

LAYOUT DESIGN

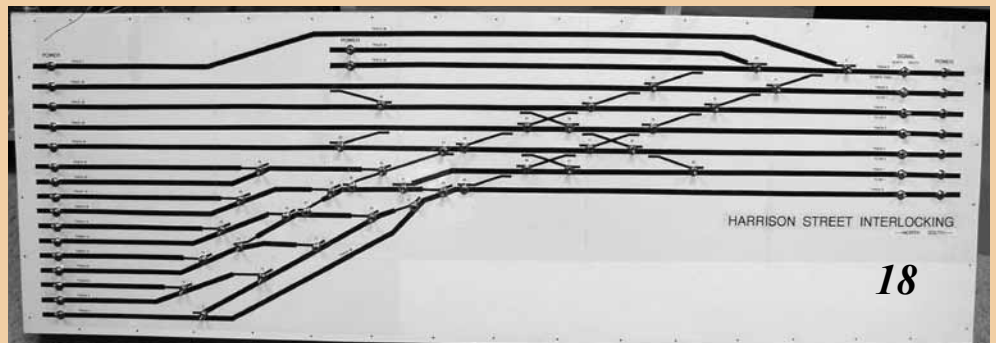
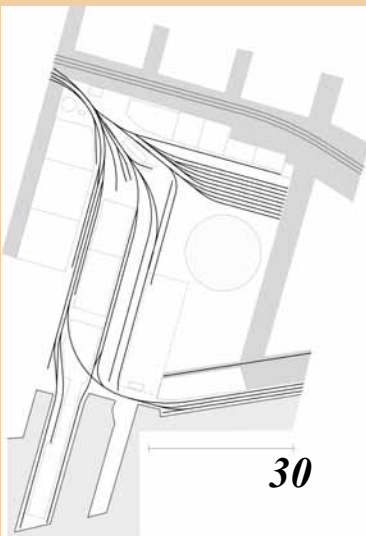
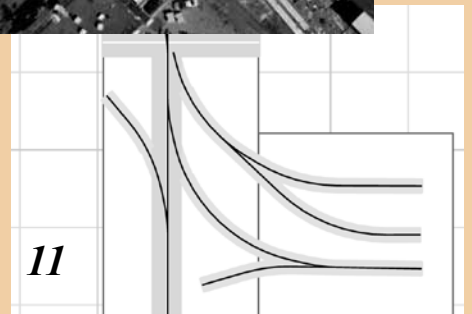
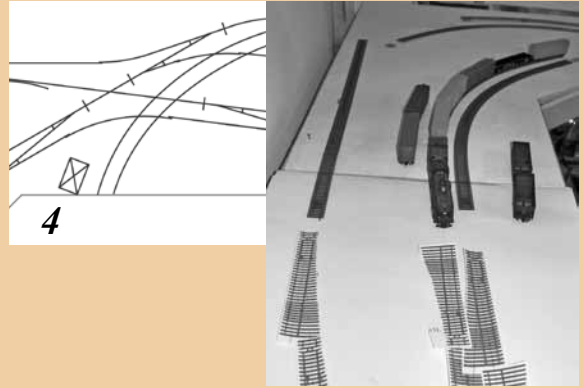
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Three Crossings at Newburgh

“Modeling a mile” in (and of) a new location

by Eric Hansmann

In early 2009, my wife accepted a new position far from our West Virginia home. I embraced the move to a new state as an opportunity to start anew on my hobby “career”. It took a few months to pack, move and then slowly unpack a lifetime of accumulated material in our new metro Cleveland, Ohio home.

The new home is charismatic and historic. But it was lacking a traditional model railroad space – the rough basement functions as the furnace and water utility space. This environment includes very low floor joists, ancient sandstone block walls, and an uneven concrete floor.

Undaunted, I chose one of the bedrooms as a model building room and made compromises to my model railroad thoughts and dreams. I had a clean slate and felt energized even as I knew the 11 X 11 foot space would present challenges in building an HO scale layout.

Givens and ‘druthers

This John Armstrong-coined term goes back many decades but is a key in model railroad planning. Givens and ‘druthers force the

builder to understand available space parameters and establish priorities for the dream model railroad. My layout room needed to include a workbench, storage for hobby materials and tools, and storage for reference materials. The smaller space made me quickly realize my model railroad room was more than just the layout.

I took measurements and sketched the location of everything in the room; outlets, doors, windows, sill height, trim, door swing areas, lights, and heating elements. I employed Adobe Illustrator to create a digital graphic of the room using the details from the sketch. I printed out a few copies of this digital graphic to sketch layout ideas. The room presents several challenges as only three walls can be used to anchor the layout. Another door and closet consume most of the fourth wall (lower left).

