One Module Challenge

The Port of Tacoma

BY SCOTT WILLIAMSON
PHOTOS BY MICHAEL WOLF

1. This layout design models the Port of Tacoma, as shown here in this proof-of-concept module. The photo backdrop really adds a big-port feel to the module.

TOMA Design Contest second place winner in HO ...

C'MON, ADMIT IT. EVEN THOUGH RAILROADS, and model railroads in particular, form our prime focus, ships are interesting too. Where railroads and ships interact is especially interesting – and can be modeled to provide plenty of switching action and years of satisfying operation. Thus was born the Port of Tacoma – a module based on a major port that can fit in a space available to nearly everyone..

This 2- by 10-foot design offers a lot of "play value" and enjoyment in a relatively small area! Operationally, within this 20-square-foot port module there are five separate switching jobs which can take an average crew of two anywhere from 45 to 90 minutes each to complete. If all were run back-to-back, it would likely take more than four hours.

This module doesn't require a huge expenditure to build, can be expanded in phases to fill a spare bedroom, and could eventually keep three crews and a yardmaster busy for hours.

How can I be so sure about this? Because I've already built the Port of Tacoma to these dimensions, and the proof of concept is that the Port has been in operation for more than a year. With so much operation packed into a relatively small area, it is usually one of the first jobs for which those participating in my operating sessions mark-up [2].

I already had a relatively finished 20- by 25-foot layout, but after reading about the TOMA concept in *Model Railroad Hobbyist,* I felt it offered a unique opportunity to expand the layout. I always wanted a port area, and the TOMA idea seemed to fit the bill perfectly to expand my layout along an empty wall.

Port operations

Ports provide an abundant supply of businesses that are served by rail: grain and food, mining products, oil, gas, lumber, finished goods, chemicals – the list is nearly endless. While modern ports are primarily focused on container shipment (and car lengths would be a challenge in this small area), earlier ports used shorter cars and smaller ships to move goods.

For that reason, I've chosen 1962 for a time frame. While I used Tacoma as my inspiration and setting, this plan could easily be adapted to ports around the world. This plan does not follow specific track arrangements or actual business names except for the ADM elevator. However, it does incorporate elements of the actual Port to capture a "what if" feel of a port railroad [3].

2. Birds-eye view of the Port of Tacoma module.

3. Combining railroads and a port was the inspiration for the Port of Tacoma module. Two reefers sit outside Puget Sound Seafood waiting for this morning's catch to be loaded.

In 1962 Tacoma, cargo destined for ports near and far came in on one of the four Class 1 railroads serving the city – Great Northern, Northern Pacific, Union Pacific, and the Milwaukee Road. Those railroads handed-off cars to the Tacoma Municipal Belt Line Railway, shortened to Tacoma Belt or "the Muni" by locals. The Muni classified cars for the Class 1 railroads, and interchanged cars with the Port of Tacoma Railroad, which had its own switcher.

In my version, a Proto 2000 0-8-0 provides a neat contrast to the diesel locomotives roaming the rails elsewhere. Lettered for the Port of Tacoma and weathered for years of service, it looks and sounds good, and runs even better..

Signature elements

While the railroad on any port module will be the focus, enough of the flavor of a port needs to be included so the module doesn't simply look like any other industrial switching area. Two of the

most important features are water and docks. Era will dictate to a large extent what is modeled, as a modern port focusing on containers will differ greatly from ports of an earlier era, where breakbulk loading of ships was the standard. The Port of Tacoma in 1962 utilized the latter method.

There were a number of "finger piers" that jutted out into Commencement Bay and looked cool, but take a lot of room to model. Since the focus here is on the railroad, another ploy was needed. Berthing spaces were added over the years, using more modern construction methods. This module tries to show that expansion by way of old versus new.

The right side of the module features "older" piers, while the front utilizes a large modern berthing space and a smaller one for the fishing fleet. The older piers feature individual wooden pilings [4], hand-cut and stained by friend Jim Kehn, whose talent for detail

4. The older pier areas of the Port feature wooden pilings. These were hand-cut and stained by fellow modeler Jim Kehn.

5. These "dolphin" piling structures really give the area an ocean waterfront look. Also note the sheet metal behind them in this modern portion of the port.

extends to greenish barnacles at the base of the pilings, and weathered areas to show the effects of the rise and fall of tides.

The modern pier features sheet piling from Evergreen painted a red primer color and then weathered with gray Pan Pastel paints. The "high tide" line is represented by a heavier light-gray color.

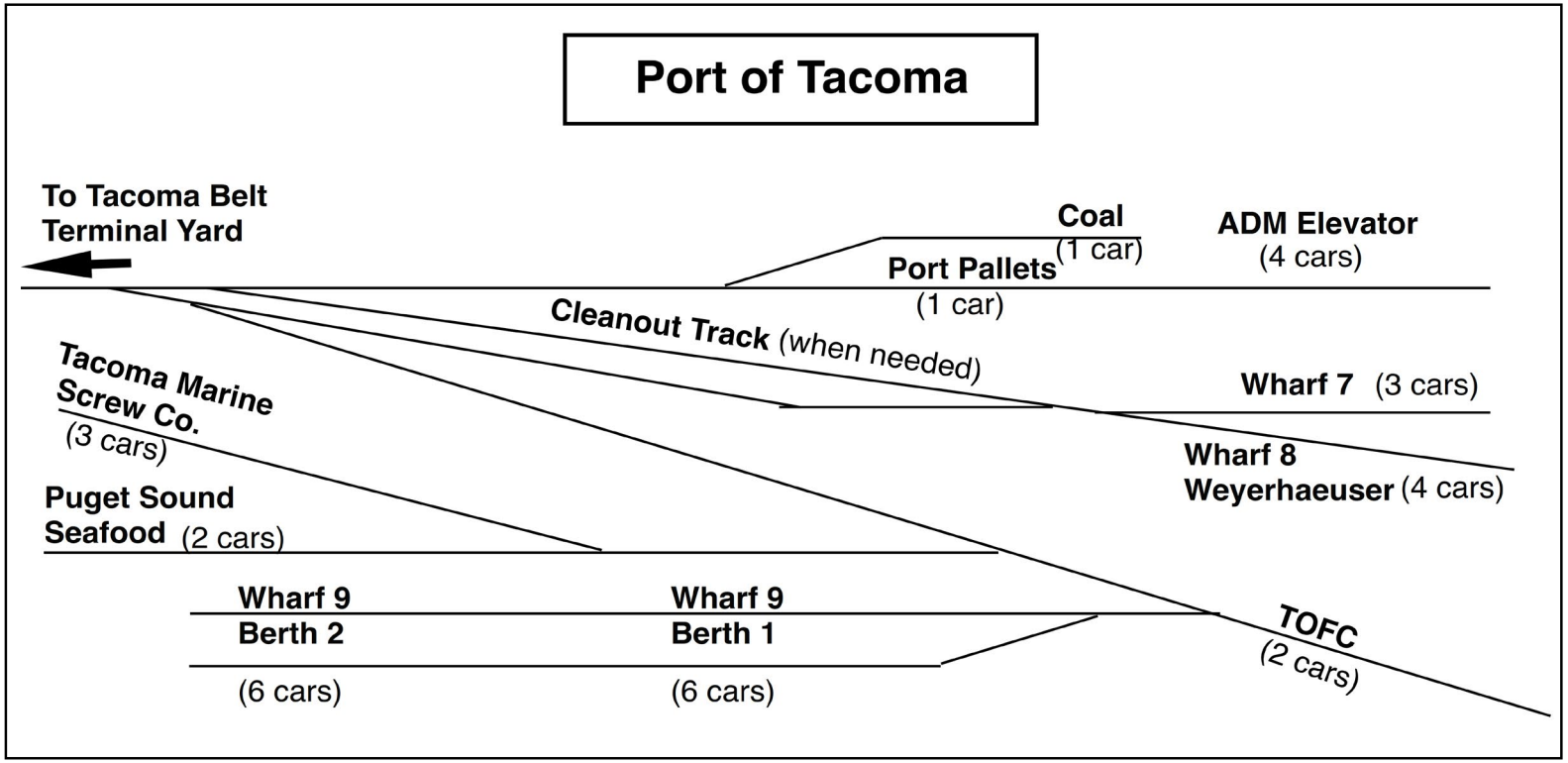
Another key feature in the harbor are "dolphins" – wooden pilings bound together by metal bands or rope to keep drifting ships from going where they shouldn't. I had a number of them formerly produced by Mr. Plaster, so into the harbor they went. When more were needed, Jim fashioned some from dowels, and they add a nice weatherbeaten touch to the harbor [5].

