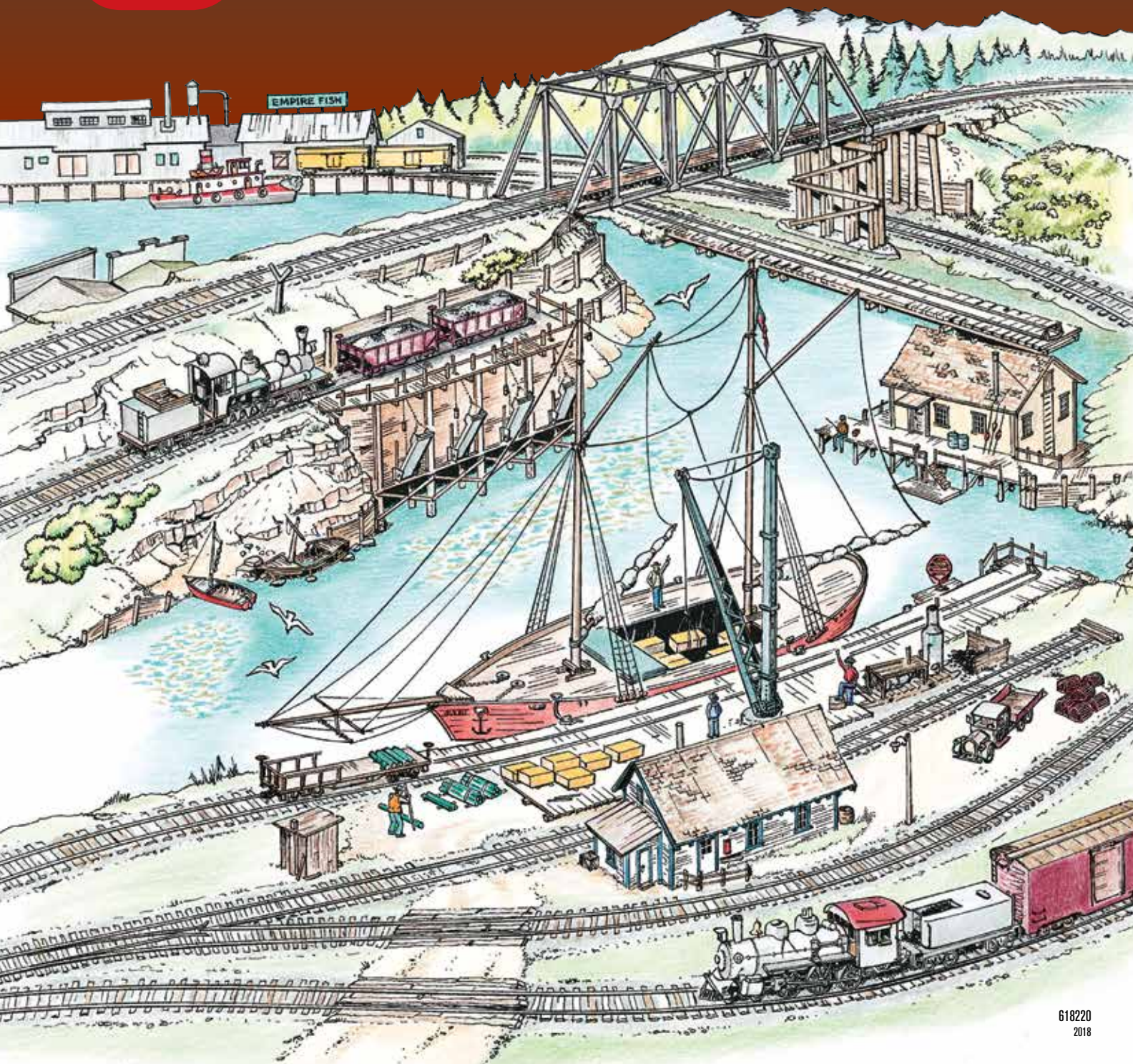


# 8 Great Track Plans for SMALL SPACES





# 4 x 8 feet on the water

East and West Coast railroads in waterfront settings

By Iain Rice

So many of us like layouts with plenty of water. The life and sparkle from the surface reflections make small layouts, which all of mine are, seem more spacious. That's why, when exploring the possibilities of new 4 x 8 layout schemes, my thoughts turned to waterfront railroads. Docksides and harbors in a small space offer a lot of modeling opportunities.

## Think motive power first

On a 4 x 8-foot layout, chances are you're not going to have a lot of engines. The one or two locomotives that can be

accommodated need to be darn good models in both appearance and performance. You'll need to focus on one key model, then design the railroad to make best use of that type of engine and let it operate properly.

This means careful attention to curve radius, overhangs, and clearances, not to mention switching leads, engine tracks, turntables, and run-around tracks. Most four-axle diesels are quite flexible in this regard, and steam switchers and geared steamers such as Shays also work well. For the two HO plans presented here I imagine using Bachmann's 70-ton Shay and Life-Like's United States Railroad Administration (USRA) 0-8-0.

Moreover, if you build these layouts reasonably high off the floor, say 45" to 48" or even a tad more so you're looking across and not down on them, it's much easier to achieve the illusion of a more spacious scene. It's also harder to judge the sharpness of a curve. Even small structures placed in the foreground can interrupt the view of passing trains, divide the scene, and give the impression of greater distance.

High-level layouts have other practical advantages. There's a lot of space under them for storage and a workbench, for example – even a TV or bed if the room has to serve other functions. The downside is that very high layouts can be challenging to work on.

There are three ways around this: Build the layout at a convenient height and raise it to final display level once it's finished, use a step stool to work on it at the final level, or – more radically – design the layout so the track and scenery are tackled separately. That is, finish and ballast the track, then lift the layout to the desired level. You can build the various scenic elements at the workbench on their own mini-bases of extruded-foam insulation board, then install them like pieces of a jigsaw puzzle.

