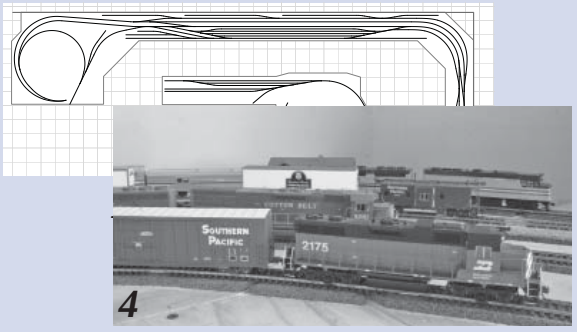
LAYOUT DESIGN Journal 42

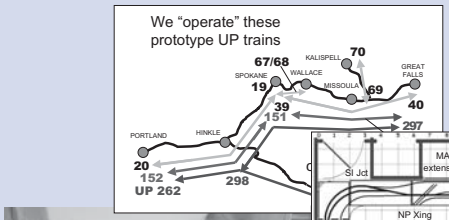
Spring 2011
$8.00 US

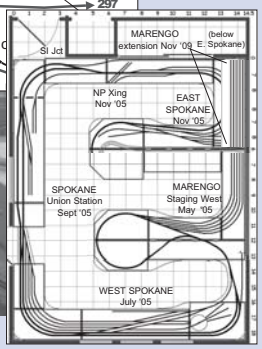
Official Publication of the Layout Design Special Interest Group, Inc.

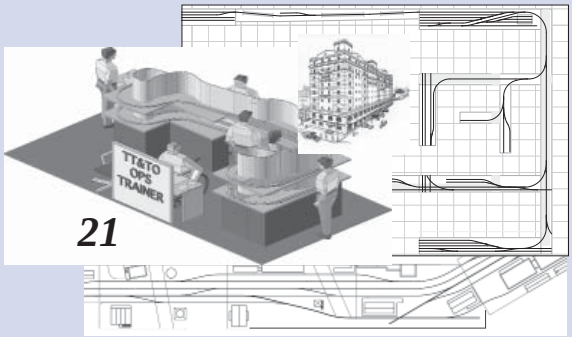
Features

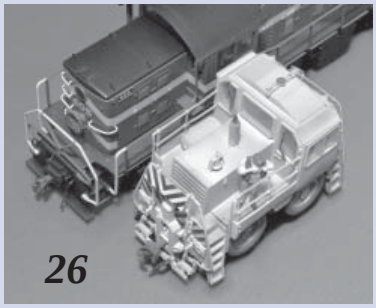
News and Departments











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LAYOUT DESIGN Journal

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The California, Oregon and Western in a Garage

Revisions to history enhance proto-freelanced design

by Dennis Drury

Several years ago my wife and I were finally able to acquire the house of our dreams, and even if the dreams aren't exactly the same, we're both happy. My dream was to get almost full title to a 10' X 33' foot section of a three-car tandem garage. The only caveat: I had to leave a wide walkway from where the car is parked to the entrance of the house. I was also given partial title to any part of the rest of the garage that would not interfere with parking the cars. What to do with all that space?

First order of business was to figure out the what, when and where I wanted in my model railroad. My prior layouts (see sidebar below) had been built on a variation of the same theme: modeling the Southern Pacific (SP) as it was in 1984, or modeling a short-line that connected to the SP.

New history: more engaging layout

The California, Oregon & Western (CO&W) is a model railroad representing a fictional short line in south-central Oregon and northeastern California in 1984. The CO&W extends from an interchange connection with the Southern Pacific at Klamath Falls, Oregon to Alturas, California, running over trackage of the former real-life SP Modoc Line (see facing page).

Besides the creation of the California, Oregon & Western, this imagined history also involves the Great Western Railroad, formed to operate the line from Alturas to Lakeview (I've revised its history a bit). The Army was granted ownership of the line south of Alturas to its base (which I've relocated from farther South) and the Burlington Northern (BN) was granted trackage rights on the new CO&W. The BN was given approval to abandon its line as part of this transaction (creating a traffic source for the layout). This also provides the BN with a direct connection to the Santa Fe as a way to route traffic to the southwest US.

In addition, the CO&W was named as the designated operator of the former SP yard facilities in Klamath Falls, the first part of the visible layout to be completed. The SP and BN both interchange with the CO&W in Klamath Falls. Startup date was set for January 1, 1984.

Equipment and ops freedom

These plausible alterations to history allow me to operate the trains and equipment I wanted in a reasonable historical context (see Operations table, page 8). Besides the SP and BN trains operating via trackage rights, I can create CO&W trains to include operations or equipment that might be hard to justify in a pure prototype design.

For example, the imagined early startup date wouldn't have left the CO&W much time to get everything in line for its beginning. Obtaining a fleet of locomotives and other rolling stock to actually operate the line would be an initial challenge. Fortunately, the CO&W was able to acquire seven GP38-2 locomotives that were coming off lease.

I imagine that these were either former Rock Island engines that had been liquidated as part of the Rock's bankruptcy and had ended up in a lease pool, or former Penn Central / Conrail engines being returned at the end of their lease. The locomotives were all routed to Morrison-Knudsen for shop work and new paint before being delivered to Klamath Falls. In addition, four cabooses, a wedge-type snowplow and other miscellaneous MOW cars were purchased on the used equipment market. This allows me welcome flexibility in operating equipment on the model.

Building Toward the CO&W

How many layouts does the average person in our hobby build? For me, that number is currently at three, not counting the N-Scale layout I built for my grandson. My first was a modified design from the book *101 Track Plans for Model Railroaders* by Linn Westcott. That first layout was just to test concepts and to get a feel for what building a layout was all about. The basic double-track oval with a small yard and a branch-line was more about continuous running than anything else.