Industries in the port

There is a wide range of industries in the Port area [6, 7]. During this era, grain for export arrived in boxcars, so they're what rolls through the big ADM elevator.

Piggyback service was in its infancy, so only a few TOFC cars arrive at the lift [8].

Near the ADM elevator is one of the older wharf areas. I've labeled this Wharf 7 (to imply there are more wharves elsewhere) and it is a tank car unloading area, with an oiler docked there. Next to that, Wharf 8 is the Weyerhaeuser dock, also built with pilings, and serves as the destination for outbound loads of lumber from flats and boxcars.



6. The Port of Tacoma packs a number of different industrial areas in just 20 square feet. With minimal extra space for parking cars, I generally work the area as four different jobs of approximately six cars each, and a "rip rap job" to remove rubble from the ADM silo demolition.

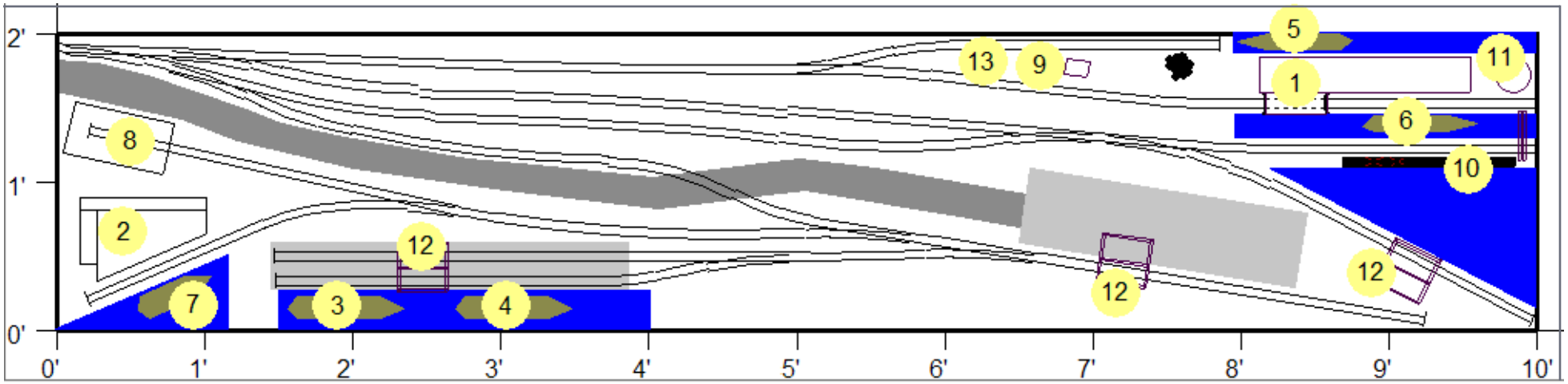
Located at the front of the module, for easier switching, is Wharf 9. It has two berths, each holding six cars. Nearby are two industries that don't exist but could have: Puget Sound Seafood, which handles reefers, and Tacoma Marine Screw Co. which makes large propellers for ships; these are transported by gondolas.

At the rear of the module, also near ADM, is a shed serving Port Pallets. It makes a lot of its namesake items. There is a spur for coal to fuel the steamships still in service, plus the Port switcher, which ties up there at the end of a shift [9].

Finally, I had previously modeled a portion of the grain silos under demolition. This added an additional "industrial" spot beyond the grain elevator for a gondola hauling concrete chunks from the site [10].

To ship or not to ship...

That is the question. Actually, the question is how much are you willing to spend to put a scale-size ship in your port. There are a number of ship models in an acceptable range of scales that can be stand-ins on an N scale layout. For example, the old Revell North Sea Fishing Trawler kit at 1/142 makes a decent coastal steamer for 1/160.



Structure and Ship List	
1	ADM Grain Elevator
2	Puget Sound Seafood
3	North Sea Fishing Trawler
4	Russian Spy Fishing Trawler
5	Russian Spy Fishing Trawler
6	Shell Welder Tanker
7	Shrimp Boat
8	Tacoma Marine Screw Co
9	Port Pallets
10	Oil Loading Platform
11	Oil Storage Tank
12	Loading Cranes (3)
13	Water Column

7. The Tacoma Port module. A combination of various structures, ships and wharves provide the feel of a large ocean port and lots of challenging switching in a compact area.

8. Trailers await pickup and shipping at the TOFC operation at the port. Note the guard shack associated with a busy port.

9. Port Pallets is represented simply by a shack. Behind it, coal is delivered for the few remaining coal-fired ships visiting the Port and for use by the Port switcher that ties up for the evening on the same track.

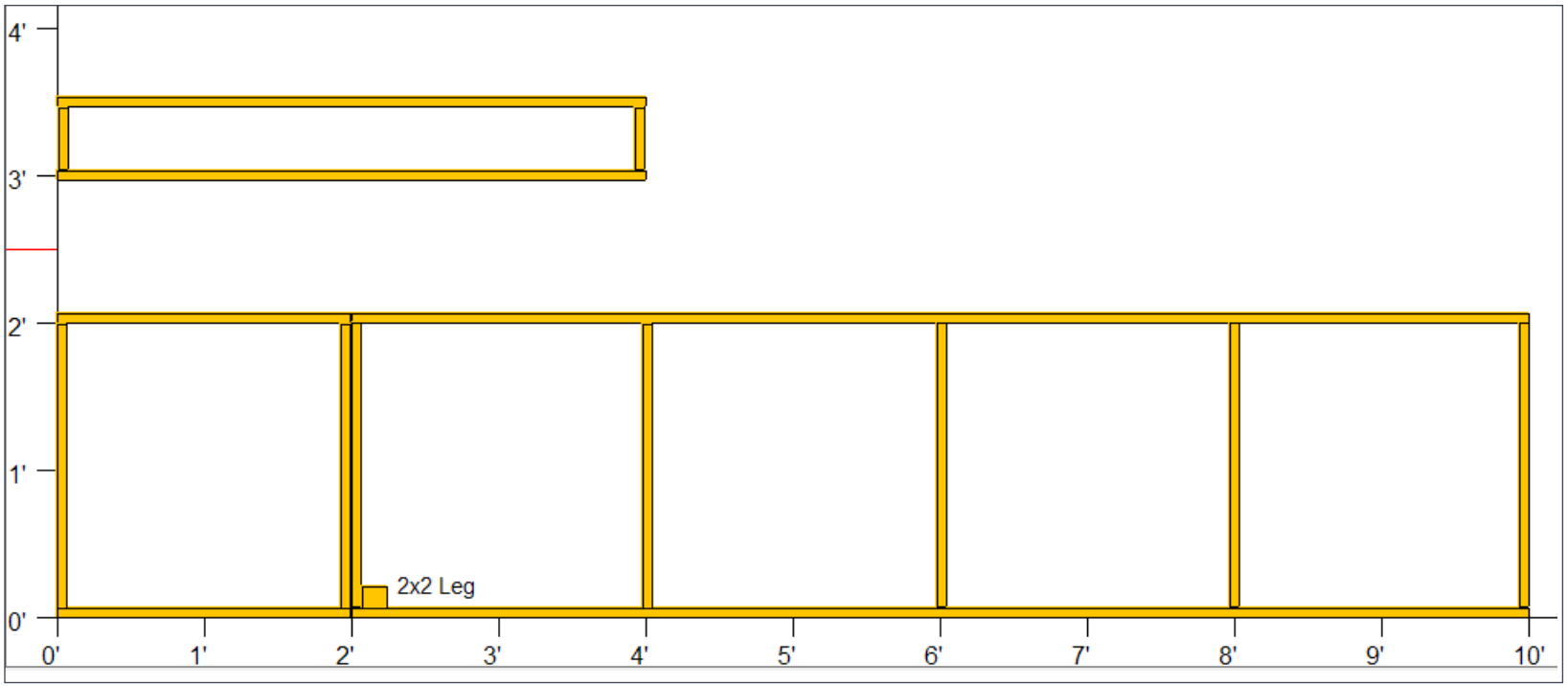
10. The older section of the ADM grain silos is being torn down. The debris goes in a gondola requiring switching daily – adding an interesting twist and additional switching.