## Harbor-based layouts

Crowded waterside locations typical of older ports have a lot going for them

## Contents

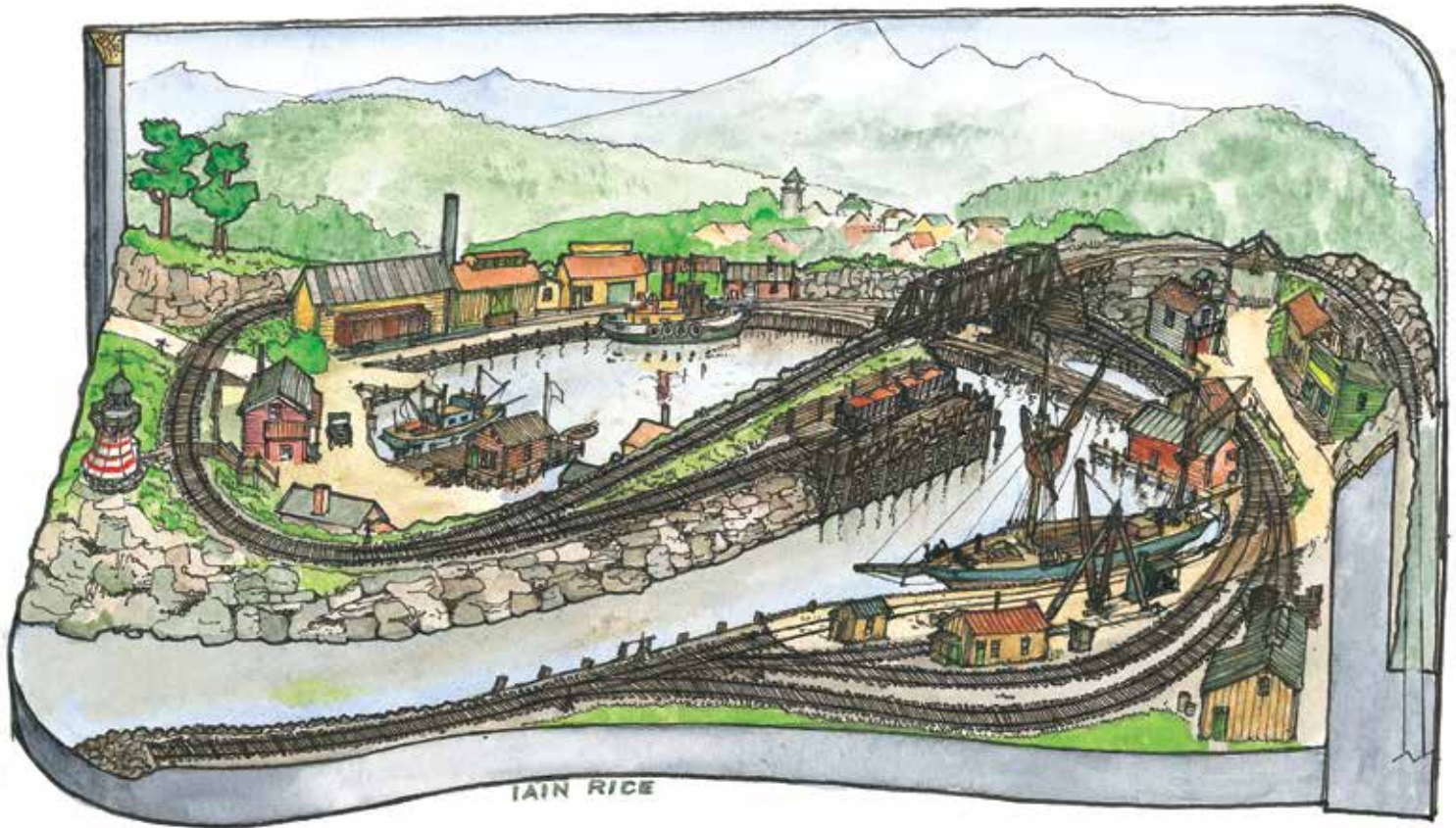
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All plans in this supplement were drawn from past issues of *Model Railroad Planning*. For more great track planning ideas, see *Model Railroader* magazine and *Model Railroad Planning 2019*, on sale January 15.

## Practical considerations

A limiting factor of the traditional 4 x 8 is that you need a lot more space than that to build and operate it if you want access to three or four of its sides. Allowing only a meager two-foot aisle on all sides increases the area requirements to 8 x 12 feet. A site of that size offers a whole range of modeling possibilities, and sticking a 4 x 8 island layout in the center of it probably isn't the most efficient or exciting.

If you're content with access on only two sides and stick the 4 x 8 in a corner, the required area drops to about 6 x 10 feet. The two plans shown here could be built in that space.



as subjects for a small layout. The unavoidable tight curves are right in keeping with such prototypes, as are short spurs, short trains, and structures crammed closely together.

Harborsides have other advantages, too. While they aren't quite a "universal industry" like an interchange track, most car types can be loaded or unloaded at a port. Switching opportunities abound. And if you enjoy building atmosphere-laden structures and ship models, you'll have a field day.

There's also variety in harbors, as these two plans demonstrate. Save for their 4 x 8 footprints, they differ in almost every way. One features the wide-open airiness of a Pacific Northwest lumber port in the pre-Depression era of the 1920s, the other the grittiness of a rundown Eastern waterfront in the 1950s.

## Loleta & Mad River

A rough, raw, storm-wracked harbor on the rocky coast of northern California – something farther removed from the cramped and grimy confines of an East Coast coal port would be hard to imagine. And as such, it offers a different set of modeling challenges and operational opportunities.

Logging and mining are by nature ephemeral, so very little of their infrastructure was built to last. This is reflected in the limited and crude

facilities at Port Loleta. Grouped around a narrow, rocky, deep-water inlet, the buildings are all shack-like affairs thrown up using the local product, rough-sawn softwood.

There are three main commercial activities at Port Loleta: fishing, mining, and lumber export. The fish, mostly Pacific salmon, go through the cannery and wind up in tins for export. Some of this traffic reaches Southern Pacific rails via its interchange with the Loleta & Mad River, the railroad of our immediate interest.

The mines produce limited quantities of a high-grade ore, "unobtainium" perhaps, which is loaded raw directly into coastal steamers for transport to distant smelters. The lumber is exported as boards, sawn and finished in the Van Duren Lumber Co.'s mill at Bridgeville a few miles up the Mad River valley east of Loleta.

Model railroads based on the mining and lumber industries have lots of advantages for minimum-space layouts. Grades and curves that would be impractical for a mainline railroad are normal on logging and mining roads, thanks to their short rolling stock and articulated or geared steam power.

Features like the 270-degree curve on a 4 percent grade that forms the exit from Port Loleta isn't far-fetched in this context and will let the three-truck Shay

work for its keep. A Model Die Casting two-truck Shay or Rivarossi Heisler would also be at home here.

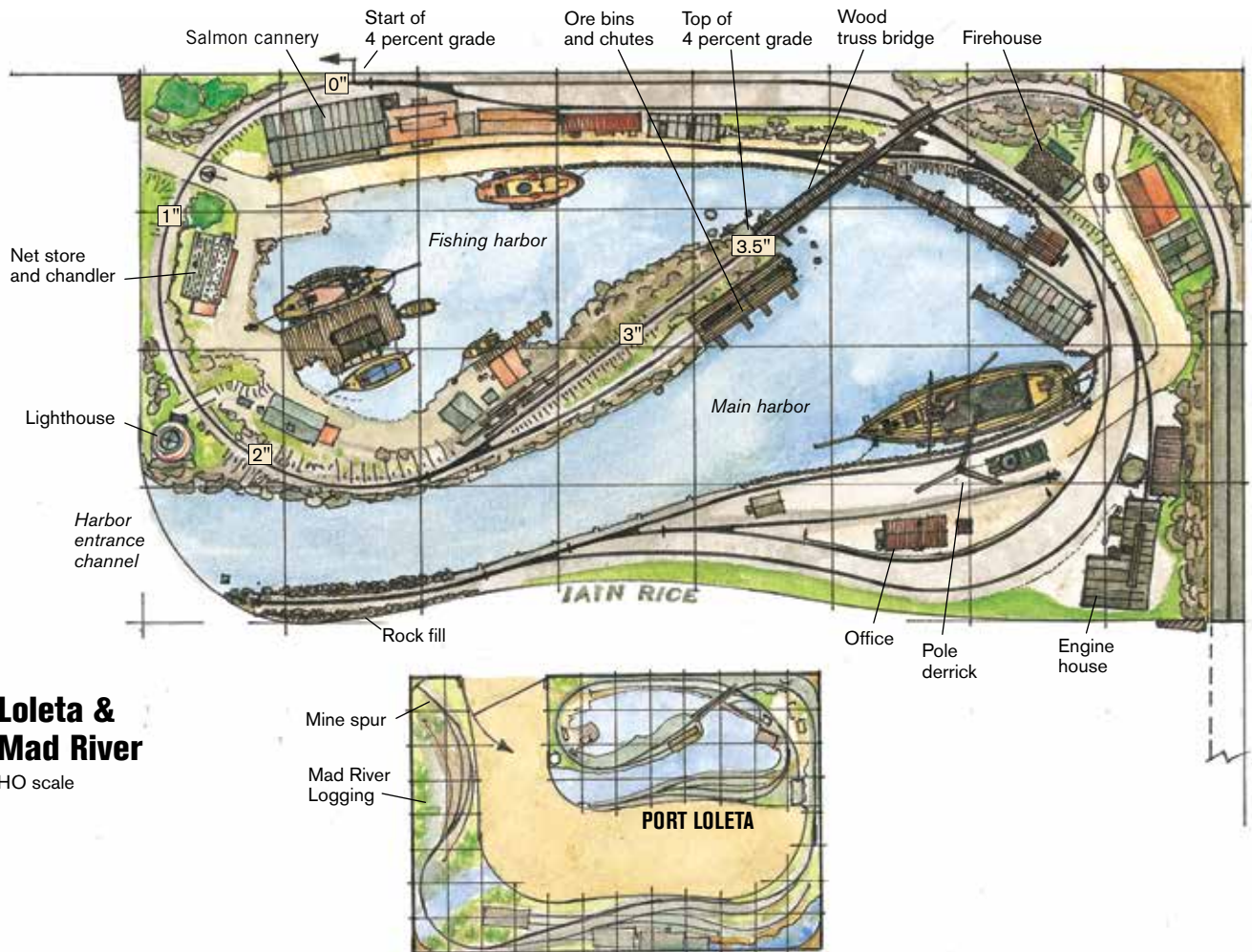
The harbor at Port Loleta is built around the edges of the steep-sided rocky inlet. Ore is loaded into ships or barges by chute from a short spur off the high line, while lumber is handled at a timber-faced quay (wharf) built on pilings. The hefty timber derrick, which could be pinched from the Walthers Midstate Marble kit, hoists the stacks of lumber onto a schooner.