My second layout was more of a switching layout, a fictional short-line that connected with the SP. I designed it from the ground up, and it was more about realistic operations than my first railroad: taking cars the SP had left on the interchange tracks, delivering them to my customers, and then pulling the cars to go back to the SP via interchange. I had a lot of fun with both of those layouts and would still have them if it hadn't been for moves. *– DD*

History settled, on to the design!

The Givens and Druthers for the layout itself include the 10'X 33' room size and access restrictions that have already been discussed.

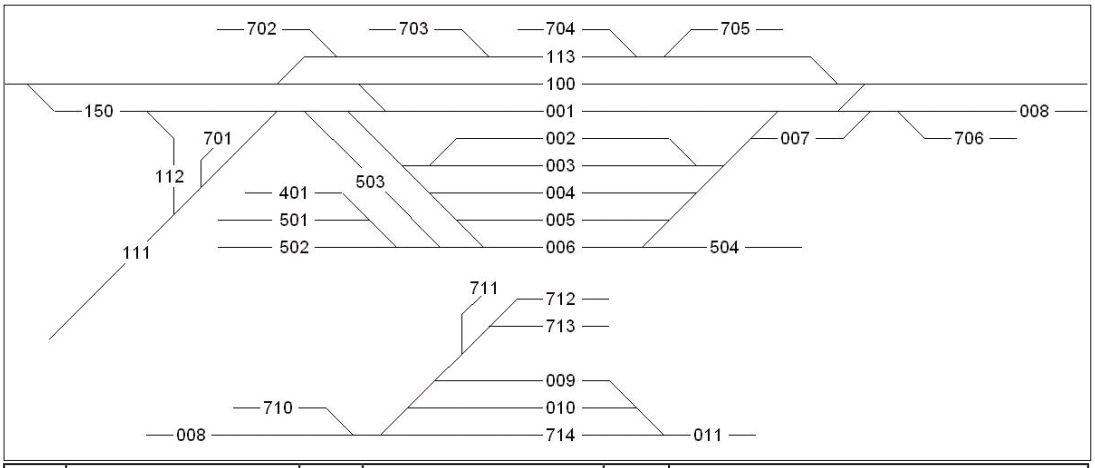
This photo shows the action that can take place on a well-designed railroad. In the back on the siding is Amtrak train # 14, the northbound Coast Starlight, making its station stop at the depot. Holding the main is the CZLAT making a crew change at the east end of the yard. Next in is the SSW 9261, the WCEUY. He's made his setout and pickup and is getting his air test. He'll depart on the block of #14. Also in the photo is the rented BN GP38 being used as the COW east end yard engine. He's using the 007 track which enables him to keep working the yard without interference from the in- and outbound road trains.

The layout is being built with a 30" minimum radius to support the full-length passenger cars, as well as the 89' piggyback flats and autoracks. Minimum turnout number is a #6 in staging and on the future line to Alturas, #8 on the visible portion of the rest of the main line and #5 in the yard and industrial areas.

Maximum grade in the helices is 2.2%. In the next phase, the grade on the line to Armstrong (BN connection) will be mainly level until the grade to Alturas begins at 3%. Control is Digitrax DCC with radio throttles. The staging yard and CTC turnouts and signals are controlled by a dispatcher at a computer running JMRI software, while the line to Alturas is dispatched using track warrants issued by radio. I'm also using the Operations module of JMRI for my car forwarding / management system.

Klamath Falls Yard Tracks

Looking at the track plan (facing page) and the yard diagram (below left), the Klamath Falls yard tracks are as follows. First are the four industry tracks along the wall at the top of the plan. Next is the Klamath Falls siding, capacity 38 cars. This track can be used for meets between mainline trains and is also used by Amtrak for its station stop.



#	Main Line Tracks	#	Yard Tracks	#	Industry tracks
100	SP Main Line	001	Arrival / Departure	701	Thermo Pressed Laminates
111	CO&W Main Line	002	Yard Two	702	Albina Asphalt
112	Texum Wye	003	Yard Three	703	Fancy Fran's Frozen French Fries
113	Passing Siding	004	Yard Four	704	Ferrell's Fuels
150	Texum Lead	005	Yard Five	705	House / Team Track
#	**Service Tracks**	006	Engine / RIP Lead	706	Parr Lumber Co.
401	Stores Track Sand / Diesel	007	East Drill	710	Klamath Gas Supply
501	Engine Track One	008	Chelsea Lead	711	Weyerhaeuser Chip Track
502	Engine Track Two	009	Chelsea Yard One	712	" Lumber Loading Track One
503	Caboose Track	010	Chelsea Yard Two	713	" Lumber Loading Track Two
504	RIP Track	011	Chelsea Engine Escape	714	" Log Unloading Track

The Main Line is the next track down, followed by the Arrival / Departure track. Next we find yard tracks 1-4, capacity 17 cars each. These are the main classification tracks where trains or blocks are made up. Lastly is yard track 5, which is the thoroughfare track as well as the lead for the engine house and the RIP track.

