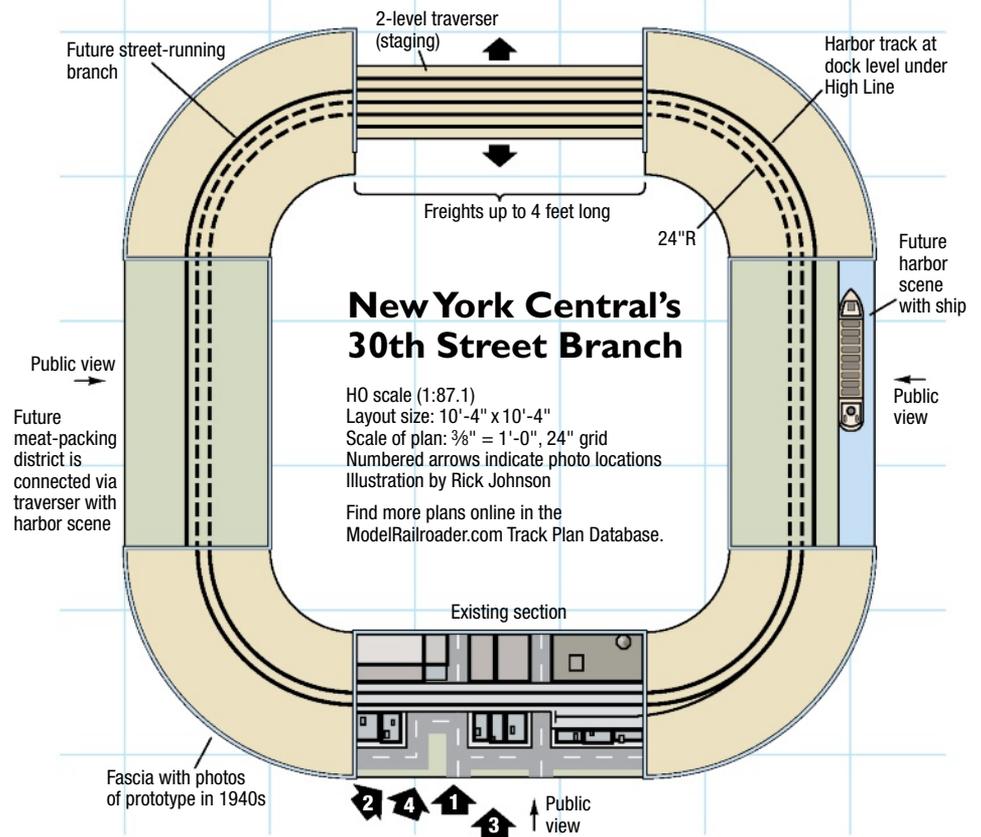
About a mile and a half of this New York Central branch still exists as a beautiful elevated park and has



3. Each scene of the exhibition layout is framed with a high fascia that includes a display of prototype photos from the 1940s. The valance reinforces the High Line bridge theme, and the curtain adds a finished look.

The layout at a glance

Name: The New York Central's 30th Street Branch ("High Line")
Scale: HO (1:87.1)
Size: 2'-0" x 4'-0" for each section
Prototype: New York Central
Locale: west side of Manhattan
Era: late 1940s to 1950s
Style: shadowbox modules
Mainline run: variable
Minimum radius: 24"
Minimum turnout: none
Maximum grade: none
Train length: 4 feet
Benchwork: open grid
Height: 47"
Roadbed: cork
Track: code 83
Scenery: plaster and foam
Backdrop: Forex lightweight plastic [Sintra]
Control: ESU Ecos Digital Command Control



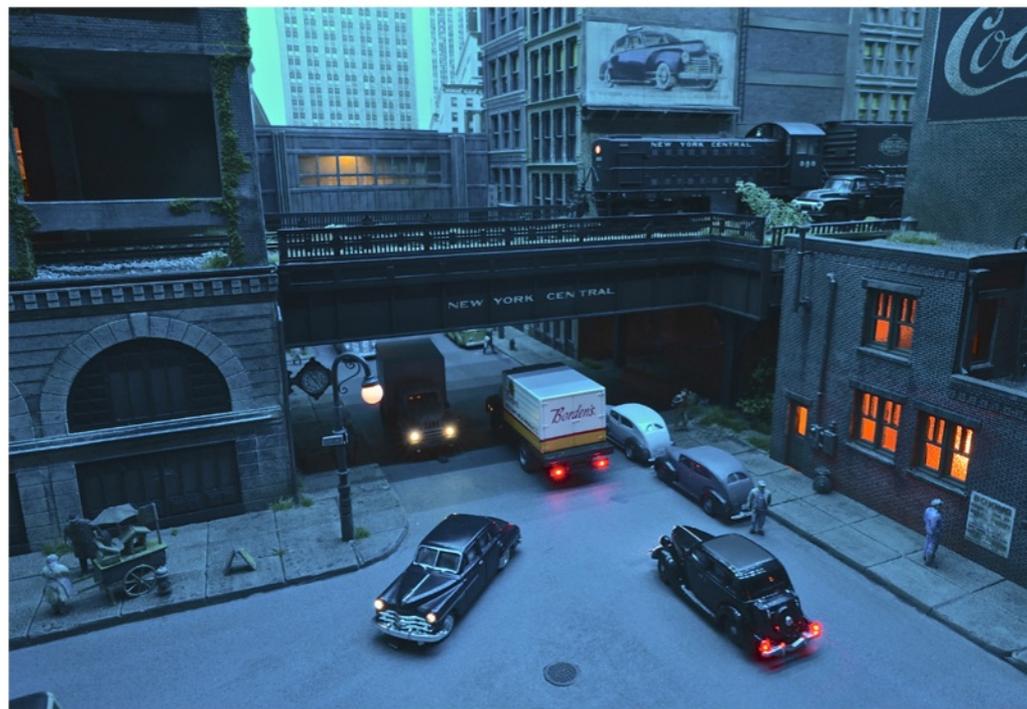
become one of the most-visited attractions in the Big Apple. The rest was dismantled.

Planning the first scene

We build several small layouts a year and take them to model railway exhibitions in Europe. We therefore want them to be light, compact, and easy to set up in the exhibition halls. For the 30th Street Branch, we planned a layout that could be expanded as time and interest allowed. Each layout section has to stand on its own so that we can go to exhibitions with one or more sections.

Why the High Line? We both admire the work of Rod Stewart (December 2007, December 2010, and February 2014 *Model Railroader*) and Vic Smith (see *Great Model Railroads 2010* and September 2003 MR). Some years ago, we built a layout with a New York City theme that included an elevated track. As we drove back from an exhibition in 2011, we exchanged ideas for our next project. We kept coming back to the New York City layout, but we like to build layouts that tell a story – something more than just a train running around in circles.

Back home, Evan saw an episode of *CSI: NY* and noticed an elevated track in a park. He made a Google search and soon called me to report he had found it: the High Line. This met our objectives: a city layout, something new



4. The 30th Street Branch ran not only between towering structures but also through many of them. This twilight photo shows the vehicle lighting, which includes working turn signals and brake lights as the vehicles move along.

(except for our earlier small diorama), freight trains, and eye-catching elevated track.

By setting the era in the 1940s, there would still be some tracks in the streets. We decided to up the ante by having automobiles and trucks that actually moved with full lighting effects.

The research phase

The planning and research took us about a year and a half. Searching the Internet, we found lots of old photos and postcards of New York in the early 1900s. Google Earth made it possible to find the exact location of these photos. Of course, many of the buildings aren't



Multiple resin castings of scratchbuilt plastic girders were mounted below a plywood track base and supported by styrene columns.

there anymore or have changed a lot. Deciphering all of our information was like solving a big puzzle.

After doing this homework, we chose buildings we liked that seemed to convey the desired appearance. These structures aren't available as kits, so we kitbashed them. Not all the buildings are on their exact locations, but together they give an authentic impression.

The buildings were made from pieces left over from prior projects, kits, and plaster castings. Masters for the elevated bridge girders were made from styrene, and we then made molds and cast the girders out of resin.

Constructing the layout

Building the first diorama took four months. The Bell Laboratories Tower was the first and most important building we tackled, using leftovers

from an old French station plus some components made of styrene and Forex [branded Sintra, Komatex, and Celtec in the U.S. – *Ed.*], which is a lightweight, expanded PVC sheet material used by advertisers and sign painters. The model isn't an exact likeness, but it's close enough.

Two of the other large buildings on the diorama are made from Bachmann hotel kits. We used the front and back for different buildings. The water towers on the roof were built from kits or film containers covered in wood siding.

We built the elevated track as a wooden shelf. Behind the buildings are vertical supports. After the track was glued down and ballasted, in the visible areas we attached resin castings of the scratchbuilt girders. Supporting the bridges are styrene columns. The rivets are Archer decals.

Sweating the details

Details are always very important to us, as they give the final touch and the desired mood. An old hot dog stand, work sign, advertising from the 1940s and '50s, even the wallpaper in the buildings and the Italian restaurant are from the right period. Houses have fire escapes, and some rooms have interiors.

On the roofs, we added the ubiquitous water towers, a pigeon coop, and laundry drying in the sun.

Urban areas aren't spotless, and we wanted the area to look like people lived there. So we added some trash in the small park, discarded newspapers, and so on.

Operating vehicles

Vehicles that actually move look great. Faller offers its Faller Car System, but it sells only European and modern cars and trucks. We needed 1940s-vintage American vehicles.

We found the solution in Holland. DC Car (www.miniatuura.nl) sells materials to rebuild all kinds of model vehicles into running ones. Evan started this project by converting Athearn Ford and Classic Metal Works Dodge trucks. About 16 hours later, he declared victory.

Each vehicle has 32 wires to connect the battery to stoplights, turning signals, headlights, brake lights, and an electric motor. The vehicles steer themselves by following a magnetic strip under the asphalt. They "know" where they are on the street by breaking infrared beams from transmitters hidden under parked vehicles.

Photo backdrops and lighting

We puzzled over how to handle the backdrop for a while. Finally, we found a book on skyscrapers. We made color photocopies of some of the buildings and glued them on the backdrop.

To illuminate the layout, we used white and blue light-emitting diode (LED) strips that allow us to create late evening (but not full darkness) or early morning. When the blue night lighting turns on, the vehicles turn on their lights automatically. Other lights come on as well, such as streetlights and interior building lights in the Bell Tower, restaurant, loading docks, a living room in one of the apartments, and the magazine store under the bridge.

Atmosphere

To get the atmosphere of the late 1940s, we referred to old postcards and photos. Everything was then painted in shades of brown and gray covered with

Learning points

- Search for a unique theme, especially for a small layout.
- Consider future expansion.
- For an exhibition layout, keep the plan simple, as visitors want to see continuously running trains.
- Exhibition layouts that have a solid structure like a box or cylinder are less prone to damage and easier to set up.

a sepia wash. Even the prints on the background aren't black and white copies, but have a tint of brown in them.

We didn't use our normal black fascia, but tried to achieve an Art Deco style. In some ways, each layout section looks like a well-detailed puppet theater.

The foreground isn't straight; on the left side visitors can look into a park and get the feeling they are standing in a small world.

The valance above the modeled scene is made to look like the steel bridge with rivets. The right side looks like an Art Deco building. We painted the surrounding structure a dark gray and mounted old pictures and a city map.

Next up

The second diorama will be a New York Harbor scene. We bought a resin kit for a coastal freighter from Artitec (www.artitec.nl) in 1:87 and are already at work on some packing buildings to position along the wharf. **MRP**

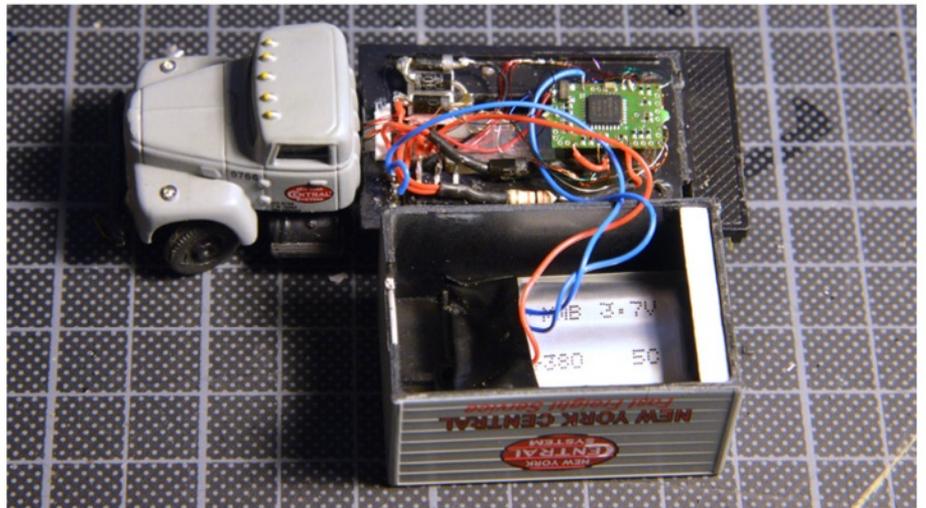
Erik Block is a zookeeper who works with Komodo dragons and crocodiles. Evan Daes is a railroad catenary inspector. They are members of the Branchlines and Backwoods club (www.branchlinesandbackwoods.com) in Belgium and are building a modern Canadian layout with a 260-foot-long main line. Erik and Evan give seminars and are working for PAJ Modelbouw helping people build layouts in different scales. They take their portable layouts and dioramas to shows in Belgium, Holland, Germany, and Luxembourg.