Other spurs serve the fish cannery and a general merchandise pier. Sundry fishermen's shacks, a general store, and small warehouses round out the scene. A lighthouse guards the harbor entrance.

## Practical features

The actual tabletop forms the harbor water level, and the rest of the layout is elevated above this. I'd make the surface of the quay about 1¼" above mean sea level, and the grades marked on the plan are based on this reference elevation. This gives about a 5" or 36-scale-foot clearance beneath the high bridge – enough for small boats to get into the inner harbor.

The slight curve along the front edge both softens the look of the layout and provides better access to the rear areas, especially the hidden staging behind a row of removable structures between the



**1 Loleta & Mad River**  
HO scale

cannery and the harbor bridge. An extra train can be stabled in this area.

Trains going off the layout actually end up not in that staging track but in a removable train “cassette” concealed behind structures and rock outcroppings at the right end of the layout. It’s designed to slip in and out, drawer fashion, thus allowing trains to be turned or for the cassette to be stored beneath the layout and replaced with another one holding a different train. The variety of rolling stock is therefore only as limited as the space allotted to storing extra cassettes.

This layout is intended to form the nucleus of a larger system that might be built at a later date in a single-car garage or spare room. The smaller diagram above shows one possible scheme for expansion.

For an authentic logging layout, handlaid track is preferred, but you can make flexible track look less uniform by removing every fourth tie or so and respacing, at odd angles, those ties that are left. Micro Engineering code 55 track would be a good choice, but you’d still have to handlay the turnouts. Code 70 is therefore more practical for those who

don’t want to handlay, although many modelers find it an enjoyable diversion.

**Operation**

In the pre-Depression era of the 1910s and 1920s, a place like Port Loleta would have been quite busy – bustling, even. Trains of ore and sawn lumber would come cautiously downgrade into the yard. Ore cars would be cut out and shoved back up the grade to the loading chute, and loads of lumber placed quayside for unloading.

Outbound traffic could include empties plus coal and oil, general supplies, logging and mining equipment, and some agricultural necessities. The locomotive would typically be placed on the downhill side of the train in both directions for increased safety.

**Chesapeake Harbor Belt**

The town of Chesapeake, Va., is not that large a place. It was the ports nearby – Norfolk, Portsmouth, and Newport News – that grew to become major export harbors for the coalfields of the mighty Appalachian. Modeling one of these ports is an undertaking far beyond the scope of a 4 x 8 layout.

Coal piers aren’t the entire story of port activity around Hampton Roads, however. A number of smaller facilities were scattered around the estuary and up the narrower reaches of the Elizabeth River.

A railroad map of the area looks as though it were drawn by a moonshine-swilling spider with a pen on each leg, so I figured that one more railroad would go unnoticed.

Enter, then, the imaginary but not too implausible Chesapeake Harbor Belt Line, connecting these minor port installations with the major railroad yards and main lines of the Norfolk & Western, Chesapeake & Ohio, Norfolk Southern (the original, pre-1982 company), the Virginian Ry., and the Tidewater & Western, plus indirect connections to the many other railroads of that region.

Belt lines handle a good range of traffic over short hauls and work in some very cramped locations. Many, such as the Indiana Harbor Belt, relied entirely on hefty steam switchers such as the IHB’s well-known three-cylinder 0-8-0s. The USRA 0-8-0 thus drops right into this scheme, or you could substitute a diesel switcher of your choice.

## A cramped backwater location

The layout represents one of the many minor facilities the CHB serves, a collection of run-down wharves and a small repair yard that maintains tugs, lighters (barges), and other harbor craft. A compact engine terminal tends to the one assigned switcher.

The format is the usual continuous run with harbor operations arranged on each side of the waterway and a short staging siding on the “off-stage” part of the circuit, hidden by a removable block of structures. If the layout is built near eye level, these structures don’t need to be overly large to conceal trains and tracks.

To aid access and get away from the boxy look that characterizes many 4 x 8s, the front of the baseboard follows a flowing line that produces a concave curve in the center while losing an angular corner.

The focal point is the central waterway, crossed by the railroad on low timber trestles patterned on those of the N&W and VGN over the Elizabeth River. At one end, a swing span allows small ships, tugs, and lighters to enter the confines of this side creek of the river. In addition to the small repair yard with its slipway, gantry crane, and fabrication shops, there are two general wharves, a bunker fuel dealer, a steel yard, and a warehouse.

Walthers’ waterside-series structures, most notably the Front Street Warehouse, offer excellent opportunities for the kitbasher. And don’t overlook the potential of Design Preservation Models modular kits.

The track is almost all curved with a minimum radius of 20". I envisioned using Walthers code 83 flextrack for most of the layout along with the matching turnouts: no. 5, no. 6½ curved, and wye. Lighter rail would look nice, especially on the spurs. Don’t overdo it on the ballast; cinders would suffice. This ain’t the high iron!

## Ships and cranes

Here’s where you get two hobbies for the price of one, thanks to some nice kits that let even a novice enjoy the challenges of a little ship modeling. Walthers’ tugboat is an obvious choice, but spend time looking at the model boat section of your favorite hobby shop and at ship model catalogs for other ideas.