Multi-use leads and future expansion

The track leading to the mill complex at Chelsea is also the east end drill. The tail track at Texum is the future main line to Alturas and will also used by the BN to reach its future staging yard out in the other part of the garage. This line will double

Thoughts on Multi-Pass Design

Longer runs and more ops in the same space

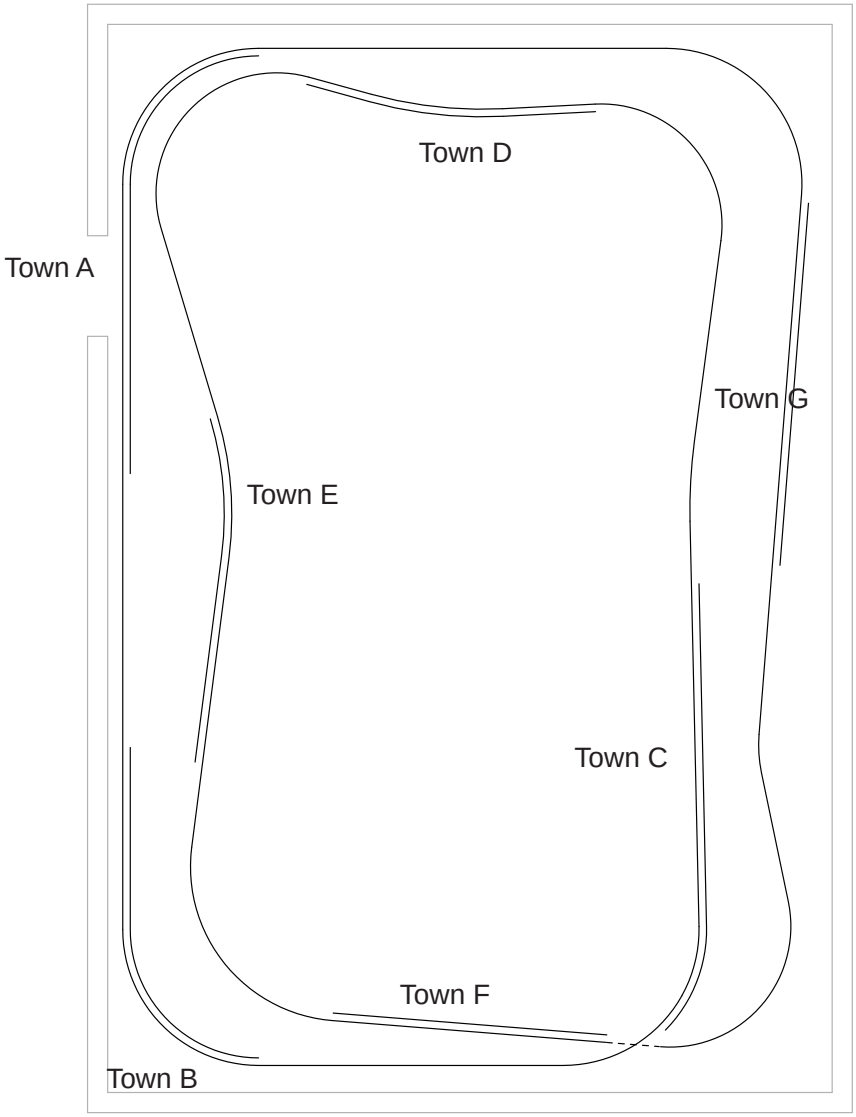
by Robert Reid

Since the advent of reliable walkaround controls, designers have often been encouraged to use once-through model railroad designs. In these designs, a train is only visible passing through a scene once during its trip over the railroad (the exception would be prototypical loops, switchbacks, and horseshoe curves, of course). In many cases, once-through is also prototypically correct and results in a scene that just seems "right".

Never enough room to run

Limited space frequently causes towns to be placed close together, however. This results in the situation where a locomotive has entered the next town before the caboose has left the last one. Frequently the solution to this problem is the employment of double- or triple-deck construction or the use of a mushroom design to lengthen the main line between towns.

Multi-deck designs such as these solve the length problem but potentially introduce height problems: one deck is too low while the other is too high.



Conceptual sketch illustrates the concept of layout elements on different laps nested between those of the adjacent line.

Enter the multi-pass solution

Many modelers would rather opt for easier construction and an optimal viewing height by constructing a single deck railroad where the trains pass through the scene multiple times on multiple laps. Towns can be nested together so that they alternate on each of two lines (see example at left). This solves the length problem and also permits operators to switch a town without interference from other operators.

But single deck doesn't mean a single elevation. If the height of the two lines is varied, a more prototypical feel is created.

Placing two geographically distinct locations on different lines on the same piece of benchwork introduces a potential width problem, however. Wider benchwork is needed to hold that second main line. This can be especially true if one uses realistic landfill slopes between lines of different elevation as opposed to scale miles of retaining walls.

In narrow layout spaces this can also result in a reduced radius on the central peninsula so everything will fit, introducing a potential radius challenge. It seems every solution introduces its own set of problems.

Choices and compromises

Of course, compromise is the nature of layout design. It's often a struggle between the space we have (or can afford, or can construct) and what we want. Length vs. height vs. width vs. complexity vs. access vs. prototype etc., etc., etc.

But a multi-pass design elevating one of the laps can often lead to a track plan with fewer

90 Feet more Mainline

Union Pacific in Spokane, WA circa 1951 – in phases

by David R. Clemens

"But now I was looking for mainline traffic ... to 'test drive' my budding interest in TT&TO ..."

Huh? What's the significance of more Mainline? In late 2008, the Idaho-Montana Railway & Navigation Company (IMR&N) made a giant leap forward to complete the remaining one-third of the railroad's mainline. Yes, we now have a shade over 200 feet of mainline to operate. But, that's just part of the story.