In HO, a number of companies offer scale ships, such as ore boats from Walthers and Bearco Marine Model of Ohio. Sylvan Scale Models from Canada offers wonderfully detailed scale models of a Great Lakes freighter, a Laker class steamer, a Great Lakes lumber ship, and a West Coast Lumber ship. Prices range from $170 to $300, and a modeler's budget will dictate how important a static model is.

The other critical component is size. The Laker-class steamer would be perfect for a 1962-era port, but at 36 inches long and 6 inches wide, it uses up a lot of real estate. If put at the back, a viewer misses out on a lot of the neat detail. On the other hand, if put at the front of the module, the masts can be easily damaged by crews reaching over to uncouple cars.

In my case, I decided to use undersize ships to give the impression of a busy port (See Bill of Materials – Ships and Structures). One HO boxcar would probably sink or capsize any of my ships if placed aboard at the pier. But as a former-Navy friend

11. Although the ships I used are undersized for HO scale, when combined with a photo backdrop, they provide the feeling of a large port in a module only two feet deep.



12. Open grid bench-work using 3/4" x 3" plywood "boards" for Phase 1 construction.

commented when operating the Port job, "Ships come in all sizes, and even though these aren't scale, they just look right." So that's good enough for me [11]. Your mileage may vary.

Physical plant

The Port module uses code 100 Atlas track and Peco turnouts. Selection of these was dictated by two factors: a previously constructed staging yard that connects to Port already used similar track components, and they are cheaper than their code 83 counterparts, which are used throughout the rest of my Tacoma layout.

Additionally, I like the built-in spring of the Peco turnouts to alleviate the need for ground throws.

The module is wired for DCC, but could easily be operated under DC control. A handheld throttle on a tether would make switching the various areas in the Port easier. A DCC wireless throttle offers even more flexibility and makes it easy to concentrate on switching moves.

The backdrop adds significant depth to the module. It's from Backdrop Junction, and was almost what was needed. The stock photo backdrop had the water on the left side of the print, and land on the right. That was the exact opposite of what this port needed.

Dave at Backdrop Junction nicely reversed the print image at no extra charge. The continuous image was mounted on a piece of hardboard and installed behind the module [1].

Module construction

The port area is flat, so a basic open-grid frame could be built. Friend and fellow model railroader Mike Wolf, who also lists woodworking as a hobby, took care of the module framework.

Mike prefers strips of 3/4" plywood for the frame (vs. one-by lumber). A table saw makes quick work ripping three-inch-wide "boards" from a sheet of plywood. The diagram above [12] shows the basic 2'x8' frame with a 2'x2' box added. While the framework for the staging module used in Phase 1 is also shown, due to its narrow width, the staging track could utilize wall brackets to support a plywood/Homasote subroadbed.

Mike also likes using a plate joiner and biscuits for joinery. Biscuits, glue and a nail gun make short work of construction but "glue and screw" techniques could also be used. Plywood (3/8" or

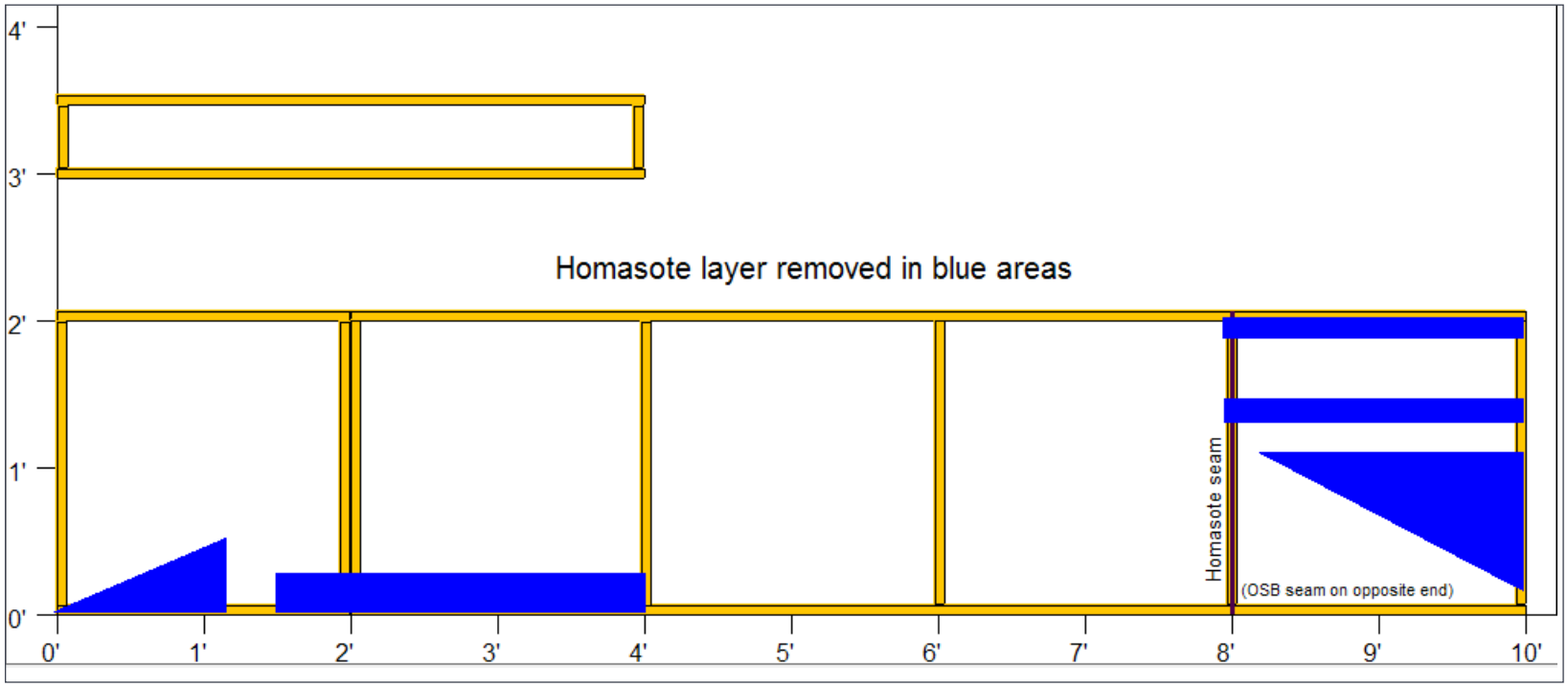
1/2") or OSB can be used to cover the frame. Half-inch Homasote was used on top of the OSB with some areas removed for the water areas.