On our website

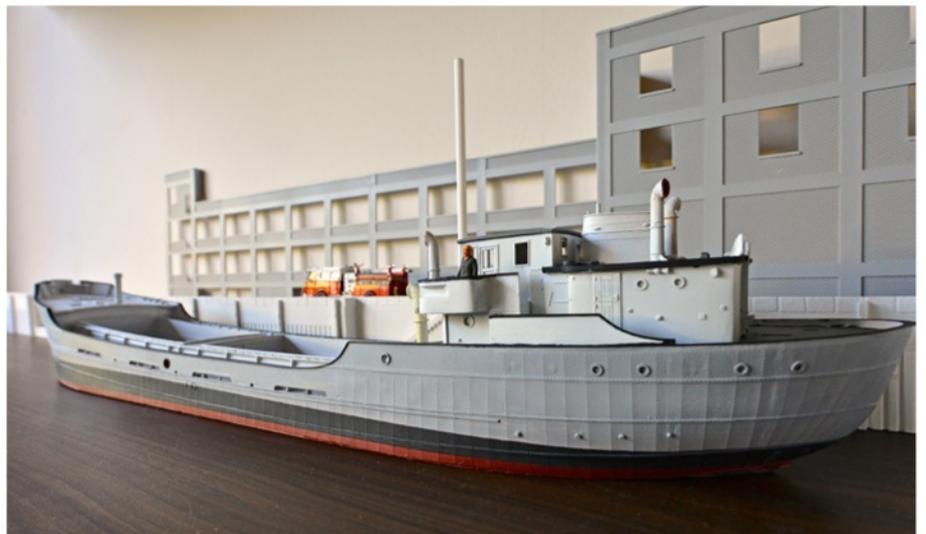
Learn more about the High Line. Registered users can download a pdf of "West Side Story" from the March 2002 issue of *Trains* at www.ModelRailroader.com.



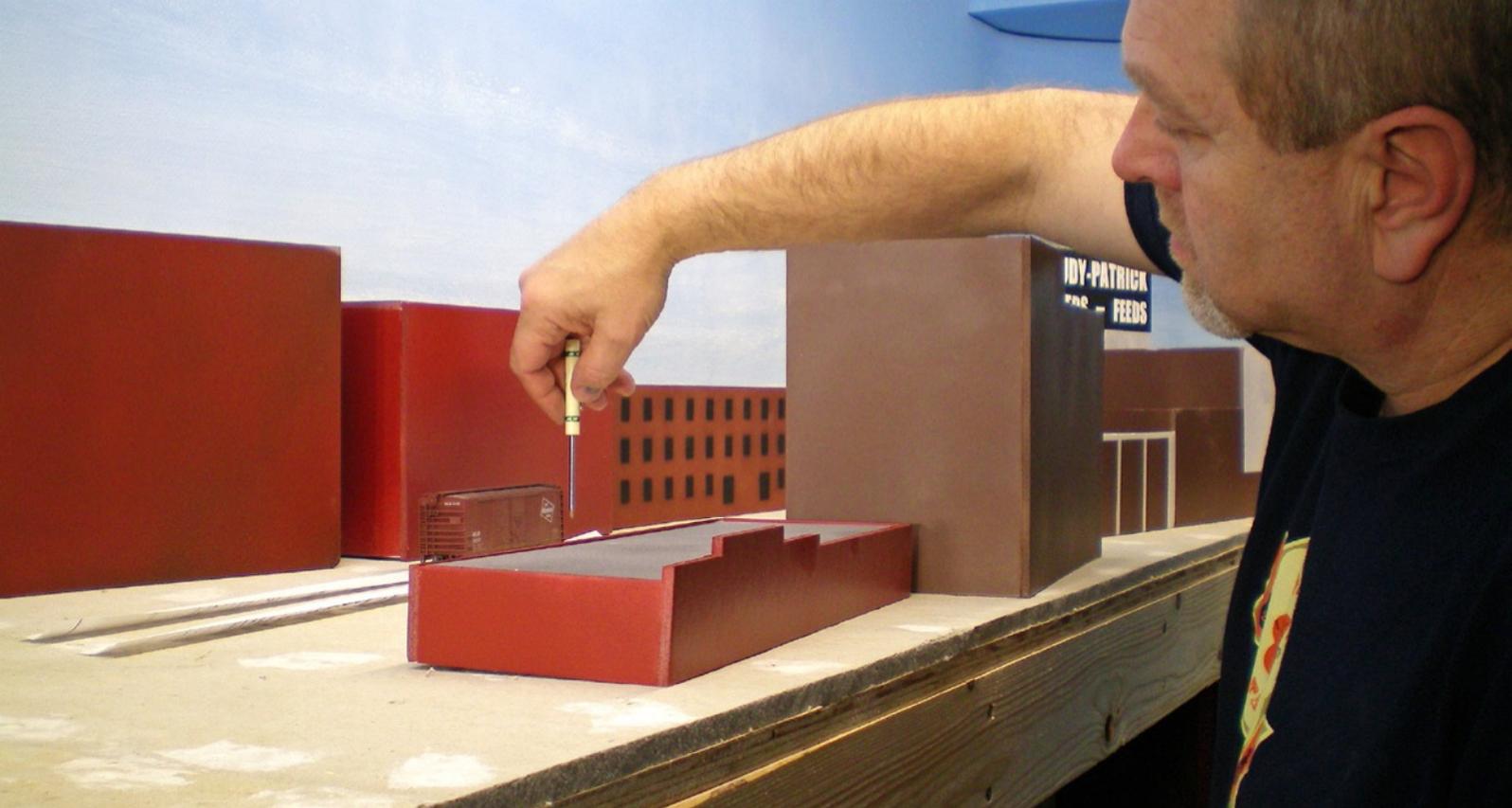
Erik and Evan photocopied vintage black-and-white photos of New York City from a book, cut them out, and mounted them on the backdrop.



Evan devised custom circuitry to operate the multiple lighting effects in each powered vehicle. Magnetic strips mechanically steer the cars and trucks.



This freighter, built from an Artitec kit, hints at the appearance of the second layout scene, which will be based on New York Harbor. All of the structures have been kitbashed to resemble buildings found in period photographs.



Mike Bowline used structure mock-ups to identify problem areas where reaching in to uncouple cars would be awkward, flaws his two-dimensional track plan didn't reveal. He's modeling the West Bottoms area of Kansas City, Mo., in HO scale.

Planning in 3-D using structure mock-ups

Evaluating your new railroad in all three dimensions

By Mike Bowline//Photos by the author

My shelf layout depicts the West Bottoms area of Kansas City, Mo., a location with lots of urban structures and complicated trackwork from multiple railroads. I needed to optimize the use of available area and yet maintain prototype fidelity. For urban modelers, the integration of structures and track within a densely built area can be as difficult as it is captivating to model.

My solution to this challenge was to develop my final track plan and structure sizes using three-dimensional (3-D) structure mock-ups and "paper track" – strips of poster board and photocopies of turnouts. By building a simple mock-up of each major building and then combining the paper track and

structure mock-ups on the benchwork, I was able to optimize each structure's function and presence. I also refined the location of turnouts and other track components.

Why use structure mock-ups?

A mock-up is a model or replica of a machine or structure used for instructional or experimental purposes. Structure mock-ups are useful for layout planning in any scale.

But building structure mock-ups will consume valuable hobby time. Why invest that time to build and work with mock-ups versus forging ahead without them? Here are some instances where mock-ups may be useful planning tools:

- You need to determine whether structures will interfere with reaching

in to, say, uncouple a car or line a switch, as seen above.

- You have a small layout space but want to accommodate more than just a few structures.

- You need to maintain the look and feel of a prototype area with structures somewhat accurate to the prototype but will need to use selective compression.

- You need to compress a specific structure and want to check several approaches to achieving pleasing proportions at a reduced size.

- You have trouble visualizing 3-D problems when designing in two dimensions.

- Your layout has an area where structures are tightly concentrated.

- You need to analyze lines of sight for operation or photography.

Learning points

- Mock-ups help to ensure that proper access is provided to all operational areas to uncouple cars, line switches, etc.
- They can serve as the cores of finished models.
- Mock-ups make it easier to judge the impact of each building's location.
- Fitting buildings truncated by a backdrop or aisle is easier and less risky when a mock-up is built first.

- You want one or more structure placeholders in place until the final models are constructed and installed.

- You have truncated structures that angle into the backdrop or off the edge of the benchwork.

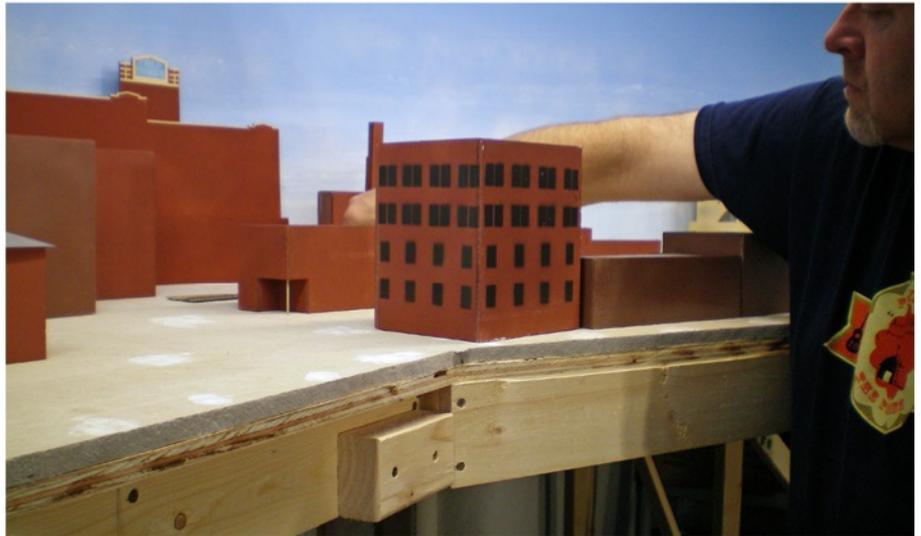
If your layout space is vast and you have flexibility in the locations and orientation of structures, then fine-tuning the 3-D components using mock-ups may not be the best use of your time. Likewise, if you're modeling a prototype scene and plan on reproducing structures and nearby features exactly to scale, then you won't need mock-ups.

I quickly discovered that I needed to consider all three dimensions as I planned the structures and interplay between them and trackwork. The West Bottoms contained hundreds of structures and track representing most of the 13 railroads serving the city in 1963, the year I'm modeling. When I transferred my track plan to my benchwork and added a few 2-D cardboard footprints of the major structures, I realized that some of the planned structures were going to block view lines and make for difficult reach-in moves.

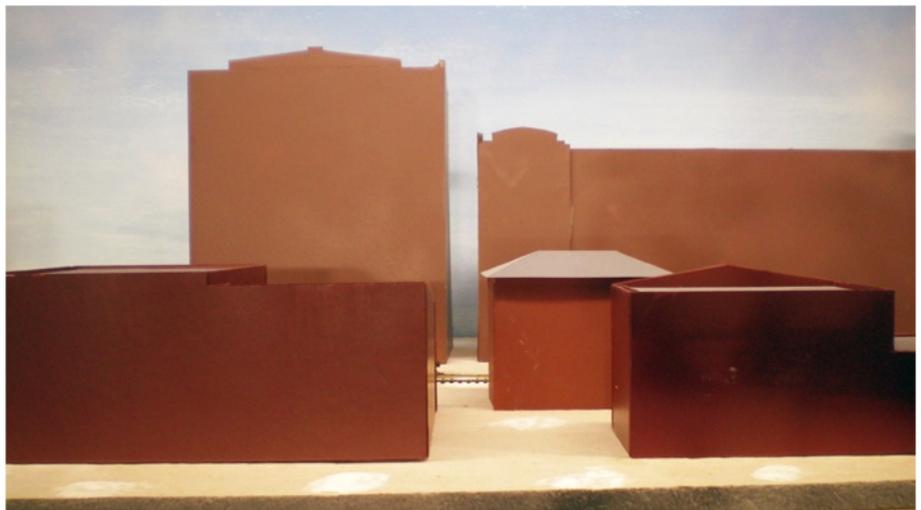
To get a better idea of the interplay between structures, track, and operators, I built and placed a few strategic structure mock-ups on my benchwork. After seeing how much easier the mock-ups made planning in 3-D, I built mock-ups of all my major structures.