The story begins with the introduction of a California "SP kid" to the railroads of Spokane, Washington in the early 1970s. In the 40 years since, my modeling interests traversed the Idaho Bitterroot Mountains, back to BN in Spokane, down the Northwest wheat country to the Camas Prairie, and finally completing the circuit back to Spokane. [You may read more about Dave's earlier layouts in *Layout Design News* #6, 12/90 and *LDN*-11, 12/93 –*BH*]

Search for a prototype

The IMR&N (also see *Model Railroad Planning* 2007) began as a search for a railroad with more operating potential than the then-extant (late 1990s) Camas Prairie Railroad (see *MRP* 1998 and *Model Railroader*, March 1998). The obvious choice was another location on the Union Pacific (UP) or Northern Pacific (NP) given the extensive roster from the Camas Prairie (all the real-life Camas Prairie's equipment came from its UP and NP parents – *BH*).

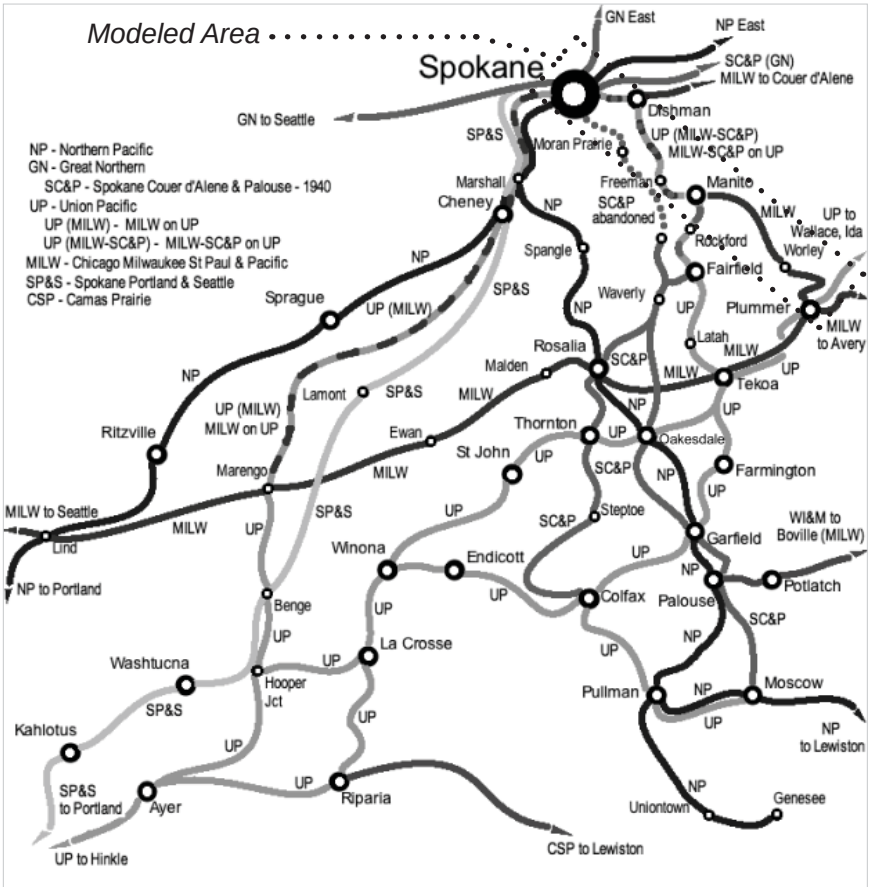
An exhaustive look followed to combine both "parent" companies in the Palouse region of Washington State (map, lower left). The towns of Rosalia, Oakesdale, Garfield, Tekoa, Palouse, and Colfax are all locations where NP, UP, Milwaukee Road (MILW), or Spokane, Couer d'Alene & Palouse (GN interurban subsidiary) crossed paths and competed furiously for traffic.

Essential elements

But now I was looking for mainline traffic, as well as the opportunity to "test drive" my budding interest in Timetable and Train Order (TT&TO) operation. Since all the Palouse branches were low traffic volume – typically one or two trains a day, except the MILW mainline – I needed another option. It didn't take much head scratching to realize the better answer was back to Spokane! The Union Pacific and the Milwaukee Road trackage rights into Spokane, to be exact, spurred on by stumbling across the book *Union Pacific Northwest* (Jeff S. Asay, Pacific Fast Mail, 1991) – then long out of print.

Before starting the design effort, I laid down the following criteria: 1) prototypically accurate locale and scenes (a la the preceding Camas Prairie), 2) sufficient traffic and modeled mainline length to challenge TT&TO dispatchers and train crews, and 3) use of multiple-deck construction if needed to achieve these objectives.

The IMR&N is a freelanced Union Pacific subsidiary emulating the Oregon-Washington Ry. and Navigation (OWR&N – UP Oregon Division) and representing a fictitious Spokane to Great Falls, Montana Division. The "extra" mileage expands the traffic base from my previously-modeled out-and-back branchline



Railroads of the Washington Palouse plateau – UP/NP/GN/MILW

locale to four through freights and a through passenger train - all connecting with actual UP trains at Spokane for destinations elsewhere on the parent system.

The Milwaukee Road trackage rights through Spokane add two pairs of freight trains and both Milwaukee's Olympian Hiawatha and maid-of-all-work Columbian passenger trains. By pure happenstance, at an NMRA Pacific Northwest Regional Meet I was approached by a Spokane resident and historical aficionado. He pointed out that the Great Northern picked up trackage rights down the Palouse in 1952 in order to abandon more than 30 miles of up hill and down dale trackage. Yippee, more trains!

Time to build

The *MRP* 2007 article covers most of the "heavy lifting" of finding and expanding my train room. I'd moved to the Sacramento area in 2002, but continued to work part-time in the Bay Area as layout design progressed. Good fortune really smiled at the annual Bay Area LD/Ops SIG Meet in Santa Clara in 2005. I met two model railroaders from my new area who remain the "core" of my Thursday Night Thieves operating group. Doormino construction (see *LDJ*-40, Fall 2010) commenced even before the layout room was expanded, and the first blue foam landforms and track configurations went down in the spring of 2005.