The half-inch change in height looked about right for the size ships when at high tide, but you could make the wharf level higher for larger ships. See [13] for an overview of the water area cutouts.

One advantage of a module this size is the ability to flip it on-end or upside-down when doing the wiring. Since there would only be one electrical "block" (DC or DCC), two bus wires (14- or 16-gauge wire suggested) should be run down the middle of the module, and feeder wires attached to it.

Spending an extra couple of minutes at this stage of construction making sure there is a drop to every piece of track will save you considerably more time later trying to add them when a track joiner fails to make electrical contact.

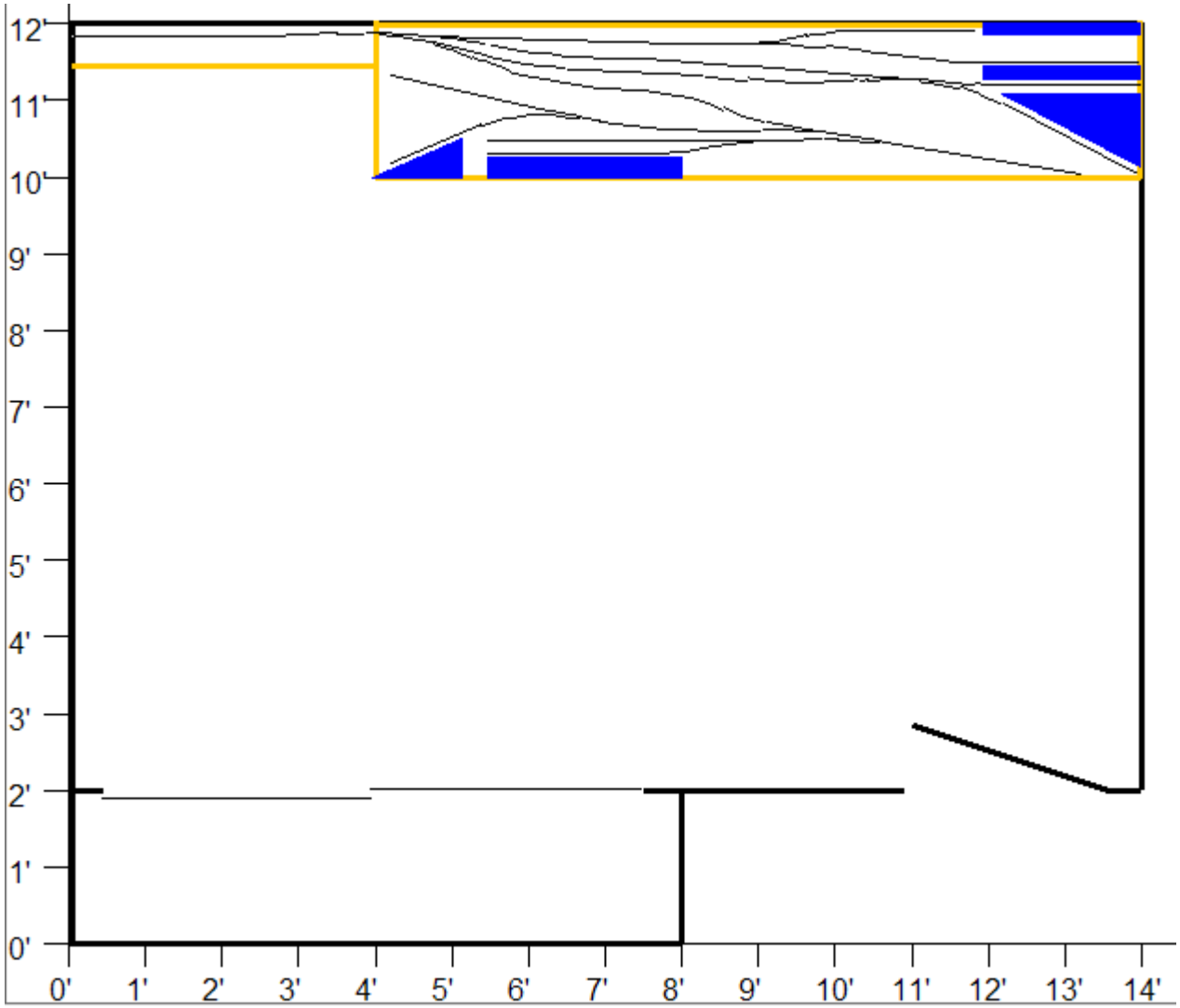
To dress up the module, I recommend using a 6-inch wide strip of 1/8" hardboard as a fascia along the front and exposed sides. It could also be elevated near



13. Homasote was used as the sub-roadbed and to elevate the trackwork above the "water" areas. The blue areas indicate where Homasote was removed.

the end of the trackwork to prevent a car or loco from careening to the floor.

As mentioned earlier, most of the turnouts are hand-thrown using the built-in Peco over-center spring. Due to the location of the Tacoma Marine Screw Co, it would be difficult to reach



the turnout in the back-left corner. I installed an electric switch machine and located the controls for it on the front of the fascia.

Once the track and electrical work are completed, the module can be mounted to the wall with 3" screws into the studs on both walls. I prefer a tabletop height of 48 inches as it allows me to stand while switching, and easily reach across the module without damaging items along the front edge. Since the module is attached on two sides to the wall, only one 2"x 2" leg on the front-left corner would be needed to support the module. Due to the small size of the module and the strength of construction, the leg could be cantilevered at the 8' point to reduce the chances of hitting it with your feet.

Because my module is supported on the right side by a bookcase, I was able to put a mirror there that greatly expands the apparent size of the port [15].

Structures

With the exception of the ADM grain elevator and the oil storage tank, most of the structures on the module are kitbashed or from my scrapbox. The cranes started life as cheap Tyco overhead loading cranes, modified by trimming the platform and painting the steel structural pieces. The cranes themselves came from those ubiquitous Athearn or LifeLike wreck train boom cars with the crane removed from the flatcar and mounted on the Tyco legs.

14. Phase 1 includes the initial port module and a single track staging area.

15. The use of a mirror on the right edge of the module adds depth to the port and hides the fact that the end of the module is against the wall (or a bookcase in my case).

Puget Sound Seafood is simply foam core board, cut to fit the triangular real estate it occupies. Windows and loading doors from the scrapbox are glued to the structure, which will serve until a more detailed structure is built.

I kitbashed Tacoma Marine Screw Co. from an Atlas Roundhouse kit that no longer had a place on the layout.

The bridge and pipes to carry oil over the ship canal to the storage tank are also pieces from the scrapbox, cobbled together to fit in place. The platforms serving the tank cars came from a Heljan diesel sanding platform kit, altered to fit the location.

Scenery

If majestic mountains or forested hillsides are what you want on a module, a port isn't for you. But even though the area is basically flat, a little effort is still required to get rid of the billiard table look.

I started with plain old "sandbox" sand, and spread it everywhere, letting it pile up a bit here and a little flatter there. The goal is some minor undulations. Then various ground foam colors from Woodland Scenics or Scenic Express were spread on top. Port landscaping leans towards the grungier side, so I went easy on the greens and more on the browns. After that was glued down, I ballasted the track. Again, grungy is good. I started with sand again topped lightly with cinders and some brown ballast, making sure nothing is too uniform.

The "concrete" pier surfaces and a parking area, as well as the entry road, were all made from a mystery substance I picked up

16. To add an interesting twist to switching in the port, crews are required to stop and post a flagman. The figure has a pin attached and can be inserted in the roadway or outside his guard shack.

years ago. It comes in white sheets about 8" by 12" and is a pliable plastic, sort of like some placemats.

I like this product because it can easily be cut with scissors, scribed to get concrete joint lines, and painted with rattle cans of gray primer and light tan. Cracks are drawn with a fine-point black pen.