I’ve featured a number of cranes, with Walthers’ chunky overhead traveling crane an ideal choice to serve the shipyard. Piko’s neat little no. 61102 gantry would work fine for the steel yard. Check Model Power’s no. 424 traveling crane or Walthers’ no. 933-3067 pier with crane for the main wharf. That’s Alexander Scale Models’ no. 7519 Brownhoist Little Hook mounted on a gantry or tall pillar

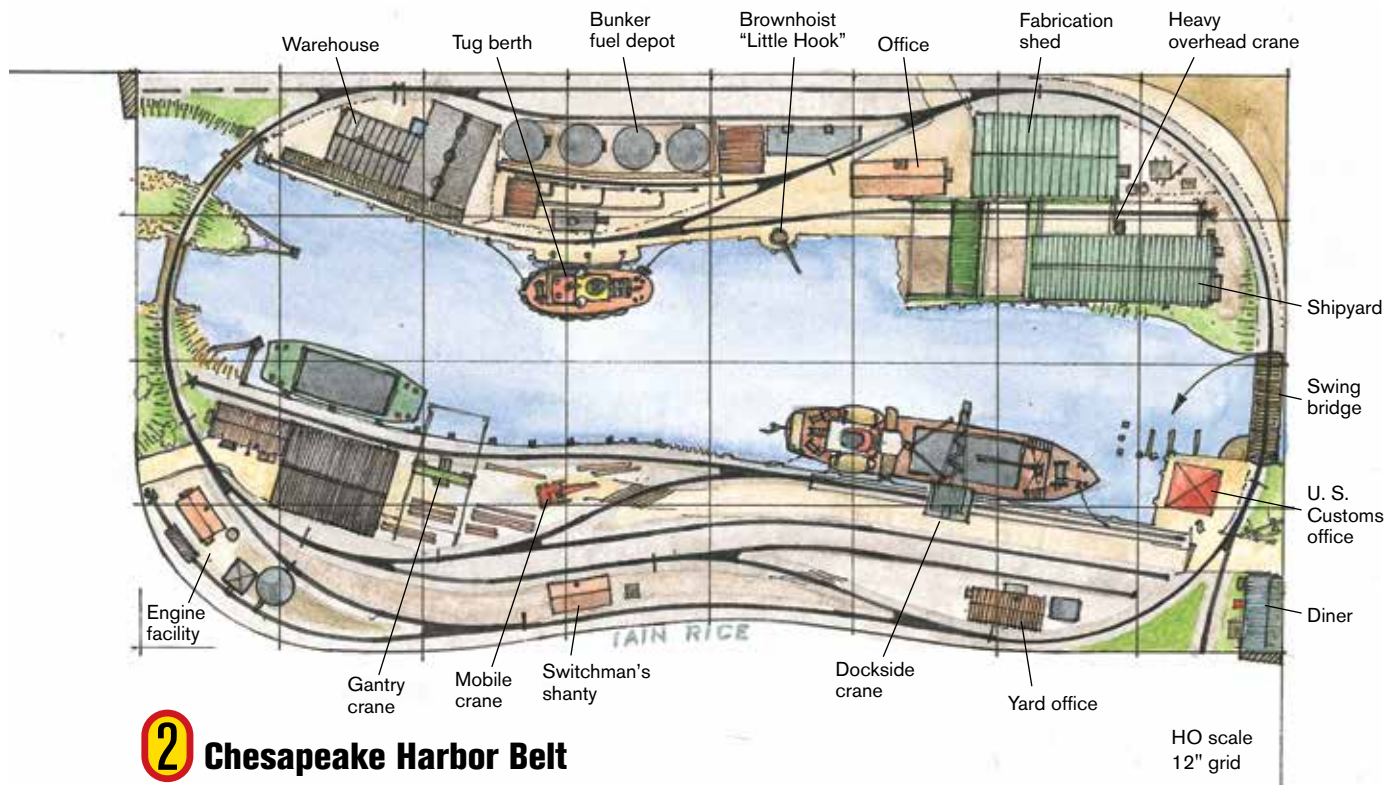
## Learning Points

- You get two hobbies for the price of one when a layout combines railroad and harbor facilities.
- Be sure you can acquire, and enjoy building or detailing and running, the required type of motive power for a given type of layout design.
- A watercourse down the center of a table-type layout divides the area in half and can be used to create two or more distinct scenes.
- Building the layout closer to eye level adds to the illusion of depth and helps disguise sharp curves.

on the lighterage quay across from the foreground wharf.

## Harbor Belt operation

Switching and transfer runs are the business of the Chesapeake Harbor Belt. The various industries allow an interesting mix of car types: flats and mill gons for the steel fabricator and the ship repair yard, tank cars to the oil depot, and boxcars to the warehouses. The repair yard also might get boxcars or flats carrying lumber. And the general wharf can accept a wide variety of car types.



## 2 Chesapeake Harbor Belt



# Two small shelf layouts

The Union Pacific in Salt Lake City inspired these HO plans

By Dave Husman • Photos by the author

**W**hen I began designing these two bookcase layouts, the Minimalist and the Overhang, I decided they would need to be built with simple hand tools so they could be built anywhere, even in a dorm room. Hand tools would let me work in a much smaller amount of space.

I also decided that the “benchwork” would need to be 2”-thick extruded-foam insulation board. It cuts easily with a box cutter or razor saw, and a bamboo skewer or a hand drill can be used to easily make holes in the foam.

The foam is especially convenient because it can be glued with common white glue or tubes of construction adhesive in a cheap caulking gun and painted with interior latex or craft paints. Water-soluble glues also work

fine for bonding scenery and track to the “benchwork.”

Both track plans were inspired by an area on the Union Pacific in Salt Lake City, where the former Provo Subdivision left the UP passenger depot and headed south. At this location, the Provo Sub began running down the middle of 4th West St. There was a runaround track with wye turnouts in the street. A wye, or equilateral, turnout is where both routes diverge from the track’s center line, achieving maximum track separation in minimum distance.

I chose to model this area on my small “starter” layout because of the typical lineup of industries. You can easily substitute your own local industries on either of these layout plans, as well. Having a variety of industries on the layout allows a great amount of action in my very small amount of space.

## The Minimalist

The challenge of this plan is to achieve some level of operation on an 11” x 36” bookcase layout in HO scale. To overcome this challenge, some compromises will be necessary. Auto racks and SD70MACs will have to take a back seat to four-axle diesel switchers or tank engines and 40-foot or shorter cars. This is especially ironic because the UP prototype the layout is based on

ran freights powered by eight-axle EMD DD35s!

To squeeze a layout into three square feet, I had to use some uncommon track arrangements, such as wyes. The location and orientation of track, especially the turnouts, is critical. On large layouts, the track alignment can vary by several inches and not seriously affect operation. But on a shelf layout, inches are everything.

I arranged Atlas code 83 no. 4 left-hand, right-hand, and wye turnouts so they all fit on one sheet of legal-size paper and then made a dozen photocopies. On a large sheet of wrapping paper, I drew the outline of the shelf layout. I then cut out the paper turnouts and arranged and rearranged them on the full-size layout template until I had a plan that worked.

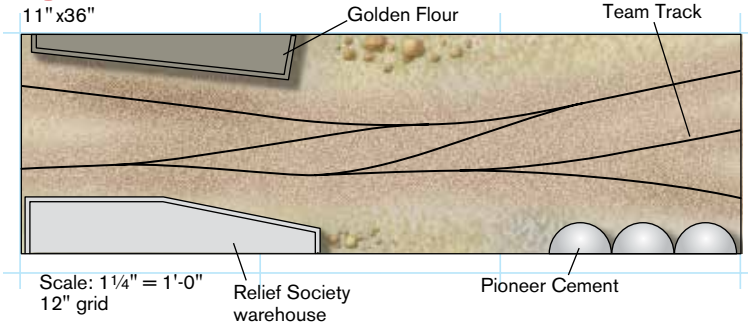
I put HO equipment on the plan to check for clearance and track capacity. Full-scale planning is critical when space is so tight, and it’s also useful as a tool to check elements that project below the roadbed, such as switch motors, to make sure they don’t interfere with the benchwork.