Staging to Spokane

"Xerox Track" – photocopied track components – reached West Spokane Yard and Union Station in May. I had committed to no more Plywood Pacifics (layouts with no scenery), so by June "meatball scenery" - basic scenic texturing - was down and track followed step-by-step. Actual track started going down in Marengo (West staging) in mid-June, reaching W. Spokane by the Fourth of July weekend.

The first trains ran on July 13th over about 30 feet of railroad. With Marengo staging done and the west yard lead of West Spokane Yard in place, trains "ping-ponged" back and forth testing track and operating procedures.

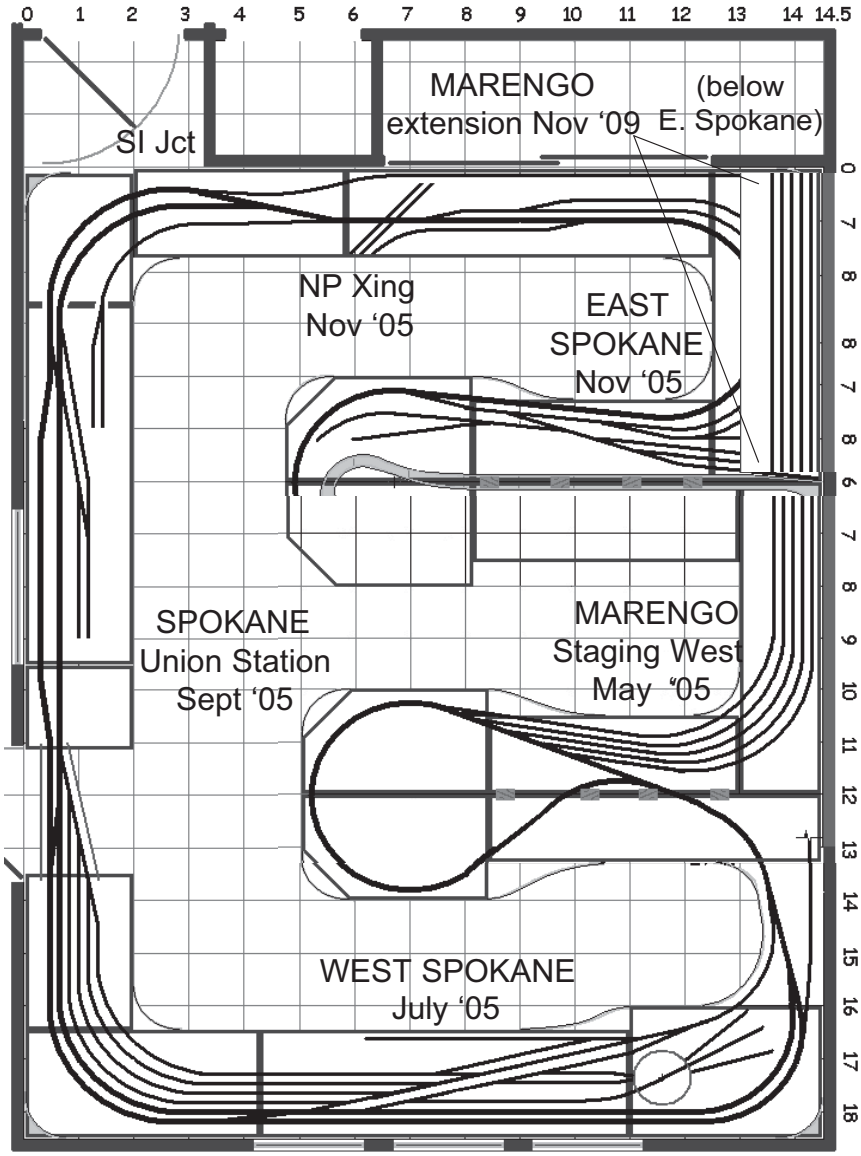
Through August and September doorminoes and meatball scenery continued through Spokane Union Station toward the Northern Pacific Crossing and East Spokane. And we ran the railroad alternating weeks as construction continued. Trackwork went through Spokane's Union Station in October.

Finally, Thanksgiving week provided enough combined hours for intense track construction to reach Dishman, and create a continuous run down the "ramp" to West Spokane (see track plan page 16). Temporary East staging was initially at Dishman, then more formalized "up Chester Creek".

First hundred feet – time for ops

With the Thanksgiving week trackwork, December 2005 offered the chance to kick back and enjoy what we had wrought during the year. Rather than track, spikes and debris, we traded construction tools in for throttles, waybills, car cards and Train Procedures forms.

HO scale
14'6" X 18'6" overall
1-foot grid
Minimum radius 22"
Minimum turnout #6
Max grade 2%



The first phases of construction allowed out-and-back operation from Marengo Staging (representing points west of Spokane) to Spokane Yard. The Marengo Staging extension is actually below East Spokane and wasn't added until after all other track was laid (see page 20). It's shown here to reference its location.

Road Warrior Revisited

Four track plans to take on the road

Original concepts and track plans by Ray Freeman, Mike McLaughlin and Mike O'Brien
Story editing and text by Dick Foster

The Bay Area SIG Design Challenge of 2007 was to design a portable sectional or modular layout to fit in a small "U-Haul" type trailer (see sidebar page 25).

Three designers submitted four layout concepts that offer several innovative and clever solutions. The concepts varied widely as did some of the required set-up layout space. Three layouts patterned their plans to a specific prototypical situation and the fourth would be suitable for many prototype locations and doubles as an educational tool for model railroaders.