Since I'm not sure what it is, thin styrene (or your favorite technique for creating paved surfaces) could be used in its place. My era featured a blacktop entry road, which is made from the same material, painted flat black, then dusted with primer gray. The contrast to the concrete pier area is appealing.

I simulated water by covering the area with drywall compound, and when nearly dry, lightly dabbing at it with a wet sponge to create the appearance of currents moving the water and producing gentle waves. When dry, I colored the "water" with cheap craft paints, starting with black-blue for deeper areas and fading a bit to a green-black near the walls. The water at berthing areas needs to be deep enough for the draft of a loaded ship, so I avoided light colors.

When thoroughly dry, I poured on Woodland Scenics Realistic Water, and brushed around to give some sheen to the water. As a final touch, I noticed my wife had some glitter in her craft supplies. As the Woodland Scenics water was drying, I lightly sprinkled a bit of glitter onto the surface. Wow! It really makes the water sparkle and reflects light like real water does.

Let's get to work

There are five separate jobs at the Port. The five jobs worked by the Port switcher include the Grain-Fish job, which works the ADM elevator and Puget Sound Seafood, necessitating a runaround. The empty boxcars (grain was shipped in boxcars in 1962) need to go to

> *"I noticed my wife had some glitter in her craft supplies ... Wow! It really makes the water sparkle like real water does."*

the cleanout track area before the seafood plant is worked, giving workers time to clean out the cars to avoid a fee.

The Wharf 7 and 8 job works cars at the oil loading area and the Weyerhaeuser dock. The Wharf 9 job stays busy working two berths. The Pigs, Pallets and Screw job, handles TOFC cars and switches Port Pallets and Tacoma Machine Screw. Finally, the Rock job takes a gondola full of concrete from the old ADM silos for use as rip-rap in the bay, and spots an empty gondola.

A switchlist determines which cars are to be picked up and which are to remain on-spot to continue loading or unloading. Once all the pickups are made, the train is assembled with the locomotive at the front and a caboose bringing up the rear. The train runs to the Tacoma Belt interchange (staging).

If only a single staging track is used (as depicted in Phase 1), the operator will pull and store the outbound cars, reposition the locomotive to the head end of the train and add the inbound cars and caboose.

Once Phase 2 is added, the locomotive will uncouple, run around the train, pick up the inbound cut on the interchange track, and tack on the caboose. Cars billed to all points on the compass would go on the Tacoma Belt interchange. The Port job would return and spot cars as directed by the switchlist. It could then tie up on its service track or begin another job.

To further complicate switching I've added several additional "obstacles." For the road crossing in the middle of the port, crews

are required to pause and deploy a flagman [16]. The engine must sound the whistle and then ring the bell while crossing the road.

During some of the jobs, a blue flag is installed on the TOFC track to indicate the cars are being loaded and cannot be moved to provide additional temporary track space [17].

Expansion

The Port module (Phase 1) is the anchor of what can become a satisfying layout set in environs of a city. Urban switching districts offer more bang for the buck per square foot of layout space and, once built, offer nearly infinite possibilities in car movement scenarios. Here is a suggestion for expansion as time, space and funds become available.

Phase 2

Phase 2 [18] expands the single staging track to a three-track fiddle yard on a simple-to-build corner module. This provides additional staging and makes the yard an operational feature of the layout.

In addition to the Belt-Port interchange track, two additional tracks represent running tracks to the Class 1 railroads. In reality, these are the fiddle tracks as described above in the Operations section but their importance as arrival and departure tracks will become even more important for the Phase 3 and 4 expansions.

Using two rerailer sections per running track will ease building outbound trains. Having a nearby storage container with drawers makes it easy to add and remove freight cars.

An outbound train can be ready to go as another is inbound. And the Belt-Interchange track works just like before [19].

17. To further complicate switching in the Port, a blue flag (barely visible in front of the flatcar coupler) is installed on the TOFC track to indicate those cars are loading and cannot be moved. This reduces the amount of spare track the switching crew may use as temporary storage for cars.

Phase 3

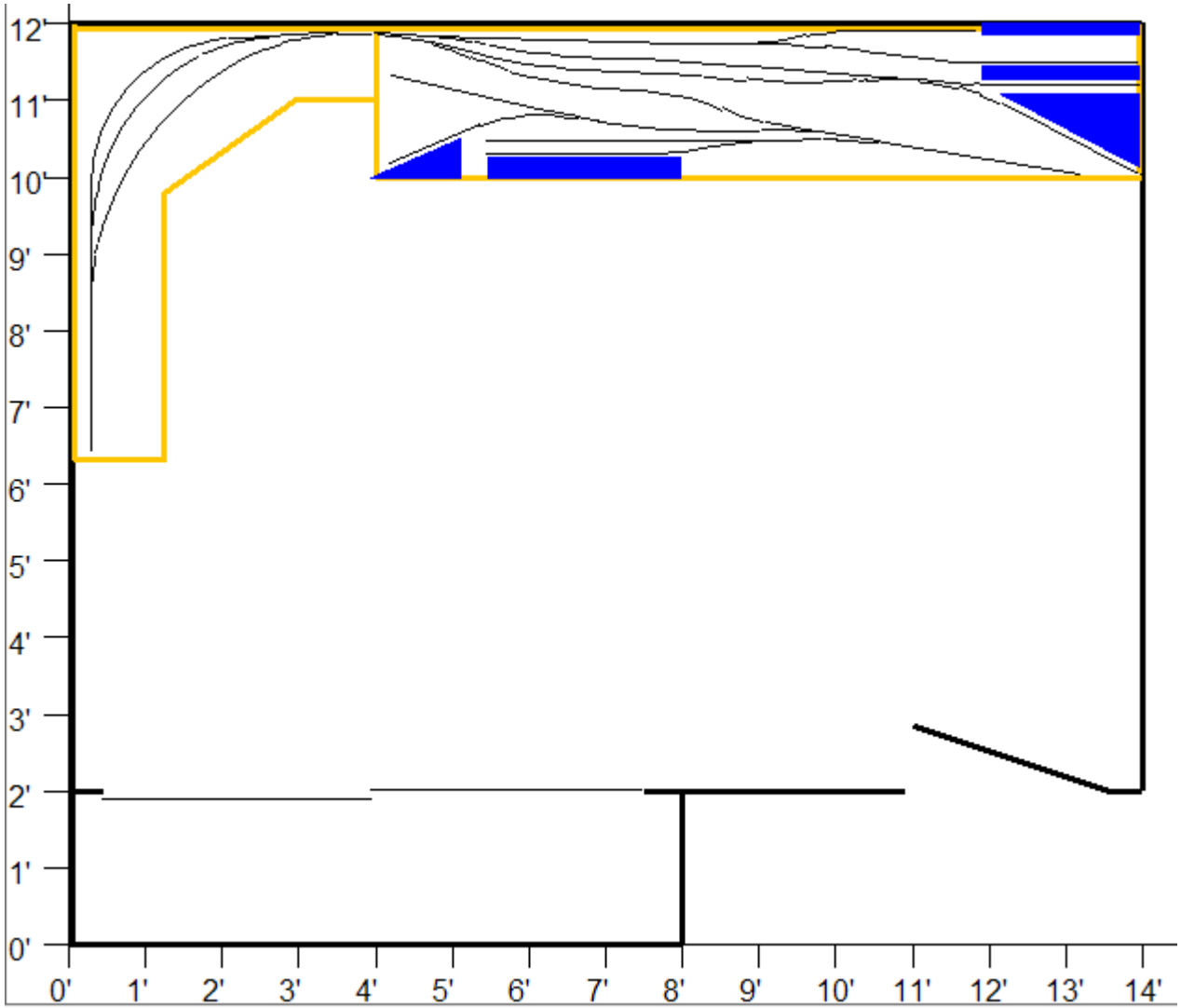
This expansion adds a peninsula with a divider down the center and features two signature Tacoma industries in 1962 – St. Regis Paper Co. and Hooker Chemical Co. on [20]. Yep, now there's a place for all those distinctive orange chemical cars in the fleet to start earning a living!