This mix of turnouts in close quarters may require the track to be assembled so the joints aren’t entirely square or odd-length pieces of track fit between sections. To minimize misalignments, some slight rail bends and a little work

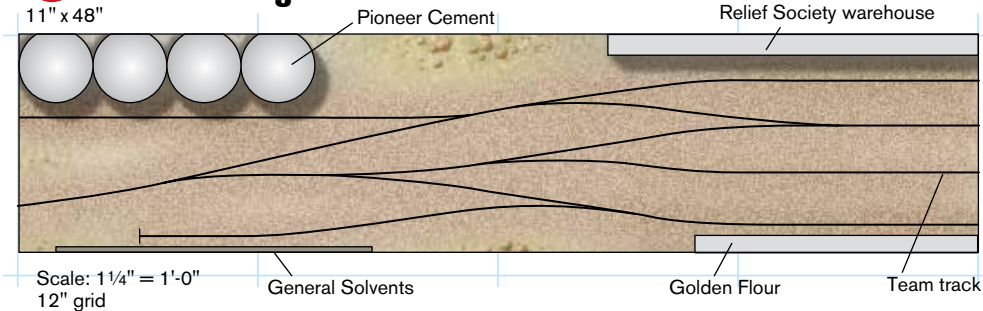
## Learning Points

- Even the smallest track plan requires a runaround for facing-point moves.
- Choose industries that reflect a specific region and era.
- Adding a slight overhang on either end opens up switching options.
- Track planning for switching areas is aided by the use of full-size track templates.

### 3 The Minimalist



### 4 The Overhang



Illustrations by Terri Field

with flush-cutting pliers and a file may be necessary.

The industries I chose for the Minimalist are typical of those found along 400 West Street (or 4th West, as the crews called it). I selected industries that used the shortest cars possible in post-1940s standard gauge operations.

The Relief Society warehouse received food and other supplies, and repackaged them for shipment overseas; Golden Flour Mills received grain in 40-foot boxcars. Bulk flour was shipped in Airslides and covered hoppers; bagged flour went in boxcars. Pioneer Concrete received cement and gravel in two-bay covered hoppers.

The structures will have to be shallow flats in order to fit in the tight space while allowing space for the equipment to pass. If you buy regular building kits, at most only the rear half can be used. A cost-saving alternative would be to use cardstock or foam scraps left over from the “benchwork” to create silhouette buildings. They’d mimic the shape of a structure and would be painted the base color with few details.

The operating scheme for the Minimalist will be more of a switching puzzle than a prototypical operation. I would start with a few cars at the industries and a train with a couple of cars on the main. The cars in the train would be switched one for one with the cars on-spot.

The runaround, although small, allows for spurs in both directions to be worked. As you gain experience in operating in this small space, you can increase the number of cars and the complexity of the moves.

#### The Overhang

The most exciting part of this plan is the realization that you don’t have to limit it to the size of the shelf. Rigid foam can withstand unsupported overhangs of 6” to 8”, especially for the three- to five-year life span I expect of this layout.

I stretched the layout to 48”, which requires a 6” to 9” overhang on each end of the bookcase. I maintained a width of 11”, although increasing it by a few inches would allow additional space for buildings and scenery.

This plan also has one additional track that can be used as a spur to set cars on during switching, an engine tie-up track, or the end of a branch line.

I used the same industries as on the Minimalist but added the General Solvents Co. General Solvents receives chemicals in tank cars and in 55-gallon drums shipped in boxcars. It ships out cleaning agents in boxcars.

Ironically, the Overhang layout has more shallow buildings than the Minimalist because it has more tracks in the same width. To reduce the foot-

## Track Lists

### The Minimalist Atlas

500 code 83 36” flextrack (2) or  
520 code 83 9” straight tracks (6)  
523 code 83 1½” filler pieces (2)  
542 code 83 left-hand turnouts (2)  
560 code 83 wye turnouts (3)

### The Overhang Atlas

500 code 83 36” flextrack (3) or  
520 code 83 9” straight track (12)  
523 code 83 1½” filler pieces (1)  
542 code 83 left-hand turnout (1)  
543 code 83 right-hand turnouts (2)  
560 code 83 wye turnout (1)

prints of buildings, eliminate a loading dock and just have doors. This also increases the complexity of spotting cars since each car door must be opposite a loading door.

The Overhang is large enough to use a more formal operating system. One option is switch lists, where a spreadsheet or database application could determine which industries to switch.

While these plans aren’t intended to be the basis for permanent layouts, they could become a switching area off the main track of a larger layout.

# 5

# Port Terminal in N scale

An urban switching 'association' that handles half a million cars a year

By Byron Henderson

**A** 4 x 8-foot layout, often a beginner's first foray into model railroading, offers opportunities for experienced modelers, as well. That's true even when you want to model an actual prototype railroad. Long mainline runs aren't practical, even in the smaller scales, but an industrial or switching railroad in N scale is within reach.

## Four key characteristics

Most successful model railroads share four important characteristics: staging, major industries, interchange between railroads, and prototype inspiration.

Incorporating all of them into a 4 x 8 space is challenging, but carefully selecting a prototype helps, which brings us to Houston's Port Terminal Railroad Association, the PTRA.

The PTRA is a switching line formed in 1924 by a number of railroads that served the port area. In the 1980s, the era this plan depicts, member railroads included the Burlington Northern; Atchison, Topeka & Santa Fe; Southern Pacific; and Union Pacific (including the former Missouri Pacific).

These roads provided locomotives to the PTRA, and much of the 140 miles it operated was over its member roads' trackage rights, primarily SP. The PTRA handled about 500,000 cars annually to serve grain elevators, docks, manufacturing and chemical plants, and refineries.

Today's PTRA members include Burlington Northern Santa Fe, Texas Mexican RR (part of Kansas City Southern), and UP. It serves about 150 industries and the public docks, has more than 350 employees, and handles half a million cars each year. Instead of leasing power, it operates 24 MK1500D locomotives delivered in 1996. For more information, visit [www.ptra.com](http://www.ptra.com).

Squeezing this huge operation into the confines of a 4 x 8 may seem foolhardy, but it can be done by capturing the flavor of the line instead of modeling each scene. I focused on a few miles of the PTRA's "South Side" where it runs over SP rails. It leaves the Espee at Deer Park Junction (operated remotely by Centralized Traffic Control, or CTC) and passes under the Jesse H. Jones Highway bridge over Houston's Ship Channel to serve a large industrial area near the Equity grain elevator.

## Hidden staging

Staging is hidden behind and beneath "backdrop boxes" made from sheet styrene, thin plywood, or even foam core. The boxes support industry flats on their sides or on "air rights" above. Building the supports as boxes with openings for the trains to pass through allows them to be thinner and easier to lift off the layout for track maintenance or rereiling equipment. Curved

turnouts increase the usable length of the staging tracks.

As the PTRA and SP emerge from staging into a scene in the lower-right corner of the plan, they share a single track. The first industry they encounter is a massive Shell Oil refinery. This facility is actually served by Shell Oil's own crews, but we'll let both PTRA and SP crews switch it on this layout. Multi-track tank car racks and a small spur for equipment deliveries are located here.

Deer Park Junction is at the lower left. That the SP and PTRA diverge here is underscored by operating or dummy CTC signals. The PTRA then serves the large Lubrizoil (STP) plant in the foreground to the right of the junction.

## Lubrizoil: "fascia flats"

Lubrizoil is represented by thin "fascia flats" – the fascia rises up to form the building's silhouette. The modeled front of the building is inserted between the fascia and the siding. The flats are low in N scale, so reaching over them to uncouple cars or clean track is no problem.

Chemicals arrive on one track in tank cars and are blended into gas and oil treatments. Boxcars of packaged products are shipped from the other track.