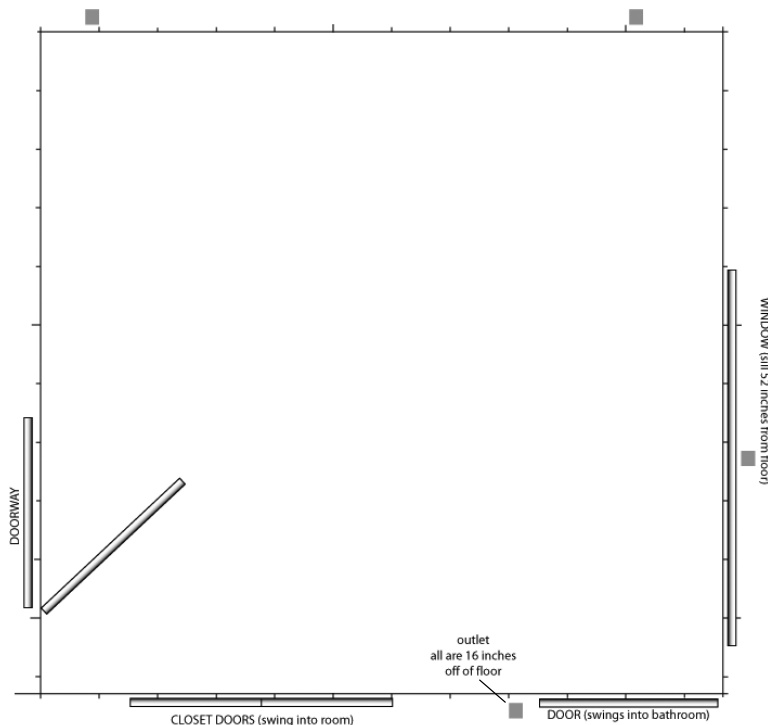
I needed to use the space under the benchwork for material storage and a workbench. This is an important preference and time was spent to establish benchwork clearances. My previous benchwork bottom clearance was set at 55 inches from the floor, with the top of the rails near 60 inches. As I am 68 inches tall, this was a stretch in places. For the new layout I consulted ergonomic data and suggestions LDSIG-member Don Mitchell had published in *Walkaround Model Railroad Track Plans* (Kalmbach, 1991 – out of print).

I set the new floor-to-rail height at the distance from the floor to the bottom of my extended arm, which is 55 inches. Subtracting the benchwork and roadbed sandwich of two inch foam and three inch wood framing dropped the benchwork clearance to 50 inches. I temporarily set up benchwork segments from the old layout at this height to experience reach over the layout as well as below to access storage and wiring. The clincher came when I used a chair to sit under the front of the benchwork to access the workbench. I did not bump my head on the bottom of the mocked up layout pieces!

What to build?

As the benchwork parameters came together, the question of what to build loomed ever

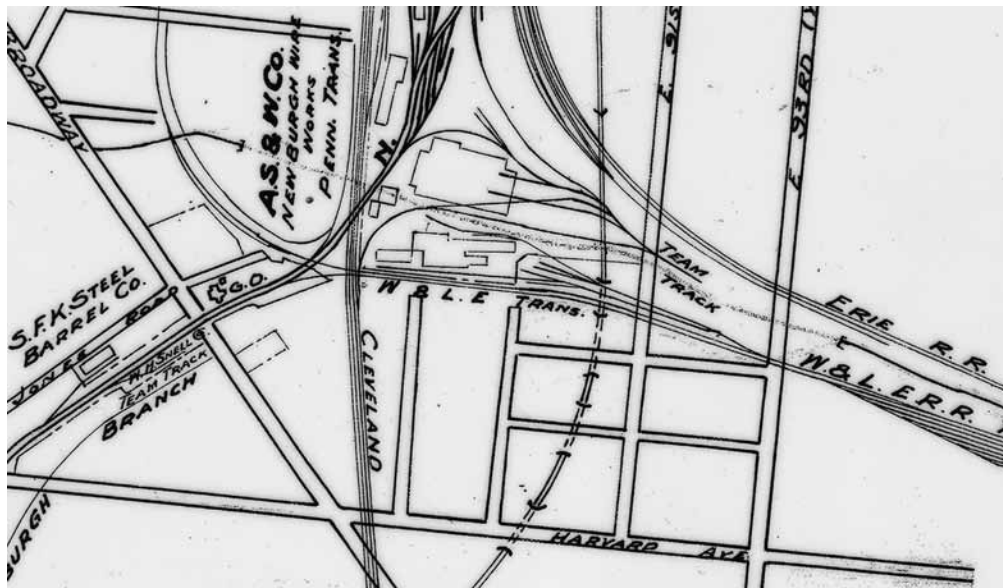
“ ... I chose one of the bedrooms ... and made compromises to my model railroad thoughts and dreams. ”



Eric's detailed to-scale room drawing locates the room entrance and obstructions. Printing paper copies gave him a “scratchpad” to realistically sketch track plan options.

of interest appears at right. It's only a few city blocks between Harvard Avenue on the N&SS and the East 93rd Street yard on the W&LE.

This compact area presents modeling and operational possibilities between a few different railroads. Interchanges between the N&SS, W&LE, Pennsy, and the nearby Erie can generate traffic movements of great variety. Details in a W&LE timetable imply that the East 93rd Street Yard is mainly for cars moving to and from the N&SS and PRR interchanges. Lurking just north of the Wheeling mainline the US Steel's American Wire & Steel division had their Newburgh Wire Works operations straddling the PRR right-of-way, with possible switching locations along the N&SS and W&LE.