A 2-D track plan may not readily identify 3-D concerns or potential solutions. I found that using mock-ups aided the layout planning phase in several ways:

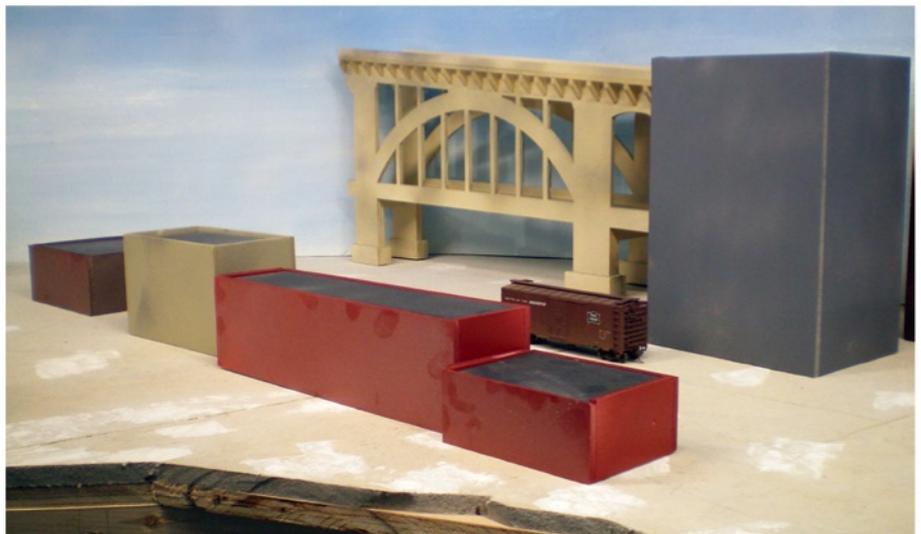
- Locating ground throws for visibility and access for big fingers
- Checking the visibility of switch and clearance points
- Refining viewing angles into corners and around structures



Mock-ups are easy to move around to find locations that allow access of full-scale arms to reach ground throws. This freight house looked innocent on the track plan, yet caused problems when placed in front of a turnout.



The planned location of Tower 2 near Santa Fe Street made it impossible to see the position of the points of the turnout just beyond. Moving the tower 3' to the right was easy at this stage of layout planning.



Putting a freight car in a scene makes it easier to visualize the overall scale of the scene in 3-D. Mike subsequently reduced the height of the two-story red mock-up by 11 scale feet to allow a better view of the base of the viaduct.



The backdrop will truncate a portion of the gabled-roof Gulf, Mobile & Ohio freight house. Building a mock-up of the structure allowed Mike to settle on its shape and angle before building the final structure.



To determine if spray-painted windows are worth the time, apply them to one mock-up and see if you like the look. For a mock-up that might be on the layout for several years, Mike thinks the result is worth the effort.



Using mock-ups allows a layout to quickly be populated with structures that will enhance the appearance and make it more interesting for operators and visitors alike. The mock-ups also serve as motivational tools for completing projects.

- Finding visually pleasing structure locations
- Defining relative structure sizes in a complex scene
- Locating structures for photo composition and video sight lines
- Checking spur visibility for spotting cars accurately and reading reporting marks and numbers
- Defining structure heights for structures near the front of the layout
- Illustrating how several structures in one area look together, and moving structures around until they look right
- Working through an area with questionable access for operations and maintenance.

For example, I have a near-backdrop switching area served by the Missouri Pacific RR that's important to the operations of the layout, but I wasn't sure I could easily reach into the area. I needed to determine whether I would need remote control capabilities and the associated required equipment: under-track uncoupling magnets (either electromagnet or mechanically activated), switch motors, and mirrors.

Another option for 3-D planning is to use one of the CAD software packages that allow a completed layout plan to be used for 3-D walkthroughs and views. However, my track plan was 90 percent complete, so the learning curve associated with a CAD program was beyond what I wanted to tackle for my small layout. Using 3-D structure mock-ups and paper track templates proved adequate.

Placeholders

In addition to assisting with layout planning in 3-D, mock-ups can act as placeholders until final structures are built. I originally was going to use structure mock-ups in only three areas, but planning, building, and placing mock-ups was a lot of fun. Moreover, as I was making important changes to my original track plan, I built mock-ups of all 53 planned structures.

I even included mock-ups of structures that aren't rail-served or critical to the railroad's operations but helped me visualize overall scenes, such as background structures, the iconic 12th Street Viaduct, and the bluff on which downtown Kansas City is located above the West Bottoms freight house area.

Cores of permanent buildings

I also discovered mock-ups built accurately and with correct proportions and angles can be used as base structures or shells for permanent models. This realization forced me to accelerate my research on the proto-



This photo of Kansas City's West Bottoms area only hints at the canyons created by myriad towering brick structures. Arranging models of these structures requires care to allow access to key track components.

Jim Senese photo

type structures to ensure the mock-up shells were accurate.

Mock-ups can also help you define layout height as it relates to reaching in to line switches, uncouple cars, view reporting marks, and check switch points. Mocking up various layout heights helps determine what elevations yield the best compromise for access, viewing, and construction. I used mock-ups on my already-defined layout height to work out access and operations issues.

Researching, designing, and constructing mock-ups (see "Building structure mock-ups" on this page) are good warm-up exercises for constructing the final models. Prototype research will help to define details such as color, material, shape, window and door types and locations, signs, and the interplay between structures.

Questions and concerns

Where my track and structures are placed tightly together, I trimmed or eliminated portions of structures' rear and side walls not visible from the aisle to allow track to pass through. This was much easier to accomplish during the mock-up stage.

One way to create a prototypical appearance for the mock-ups is to add some 2-D details to give the mock-up a 3-D feel – using a stencil to spray paint black windows on the walls, for example. The before and after photos will help you determine whether this is worth the effort. Adding black freight doors on freight houses and industries will make spotting cars more prototypical from the outset.

My model of the Gulf, Mobile & Ohio freight house intersects the backdrop at a shallow angle. The mock-up

Building structure mock-ups

Mock-ups can be built using many different materials. If the mock-up is to be a coarse representation of the final model or if it will be in place only for a short time, then posterboard or cardboard can be used. However, for a solid, semi-permanent mock-up, foam core is a better alternative. It's relatively inexpensive, easy to work with, doesn't warp, and provides a solid core for permanent structures in the future.

I used Walthers Goo to join the pieces to make solid corner butt joints. A roof with 90-degree corners helps keep the mock-up's corners square and improves overall strength. I used cheap spray paint somewhat representative of the color of the prototype. I painted the roofs separately with a variety of colors, such as tan, gray, or black.

To save material, I eliminated any large walls that aren't seen from the aisle and used bracing instead. I didn't model roofs above eye level.

I'll spend many happy years building the 53 final models of the structures, so the mock-ups may reside on my layout well beyond the layout planning stage. I therefore invested a little more time in their design and construction than I initially envisioned. Nonetheless, I wanted viewers to easily understand that the mock-ups were temporary.

The prototype had more room to work in than we modelers do, so we usually let the track geometry dictate the final location of a structure. If a model structure must have absolute fidelity to a prototype structure, however, we should relocate track that interferes with a structure's location and/or size.

I found that placing a piece of rolling stock in the scene being analyzed helped me gain a better feel of the relationship between all the elements of a scene. – *Mike Bowline*

allowed me to find a location for the structure where the angles between the roof and the backdrop worked best.

My railroad will be operated using ground throws for switches, uncoupling picks, and walkaround throttles. It's therefore important that operators be able to reach into the layout to access these items. Using mock-ups helped me determine which ground throws or car-spotting locations will be difficult or impossible to reach. In these locations, I will use remotely operated switch machines and hidden electromagnetic uncouplers.

Payoffs

Using mock-ups helps to avoid making mistakes that may require time and money to rectify. I was able to make improvements to my railroad as a result of using mock-ups that I might have missed otherwise. These included reducing the height of and/or relocating some structures, checking clearances on a curved-wall structure next to a mainline curve, and deleting one structure that would have required spotting cars inside the building in an impossible-to-reach location. It also allowed me to use selective compression to greater advantage, check clearances throughout the area, and confirm that I need to make structures at the front of the layout removable

and flexible to withstand being nudged by elbows and chests.

A good investment

The time to construct each mock-up averaged 30 minutes. I mass-produced six or seven at a time. Going beyond the plain-vanilla box by using a stencil to paint on windows added another 15 to 30 minutes depending on the number of windows and doors. Creating a mock-up with wall shapes that went beyond a plain rectangular box added about another 15 minutes per structure.

The investment of the time to model my railroad in 3-D using mock-ups and paper trackwork more than paid for itself, as evidenced by the above list of changes I made as a result of using mock-ups. And it was fun seeing my 2-D track plan come to life in 3-D over a few weeks instead of years as the paper trackwork and mock-ups began to populate the layout. **MRP**

Mike Bowline is a traffic engineer in the Denver area where he lives with his wife, Julie. After moving around the Midwest several times and dismantling several incomplete N scale model railroads, he is enjoying building his first HO layout depicting the 13 railroads in the Kansas City area in 1963 and looking forward to helping his grandchildren become acquainted with model railroading, golf, and bluegrass music.



This late-1960s photo shows the general layout of Ackley, Iowa. The Minneapolis & St. Louis Ry. main track can be seen from the top left to the bottom. Illinois Central's Chicago-Omaha line crosses the M&StL at bottom with

Chicago to the right. The concrete grain elevator replaced a wood elevator in 1958. Marshall Canning is at the top left; the covered hopper at right is on Carstens' Hardware siding. Iowa State Historical Society, courtesy Gene Green

Modeling a small town

Ackley, Iowa, on the Minneapolis & St. Louis Ry.

By John Golden//Model photos by the author

Following my retirement from the U.S. Air Force in 2010, I started a second career that finally gave me the opportunity to settle down and build a layout in a new home with a sizable basement. I had dreamed of modeling the Seaboard Air Line's busy single-track route through southern Virginia. I still have three kids

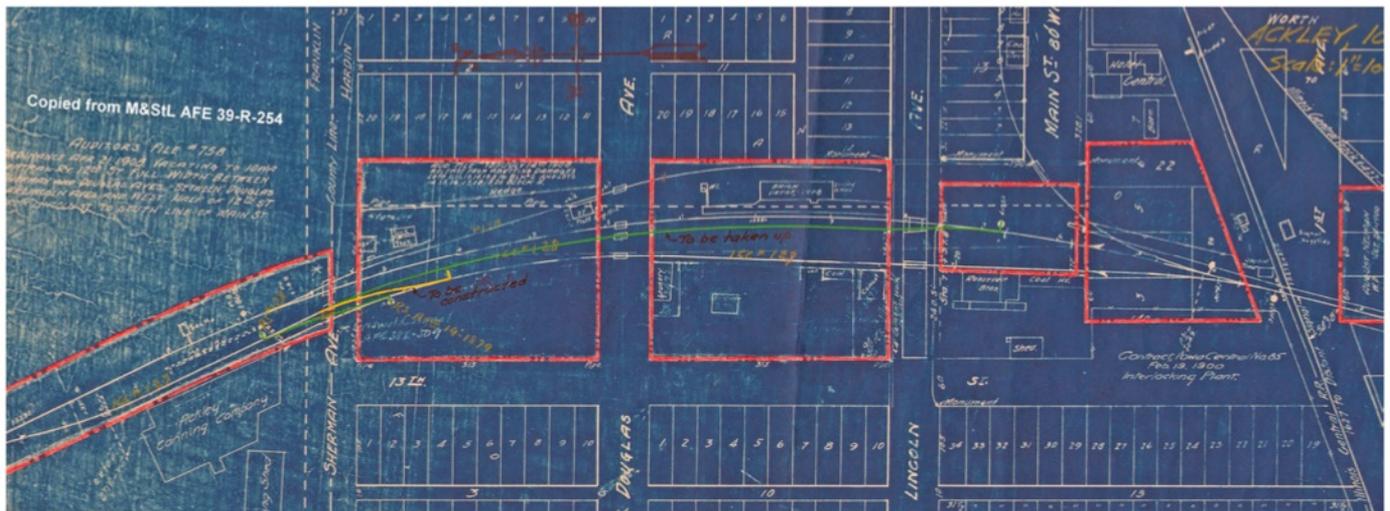
at home and an active family life, however, so I didn't expect to have the time or resources to devote to such an ambitious project.

Instead, I felt that modeling one small town – a town that had a little bit of everything, with almost generic features – would provide a layout I could share with family and friends

and still leave time to enjoy other aspects of the hobby, such as freight car building, researching, and writing.

Why Ackley, Iowa?

I collected information on several dozen small towns that I considered to be good candidates for modeling. Some of my favorites were the Baltimore &



This blueprint, with north to the left, shows the Ackley track layout about 1940 and includes most of the industries and important notes on signals, street names, grade crossings, and other features. C&NW Historical Society, M&St.L Archives, courtesy Gene Green

Ohio in Rushville, Ind., the Seaboard in Vidalia, Ga., and the Minneapolis & St. Louis in Chaska, Minn. I developed a detailed list of givens and druthers and compared all the locations, and I eventually chose the M&StL line through the tiny hamlet of Ackley, Iowa, circa 1950.

Ackley had most of the essential elements I desired, including a typical Midwestern track arrangement with a secondary main line, an interlocked crossing at grade (with the Illinois Central RR), a mix of typical Midwestern agricultural industries, and an interesting small-town depot with an around-the-clock agent-operator. The right-of-way also included typical lineside structures, a water tank, and a large plant and several additional industrial sidings off the main line. Most of the rail-served industries were on one side of the main track, improving access to the layout.

Ackley also possessed attractive aesthetic elements I was looking for. In my youth, I took railfan trips along the former M&StL lines and have a deep connection to the railroad. I also find the small-town Iowa railroad scene in 1950 to be quintessentially American. The broad curve through the town is a nice feature, and the area is typical of many Midwestern locations. The town featured no wyes, roundhouses, or complicated trackwork, which I liked. And I could model the town and operate it realistically in anywhere from 15 to 50 feet, depending on the available space.