## Beyond the backdrop

To the left of the junction both railroads pass under the highway bridge as



# 5 Houston's Port Terminal RR in N scale

Scale: N (1:160)  
 10" minimum radius  
 5/8" = 1'-0"; 5/8" grid  
 Peco code 55  
 medium-radius turnouts

Rohm & Haas interchange behind chain-link fence and gate

Storage tanks and piping

Houston Ship Channel

Jesse H. Jones Highway Bridge

Illustrations by Terri Field

Rollins-Pearle track 1 (tank rack)

Empak cleaning track (open air under awning)

Rollins-Pearle (industrial flat)

Track 2

Empak repair track (open to aisle to show interior and cars)

View blocks (in blue)

Equity Grain (built on "air rights" over staging)

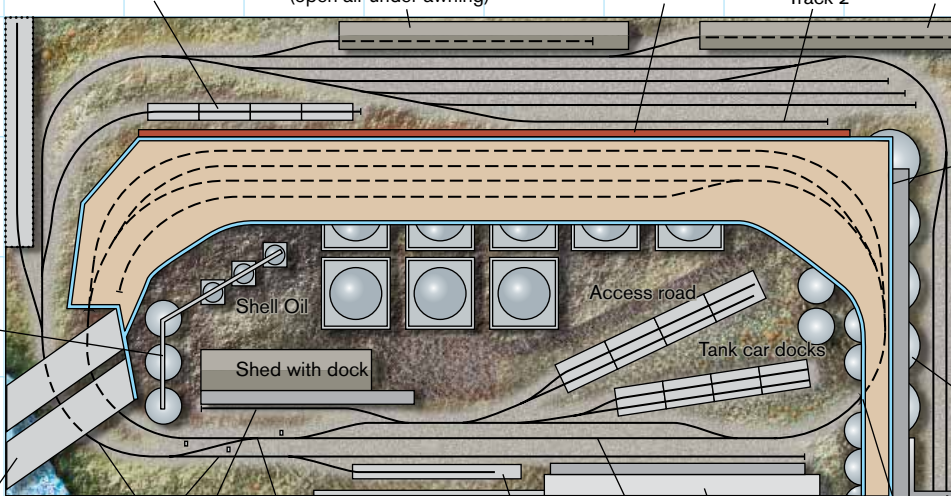
Equipment delivery track

Deer Park Junction (with CTC signals)

Lubrizoil (STP) tank track with "fascia flat"

Joint SP/PTRA

Refinery pipe bridge (to staging)



they run parallel to the Houston Ship Channel. Then the SP disappears into staging, while the PTRA continues on to serve another industrial area from a small yard shown along the top of the plan. This area represents the storage yard at the Equity grain elevator. Flats are used to depict the towering structures in this area.

Nearby industries include Empak, a car cleaning and repair service for tank cars and hoppers. One Empak track represents an open-air cleaning area under a high awning. Viewers can actually look into the truncated repair building served by the second track.

Rollins-Pearle, an environmental-services firm, receives tank cars and boxcars filled with 50-gallon drums of waste for treatment. It's represented by a tank rack and backdrop or thin flat. Nearby Rohm & Haas does its own switching, so the PTRA simply shoves cars onto R&H tracks behind a chain-link fence.

The giant Equity elevator can load 300 cars a day, so our model needs to convey a sense of size. To do this, position a small mirror in the lower right-hand corner of the layout to extend its apparent length.

## Two-railroad operation

Both the SP and the Port Terminal RR serve the refinery, and each brings cars to the small yard from staging with some interchange between the two railroads occurring there. A PTRA road job would serve Lubrizoil and some other industries from staging, while a

## Learning Points

- You can get more operation in a small space by focusing on an industrial switching layout.
- Structure flats and photographic backdrops make it possible to model large industries in a small space.
- Trackage rights and joint staging allow two railroads to be modeled in the space of one.
- A 4 x 8-foot layout can be developed beyond a beginner's project.

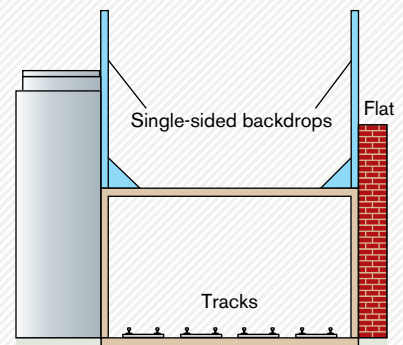
dedicated switcher could work Equity and other nearby industries.

On the prototype, the Santa Fe and Katy (Missouri-Kansas-Texas) had trackage rights to bring their grain trains bound for Equity into nearby Manchester Yard and pick up empties there. Transplanting this operation to the storage yard seems reasonable. This traffic could be staged on the staging yard's single-ended siding.

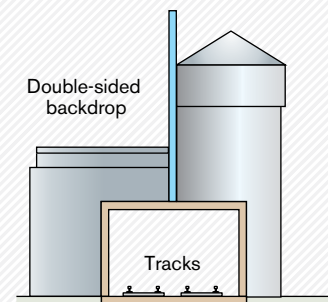
Equipment could vary. In the late 1980s, PTRA locomotives included units from all parent railroads and ranged from 1950s-era AT&SF and SP GP7s and 9s to UP GP38-2s. Rolling stock would include tank cars, boxcars, and hoppers.

By focusing on industrial switching rather than a main line, we can get a lot from the humble 4 x 8: an authentic mix of liveries and equipment, large industries, and varied operations.

## Building a backdrop



Cross sections



Building a backdrop box to support lightweight structures is an easy way to hide tracks. Attach building flats, tanks, silos, and other background elements to the basic boxes. Additional view blocks or structures hide "portals" at the box ends. The box can be easily removed to clean track or reach equipment.

# 6, 7&8

# One plan, three options

An oval, I-, or L-shaped HO layout using the same basic plan

By Linda Sand

Let's say you're just dipping into model railroading for the first time, and you think you'd like to try this "operation" that you've read people do with their layouts. You might be looking for a simple, quick-starting approach that would let you try building and running a layout to see how you like it. Of course, your leisure time is all too short, so you don't want to waste any effort on something that wouldn't be expandable if the bug really bites. If that sounds like you, you've come to the right place.

## Planning for the future

You may have heard of modelers who incorporated their first layout into later, and larger, model railroads. Here's a way you can do that:

Start by cutting a slot down the middle of a sheet of plywood, stopping 6" from each end. Make the slot just wide enough to slip in a length of 18"-high hardboard to serve as a backdrop. Give the base a coat of brown paint and the backdrop a coat of sky blue to seal the material and give your new layout a finished look.

These plans are designed with Atlas code 83 (the rail is .083" high) HO track in mind, though other brands and rail heights would be just as good. The drawings show no. 6 turnouts and 22"-radius curves. For such tight curves, I'd stick to

short 40-foot cars and small engines – an Alco, Baldwin, or Electro-Motive diesel switcher would be ideal, or you could go even smaller with a General Electric 44- or 70-tonner.

Most of the tracks are curved, which means the structures alongside the sidings, or at least their loading platforms, must be curved to match. Since these are

tricky to build, I chose industries that don't require trackside buildings: a stockyard, scrap dealer, and team track. The latter is a good "industry" to model in that it can hold a wide variety of cars. A ramp at one end of the track allows farm implements to be rolled off flatcars.

My choices for industries give the railroad little vertical height, which makes folding it up against a wall for storage easier. If you want to use taller structures, make them removable.

These industries also require a variety of cars, which adds to the visual and operational interest. You will need flatcars, stockcars, and gondolas as well as ubiquitous boxcars.

Two spurs are truncated "interchange tracks" or connections with other railroads. Almost any type of car can be interchanged between railroads, making these "universal industries."