This detailed view shows the multiple crossings and concentrated activity of the Newburgh area. Image edited by the author, original N&SS Valuation Map from the Cleveland State University Library Special Collections, used with permission.

Raising benchwork

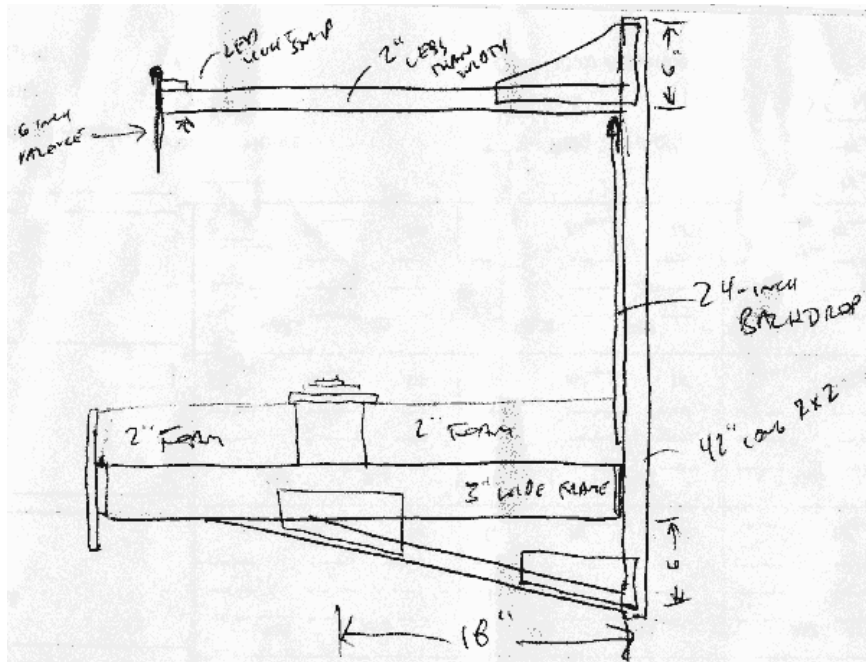
With the research ongoing (see sidebar page 8) I moved forward on construction. Another preference in building this layout was to reuse several older sections of benchwork grids from a previous layout. These had been stripped to the basic frame and ready to support a new endeavor. Two new sections were built from 3/4" thick birch plywood ripped three inches wide. I prefer birch plywood to dimensional lumber and can have rip cuts done for a sheet or two at a local big box home center.

... and keeping it up ...

Before any benchwork could be set into place, another detail loomed. I was planning to anchor the benchwork into the walls, but the room walls are plaster and lath. Rather than attaching the benchwork to the walls, I thought it would be best to fit benchwork between the walls and use legs for all support. Felt furniture pads were installed onto the benchwork framing where it makes contact with the walls. There needs to be some wiggle room as this old house expands and contracts with the weather. As the benchwork pieces were installed into position, the felt pads were enough to keep the layout snug between three walls.

... and lighting it up

The backdrop and lighting is another issue I mulled over while the benchwork went up. I



Eric's rough sketch shows the layout surface, LED lighting valance, and rolled aluminum backdrop. Note the supporting gussets above and below.

developed an idea to support the backdrop, valance and lighting from tall 2x2s attached at the back of the benchwork frames (see sketch above). I had used aluminum siding sheet as a backdrop on the previous layout and knew the 2x2 supports would work fine. This material can be found in two-foot wide by 50' long coils at big box stores. I was uncertain on how to support a valance and lighting but modified the backdrop support by using longer 2x2s in

Small and Portable: Wicomico St.

An interim sectional switching layout

by Joe Parker

In early 2010 I moved into a brand new house. Due to circumstances beyond my control, I had been unable to have any kind of layout for roughly five years. Design paralysis for a number of years before that meant that it had been a long time since I'd had a functioning pike.

The new house meant a fresh start for a layout. I negotiated basement space for the layout that was roughly 14' X 30' with a 10' X 12' bump out in the middle forming a flattened "T" shape. But I am a firm believer that a clean, comfortable, finished space is a prerequisite for building a large, basement-sized layout and financial realities dictated that finishing my basement would be out of the question for a while.

More armchair modeling while biding time until work on the basement could commence was not acceptable to me. I'd already waited too long. I needed a way to have an operating home layout without building anything permanent, one that would let me simultaneously proceed with construction when the time came.

Enter my portable HO scale Wicomico Street layout.

The Prototype

Wicomico Street is located in the city of Baltimore, on the west side of the Inner Harbor, a stone's throw from Oriole Park at Camden Yards and M&T Stadium, home of the Baltimore Ravens. To the casual observer today, it is a fairly busy industrial area that happens to have a mysterious, unused railroad track embedded in the middle of the street. In 1984, though, it was still an active switching area for the B&O operating under the auspices of the Chessie System.

My initial research on the aforementioned B-More Ghosts website

showed only two pictures of Wicomico St. It wasn't much to go on, but enough to get me excited. Thankfully, there was Google Maps. Using Google's aerial maps, I determined that there was still a lot of embedded track in the area. For example, Figure 1 shows Ellicott Engineering. It is obvious that there is still a ton of track in the pavement, even to this day. It made it very easy to figure out the track layout along Wicomico St. and that this was once a pretty active area.