John designed his layout by adjusting the track plan to fit around key structures – some already built, some mocked up – and prototypical features instead of the other way around. Most of the town’s industries were conveniently located on the west side of town, but a complicating feature is the long siding that includes five industries and nine car spots.

The wide selection of in-town industries provides an opportunity to use most of my freight cars, and the interchange with the IC (called a “transfer” on the M&StL) would allow me to use virtually any car, making it a “universal industry.” Modeling the town in late August or early September 1950 would provide ideal operating conditions, since the town’s main employer – a canning plant on the M&StL main line – was in full operation canning corn after the harvest. The grain elevator and stock pen would be busy as well.

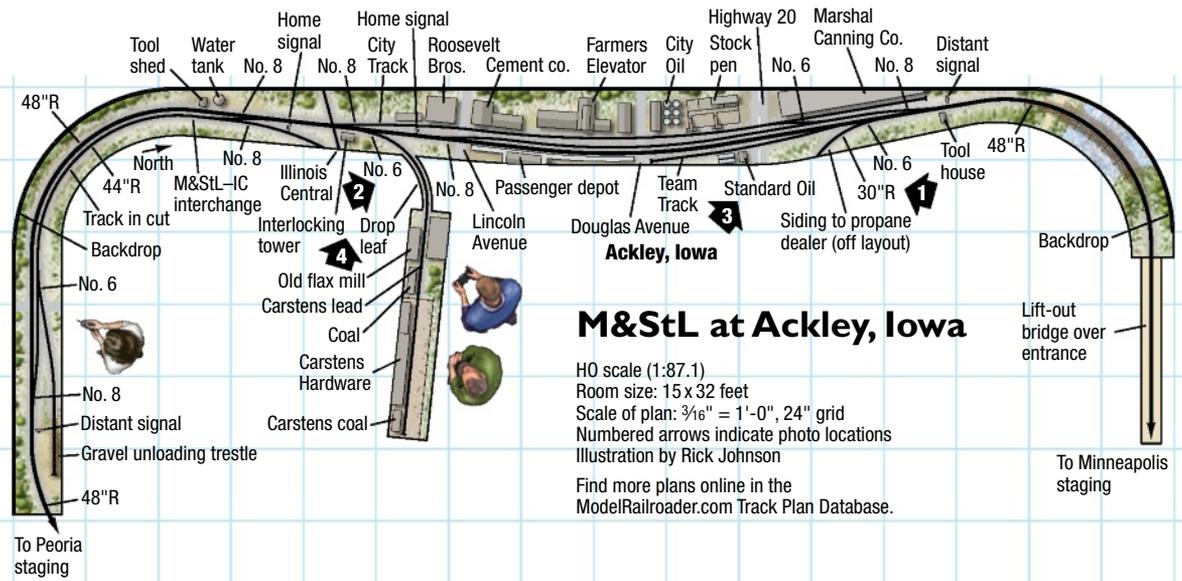
Its typical look would also allow for some options – see “A generic railroad” on page 75.

Room preparation

In December 2010, our family moved into our new home in Illinois, which included a large, mostly unfinished

basement. We set aside a 15 x 32-foot area in the basement as a layout room and workshop. We had the builder make 9-foot ceilings in the entire basement and include additional power outlets and an electrical sub-panel in the layout room to accommodate our planned upgrades.

After living in the home a year, we hired a contractor to finish the layout room. We installed wall switches at the entrance to the layout room so I could control room lighting with one switch, layout power with a second switch, and workbench power from a third – features that enhance safety and convenience. I also had a drop ceiling professionally installed. Unfortunately, the layout room had to share space with the water heater and other home mechanical appliances, which would cause problems with layout design.



The layout at a glance

Name: The M&StL at Ackley, Iowa

Scale: HO (1:87.1)

Size: 15'-0" x 32'-0"

Prototype: Minneapolis & St. Louis

Locale: Ackley, Iowa

Era: September 1950

Style: single deck

Mainline run: 50 feet

Minimum radius: 48" visible, 30" staging

Minimum turnout: no. 6

Maximum grade: none

Train length: up to 20 feet

Benchwork: open grid

Height: 52½"

Roadbed: extruded-foam insulation board

Track: code 70 flextrack plus modified Proto:87 Stores turnouts

Scenery: Hydrocal over extruded-foam insulation board

Backdrop: tempered hardboard

Control: NCE Digital Command Control

Track planning

I didn't track plan using the conventional pencil-and-paper method. Instead, I laid out potential track arrangements "live" by laying the track pieces out along a 32-foot windowless wall. Photos, track charts, and Sanborn fire insurance maps were used to replicate the prototype as faithfully as possible.

Once I had a basic idea of what would fit in my available space, I then laid out a long roll of 2-foot-wide kraft paper and, still using flextrack, prepared a more refined track plan.

I mocked up structures and key scenic elements, benchwork joints, and other features, continually refining the track plan around those key elements until everything fit as I had envisioned.

An important consideration was the inclusion of the broad curve in mid-town Ackley. Getting the curve right allowed me to include space for rail-served industries on both sides of the main line. The curve bulged the benchwork out to 28" deep, but I broadened the curve so the track is no more than 16" away from the aisle. The area between the track and the backdrop would be filled by full-depth models of industries.

When I was satisfied that everything fit, I drew the track plan on the paper and then trimmed it to create a benchwork plan. Finally, I taped the kraft paper down on ½" plywood sheets as a template and cut around the paper, producing a perfect sub-roadbed base for the town site.

Initial layout construction

I'm building the main portion on 8-foot, freestanding, lightweight modules to reduce damage to the textured walls and paint. Each module has its own built-in legs, fascia, and ⅛" hardboard backdrop, all screwed and bolted together.

This type of sectional benchwork is "movable" in case I have to disassemble the layout and get it back up and running quickly in a new location. The connected modules are very sturdy, but this type of construction requires additional work to hide seams in the backdrop and fascia as well as bridge track and removable scenery across the sections.

To match the prototype's rail weight, I am using Micro Engineering code 70 flextrack on the main and sidings and code 55 on all industrial tracks. The turnouts are all kitbashed Proto:87 Stores (www.proto87.com) turnout kits. They're operated by Tortoise by Circuitron or Switchmaster switch motors, which are controlled by microswitches mounted on the layout's front fascia.

I made 48"-radius curves with easements standard on visible main lines; 30"-radius curves are the minimum elsewhere. I use O, HO, or N cork roadbed on the layout to provide prototypical differences in track and roadbed height. Track height is 52½" above the floor, which is a compromise between my height and that of my wife and children.

Staging

The addition of the mechanical room ate up precious space in the middle of the staging side of the room, so the staging yard design remains unresolved. I would prefer a double-ended, 10-track yard with a continuous connection, but staging will have to fit into a 12-foot space, just half the space I had hoped for. To complicate matters, the staging yard will have to bridge a second doorway to the rest of the basement.

I'm therefore planning an oval-shaped staging yard in the center of the room. The oval should provide enough space for six tracks, but some curves may drop below my 30" minimum. The oval also allows me to use a continuous connection, and I should be able to stage short trains sequentially on the longer tracks.



1. Before layout construction progressed too far, John had a contractor install a drop ceiling to improve the room's appearance and help keep dust off the layout.

The oval also presents the opportunity to build a drop-leaf connection from the IC interchange or the Carstens Hardware siding to the staging yard benchwork, opening up additional operating possibilities. I am considering adding a module beside the staging yard and modeling the Carstens siding in its entirety – giving me three or four additional car spots to work – or perhaps extending the IC main to provide a live interchange connection. It turns out the addition of the mechanical room and the resulting reduction of space may actually provide more layout than I originally planned.

Operations planning

The M&StL line through Ackley, known as the Ninth District, encompassed the lines between Albert Lea, Minn., and Marshalltown, Iowa. In 1950, the carrier was running four scheduled trains south through Ackley (east by timetable direction) and five trains north (westbound by timetable) per day, plus a few extras each way. Two of the trains were first-class passenger trains normally operated by gas-electrics hauling one or two coaches. The other two first-class trains were freight trains – more on that later. Locals were run as third-class trains.

Train dispatching was accomplished by timetable and train orders. This was

A generic railroad

Like most modelers, I'm a fan of many railroads, so settling on one location to model was a challenge. The railroads of the 1940s and '50s had amazing personalities, and no two railroads were alike. A few years ago, I asked my friend Frank Peacock if he was planning a layout, and he responded affirmatively, adding that he had narrowed his focus down to a dozen of his favorite railroads, and two scales. "I'm making progress!" Frank added.

Like Frank, I had difficulty narrowing my focus down to model one railroad and one specific location. Included among my requirements for finding a suitable small town to model was finding a "generic" location. The track layout at Ackley is simple, and the flat, gently rolling terrain around town looks very similar to many other places in the country. On this layout, I can easily substitute a different station, interlocking tower, and a few buildings and run a New York Central scenario with NYC equipment, or a Monon scenario, or a Baltimore & Ohio scenario, and so forth when the mood strikes or when friends visit. Of course, the layout won't be prototypically accurate for modeling another town on another railroad, but a generic-looking setting makes the layout a little more dynamic and keeps me learning, researching, and growing in the hobby – all of which are great things! – *John Golden*

"dark" territory, but interlocking signals were installed at all crossings with other railroads. A train dispatcher issued orders modifying the published schedule to operators at depots and interlocking towers.

A mechanical interlocking protected the crossing at Ackley until 1942, when it was replaced by an automatic system. Track south of the IC crossing included a 2,600-foot siding used as a passing track and for overflow when the transfer was full. Track north of the IC included the town site and all the railroad's on-line customers. There was a second, double-ended siding in town

for local switching. This shorter siding was removed about 1940, but I'm retaining it.

I intend to replicate operations as prototypically as possible, with the layout's signature train being a regularly scheduled through local, such as M&StL's second-class train No. 33 (northbound). Other local trains can be operated as third-class trains or northbound or southbound extras. Number 33 was carded to arrive at Ackley about midnight, but documents show the train operated at all hours of the day. It handled anywhere from 15 to 75 cars in 1950; my vision for the



Learning points

- Even a small Midwestern town can generate significant in- and outbound traffic opportunities.
- Choosing a town that is served by two railroads that cross at grade enhances traffic and provides the opportunity for a working interlocking plant.
- Choosing a busy season to model will enhance operations.
- Operations in a small town may become more challenging by the arrival of scheduled through freights and passenger trains.
- The same town may support the operations of a variety of similar railroads by swapping motive power, cabooses, and passenger equipment as well as a few key structure changes.

local is a single Alco RS-1 or steam engine, 10 to 15 cars, and a caboose.

Even in the very busy postwar years, local trains through Ackley wouldn't switch every car or every industry every day. A more realistic operating scenario involves a northbound local arriving in town, checking with the agent-operator for any orders or additional car movements needed in town, switching the IC interchange, switching trailing-point industries needing service, then continuing northbound off the layout. During the fall harvest season, the local may also

2. A stand-in Milwaukee Road Geep leads a southbound local past the Ackley elevator and future depot site as the railroad begins to assume its final form.

be required to switch the cannery and perhaps move loaded cars from the cannery to the IC or take them north to Mason City.

A southbound extra could repeat a similar sequence: Switch the interchange, the cannery, and trailing-point customers, then continue south. With up to 29 car spots spread across 50 feet to consider, the local train will keep its crew quite occupied.

Operational intensity can be introduced by adding through trains. Number 33's southbound counterpart was No. 32, the *Decker Meat Express* – or DMX – which arrived at 9:30 p.m. with fresh meat from the Decker packing plant in Mason City. The DMX was one of the hottest trains on the railroad, and its departure from Mason City was timed to meet a Chicago-bound Illinois Central express at Ackley every evening.

After picking up the Decker meat, this IC train headed to Waterloo, Iowa, where meat from Decker in Omaha and Sioux City and from Rath in Waterloo was consolidated in high-priority trains heading to Chicago and points east. Number 32 could be added to hustle meat reefers to the transfer and then be released for local switching.

In addition to the DMX, M&StL's first-class freight trains, Nos. 19 (northbound) and 20 (southbound), scorched the ballast from Minneapolis through Ackley to Peoria on daylight runs. Ackley is within yard limits,

meaning second-class and below trains are required to slow to yard speed, expecting to stop or meet other trains. Trains 19 and 20 are first-class trains, however, meaning they don't slow or stop when approaching yard limits.

Even though 19 and 20 weren't carded to stop at Ackley, introducing them would force the local into one of the two sidings and slow work to a certain extent. Depending on the demand for empty boxcars at the cannery, I could have Nos. 19 or 20 deliver additional cars off-spot to Ackley for loading, again complicating matters for a busy local crew.

The IC connection has the capability to be a continuous traffic generator. In 1950, the IC was running 12 to 14 trains a day plus locals and extras on the Omaha line. I plan to install an operational interlocking system at the IC crossing that will include timed red blocks to simulate the passage of IC trains. Since the IC crossing cuts the layout in half, crews will have to be skillful to continue their work and to stay on time while IC trains pass: They will have only half the room to work with and no runaround option, as the runaround is within interlocking limits. Simulating random setouts and pickups by IC trains will enhance operations as well.

Illinois Central RR authority Paul Michelson notes that an IC eastbound train consist originating off the Union Pacific at Council Bluffs, Iowa, included



3. Getting the family involved in the hobby – here John’s daughter Kirsten “playing trains” – was one of John’s primary considerations in building a layout that everyone could enjoy.