In addition to the peninsula, a "mainline" and a passing siding long enough for eight cars along the wall allows a runaround move. Hooker and St. Regis have their own switchers in this plan, so each switcher would make pickups in the plant and set them on an access track.

A Tacoma Belt transfer would then bring the inbound cars, exchange them with those at the plant, and return to the

staging area. The plant switchers would then pick up the cut and get to work spotting the inbound cars. A tail track along the front side of the yard module [21] allows the switcher to remain clear of the "main."

Hooker was a big operation in Tacoma, but this plan pares it down to the essentials: an inside plant building where boxcars



are loaded with product; another inside location for short "beer can" tank cars and covered hoppers; and a long loading track which can handle eight tank cars [22].

Use spots on the switch list so that certain cars need to go to certain spots to be loaded with the correct chemical, and shuffling orange Hooker cars gets real interesting [23].

St. Regis features the tight quarters associated with a large paper mill, including a short run-around on plant trackage [26]. That's important since the mill features both trailing and facing point spurs, and the St. Regis switcher can't go off company property [24].

St. Regis includes two separate switching jobs. One handles coal for the power plant, as well as wood chips for the digester. The other works the remainder of the plant, which primarily made kraft paper. A nice variety of cars - 40- and 50-foot boxcars, chemical tank cars, woodchip cars, coal hoppers, and covered hoppers – all make appearances at St. Regis.

The module makes extensive use of narrow fronts and photo backdrops to maximize the appearance of a heavy industrial area in only 17 (St Regis) and 12 inches (Hooker) of space.

Phase 4

If that's not enough switching, this addition adds even more, and makes use of the closet.

18. Phase 2 adds an enlarged staging/fiddle yard that would also allow sorting cars in the yard.

19. Staging areas don't have to be boring. Photo backdrops, a tower building, and some scenery material blends this module with the rest of the room. The Belt switcher is getting ready to head to Hooker Chemical, while in the background is the Belt-Port interchange track.

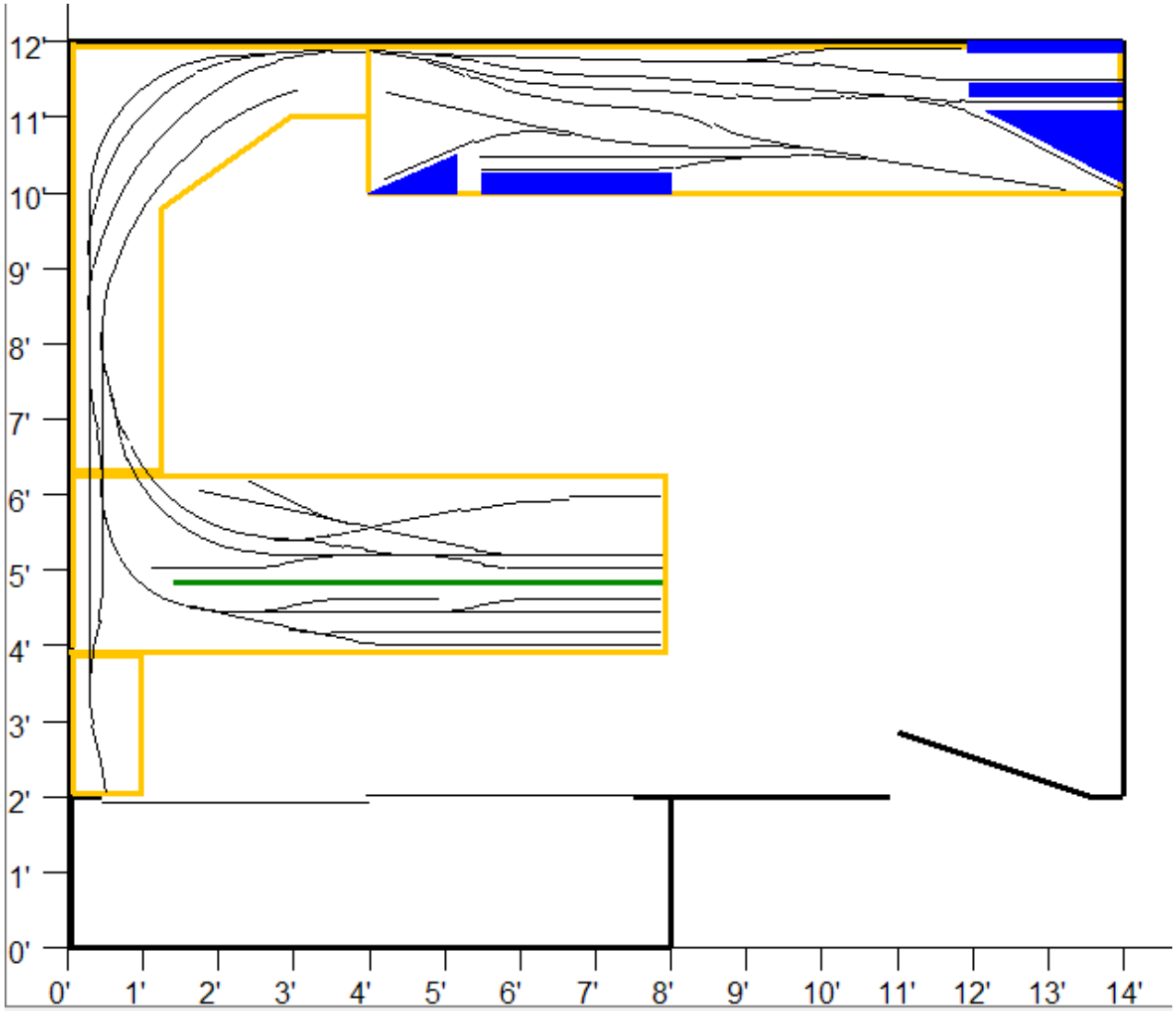
Removing the closet doors opens up aisle space and makes for a comfortable switching job [25, 27].

This switching area also adds two jobs. One job arrives and works the Heidelberg Brewery at the left, which gets boxcars and reefers. Also along the wall is Gro-Pac Produce, which offers five spots for reefers. You need to run around your train no matter how you attack the job, adding an interesting challenge.

The sidings along the front of the module utilize the concept of "industries in the aisle" so there's a lot of challenging switching without the need to model any structures! At the left side is a freight house which gets three cars. At the right are three package-forwarding businesses.

20. End view of the peninsula added in Phase 3. St. Regis Paper Plant on the right and Hooker Chemical on the left.

Before FedEx and UPS, freight forwarders were common, and in Tacoma many were grouped together. Coast Carloading, National Forwarding, Superior Fast Freight, and a produce distributor each get two cars, so with some needing to remain on-spot while others get pulled, it's a fun but challenging job [28].