"It wasn't much to go on, but enough to get me excited."

Journey to Wicomico

The journey to Wicomico St. (pronounced why-KAHM-ih-koh) was not a speedy one. When I started building my first layout in 2001, my interests lay in a Class I railroad set in Massachusetts. It was loosely based on the Boston & Albany line during the late Conrail era. That layout was geared more towards mainline running with a little switching thrown in for good measure.

As tends to happen, I found my interests changing. Within a short time a number of discoveries, or rediscoveries as the case may be, converged to change my modeling preferences.

The first had to do with operating style. I've been a member of a model railroad club, the Worcester Model Railroaders located just outside Worcester, Massachusetts, since 1998. Through club operating sessions I learned that my operational interest leans heavily towards switching and realistic operation. I'm not keen on "railfan" style operations where trains pass by, but don't do a lot of actual work. While I can appreciate the draw of watching a nicely-modeled train running through a well-constructed scene, it doesn't hold my attention for long.

Switching, on the other hand, is like a 3D logic puzzle for me. I like the cognitive aspect of it, and I like that it changes. Different cars, different scenarios, and the ability to throttle the difficulty level depending on mood or circumstances are big draws for me.

That meant my mainline-oriented railroad was no longer going to work out.

The second was my rediscovered interest in (and later a passion for) the Chessie System, with a focus on the Baltimore & Ohio. The more I learned, the more I loved it, and freelancing quickly took a back seat.

Third, I stumbled upon the Pentrex DVD called *Street Running* and I quickly became enamored with the idea of trains running on the streets.

These three came together for me when, while researching switching areas on the B&O for possible modeling opportunities, I came across a website called "B-more Ghosts" (www.monumental-city.net) that featured a section devoted to street trackage in the city of Baltimore. As I delved into learning about former B&O operations in the street, I grew more excited.

While Fells Point might be the more obvious choice, I was drawn to the tracks at Wicomico St. for their compact modeling potential. It became clear to me that Baltimore was the locus I was looking for and I expanded my search to various industrial areas in the city.

The result of all this is an overall vision for a basement-sized layout based on Baltimore called the Monument City Terminal Division (MCTD). See the sidebar on page 16 for a complete list of my priorities for the full layout.

The problem was that the MCTD couldn't address my "I want to build something now" issue. But as I thought about it, I realized that a small layout focusing just on Wicomico St. would. – JP

the tracks terminated at the end of Wicomico St., so the plan faithfully replicates that by ending at the top.

But, I couldn't leave well enough alone. Veering from a strict LDE, I played the proto-freelancing card since I already saw some problems and opportunities. In addition, I had started a blog to document my progress on the layout, and some of the comments I'd received helped me to identify some thing I decided to change, as well.

After living with this plan for a short while, I had decided:

- At 20 feet, the layout was somewhat longer than I really wanted. Since I planned to put the layout on wheels, shorter was better. (For more on planning for portability, see the sidebar on page 15.)
- I had no idea what spur A went to.
- There was no runaround to get a locomotive properly oriented to serve all the industries easily, although the

prototype seems to have faced the same issue. The jury was out as to whether this was important or not.

- If I assumed that the operator would be standing on the right side of the layout, the spur that goes inside the building at DS Pipe and Supply (Spur G in Figure 3) would be difficult to access, especially if I built the structure to resemble its prototype design.

Modifications for Operations

In order to shrink the layout down, I needed to make some changes.