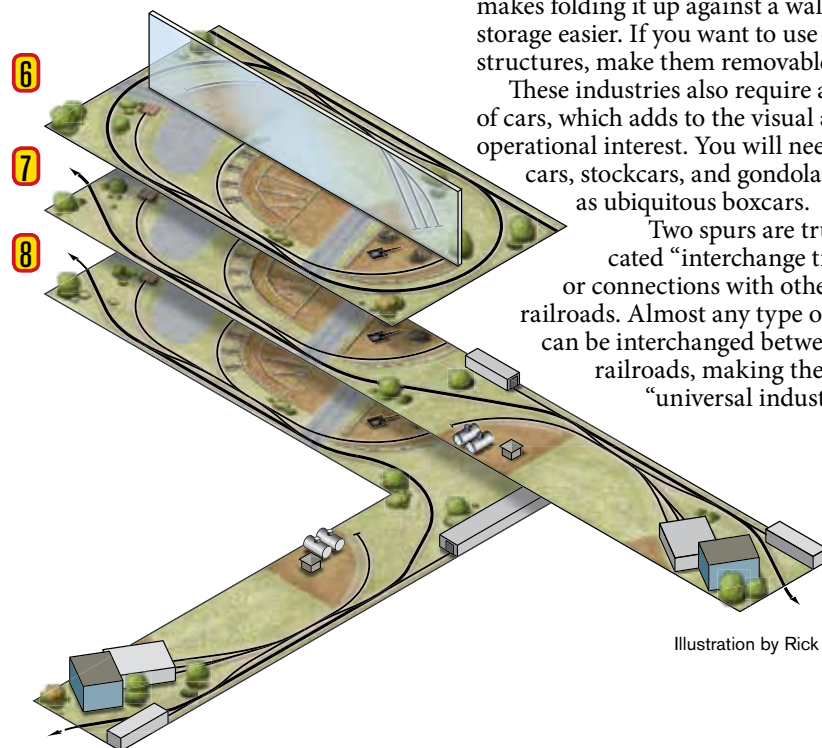
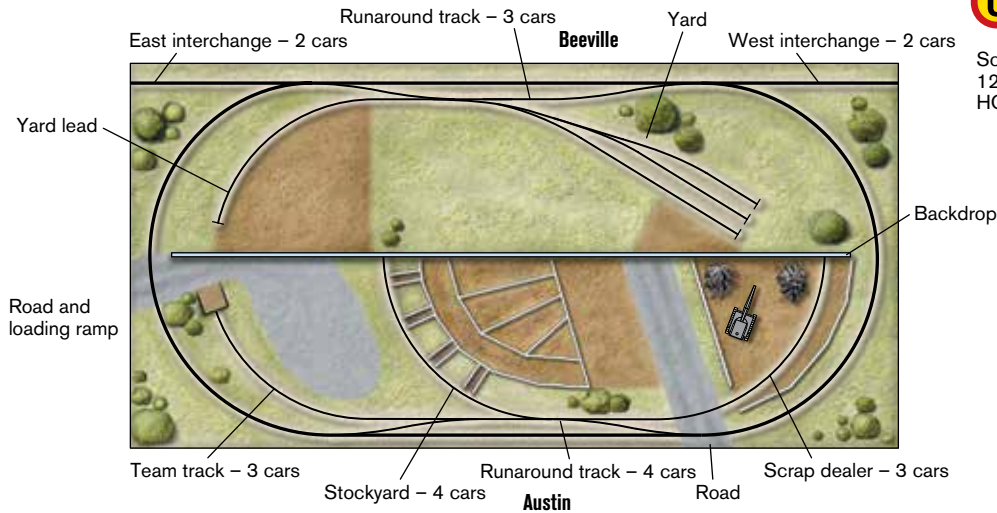


Illustration by Rick Johnson

## 6 A flexible 4 x 8

Scale: 1/2" = 1'-0"  
12" grid  
HO scale



### Expanding the empire

When a larger space becomes available, you can easily convert this layout into a single town on the new linear railroad. Remove the curved tracks at either end, take out the backdrop, and extend its slot to cut the base in half.

Placing the halves end-to-end will create a 2 x 16-foot town, which might fit along one long wall. It may be easier to find two shorter walls, in which case an L-shape might be more advantageous. I've added a new connecting piece in the corner, and with its two-foot sides it makes the L-shaped 10 x 10-foot plan on page 14. Only minor track realignment is required for either of these adaptations.

### Beginning operations

On the 4 x 8-foot plan above, there is room at the industries for 10 cars. If you want to be able to deliver different cars at different times, use 20 cars: a mix of six flatcars and boxcars for the team track, eight stockcars for the stockyard, and six gondolas for the scrapyard. Buy cars that are evenly divided for railroads east and west, or north and south, of where you've located your railroad geographically. This will help simulate traffic movement across North America.

Using 3 x 5 index cards, make out one card for each car you own. It needs to tell you that it's for a certain type of car (flat, box, and so forth), what its reporting marks (initials) and number are, such as "UP 45682," and whether it heads east or west to go back to home rails. Divide the resulting stack of cards into two piles, one for return-east, the other for return-west. Then shuffle each stack so the car types are mixed up.

Begin operating by drawing two cards from each pile and placing the

cars they describe on the east and west interchange tracks as though connecting railroads left them there for your railroad. (If you do this before a session, it's called "staging." If you continue to do this as the session progresses, it's called "fiddling.")

Now use a locomotive to pull the cars from both interchanges and deliver them to the industries. No need to get fancy here with destination information on the cards, as you can tell where they go by the car type.

Draw another set of cards and deliver those cars from interchanges to industries, as well. You now have the railroad populated with enough cars to make it seem as though some work actually gets done there.

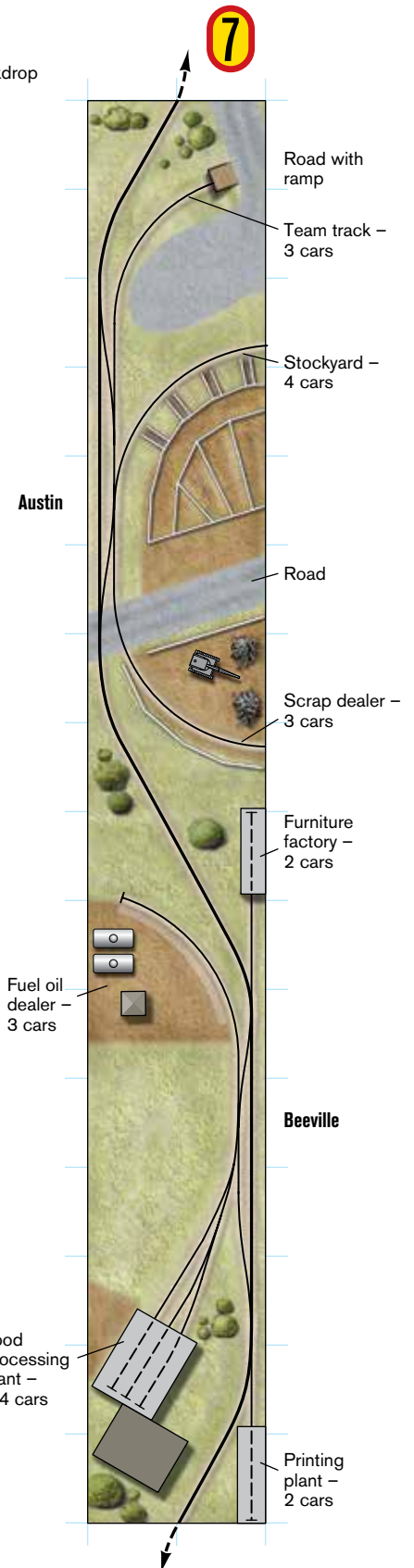
The next time you draw cards and move cars to the industries, pick up cars already spotted there before you set out new cars. Move them to the small yard and later to the interchange tracks where you can remove them to simulate off-line movement.

Any inbound cars that won't fit in already-filled industry tracks can be held in the yard until you decide the outbound cars already at industries are ready to be picked up. The yard can also be used to sort the in- and outbound and east- and westbound cars before making switching moves or working the interchange tracks.