4. John began constructing industries during the planning stage. This is the Roosevelt Bros. Contracting Co., formerly a flour mill. From right to left, the scratchbuilt complex includes the main building, a powerhouse annex, an open-topped bin for catching corncobs, and a coal bin. In this era, coal was delivered to customers in boxcars or high-side gondolas unloaded by hand.

Traffic at Ackley

This list shows M&StL’s 15 known customers at Ackley in 1950. The stock pen was probably last used in 1950 but will be included to enhance operations. The fertilizer company is a post-1950 customer but also will be included so I can use propane tank cars. – J.G.

Customer	Location	Shipped/received	Type	Car capacity
Carstens Hardware	Carstens lead	Received building materials, coal	Box, flat, gondola, hopper	2
Coal	Carstens lead	Received coal	Box, gondola, hopper	1
Elevator	Carstens lead	Received coal	Box, gondola, hopper	1
Flax Mill	Carstens lead	Shipped flax and linseed	Box	2
Roosevelt Brothers	Industry track	Received building materials, coal	Box, flat, gondola, hopper	1
Cement dealer	Industry track	Received bagged cement	Box	1
Elevator	Industry track	Received feed; shipped grain	Box	3
City of Ackley Fuel	Industry track	Received fuel	Box, tank	2
Stock pen	Industry track	Received and shipped livestock	Stock	1
Marshall Canning	Cannery lead	Received cans; shipped finished food	Box, refrigerator	6
Standard Oil	Depot track	Received fuel	Tank	1
Team	Depot track	Received and shipped less-than-carload lot (LCL), machinery, etc.	All	1
Loading dock	Depot track	Received and shipped LCL, machinery, etc.	Box, flat, refrigerator	1
Fertilizer	Private track	Received propane	Tank	1
IC Transfer	Transfer	Freight car interchange	All	25

10 loaded Pacific Fruit Express reefers to be delivered to the M&StL at Ackley, so there are a lot of opportunities to add traffic. I can also add an occasional Chicago & North Western or Rock Island detour train.

Looking ahead

At the time of this writing, I have about half of the benchwork complete,

and most of the track is installed on that part of the layout. Construction of the staging yard is next, followed by completion of a few additional layout sections. I’m looking forward to starting small operating sessions and learning how to run this railroad like the pros did. Using prototype track plans as a guide ensures that is an achievable objective. **MRP**

John Golden, a retired U.S. Air Force lieutenant colonel, got his start in model railroading with a train set at age 7. He’s a prototype freight car expert who served as the editor of the Seaboard-Coast Line Modeler online magazine (<http://s-clmodeler.aclsal.org/>) and hosts the annual St. Louis Railroad Prototype Modeler’s meet. He and wife, Kristina, have three children.

10 tips for a better layout

Easily added features that enhance realism and operation

By Tony Koester//Photos by the author

Doug Gurin, founder of the Layout Design Special Interest Group (www.ldsig.org), has long urged us to “make only new mistakes.” Good advice. I wish I’d known enough to take it on a few notable occasions. But a mistake isn’t just doing something wrong; it also embraces not doing something at all, usually because we didn’t know we should have.

Here are several tips that have helped me design and build a better model railroad, especially in terms of planning for and enhancing realistic operations. **MRP**

Learning points

- Some of the busiest “industries” don’t require any structures at all.
- Consider how a professional railroader would accomplish a given task before making up procedures for your operating crews.
- By following prototype practices, additional operating positions can be created.
- Staging and fiddle yards allow us to simulate trains coming from and going to the rest of the continental rail network.
- Cars routed into un-modeled industries behind view blocks or in the aisle can be switched in spot order.



Building a model railroad that is at once realistic, challenging, and fun to operate requires attention to details. Here Doug Watts (left) and Jerry Albertie work the east end of the westbound yard at Frankfort, Ind., on Tony Koester’s HO Nickel Plate Road.

Overlooked industries I: Interchanges

As we consider industries for our trains to switch, we tend to envision big buildings. But two of the most prolific industries in terms of generating a lot of widely varying traffic require no structures at all.

The first is the interchange track, which we call a “universal industry” because it can receive and deliver almost any type of freight car in quantities varying from a car every few days to scores of cars per day. Two of the small towns I model on my HO scale Nickel Plate Road layout interchanged an average of 60 inbound and outbound loads and empties every day. It’s hard to imagine another industry with so much traffic potential and variety.

I accommodate this traffic on my layout with long interchange tracks. The Monon-NKP interchange tracks at Linden, Ind., duck through the stud wall that supports the central peninsula. At Humrick, Ill., which lies along the basement wall, I built a low view block that hides the Milwaukee Road-to-NKP track. The NKP-to-MILW interchange track parallels the fascia on the aisle side.



An interchange track is hidden behind a grove of trees that allows ready access for maintenance. A sensor from Iowa Scaled Engineering controls the on/off cycle of a Milwaukee Road unit that shoves cars slowly into view for the NKP to pick up. [See the December 2014 MR.]

2 Overlooked industries 2: RIP tracks

The second is the RIP – repair-in-place – track. As freight trains enter a yard, a car inspector checks every car for defects like worn brakes or damaged safety appliances. Cars with defects are switched out of the train and routed to a RIP track, where most minor repairs can be made quickly. These tracks are often out in the open, sometimes with concrete pads where tools and jacks are positioned. On a model railroad, we can ask the yardmaster to inspect incoming cars and flag any needing repair for low couplers; poor-rolling or wobbly wheelsets; or missing brake wheels, grab irons, and the like with a bad-order ticket inserted in front of its waybill. Those cars are then switched into the RIP track, where the layout owner can repair them between operating sessions, then return them to the RIP track.



Repair-in-place (RIP) tracks are where cars with minor defects are quickly repaired and thus serve as a good place for models with similar defects to be spotted for between-session repairs.

3 Overlooked industries 3: Engine terminals

When we add an engine-servicing area to our railroads, we tend to think in terms of those tracks and structures that directly service the locomotives (see Rick DeCandido's article on an engine terminal beginning on page 30).

But the supplies for those engines often arrive by rail, so we also need to think of an engine terminal as another industry. In the steam era, fuel would arrive in hoppers filled with coal or tank cars filled with oil. Traction sand arrives in gondolas or covered hoppers. Cinders would be carted away in gondolas or hoppers.

In the diesel era, the need for fuel oil and traction sand remains. The yard engine's crew or the crew of the industrial switch engine should switch the engine terminal just as they would any other local "industry."



Engine terminals serve as another "industry" to be switched, requiring the regular delivery of fuel and traction sand and, for coal-fired steam locomotives, the removal of firebox cinders.

4 Yard design I: Lead length

Only small railroads would tie up the main line while switching a yard. On a busy railroad, considerable care is taken to avoid restricting the movements of inbound and outbound trains as the yard crews go about their daily toil. Yard ladder tracks that feed into a yard lead allow the yard engine to continue switching while road trains arrive at or depart from the yard.

How long should a lead be? Retired Nickel Plate Road engineer Don Daily says that when he worked on the prototype, they pulled only as many cars as the engineer and the on-the-ground crewmen could easily see. Since the lead negotiated several crossovers, the visual range was about 15 cars (there were no two-way radios back then), which restricted the cut to that length.

The key thing to remember is to provide the tracks needed for each crew to efficiently and safely perform its required tasks.



In the pre-radio era, yard leads need to be only as long as the cut of cars a yard engine crew can safely handle while they watch hand signals relayed by switchmen on the ground or riding on the top of cars.

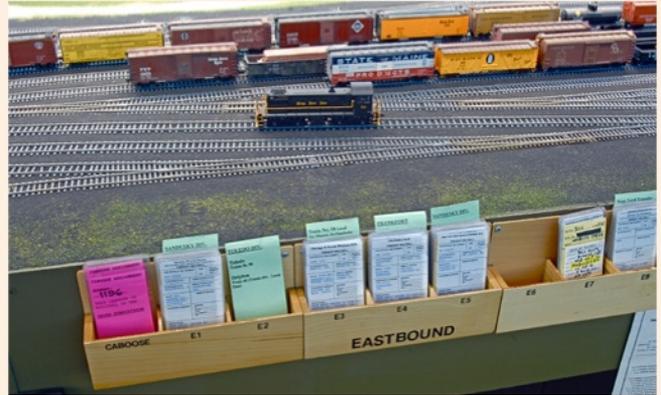
5 Yard design 2: Sorting and blocking cars

How do you see the reporting marks and road number of a car in the middle of one of the hard-to-see back tracks in your yard? Answer: You don't even try.

If the pros couldn't find a car listed on a waybill or, far more likely, a switch or "dinger" list, the switchman wouldn't walk down the dangerous corridor between narrowly spaced yard tracks to search for it. Instead, he'd signal the yard engineer to pull the track(s) where he suspected the car would be, while he remained out of harm's way by the ladder track.

Veteran model railroad operators typically avoid such problems by having a bill box for each yard track. As cars are switched into a track, their waybills are dropped in the same order into that track's bill box. Each track is temporarily assigned to a specific train or destination.

One shouldn't make up a train by handing a switch crew a stack of randomly drawn waybills and telling them to "find their train" in a yard filled with cars.



As cars are sorted into classification tracks, the associated waybills are dropped into bill boxes for each track. Keeping track of cars bound for like destinations is therefore easily managed.

6 Yard design 3: For-now tracks

What about cars that aren't needed right now? This could include, for example, boxcars being stored for later grain loading or cars that will go out on a train later in the day, and hence are in the way right now. One or more yard tracks are therefore designated as "for-now" tracks.

On my edition of the Nickel Plate Road, as on the prototype, the number of "MTYs" (short for empty cars) that will be needed for today's local is never clear until the general freight agent checks how many empty boxcars each industry needs against how many are already on hand. The westbound yardmaster fills this need first by capturing suitable empty foreign-road boxcars. Any deficit is made up from NKP boxcars stored in a pair of stub-ended tracks recently added to the westbound yard.



In most yards, at least one track is used to store empty cars for later use – here, westbound Track 7 – and/or as a "for-now" track to hold cars until they can be sorted by destination into appropriate classification tracks.

7 Yard design 4: Picking up power on the pit

Especially in the steam and transition era, hostlers serviced inbound engines, turned them, and left them on a ready track. When the road crew arrived, they would inspect the engine, top off the water, and only then would they head off to get on their train, usually stopping by the yard office to pick up their clearance and any train orders and messages.

This doesn't require any extra track, but it relieves the always-busy yard crew from worrying about finding a suitable engine for each outbound train and moving it from the engine terminal to the departure end of the yard. It may also create an extra job – engine hostler or roundhouse foreman – and add to the enjoyment the road crews derive from each run.



Outbound road locomotives are moved from a ready track to the yard and onto their trains by the road crew, not by hostler (Jerry Albertie) or a yard crew. Similarly, crews leave inbound engines "on the (inspection) pit."

8 Staging and fiddle yards

The premise behind **staging** or fiddle yards is that they allow us to move cars from the rest of the rail network onto or off of the tiny part of that network we have actually modeled. Without a passive staging or active fiddle yard, it's rather hard to explain how a Santa Fe boxcar wound up on a railroad set in North Carolina.

The advantage of an active fiddle yard over passive staging is that the length of an operating session isn't limited by the number of staging tracks. Railroads equipped with fiddle yards can host indefinitely long "op till you drop" operating sessions because cars and even locomotives are moved onto and off yard tracks by hand during the operating session.

My NKP has enough staging tracks for a 24-hour day, even though my operating sessions last only 12 fast-clock hours (four actual hours using a 3:1 clock ratio). The NKP scheduled five freight trains and one passenger train each way each day, plus sections and extras.



Enough staging tracks are needed to accommodate all outbound trains without interfering with the inbound movement of trains. Fewer fiddle tracks are needed, as equipment is moved on and off the layout.

9 Beyond-the benchwork industries and branches

We can accommodate an unmodeled industry with a lead that curves off behind a backdrop, grove of trees, low hill, or even the aisle edge of the layout. At North Durbin, W.Va., on the Allegheny Midland, I represented a Westvaco paper mill with a long lead that ended at the fascia. The Western Maryland's Mill Job switched the paper mill's modeled buildings as well as this track. Switching the lead required just as much care as spotting cars at actually modeled locations, since the cars had to be blocked in a certain order before they were shoved into the plant.

I also extended the Sunrise, Va., yard lead off the edge of the benchwork and staged an inbound branch local on it before each operating session. As the day began, that local would come into Sunrise Yard, freeing up the lead for normal switching use. At the end of the day, the local would head back up the branch.



Industries need not be modeled to be switched. A lead that's truncated at the aisle or disappears behind a view block and a plant spotting diagram will allow all inbound cars to be properly blocked for delivery.

10 Centering the industry on the spur

One of the most common design errors is positioning a coal mine over the stub end of the loading tracks that serve it. This leaves no room behind the tipple for the empty hoppers that have to roll under it to be loaded.

This also applies to other industries, whether they're served by stub-ended spurs or double-ended (through) tracks. If a grain elevator can load five boxcars or covered hoppers per day, then there needs to be room for one car at the loading spot plus room for another four or five cars on either side of the elevator.

Other industries may employ a winch or even a front-end loader equipped with a coupler to move cars as they're loaded. But there has to be enough "head room" to allow these moves.