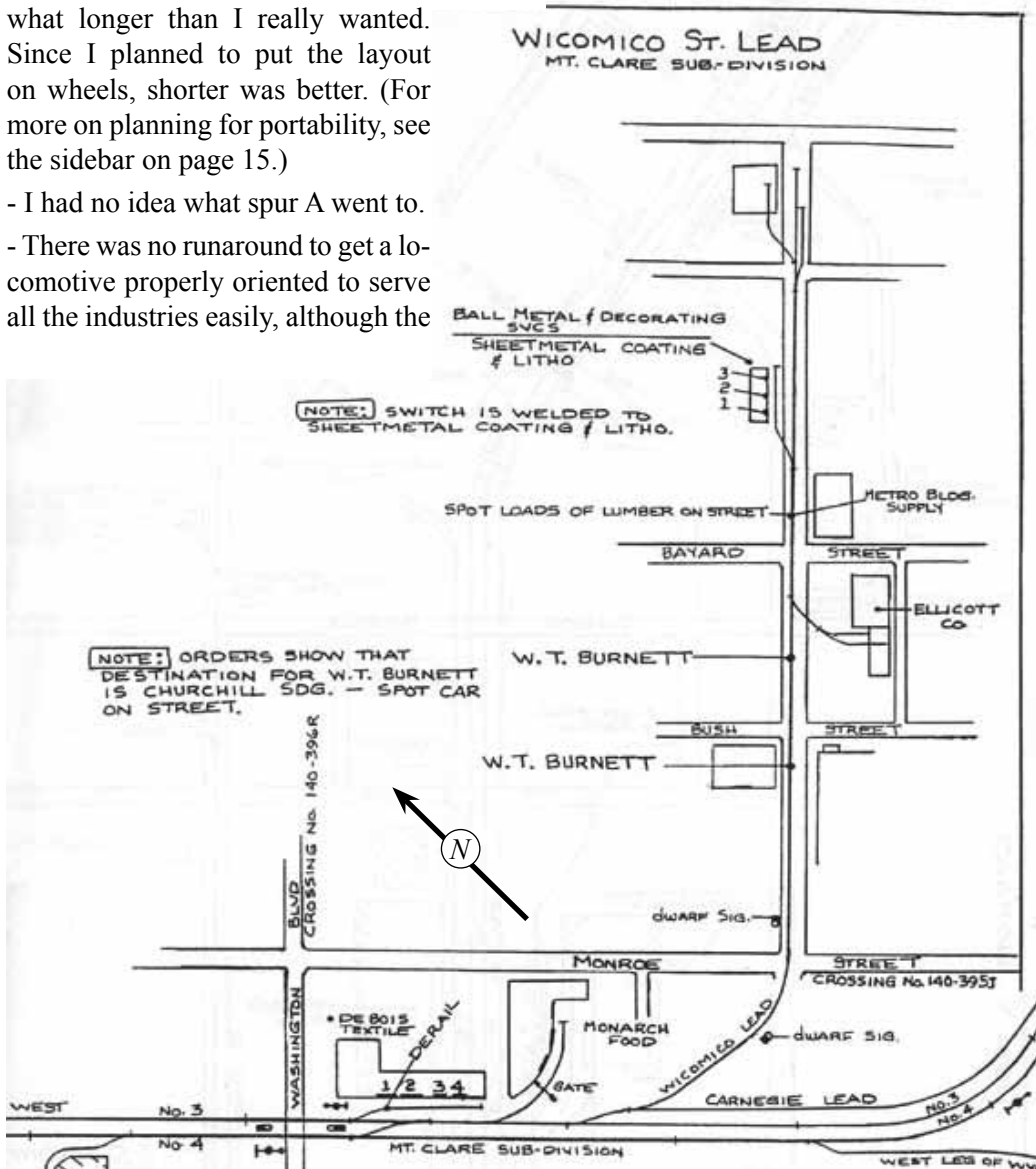


Figure 2a (above left). The B&O Roadway Map provided much useful information about tracks and industries in the area, although the author freelanced things a bit in the end. Map by Bernie Beavers, courtesy B&O Railroad Historical Society Archives (www.borhs.org).

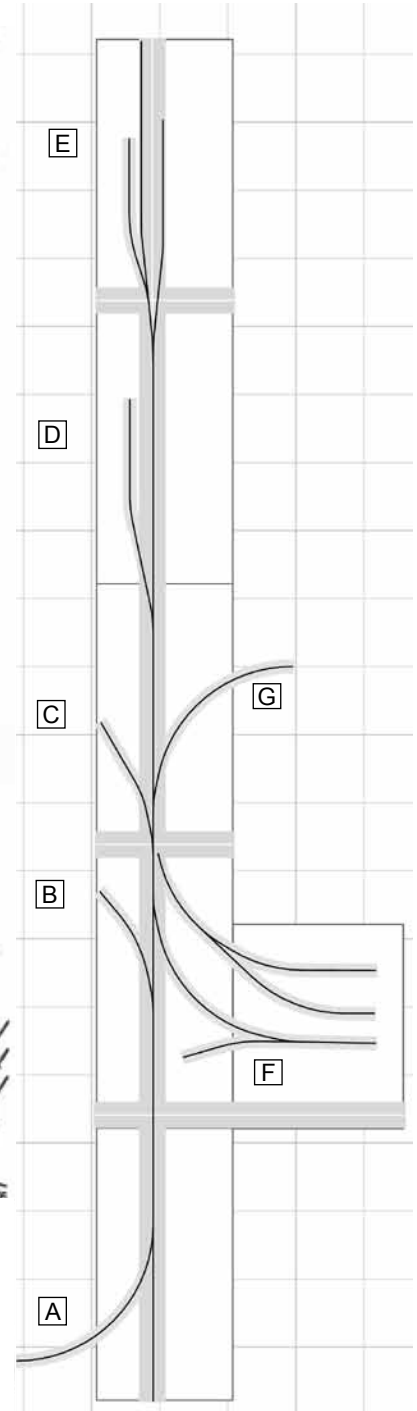


Figure 2b (above right). First rough sketched track plan was a bit longer than desired for a movable layout.

Designing a Busy Passenger Terminal

Sectional multi-deck HO mushroom layout based on Chicago

by Fred Soop

As I described in the July, 2011 issue of the Operations SIG's *Dispatcher's Office* magazine, long distance train travel in my youth left me fascinated with passenger railroading, especially switching and terminal operations. When I decided to build a passenger-oriented layout in the mid-1990s, I selected Chicago as a prototype location. Chicago had a fair amount of passenger switching, but was not as overwhelming as the largest US terminals such as New York or Washington, DC.