B&O's 26th Street New York City Yard

Mike McLaughlin offered up two plans - the first being a straightforward layout with simple construction, while the second was a more complex sectional plan, but would be a lot of fun to operate. The first plan was called the "B&O 26th Street Yard." Mike described it as a "vest pocket" rail yard in Manhattan, occupying roughly one city block.

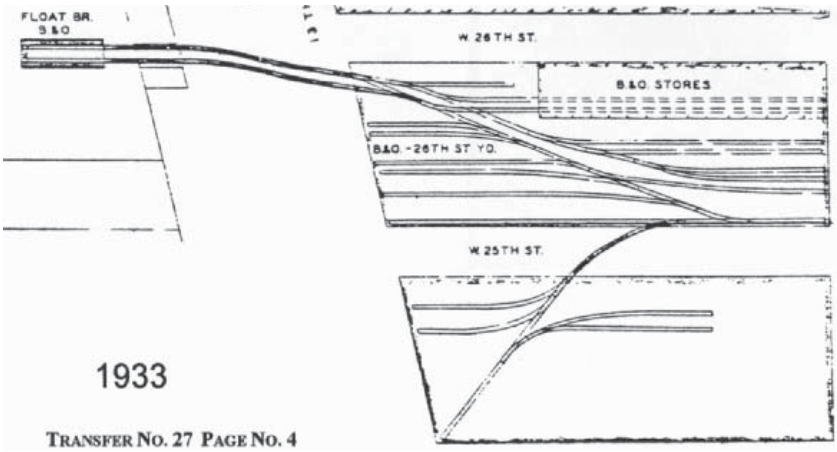
The plan was designed for historical accuracy and required little selective compression. Details of the prototype may be found in LDSIG-member Tom Flagg's article in the Rail-Marine Information Group's *Transfer* #27 (**www.trainweb.org/rmig**) and in Flagg's book *New York Harbor Railroads in Color, Vol. 1* (Morning Sun Books; 2000). As of this writing, there is also a detailed website available:

http://members.trainweb.com/bedt/indloco/bo26.html

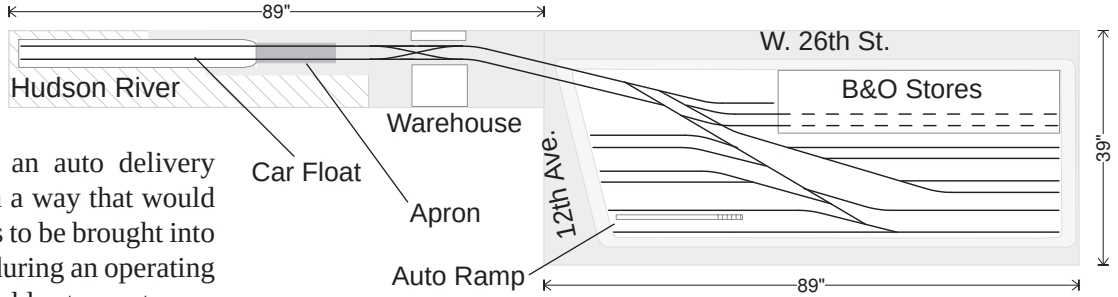
The yard was served by a car-float from New Jersey and consisted of team tracks, freight houses and an auto delivery ramp. The car float acted in a way that would allow quite a number of cars to be brought into and out of 26th Street yard during an operating session. These car floats would act as a storage cassette similar to many British layouts.

As the model plan shows, Mike didn't model the next block down from the 26th Street Yard, but it would be easy and I believe would fit in our trailer. Including this adjacent area would increase the operating car spots significantly and provide for longer and more interesting operating sessions. The track plan is based on a 1930s track layout and is designed to use 44-Tonner or S-1 motive power. The rolling stock consists of mostly 1950s-style 40' cars.

Generally, this layout would be simple to build with scenery consisting of scruffy yards, streets and a section of the ferry slip. But the signature 10-story B&O "Stores" Building (right) would be a highlight.



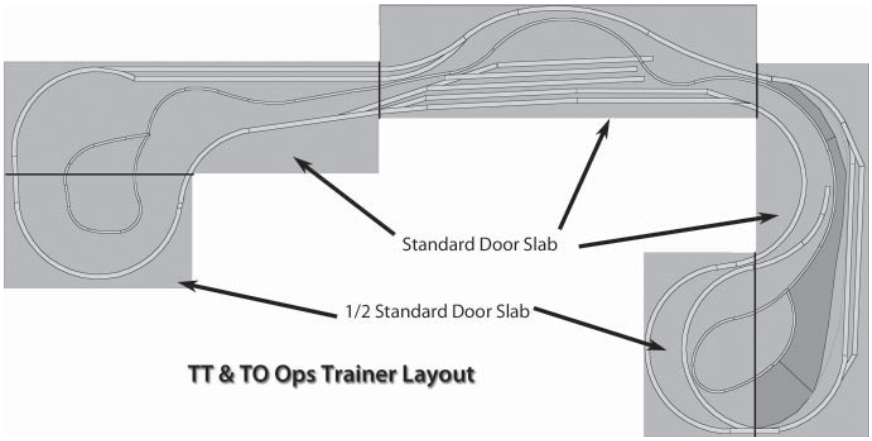
The B&O's facility at West 26th Street was one of several nearby operated by a number of railroads. Some of these terminal facilities had rail interchange with other railroads, but others connected only via car float. Team tracks and freight houses were major sources of traffic. Images courtesy Tom Flagg and RMIG Transfer. *(The double-crossover in Mike's design appears about 1937 in prototype maps.)*