Industries such as grain elevators and coal mines that load a succession of cars at one spot should be centered on the loading track to allow sufficient empties upstream and loads downstream of the facility.

Drop-down mainline extension



The eastbound local, No. 20, waits at a red-over-red home signal while the Erie occupies the diamond on its way to set out cars on the fold-down extension of its main line at Beech City, Ohio. The interlocking levers set up the route.

Simulating mainline traffic on a crossing foreign railroad

By **Bill Darnaby**//Photos by the author

Probably the greatest innovation to layout design is the walk-around concept. This took the operator from a fixed position overlooking the layout and placed her or him within the model railroad.

I remember a clinic given by the dean of track planning, the late John Armstrong, in which he presented a sketch of an operator walking through the layout with no visible aisles and pushing flexible scenery aside as he progressed along the line with his train.

We haven't quite evolved to that point yet, but maybe we are getting close.

Having one's body within the layout does present other issues, however, like what to do with a "foreign" railroad that intersects your main line at something close to a right angle. After

all, one just can't push his body through another railroad – or can he?

My Maumee Route features eight junctions and interchanges with other railroads. Some of these are live interchanges that are actually operated by an interchange crew. One, the Baltimore & Ohio at Fairmont, Ohio, is set up so that the B&O has to occupy the crossing, if only briefly, to do its work.

The Erie crossing

The Erie RR's line down to Dayton, Ohio, crosses the Maumee at Beech City. This crossing was the last interlocking on the layout that lacked detailing and functionality.

I always intended for it to be a live interchange, but there was no place to stage the Erie except to have an engine and cut of cars parked in full view. A removable extension into the aisle could almost double its length without completely obstructing the aisle. This couldn't be true staging in the sense that equipment could be left on it until needed, but it would permit stored Erie interchange traffic to be manually placed on and removed from this extension.

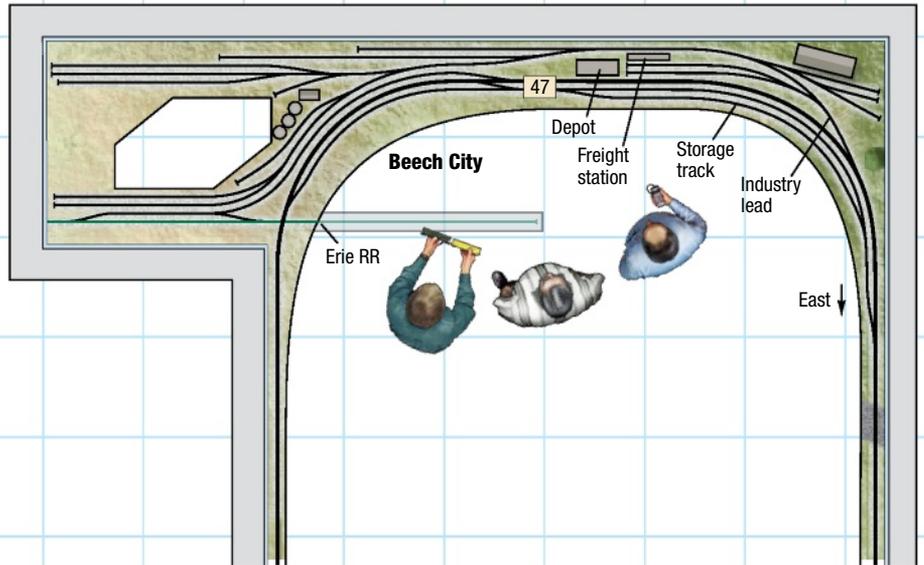
The idea progressed no further until I attended a series of operating sessions in Kansas City a couple years ago. At Mike Porter's Chicago Great Western layout, I observed a nicely crafted aluminum lift-out and some brochures from Andover Tool, the manufacturer, in Andover, Kansas.

When I returned home, I described my idea to the owner of Andover Tool Co. (www.andovertool.com) via e-mail. It would be a simple but robust single-track extension that would hinge from the fascia, swing up into the aisle, and have its own fold-up support leg. He thought this was doable and started sending CAD sketches of what it might look like and how it would work.

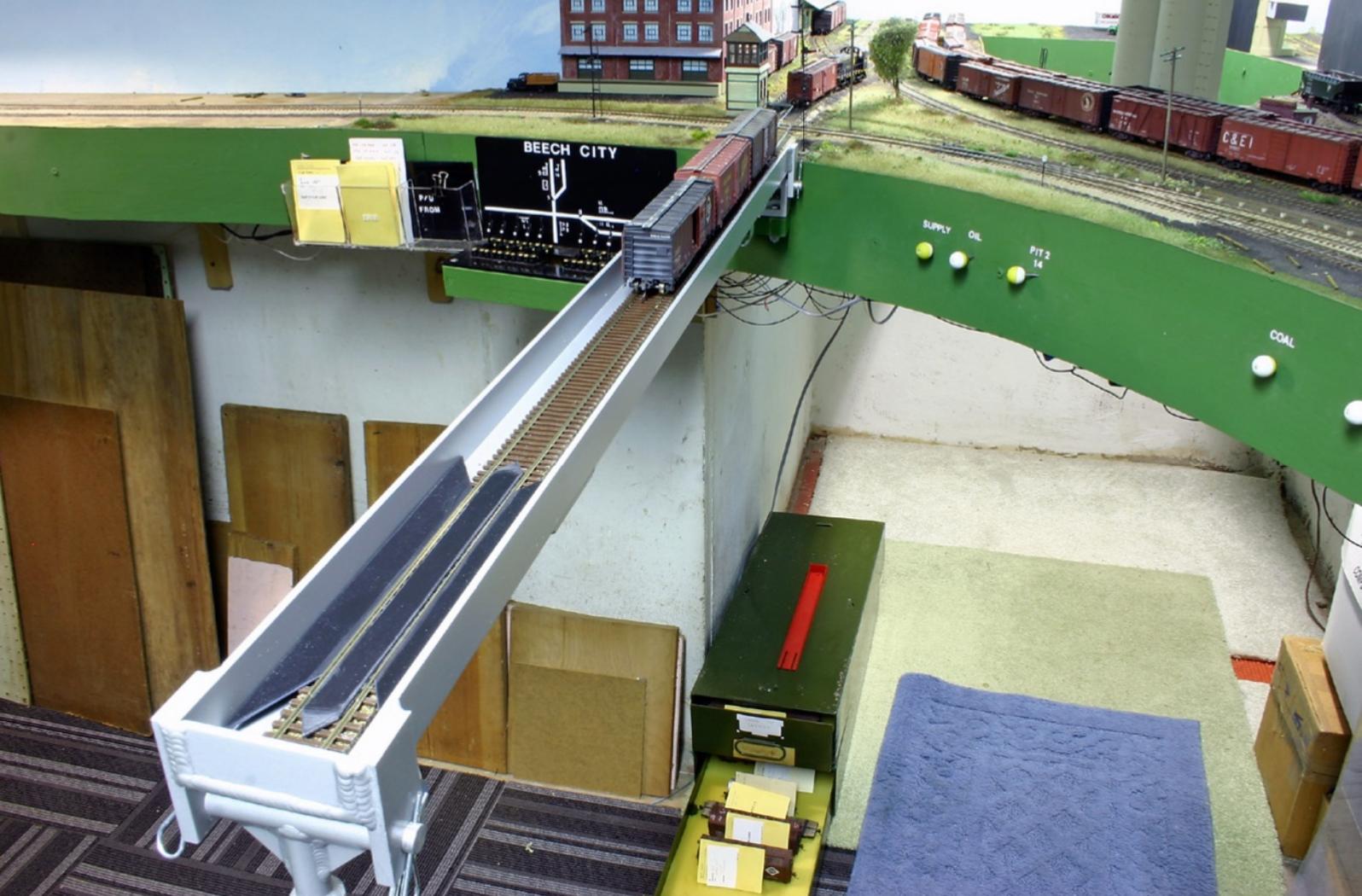
I had to provide the desired length, the details of the fascia construction, and the exact angle of intersection between the Erie track and the fascia. The length worked out to about 3 feet, which is long enough to hold six 40-foot boxcars, but not so long as to prevent passage through the aisle when the extension is in the raised position.

Designing the extension

The construction of my layout is unusual in that it's made of 2-inch thick high-density foam sheets supported by 1 x 2 joists with a tempered hardboard fascia. I expected this to complicate mounting the extension, but it really didn't. What resulted from the design process by Andover was a hardwood mounting block that I glued to the



The custom-built aluminum extension folds out of the way when not in use, but crews can still move past when it's raised for movements on the Erie.



Cars and their waybills are moved between the extension and a set of drawers, on the floor to the right of the extension, to simulate traffic moving to and from the Erie,

some of which is interchanged with the Maumee. The Erie-switched industries are at left; the Maumee interchange track is at right.

underside of the foam. It protruded through the fascia to provide a base for the extension's hinge.

The extension itself is a piece of aluminum channel, and the track rests in the channel on a piece of N scale cork roadbed to match the height of the track on the layout. The hinge assembly is fastened to a machined aluminum plate with four setscrews, one in each corner, for leveling the end of the extension and for matching the rail height of the track coming off the edge of the layout. In addition, the hinge assembly has contacts for extension track power that make the track power connection as the extension is raised into position.

A design requirement was to provide some type of folding support for the end of the extension that's

stable and easily operated. Andover Tool provided exactly that: a leg that swings out from the end of the extension and locks into position.

The leg is a tube with its lower section sliding out of the tube and locking into place. The leg has to be extendable because the Erie extension is shorter than the height of the layout, and the leg must fold out of the way under the extension. The whole device is well designed and came with clear instructions for installation.

Operating possibilities

The town of Beech City, Ohio, sits at the end of the basement with about a third of it extending into an alcove [see plan of Beech City, page 83 – *Ed.*]. Nearly all of it is allocated to Maumee industries, with the signature industry being a soybean processing plant.

For many years, until the Erie extension concept crystallized, the area allotted to the Erie was dormant. The only nod to the Erie was a stub end interchange track off the Maumee on which cars were delivered and removed by hand between sessions.

When the operational possibilities of the extension became evident, I designed two industries for the Erie to work in addition to its interchange duties: a freight house and a stove and furnace manufacturer with its lead in the opposite direction from the freight house. This required a way to run around cars, which is provided by a crossover between the Erie main and siding. There was only enough space for building flats, but the stove company does have two sides that wrap around the corner of the alcove.

The Erie-Maumee crossing is modeled as a manual interlocking typical of the Erie in the 1950s. The signals are semaphores with non-operating rods (I'm not that ambitious!) connecting them and the switches to the tower. The tower is a laser kit offered by the Erie-Lackawanna Historical Society.

Like the other manual interlockings on the layout, this one is controlled by Hump Yard Purveyance (www.humpyard.com) levers that operate micro-switches. These switches serve as inputs to a Digitrax SE8c signal driver. The interlocking logic is operated by

On our website

For more on the Maumee Route, registered users can download a copy of the article, "A day on No. 20" from *Great Model Railroads 2007* at www.ModelRailroader.com.



The pivot for the extension, shown during installation and complete with wire leads to the clips that connect power to each Erie rail, is bolted to a wood base that extends

through the fascia. The two-arm semaphore home signal clears when the interlocking levers at lower left are aligned for Erie movements.

Learning points

- Staging can accommodate foreign-road as well as home-road traffic.
- Visiting other model railroads may inspire a creative solution to a design problem.
- Outsourcing can save time and result in a superior product.
- Even relatively short extensions into the aisle can create significant operational opportunities.
- With minor modifications, one solution may be applied to other problems.

Railroad & Co. (www.freiwald.com) software to prevent conflicting movements across the Maumee and the Erie.

During an operating session, a crew member is assigned to work all the live interchanges. The foreign railroad appears out of its staging and delivers cars to the Maumee. The Erie job is different, since the crew has to first swing the extension into place.

Given the space constraints, the crew has to pick up the cars from the Maumee interchange track first and push them out onto the extension. There's simply not enough room to manipulate cars from and to the Erie at the same time. The crew then removes cars from the extension and places them into the storage drawer under the layout marked "To the Erie," although cars from the Maumee interchange track can also go directly to the Erie industries.

With the cars from the Maumee to the Erie out of the way, the crew then removes cars from the drawer marked "Cars to the Layout," and places them on the extension. The crew can then begin the job of delivering cars to the Maumee interchange track and switching the Erie industries.

Some of the cars from the two Erie industries may go to the Maumee, but most will likely continue on the Erie, which means that they will go onto the extension and then into the proper drawer. During these moves, the Erie switch job will occupy the crossing several times, and the crew will operate the interlocking with the

Maumee. They will finish the job by folding the extension back down.

Other opportunities?

The extension has worked out well. As I pointed out, there are seven other crossings on the layout, and some of them may be suitable for a similar extension. The obvious one is the B&O crossing at Fairmont, but it's on the upper deck, which would require something other than a folding leg.

Temporarily blocking an aisle may not be such a bad thing if there's enough of a payoff. Imagine a stub extension that projects into an aisle where the layout is several inches higher on the other side of the aisle. The extension could run across the aisle and go below the opposite fascia to connect with hidden staging. This would permit complete foreign-road trains to cross the main line of your railroad. **MRP**

Bill Darnaby, retired from his career as a mechanical engineer for the Electro-Motive Division of General Motors, spends the winter hosting operating sessions on the Maumee Route.