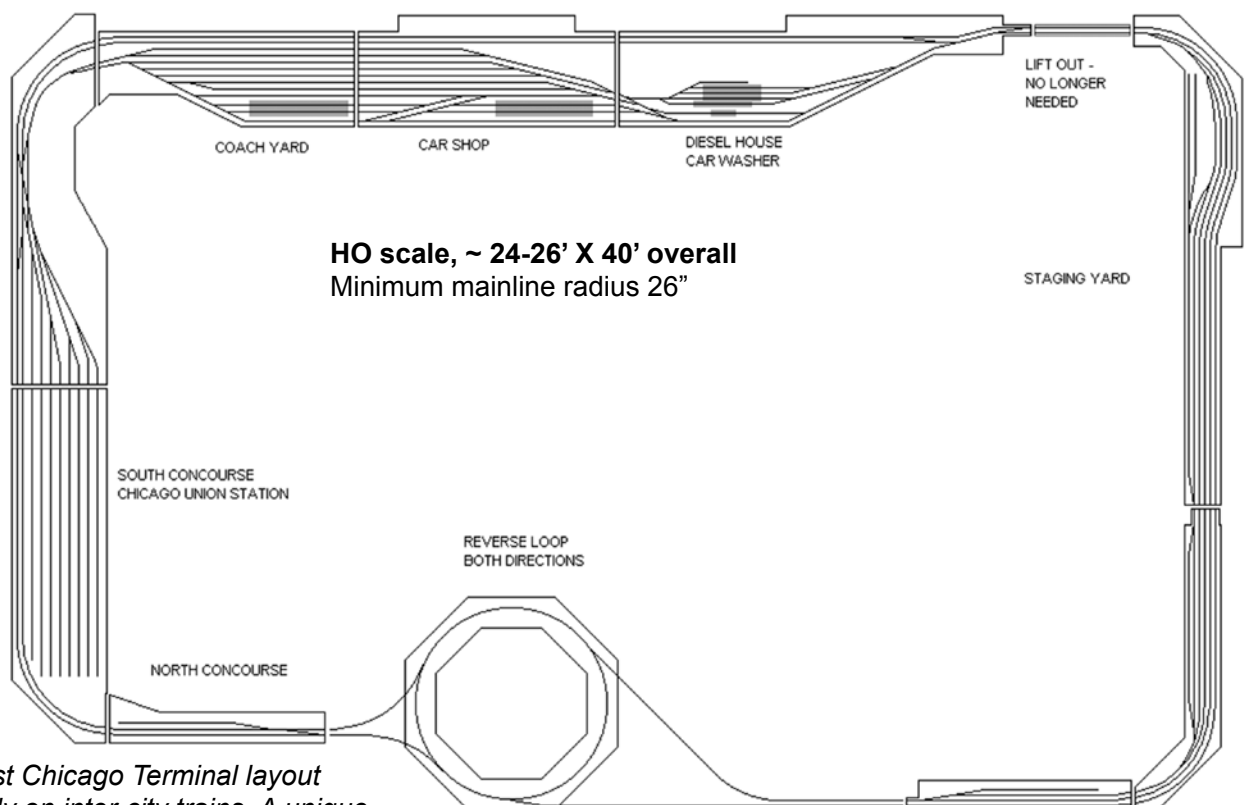
Unlike the unique passenger rail carriers of my youth, Amtrak of the mid-'90s did not have a lot of variation in liveries, but this also meant that prototypical paint schemes were available on a variety of modestly priced HO passenger cars from Con-Cor, Rivarossi, Bachmann and others.

A first go at Chicago

The early version of the Chicago passenger terminal layout (below) was set up with

benchwork no wider than three feet, two main tracks extending around the room for orbiting, and a single deck. Staging was required to be on the same level and was width-restricted to no more than six tracks. A "traffic circle" of track placed between the main tracks in a storage room provided for reversing in either direction and orbiting.

The 3-foot width restriction required the elimination of Chicago Union Station Tracks 2-10 (even numbers on the south side) and beginning the modeled tracks with Track 12. The tracks closest to the wall were designated #s 28 and 30 and were the mainlines around the room for orbiting. Eliminating the lower-numbered tracks was not an issue for me because these tracks were primarily for Metra commuter operations – and in the mid-1990s very little model Metra equipment was available. Metra service was to be a single 5-car train bouncing back and forth on a fictional schedule.



The author's first Chicago Terminal layout focused primarily on inter-city trains. A unique "traffic circle" loop allowed for turning trains as well as continuous running.

Compromises at Harrison St. and in the yards

Plans of the Amtrak yard were available from magazines, but no prototype track arrangement of the key Harrison St. Interlocking was available. In addition, even though this was before the new Post Office covered the plant, the area was still largely inaccessible to railfans. Since only two main tracks and one yard lead could be accommodated, the modeled Harrison interlocking was very simple, containing only two double slip switches.

The Amtrak yard, also restricted to three feet wide, had the two main tracks on the “wrong” side and the individual yards were greatly reduced in number of tracks. The remainder of the layout was staging. We allowed cars to be manually turned in front of the engine terminal, since there was no wye available.

The plan shows the layout broken into sections and that is the way it was moved in 2000. The layout was reassembled in the new location with a few minor modifications and a major change to the reverse loop.