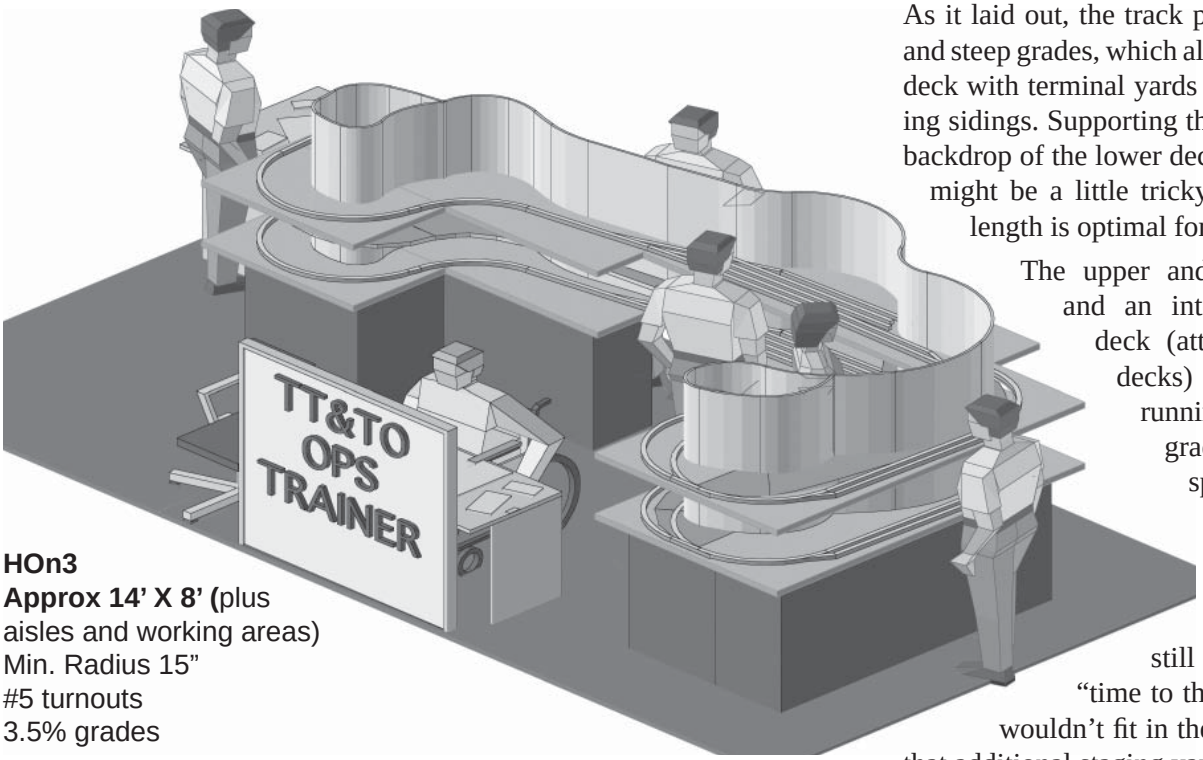
Mike McLaughlin's compact HO scale B&O 26th Street switching layout is based on tight #4 turnouts, 15" minimum radius curves, and likely some custom trackwork in the double crossover and the crossing. With a bit more space, a version could certainly be built with off-the-shelf components.

TT&TO "Learning Lab"

Finally, Mike O'Brien's Timetable and Train Order Trainer Layout is unique and not in the same "home/exhibit" arena as the three previous layouts have demonstrated. Not only will the layout likely fit in the trailer, but can serve a useful educational purpose at meetings and shows.



*Construction from "doorminoes" (*LDJ*-40 page 24) would be quick and provide sturdy, easy-to-move sections. This rough sketch of the lower deck shows the terminal yard and a couple of short passing sidings on the climbing line.*



HOn3
Approx 14' X 8' (plus aisles and working areas)
Min. Radius 15"
#5 turnouts
3.5% grades

Mike O'Brien's ambitious TT&TO Trainer concept was not fully developed as a to-scale track plan, but many interesting elements are visible in his 3-D rendering. Stacked upper and lower terminal yards would provide originating and terminating stations, with several short passing sidings to create TT&TO learning scenarios. A steeply graded "sneak track" might join the upper and lower decks for continuous display running (at least in one direction) and would ease re-staging.

The idea of using four 24x80 inch lightweight door panels without legs to contend with was a clever design and space-saving idea. Most exhibit and meeting venues generally have some type of folding tables available that would easily support the layout. Since it is a "trainer" for TT&TO, scenery and other details can be simplified which makes handling the modules far easier. Mike also pointed out that the layout could be set up in a standard single garage bay (approx. 10x20 feet).

The primary layout purpose is to offer a training "lab" for modelers interested in TT&TO operations. Operation would be between the visible yards using several two man crews in addition to the Dispatcher and Train Order Operator. The operator and dispatcher's desks are not part of the layout and could use several small card tables.

To keep things scaled down in keeping with the portability goals of the challenge, Mike selected HOn3 as a track gauge since he already had motive power and rolling stock in that scale. The concept was to be based on a California or Colorado narrow gauge line.

As it laid out, the track plan has tight curves and steep grades, which allowed for the double deck with terminal yards and numerous passing sidings. Supporting the upper deck on the backdrop of the lower deck as Mike proposed might be a little tricky, but the additional length is optimal for TT&TO.