Small space, big opportunities

Stubby peninsulas for medium-size industries provide three-side access

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



Even though Mike McLain's layout is 52" above the floor, easy access for switching the Barrow Elevator Co. is assured on all sides of the short peninsula. End access could be handy behind the tall elevator.

A peninsula is a very useful layout shape. It can occupy open areas in the middle of a room, provide a longer run if there is room for a turnback loop at the end, create a long spur that represents a branch line, or provide easy accessibility on two sides for a major yard. Such uses require 8 or more feet of length plus aisles on each side that ideally are at least 3 feet wide. If you don't have this sort of open area, long peninsulas probably shouldn't be considered in your planning.

But you may find a "stubby" peninsula an ideal location for a major industry. For example, a benchwork

extension only 3 feet long and 2 feet wide provides 6 square feet that can accommodate a number of industrial structures with three or four spurs. It lets you model an industrial site where the sidings turn perpendicular to the main line, a common prototype arrangement. It's also a nice variation on model railroads where most sidings run parallel to the main tracks.

Examples of stubby peninsulas

I'll share three examples of useful stubby peninsulas on the railroads of Mike McLain, Chuck Hitchcock, and David Barrow. The main lines of these railroads hug the walls of the train

rooms – Mike's and Chuck's basements and a room above David's garage.

The short peninsulas help maintain generous aisle widths in the rooms. Mike's HO scale Missouri-Kansas-Texas Kansas City Subdivision was featured in *Great Model Railroads 2014*. As Mike built the layout, the sidewalk superintendents suggested that there was room in the wide middle aisle for a long industrial branch. As you can see in the excerpt of the GMR track plan on page 88, Mike resisted the temptation and stuck with a short peninsula. Had he built a long central peninsula, even one only 12" wide, the aisles on either side would be at most 36" wide. At that

Learning points

- Short peninsulas may fit in remaining floor space without creating tight aisles.
- On narrow shelf-style layouts, a short peninsula may allow you to create a deep scene.
- When planning a peninsula of any length, consider how you will gain access to the area behind the neck.

width, two operators could pass, but making them any narrower would have been somewhat disruptive.

So Mike stayed with his original plan and built a short peninsula. Operators switching the peninsula industry have access on three sides, and everything is within easy reach.

The first example I saw of a short peninsula was years ago on David Barrow's Cat Mountain & Santa Fe HO scale railroad. He located a grain elevator complex in the town of Cat Mountain. It stuck out 4 feet from an 18"-wide shelf on which the main line ran. At that point, the aisle was 6 feet wide, so the bump-out could easily be accommodated.

There were stairs down to the lower level just beyond Cat Mountain, which caused passing crews to veer away from the edge of the railroad, so it was the perfect place for a short peninsula. But whenever I ran a train past the elevator, I had the urge to switch it, and I thoroughly enjoyed it when I finally got that job assignment.

As construction proceeded on Mike's railroad, Chuck was aware that David had rebuilt his railroad and that the Cat Mountain grain elevator structures built years ago by Jim McAllister were no longer needed. David was happy to give them a new home. Mike used them as the base and added Walther's grain bins and conveyors. The Barrow Elevator Co. soon opened for business on a short peninsula on Mike's MKT layout.

Chuck built two such short 24"-wide peninsulas on his Argentine Industrial District Ry. One is the site of an oil refinery that has four stub-end sidings. The other also has four sidings and serves a large warehouse. Chuck has space for these two industrial sites because most of the layout is on 24"-wide shelves along the walls of the basement. The stairs, utilities, and a small storage room are located in the middle, leaving some pockets of space for the peninsulas at either end of the



A stubby peninsula on Mike McLain's MKT layout allowed the industrial spurs to be oriented at right angles to the main, thus providing three-sided access.

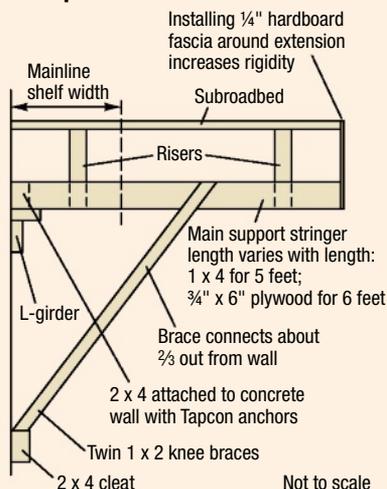


The Sinclair oil unloading facility on Chuck Hitchcock's HO railroad is on a peninsula that extends only 3 feet into the aisle.

Cantilevered benchwork for short peninsulas

The short peninsulas on Mike McLain's and Chuck Hitchcock's layouts are cantilevered from the wall. Legs or a cabinet could support the end of a stubby peninsula, but many modelers prefer to maintain clear

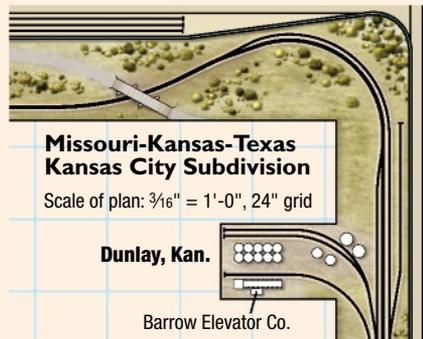
Stub peninsula cross-section



space underneath. It looks good, and there are no legs for operators or visitors to accidentally kick.

You can't just hang such extensions off the outer edge of the main shelf. The construction details may vary with the specific situation, but the key is to extend the support structure from the wall. Chuck cantilevered one peninsula out 3 feet and the other 4 feet without visible supports beyond his primary two-foot-wide mainline shelf. Peninsulas longer than 4 feet probably require legs or another type of support.

With the 3-foot extension, Chuck used 5-foot lengths of 1 x 4 lumber extending out from the wall. With the 4-foot peninsula, he used 3/4" x 6" plywood stringers 6 feet long. At the wall, the ends rested atop an L-girder, which runs around the layout room supporting the mainline shelf. Chuck used Tapcon anchors to fasten a 2 x 4 to the concrete wall on top of the L-girder to provide an additional



The short peninsula on Mike's layout is cantilevered off the wall.

attachment point for the stringers. He also used 1 x 2 knee bracing for additional stringer support.

Risers were added above the basic framework to support the 3/4" plywood layout subroadbed and the 1/4" tempered-hardboard fascia. Together, these pieces form a strong box that stands firm even if someone bumps into it. — Paul J. Dolkos



The KC Terminal Warehouse on Chuck's railroad extends 4 feet into the aisle, which required sturdier cantilevered bracing than the 3-foot peninsula.



David Barrow was one of the first to employ a short peninsula to accommodate a specific industry, McAllister Grain at Cat Mountain, Texas, on an earlier iteration of the Cat Mountain & Santa Fe. Tommy Holt photo

room without compromising aisle space.

On each of these short-peninsula examples, there are several tracks curving into the industrial site. But rather than the spurs coming directly off the main line, there are one or two parallel side tracks where the crew works clear of the main. No matter how many through trains pass the location, local crews can continue to switch without interference.

How big is 'stubby'?

How big is a stubby peninsula? Obviously, its size depends on the space available, but the peninsula shouldn't create a major detour for road crews passing by it, and the reach-in distance should not exceed 30". That would permit a peninsula width of more than 4 feet because access is possible from either side.

However, that much width could inhibit access into the neck area where the peninsula joins the main benchwork. So stubby peninsulas about 24" wide offer good accessibility all around. **MRP**

A frequent contributor to Model Railroad Planning, Paul Dolkos travels extensively in search of creative layout design ideas that he enjoys sharing with MRP readers. Paul also models the Baltimore waterfront area in HO scale.

Reader forum

Our 20th issue

There are always lots of meaty bones in each issue of *Model Railroad Planning*, but the 2014 edition was especially so. Two articles that particularly stood out focused on James McNab's Iowa Interstate Grimes Line and Jason Klocke's Chicago Great Western layout.

James' thoughts on choosing an era were great food for thought, and the track plan and concept themselves were also well worth the price of admission. And could we please see more of Jason's CGW Western Rochester Branch layout in the future? His craftsmanship is just as superb as are his ideas for making wyes functional without eating up valuable space.

For several days before I'd purchased my copy of MRP 2014 at my local hobby shop, I'd been scouring the Internet for any information and photos of a Southern Ry. smash-board diamond crossing gate for my N scale layout. Even referring to older Southern timetables to aid in Google Earth searches turned up nothing. But within an hour of arriving home, what had become a discouraging quest ended when I turned to Paul Dolkos' article, "Not-so-dumb dummy tracks." The photo on page 86 is small, but one huge find for me. Thank you!

*Paul Schmidt
Puyallup, Wash.*

Congratulations on another successful issue. It was nice to see Jim Hertzog's layout featured.

Having had the opportunity to operate on his Shamokin Division, I have experienced firsthand exactly what he is talking about. While some would consider a pusher assignment a poor choice, I actually requested it. Pushing on the rear of westbound trains up the steep grade to Locust Summit at 5 mph is quite exhilarating. The steady chuffs of the hard working T-1 4-8-4 almost reverberate off the beautifully scenicked valley walls. Quite the show!

*John Bruno
Garden City Park, N.Y.*

Progress reports

Several of the layouts featured in previous issues of *Model Railroad*



The manually operated gate guarding the CSX-NS diamond at Dock Jct. in Brunswick, Ga., photographed in February 2010, offers both modeling and operating potential. Paul Dolkos photo

Planning were under construction. It would be nice to see what they look like now.

Small layouts, like Ken Lehman's from MRP 2011, seem to be the trend. How did Ken's turn out? It was small enough that it might be finished by now, and I would love to see photos of finished scenes.

Is this something that could be added to future issues?

*Mark Olstyn
Grosse Pointe Park, Mich.*

[We've launched a new series in this issue called "Retrospectives" – see Andrew Dodge's progress report beginning on page 40 – that will indeed provide updates on layouts previously featured in MRP. Alas, Ken's won't be one of them, owing to a recent move. – Ed.]



Alice Street: Upon further review, the building at right is Monahan Paper.

Alice Street

Thanks to Andy Sperandio for the excellent article in MRP 2014 about Santa Fe rail-marine ops at Alice Street. It's great to see a direct marine connection to my modeled Valley Division in print. His discussion about industries at Alice Street reminded me

that I've been neglecting those industries and those served directly by the State Belt in my planning. Since I'm modeling Ferry Point at Richmond, Calif., and planning to use more realistic waybills for car movements, those industries, along with the ones at Alameda that I have been trying to scope out, need to be properly blocked and cars turned so they can be unloaded from the correct side. Also, cars for one [ferry] apron should not be intermixed with those for another.

One minor discrepancy: There were actually six AT&SF-served aprons out of Richmond. The State Belt had two in San Francisco with Fremont Street, in addition to the listed station at Powell Street. That omission is understandable, as Fremont Street ceased to be a destination sometime prior to the 1969 boat-sheet copies that Andy mentions. However, Alice Street was out of service at that time as well.

*John Barry
Cameron Park, Calif.*

Great job by Andy on his Alice Street track plan! I've built a shelf-style HO version of it in a 10 x 12-foot room, and it's been a joy to operate.

Andy asked about H.L. Hinman. He was an original founder of Merchant's Express. I would assume that he started his own firm in the LCL business.

I have to point out an error in the lead photo: What's called the Merchant's Express building is actually Monahan Paper (still there as of 2014) on the Southern Pacific. Their spur is behind the semi; the flagman in the foreground is protecting Madison

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Street, and the girder bridge above and behind 461 is actually the SP signal bridge across their main line on First Street. You can see one of the signals right above the right side of the cab. The SP and GN boxcars are on SP tracks (part of an interchange move?).

This picture was mislabeled in the 2001 [Santa Fe Railway Historical & Modeling Society] *Warbonnet* article. I should've sent in a correction at the time I read it!

*Bart Thurber
Oakland, Calif.*

Modeling vicariously

Model Railroad Planning continues to be innovative and interesting after 20 years. Congratulations!

I would like to comment on Tony Koester's editorial about modeling vicariously. MRP's balance between big-time and one-horse railroading is good. Granted, relatively few modelers might have the time, resources, and dedication to model big-time railroading, but with the sophistication and availability of computers and software, it's possible to "build" a virtual replica of such railroads.

On the other hand, the one-horses are valuable because modeling one is like writing a sonnet. Restrictions compel cleverness and imagination. "BIG train, small layout" is a good example. These layouts provide solutions and ideas for layouts one might actually build.

So, provided with a combination of "virtual" and problem-solving plans, one can do more than walk in someone else's shoes.

*Graeme Hamilton-Hodges
Queanbeyan
New South Wales, Australia*

"Herniated helix"

In Reader Forum in *Model Railroad Planning 2014*, I noticed the comment about the herniated helix on Mike Burgett's Chesapeake & Ohio (which appeared in MRP 2013).

Please note that Mike O'Brien from the Operations Special Interest Group (www.opsig.org) coined the term "herniated helix" 15 to 20 years ago to describe that feature, which I called a "shadow box," on my HO railroad.

Mike Burgett's design is much more impressive than mine. I'm relaying the track on the helix, changing direction of the helix at the top end, and rebuilding the scenery. I'm planning to extend the shadow-box scene like Mike did.