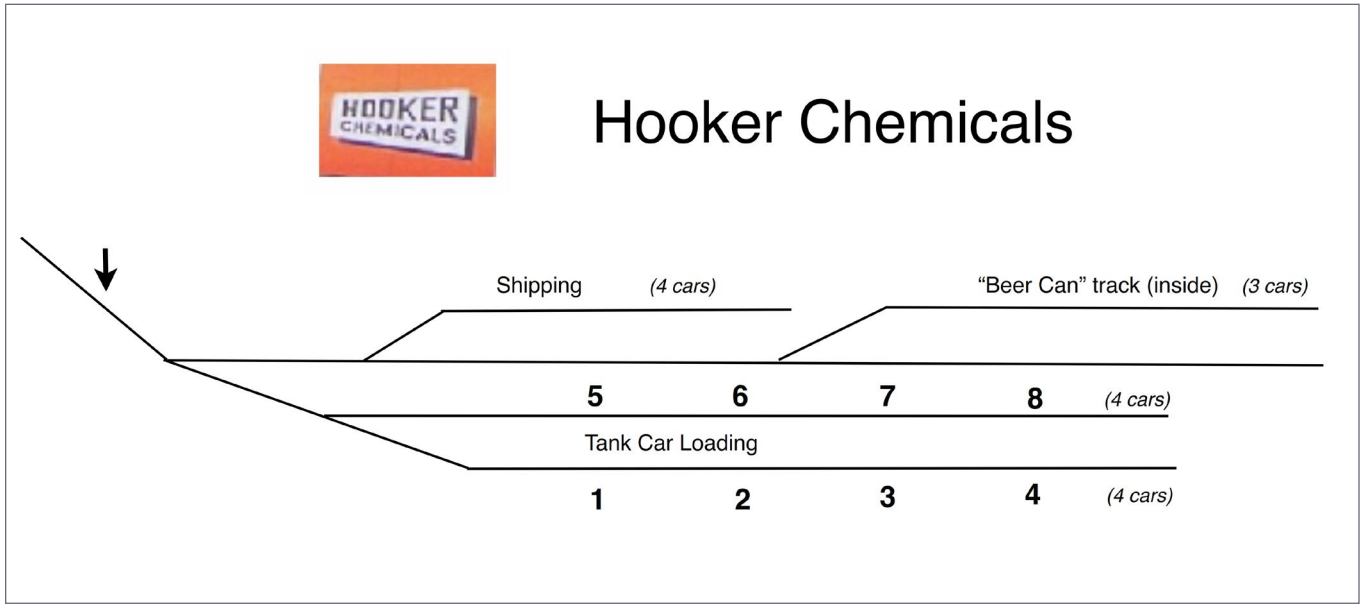


Summary

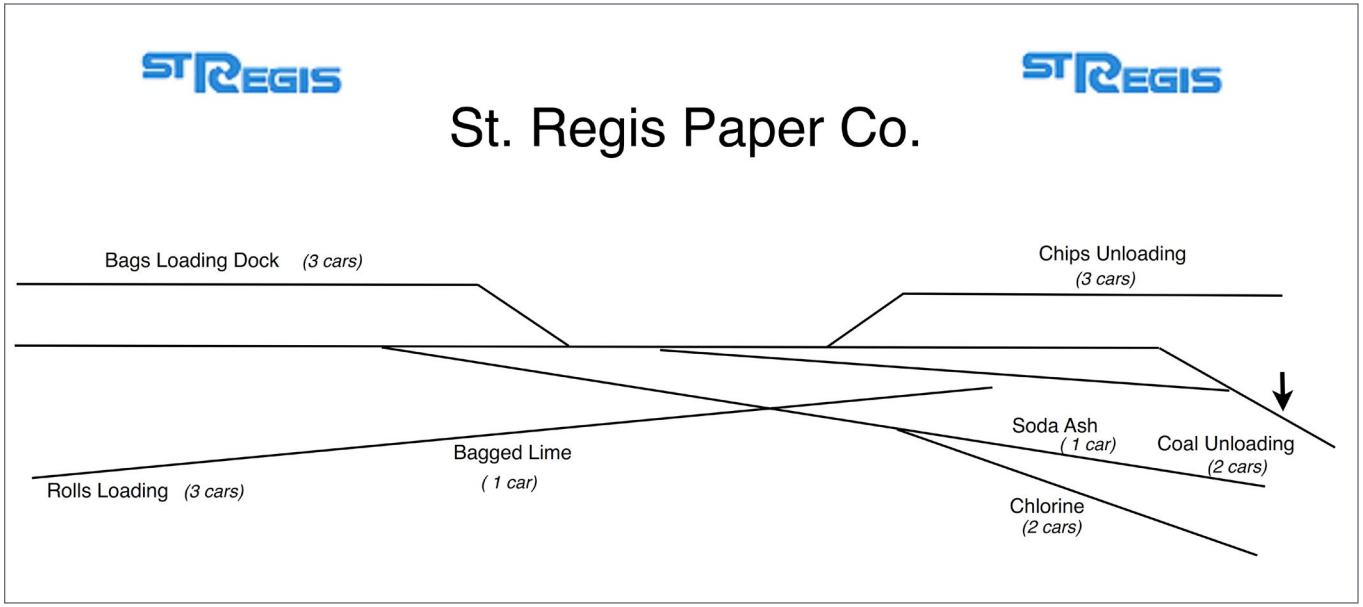
If built as planned, this railroad could easily keep four or five operators busy for hours, and with the generous aisles, they wouldn't be bumping into each other. Two-person crews of

21. (Left) Phase 3 here adds a peninsula with two switching areas (the green line indicates the location of the partition dividing the peninsula). A passing siding, working tail track, and runaround would allow a crew to work either side of the peninsula without imposing on the yard area.

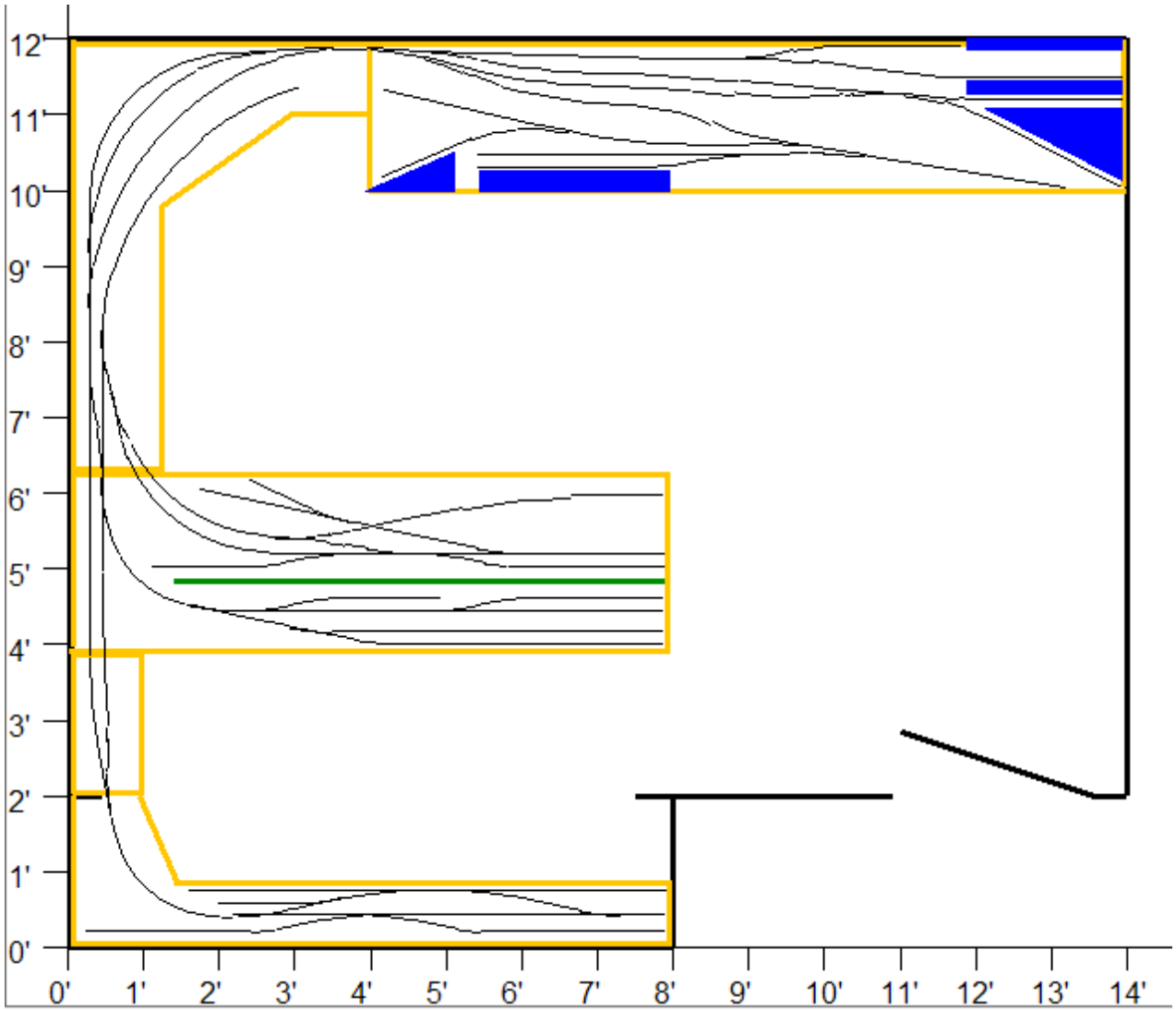
22. (Above) Hooker Chemical loads tank cars on the two tracks closest to the aisle and ships barrels of product via boxcars from inside the tan building and "beer can" tank cars from the brick building on the right.