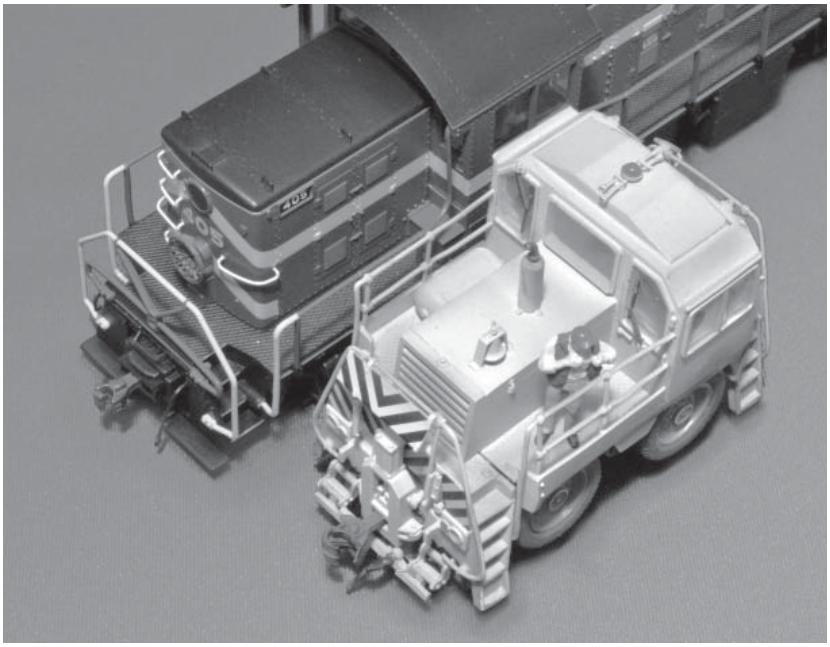
The upper and lower main deck and an intermediate climbing deck (attached to the other decks) create 100 feet of running length. Steep grades make for slower speeds, shorter trains and helpers, creating more TT&TO ops learning scenarios while still allowing operators "time to think". Although they wouldn't fit in the trailer, Mike noted that additional staging yards could be added.

A layout like this would be great for model railroad shows, regional meetings and even the BSA Railroading merit badge. [The concept is similar to the well-known Operations Roadshow layout (**www.railsonwheels.com/ors**), but much more compact – *BH*]

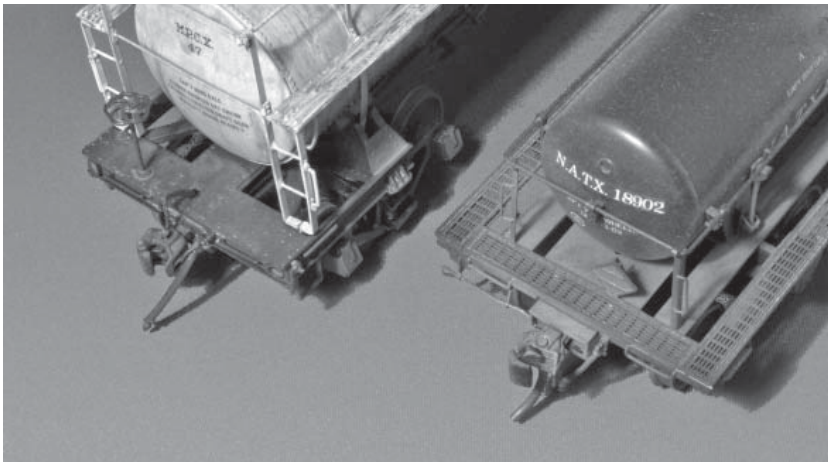
Design considerations for prototype-action couplers

Visibility, reach, layout scope and more

by Trevor Marshall



When comparing a Sergent HO coupler (Green Mountain RS-1, left) with a Kadee #5 HO coupler (Trackmobile), what's immediately apparent is that the Kadee coupler head is about twice the size. Also note the size of the open space in each knuckle: when Sergent couplers mate there's almost no slop between the knuckles so slack action will be noticeably reduced.



The size difference is less noticeable in O scale. The white high-walkway tank car on the left sports a Protocraft coupler, while the black tank car is fitted with a Kadee. The open space within the knuckles is significantly different, however, so the Protocraft couplers reduce the running in and out of slack in a train. And they're much more prototypical in appearance. Note the lift pin on the Protocraft coupler is connected to the cut lever rod that projects through the frame.

The phrase "layout operations" usually conjures up an image of the typical operating session, in which a group runs several trains over the layout. The focus is on recreating the trains in miniature, and design considerations often focus on issues like staging and yard track capacity, maximizing mainline length in a given space, passing siding length and location, the arrangement of industrial spurs and so on.

Modeling jobs

More recently, layout designers and operators have turned their attention to recreating railway jobs in miniature. As an example, where once it was common for a single person to assume the role of all crew members (engineer, conductor and brakeperson), we're now seeing more two-person crews in which one operator looks after the engine while the other handles paperwork, directs the moves and throws the switches.

One of the advantages of this modeling of jobs is that it brings more play-value to a given layout. This is especially beneficial for shelf-switchers and spare-room short lines, where track space and car capacity is limited.

For the past several years, I've been trying to model the jobs on my modest-sized O scale layout, which depicts a Maine two-foot gauge line and its standard gauge connection. One of the decisions that has contributed to my success with this is the adoption of prototype-action couplers.

Prototype-action couplers

I've used HO couplers from Sergent Engineering (**www.sergentengineering.com**) on my On2 locomotives and rolling stock, and O scale couplers from Protocraft (**www.protocraft.com**) on the standard gauge equipment. Sergent offers its couplers in S as well as HO, while another, compatible O scale prototype-action coupler is available from San Juan Car Company (**www.sanjuancarco.com**).