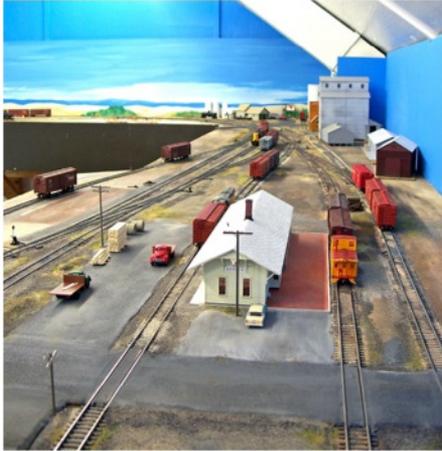
Great article!

*Jim Providenza
San Rafael, Calif.*

Digital MRP online

My recently received and quickly reviewed digital version of MRP 2014 is excellent. It looks amazing on my iMac. So far I have particularly enjoyed Cliff Powers' New Orleans Union Public Terminal article, and Jason Klocke's "Space-saving wye-less wyes," which shows his amazing scenery.

*Art Kuperstein
Langhorne, Pa.*



Harry Bilger is a one-town kind of guy, and it happens to be Moscow, Idaho.

One-town railroad

I really enjoyed Harry Bilger's article on his one-town layout in MRP 2014. My one-town railroad is a little bigger, as I had 12 x 16 feet to work with. Nonetheless, despite being 76 years old and a little slower than I once was, I might get this one finished.

I am to the stage where I can run the Gulf, California & Santa Fe to Lometa, Texas, just as it was when I worked it as a brakeman in 1960.

*Gordon Locke
Troy, Texas*



A reader has a link to Jason Klocke's Chicago & Great Western wyes.

Wye-less wyes

I think that the MRP 2014 is one of the best to date.

I loved the article by Jason Klocke on his Chicago & Great Western wyes.



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NYCSHS President Rich Stoving's Layout (Photo by NYCSHS member John Heilmann)

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I found it interesting that the traffic produced on the layout is also shared with mine. I am modeling the Illinois Central's Amboy District in 1955. At Dunbar, Ill., which was South Freeport on the Great Western, there was a big interchange between the two railroads. The iron ore that was mined in northern Iowa and southern Minnesota was hauled down to Dunbar and handed off to the IC for movement to Granite City, Ill. It's a small world after all.

*Mike Zettle
Forreston, Ill.*



Southern's Crescent Limited to New Orleans: trackage rights, or wrongs?

Crescent Limited trackage rights

I enjoyed MRP 2014 but spotted an error: In the cover story on Cliff Powers' Mississippi, Alabama & Gulf, he stated that the Southern and the Gulf, Mobile & Ohio had trackage rights on the MA&G, and that the Southern's *Crescent Limited* ran through without stopping. Between Atlanta and New Orleans, the *Crescent Limited* was operated by the Western Railway of Alabama and the Louisville & Nashville, so it wouldn't regularly operate over the MA&G. The *Southerner* and *Pelican* were Southern trains that would use MA&G trackage rights.

*George W. Simmons
Dry Prong, La.*

Motivation

I got my issue of MRP 2014 in the mail today, and after taking a quick look at it, I'll say, "Job well done!" MRP seems to cover all aspects of prototype modeling, and I especially enjoy articles on shortline modeling. I stopped working on the layout for the past several months, but this issue really has motivated me to get things started again.

*Wayne Snyder
Gainesville, Texas*

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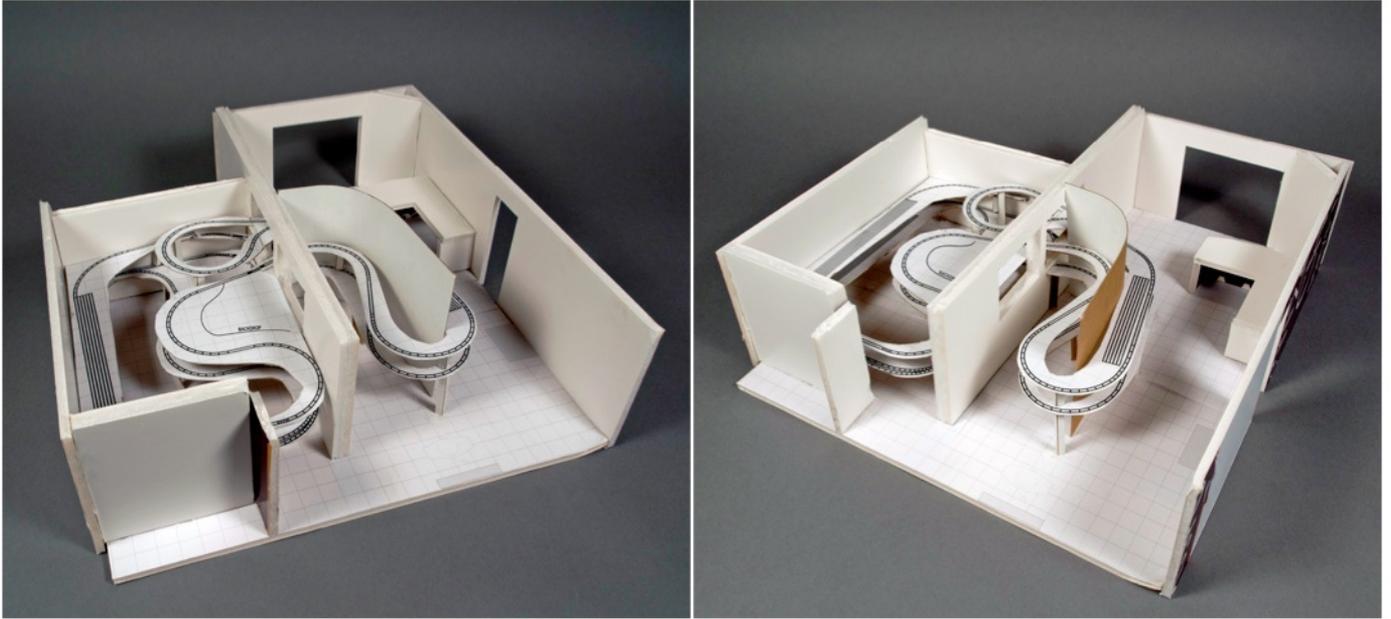


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Planning Tip



These two views of just one of the 1:24-scale ($\frac{1}{2}$ " = 1 scale foot) mock-ups Gerry Leone built provide a good way to visualize potential aisle congestion, wall penetrations, workbench location, backdrop effectiveness, and so on. Mock-ups also allow those currently without space for a layout to see future layout possibilities in three dimensions. Gerry Leone photos

3-D drawing board

Build it small before you build it big

“Oh, well, back to the drawing board.” If you, like me, are a model railroader who needs more than a track plan to visualize a layout, especially one with more than one deck, that phrase just doesn’t cut it. A drawing board is just too flat.

As I’ve been busy planning the next iteration of the Bona Vista RR in a new house, I’ve decided to go multi-deck to get the longest mainline run I can. But multi-deck means adding a whole new dimension – pun intended – to the “X” and “Y” I’m so used to. My 3rd PlanIt track-planning software, even with its handy 3-dimensional view, is still actualized on a 2-dimensional screen. That’s not good enough for this right-brained dude.

So the idea of making an actual 3-D model of the track plan was very appealing. All it took was one evening, a pair of scissors, a little cardboard, and some glue. I used the 3rd PlanIt software to print out the track plan in 1:24 scale ($\frac{1}{2}$ " = 1 scale foot); I could have done the same thing with a hand-drawn plan. After using spray

adhesive to mount the track plan to thin cardboard, I cut it out.

Next, I built a same-scale mock-up of the room out of scrap Fome-Cor sheets, made scale-height cardboard risers, and assembled the whole thing using white glue. By constructing the “room” out of a heavier, more durable material, it was easy to revise the plan over and over.

Take two and counting:

Suddenly, there it was in front of me: the layout I’m glad I didn’t build, because it had a half-dozen flaws, mistakes, gotchas, and other stuff I couldn’t see on the 2-dimensional screen. In fact, each iteration of the 3-D model showed me something I wouldn’t have visualized staring at the computer.

For example, one version showed me that stacking a single-turn helix between the upper and lower return loops would buy me an extra 3” of vertical separation between the lower and upper decks. The train would be out of sight for only a minute, yet the whole layout would

benefit. That changed every plan that was to follow.

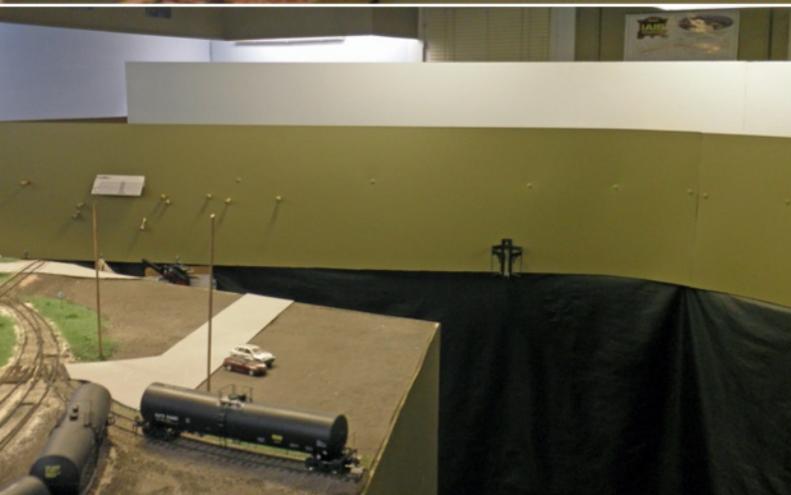
But even if I had been planning a more conventional, single-deck layout, I can see now how making a model of a proposed layout would be worth every second of time spent building it.

(Perhaps this is a great project for model railroaders who have more desire than space to build a layout. Just build it in scale by adding stripwood benchwork, modeling-clay scenery, tiny structures, and . . . But I digress.)

I’ve made quite a few of these layout models over the course of several months, each based on a different track plan or variation thereof. Each has helped me visualize, realize, and work through the pitfalls like no other tool could. Best of all, once I do find a track plan that works, the scale model’s work won’t be done. This gift will keep on giving by helping me visualize and build the benchwork, the backdrop, staging, and even some of the track in towns.

But, no, I’m not there yet. The latest mock-up showed me all sorts of new problems. Oh, well, back to you-know-where. – *Gerry Leone*

Planning Tip



These photos show how the high fascia screens the staging yard from normal view, yet allows Joe to easily observe or re-block trains during or between operating sessions. Joe and Kim Atkinson photos

Staging view block

A high, but not too high, fascia enhances realism

As originally built, my staging yard was completely open to view. This made for easy access but didn't create a sense of trains going to and coming from distant locations when they entered or left the staging yard. My initial solution was to block the view of it by hanging curtains around the perimeter, but this looked odd alongside the layout fascia.

For my second attempt, I went with a taller fascia, with the top extending 7" above track level. At this height, the staging yard is visible when standing

nearby, and the fascia is easy to reach over for restaging and maintenance. Everything is hidden behind the fascia when viewed from the main layout room. I'm happy with the result, as it gives a sense of trains going to and coming from somewhere beyond the layout without impairing access.

I should add, prompted by *Model Railroad Planning* editor Tony Koester's encouragement to avoid leading our operators to generate "model railroad thoughts" that destroy the illusion we're trying so hard to create, my

crews never actually operate into or out of staging. So they see the tall fascia only from afar.

I play the part of the road crews beyond the scenery-covered part of the layout, bringing each train from staging and tying it down at an informal crew-change point – a grade crossing a few feet outside of the staging entrance, where a crew van awaits. Trains moving in the opposite direction are brought by crews to that same crossing, where I take over for the run into staging. – Joe Atkinson

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Exploring the possibilities

Odd scale, odd gauge, intriguing opportunity

By Doug Tagsold//Photo by the author

My HO scale Toledo Terminal is history. It had achieved all of my objectives, so it was time for a new challenge, something a bit off the beaten path: a railroad in the unique scale of 1:72.

What's that, you ask? Well, it's about midway between HO scale's 1:87 and S scale's 1:64.

I purchased some HO_{n3} equipment several years ago. It all ran well, but was just a little too small for my liking. I had built an On3 railroad, but the large models took up too much space. Sn3 seemed like a logical choice for doing Colorado narrow gauge, but it's fairly expensive.

Then I saw one of the HO Roundhouse "old-time" 2-8-0s that Athearn re-introduced a few years ago. It looked a lot like a narrow gauge C-19. Under closer examination, I saw that it has electrical pickup on all locomotive and tender wheels, and a can motor. I purchased one, installed a SoundTraxx sound decoder in the tender, and ended up with a locomotive that operated and sounded great!

These locomotives turn out to be the correct size for a narrow gauge C-19 in 1:72 scale, and HO scale 36-foot wooden boxcars measure out to 30 feet in 1:72 scale, the correct size for a narrow gauge boxcar. So I built a

4-foot-long layout section to practice forming mountains and carving rocks in foam for a layout I'm working on for someone else.

The major compromise is the track gauge. In 1:72 scale, the distance between the rails of HO gauge track is 3'-9" instead of 3' even. I can live with that.

In my 1,300-square-foot basement, I could have a 500-foot-long main line with a 150-foot branch. A 1917 C&S timetable shows three scheduled passenger trains and two freights daily in each direction on the Clear Creek line. Add a couple extras and this could be a great timetable-and-train-order railroad! **MRP**

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