Opportunity to improve

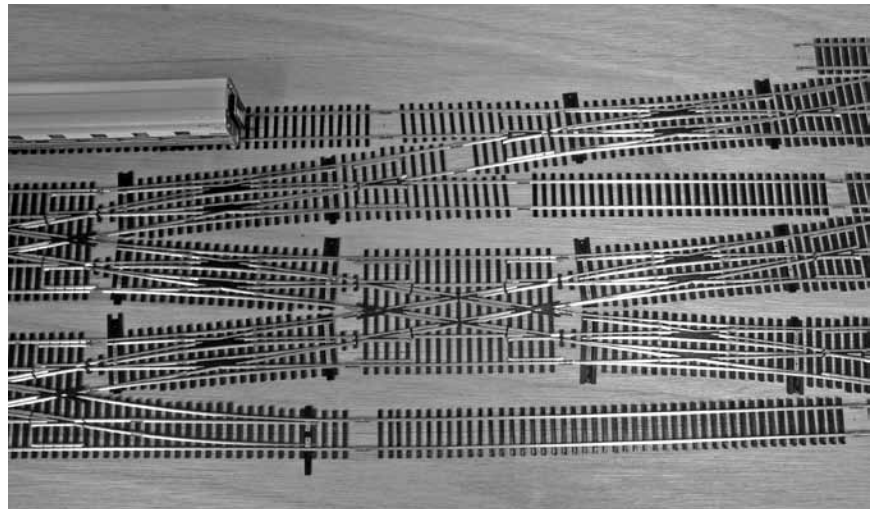
A few years later, with additional prototype information, the availability of DCC, many new releases of passenger cars and engines, and many more potential operators, it was time to consider a rebuild.

Track components for the Interlocking

Key to doing a good rebuild of the layout would be a redesign of the Harrison St. interlocking. A basic requirement would be scratchbuilding or kitbashing a scissors crossover with double slip switches on the corners. While constructing the original layout, several brands of switches were purchased and examined. Part of this testing involved running a loose truck through the switch as well as looking at dimensions.

Atlas proved to have very sloppy frogs. Micro Engineering was the best but only available in basic #6 left and right at the time. Previous layouts were hand-laid with BK turnouts but that was ruled out.

Walthers code 83 was finally chosen. While the switch frogs are not quite accurate and there are various production problems, these proved to be acceptable. Additionally, there



is a full line, including double slips, available in many different switch numbers.

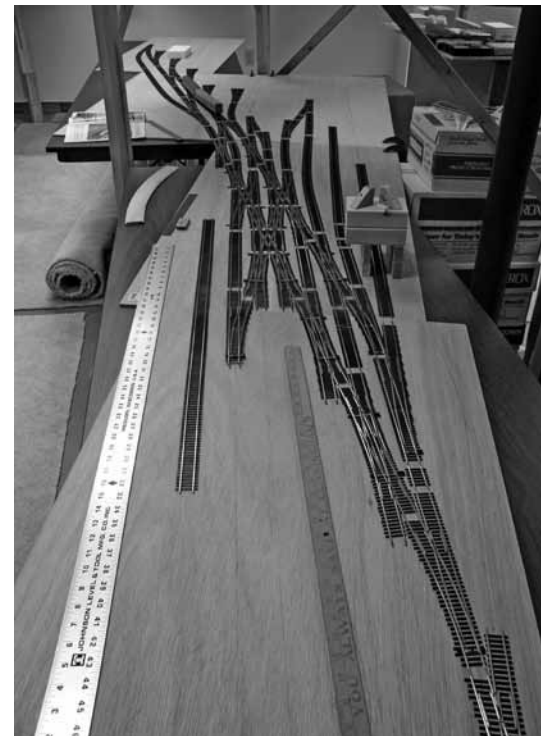
Surgery for scissors and slips

But there was no diamond available with the correct angle for a #6 scissors crossover. Using Atlas diamonds with Walthers switches would involve slightly different rail heights and matching metal guard rails to plastic guard rails.

This was eventually solved by using the Walthers #6 scissors crossover, cutting off the switches, and replacing them with cutoff double slips.

The experiment was successful (photo above). The cutoff ties nearest the diamond are part of the scissor. The ones nearest the slips are part of the slips. With the “DCC friendly” insulated frogs, the closure rails simply “plug in” where the previous rails were removed. Rail joiners can be seen on the outer rails where they had to be cut. As a side note, the cutoff pieces were joined to make additional switches. The ties look a bit funny, but they were used on the upper level and in staging where it isn’t obvious.

Atlas flex track was chosen due to good performance and low cost. The first version of the



The cut-and-paste interlocking is above, showing how Fred recombined track components for a more accurate representation of the overall Harrison Street scene (below).

The Howard Terminal in N Scale

Rail-marine terminal on a hollow core door – and more!

by Byron Henderson

Although they are not widely known, the West Coast had its share of small “pocket” railroad terminals. Many of these were tucked into odd bits of real estate in harbor areas. One of my favorites was the Howard Terminal, located along Oakland, California’s Inner Harbor (see sidebar for more on the prototype’s history).