### Expanding operations

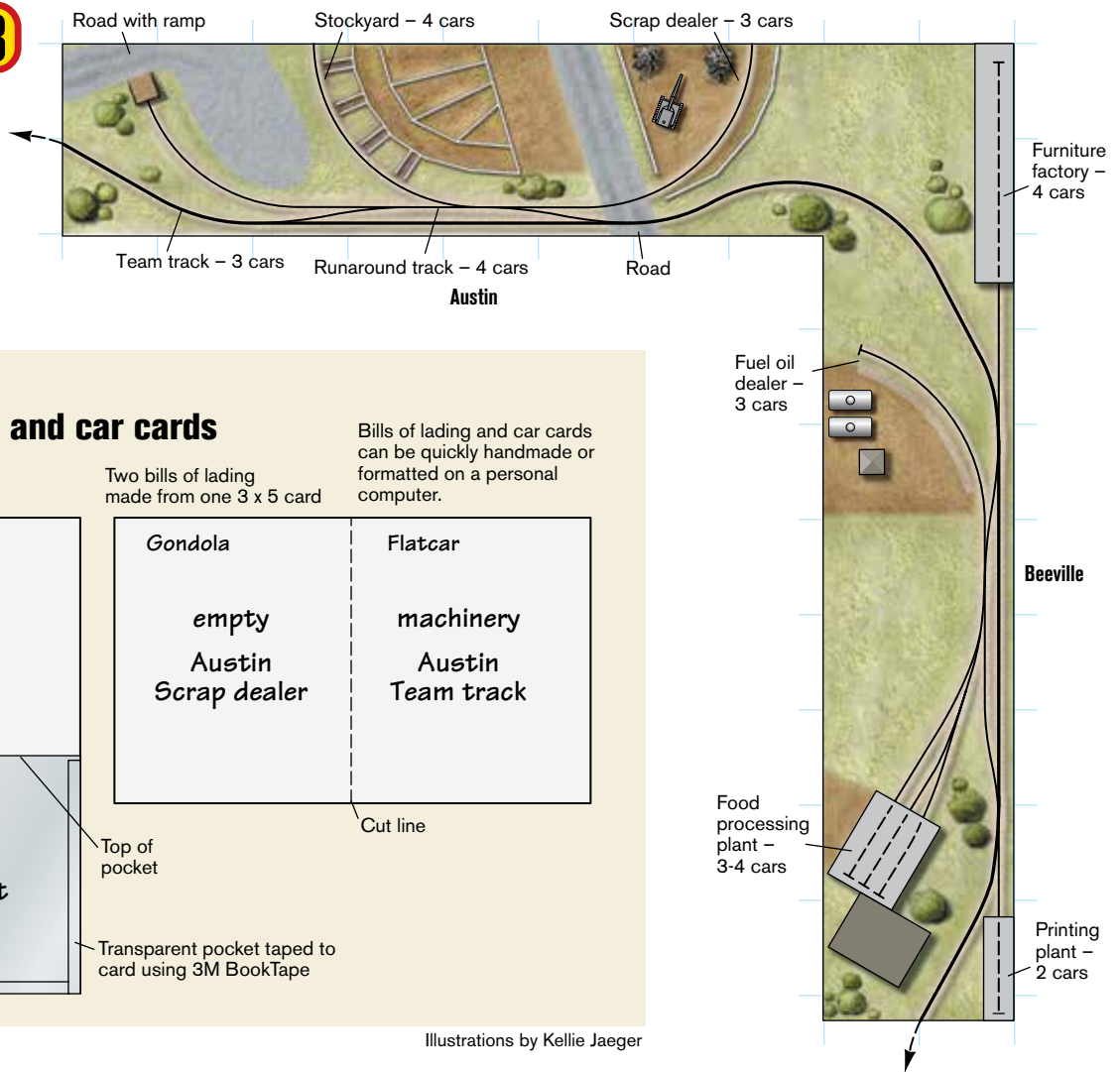
When you rearrange the 4 x 8 into a linear design, you may be able to build an expanded yard and more interchange tracks elsewhere in the room. This will allow you to convert the existing yard and interchange tracks into additional industrial tracks, thus providing more destinations for cars.

For these new industries I chose a furniture factory, printing plant, fuel oil



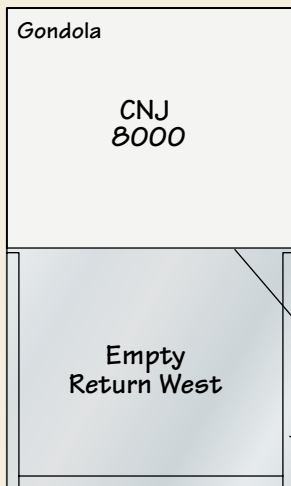
Illustrations by Kellie Jaeger

8

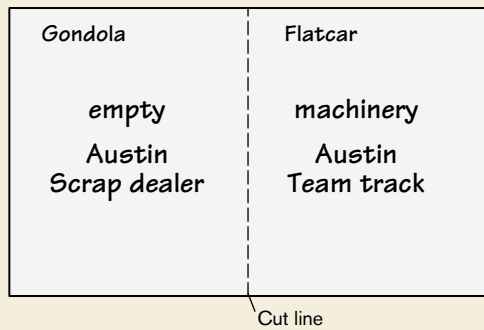


## Bills of lading and car cards

Car card made from 3x5 index card



Two bills of lading made from one 3 x 5 card



Bills of lading and car cards can be quickly handmade or formatted on a personal computer.

Illustrations by Kellie Jaeger

dealer, and food processing plant. Choose businesses that reflect the industrial base of the region your railroad depicts. Since there isn't room to model large industries on the short tracks, I depicted the furniture factory and printing plant as "flats," walls placed against the backdrop to suggest that the other walls are behind them. The food-processing plant area, however, is large enough to allow a Walther's Car Shops kit (don't get hung up on a kit's name) to be used as a shipping/receiving building next to a Golden Valley Cannery processing plant.

## Waybills

With these new industries, you no longer have just one destination for each car type, so you need to expand your paperwork to suit your expanded empire. This is where waybills come in. Each bill of lading lists the type of commodity the car contains, the type of car that lading requires – it wouldn't do to load corn syrup in a stockcar – and who gets the loaded car. A bill might therefore say "Gondola, empty, Austin, scrap dealer" or "Flatcar, machinery,

Austin, team track." Just for labels I used town names beginning with "A" and "B." Have fun choosing regionally descriptive names for your towns and industries.

I like the information in list format with blank lines between the car type, load/empty line, and destination lines. Having the car type at the top makes it easier to match the bill of lading to a car card. Combining the two makes the equivalent of a railroad's waybill. A space in front of the destination makes it easier to see where it's going, just as having the town on a separate line from the industry makes it easier to look at just town names when sorting cars into trains in a freight yard.

Make the bills a little smaller than the car cards, since you need to be able to read the reporting marks and road number of the car cards when the bills and cards are combined.

I recommend a selection of bills, typically four for each industry spot. This means you can send four cars of one type, four different types, or some combination thereof to each spot. More bills mean even more variety.

## Learning Points

- Start small, but smart, so your original layout can become part of an expanded empire later on.
- Modest track realignment allows an oval plan to be converted to a linear design as a stand-alone layout or as part of a larger layout.
- Match industrial choices to car types to ensure visual and operational variety, and choose them to fit the era and region you're modeling.

## Start switching

Now that you have bills of lading and car cards figured out, generate enough bills to make up a train that doesn't overwhelm the railroad. Then dig out cars appropriate for those bills and place them on either the interchange or staging/fiddle tracks to prepare for operation. Now you will be able to make up trains that give your growing empire the prompt rail service it deserves.