23. This is the track configuration of Hooker Chemicals. It occupies just under half the peninsula added in Phase 3.



24. The St Regis Paper Company occupies the right half of the peninsula added in Phase 3, and has a wide variety of goods arriving and departing by rail.



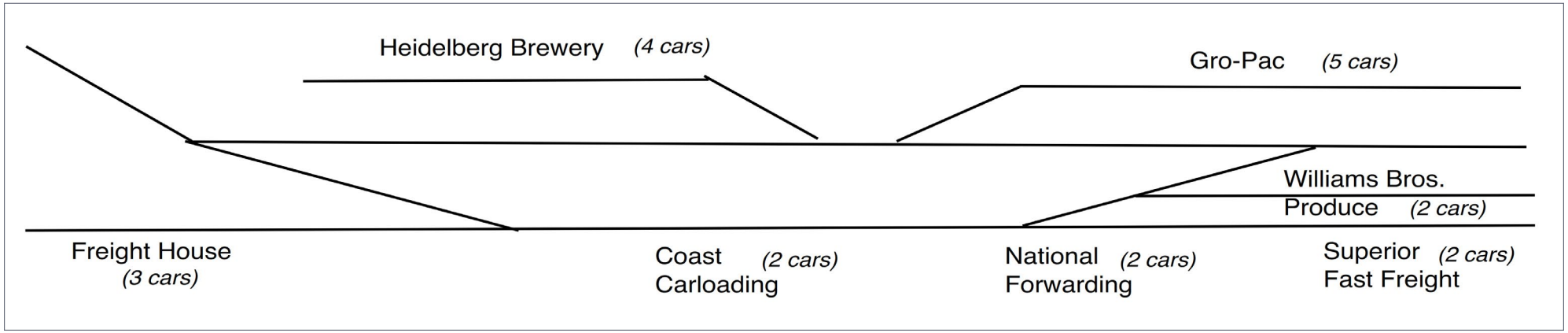
25. Phase 4 takes advantage of the closet area and adds an additional industrial area for switching. This area packs a lot of action into an seven-inch shelf.

conductor and engineer make working these jobs even more enjoyable, but crowding could become an issue if every job works at the same time.

The fiddle yard concept keeps things moving practically indefinitely, and staging requires only minutes instead of hours.

Whether just the port module is built, or some or all of the phases are added to the project, years of fun and enjoyment await you. Go for it! ☑

26. (Above)The St Regis Paper Plant sends and receives cargo using five different types of cars.



27. By "imagineering" loading docks in the aisle, seven different companies are represented on a shelf added in Phase 4 that is only seven inches wide. This module features a run-around and a number of facing- and trailing-point moves to be completed by the switching crew.

28. Lots of action on a 7-inch shelf! The Phase 4 addition located in the closet uses industry flats and unseen loading docks in the aisle to provide plenty of locations to spot cars. The numbers along the top edge of the fascia indicate those spots.

SCOTT WILLIAMSON

Scott is a retired newspaper editor who later taught CPR classes for a hospital's education department.

The Port of Tacoma module is part of his larger model railroad focused on Tacoma, WA and the Tacoma Belt, which served four Class 1 railroads in his 1962 era. He's part of a round-robin group that operates weekly.

Scott and his wife, Lin, live in central Ohio, and both log a lot of miles riding recumbent bicycles.

Benchwork Materials	Quantity	Purpose	List Price
4 x 8 ft plywood ¾ inch thick	1	Framing	$32.00
4 x 8 ft Homasote ½ inch thick	1	Roadbed	$24.99
4 x 8 ft OSB, ½ inch	1	Sub-roadbed	$10.10
2 x 2 inch pine, 8 ft long	1	Leg	$7.94
4 x 8 ft Masonite 1/8 inch thick	1	Backdrop and fascia	$8.87
Wood glue	8 oz	Fastening	$3.00
#10 wood biscuits	16	Fastening	$2.22
3" Deck screws	5	Fastening (frame to wall)	$5.97
1 ½" flathead screws	25	Fastening (OSB to frame)	$3.39
Construction adhesive	1	Fastening (Homasote to OSB)	$1.50
Drywall screws	25-30	Fastening (temporary – Homasote/OSB until adhesive sets)	$1.77
Earth tone paint	1 Qt	Seal Homasote/ease covering w/scenery	$8.78
		Total	$110.53

Structures and Ships	Make/Model	List Price
ADM Grain Elevator	Walthers #933-3022	$54.98
Puget Sound Seafood (Scratchbuilt)	Foam core board	$3.00
Tacoma Marine Screw Co (Kitbash)	Atlas Roundhouse #709	$42.95
Water Column	Tichy #8006	$4.95
Overhead Loading Cranes (Kitbash) (3)	Tyco Overhead Loader & Athearn or Like Like Wrecking Crane	$50.00
Port Pallets Shack	Branchline Toolshed #633	$15.95
North Sea Fishing Trawler kit	Revell #RG5204	$21.59
Russian Spy Fishing Trawler kit (2)	Revell #H379	$43.98
Shrimp Boat kit	Kibri #39161	$27.99
Shell Welder tanker kit	Ark Models #40011	$29.99
Wide Oil Storage Tank	Walthers #933-3167	$44.98
Oil Loading Platform (Kitbash)	Heljan Diesel Sanding Platform #113	$35.98
	Total	$376.34

Scenic Material	Quantity	List Price
Sandbox Sand	bag	$3.55
Photo Backdrop	1	$42.00
Woodland Scenics Ballast, cinder	12 oz	$5.99
Woodland Scenics Ballast, brown	12 oz	$5.99
Woodland Scenics turf, various shades	4	$15.96
Craft paint, various colors	4	$4.00
Woodland Scenics Realistic Water	1	$23.99
	Total	$101.48

Track and Electrical	Quantity	List Price
Peco HO code 100 medium turnout, LH insulfrog	4	$96.00
Peco HO code 100 medium turnout, RH insulfrog	4	$96.00
Peco HO code 100 small turnout, LH insulfrog	2	$48.00
Atlas HO code 100 Flextrack, 3 ft	16	$100.00
Peco Switch Machine	1	$13.00
Atlas rail joiners	3 packs	$12.00
Atlas or Lifelike track nails	1 pack	$6.00
No 22 feeder wire, 25 feet	1	$6.00
No 14 bus wire, 25 feet	1	$7.00
DC or DCC System	1	As Desired
	Total	$384.00