Perfect for modeling

My design is set in the 1950s, when there was still a little break-bulk rail-marine business and warehouse switching as well as significant scrap metal traffic. The Howard Terminal (HWDT) is almost perfect for modeling. The prototype was extremely compact, but had interchanges with both the Western Pacific (WP) and Southern Pacific (SP). The track arrangement included piers, warehouses, and a small yard – something for everyone!

Referring to the map (this page), probably the most unique element of the Howard Terminal was the running track that actually passed *through* a warehouse to reach a wharf (or quay). From the late 1950s until the ‘70s, the Howard Terminal switched a number of additional berths and marine terminals along this quayside line, including the Grove Street Pier.

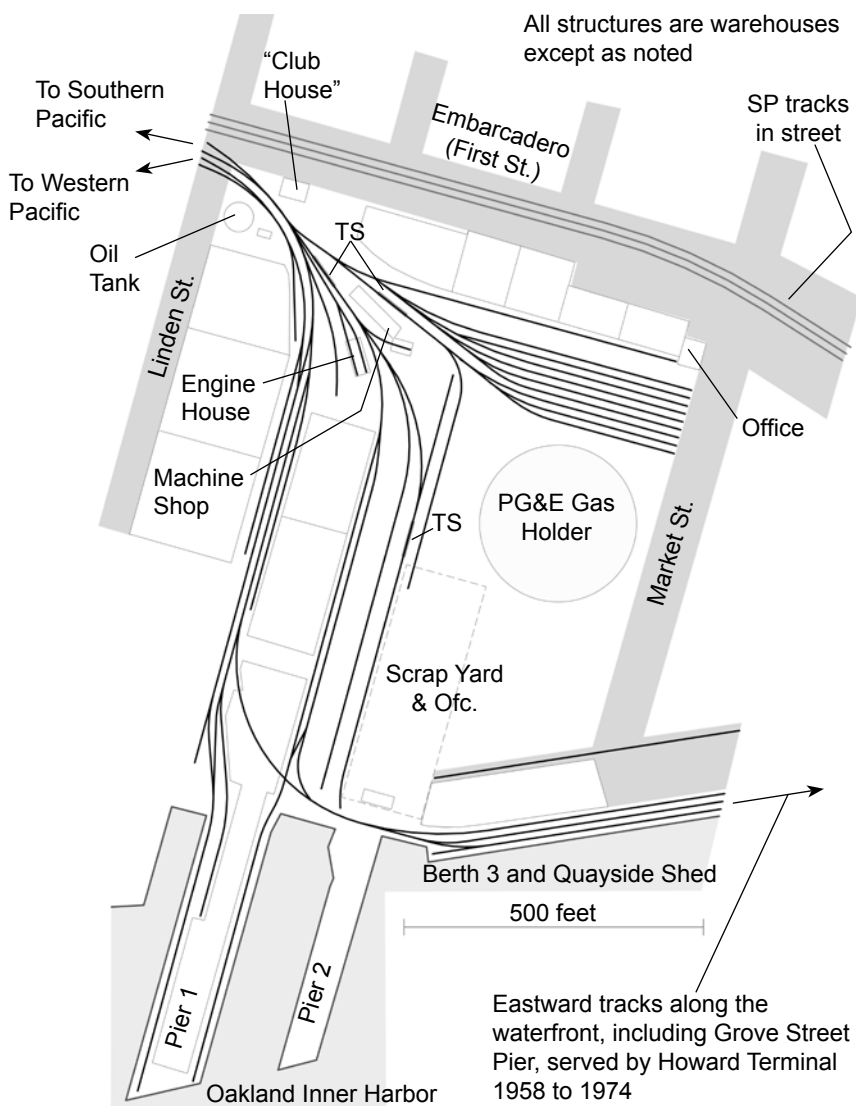
A “Z” for an “HCD”

Another of the unique elements of the prototype is that it is shaped something like a “Z”. There were two double-ended interchange tracks each for the Western Pacific and Southern Pacific to the west (the top of the “Z”), the main terminal itself (the middle of the “Z”) and the tracks out along the wharf to the east (the bottom of our “Z”).

A “Z” shape is a bit tricky to fit into a smaller layout space. I made it even a little trickier on myself by selecting a hollow-core-door-sized space (36” X 80”) for my N scale design. Hollow core doors (HCDs) are a popular “pre-fab” benchwork choice for many N scalers (and others, see *LDJ-40*). In order to make dropping feed wires a little easier, I’d probably actually build this using waffle-style benchwork (*LDJ-29*), but extruded pink or blue foam over a door would be another workable choice.

A “scrappy” little railroad

By the modeled era, scrap metal traffic was a very important business for the HWDT. Railcars loaded with scrap filled the small rail yard between ship arrivals or were switched directly to the pier when a ship was berthed. Scrap was also accumulated in the adjoining scrap



This map was redrawn by the author from a 1932-era illustration. Leads to the Western Pacific and Southern Pacific exit the property from the upper left. Continuing off to the lower right, the quayside tracks and a number of pier sheds were switched by the Howard Terminal from the late 1950s to 1970s. These additions to the mapped area create the overall “Z” shape of the prototype. And yes, the running tracks went right through one of the warehouses!