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THE LAYOUT





The plastic pellet transfer silos were among the structures I kept from my old layout.

My new HO scale model railroad, Union Pacific's Daneville Subdivision, is my third layout and, in reality, an evolution of my previous Daneville & Donner River layout. Soon after that layout was finished, I began noticing things that I wished I had done differently, and during the four years that the Daneville & Donner River existed, I accumulated an extensive list of projects that I would have done in a different way if I had known better when I first built the layout.

Then one day, I came to the decision to do something about it. Some of the changes I wanted to make were so radical that it would not be possible to redo them on the existing layout, so my decision necessitated that I tear down my Daneville & Donner River layout and build a new model railroad from scratch.

There was never really any doubt in my mind that I should stay with the desert town concept as my heart belongs to Southern California and the Mojave Desert. Staying with the desert town concept allowed me to reuse many of the buildings from my old layout, which saved me a lot of time—one of the advantages of rebuilding a similar type of layout. For example, the main street with its restaurants and hotels created an excellent



A switcher works undisturbed on the yard tracks in Daneville while a long heavy freight train rumbles by on the main line.

background. The three small rail-served businesses in Daneville also provided operational possibilities.

There are other advantages in building the same layout again. You learn from the experience of building it the first time, so you can avoid the mistakes you made. If I was building a layout featuring a totally different type of location, I would probably make new mistakes. So I assumed that building the same layout a second time would raise the odds of building a more perfect layout.

I have always modeled the present time and that was not going to change on the new layout. Since I only have room for a modest size layout, modeling the modern era with multiple locomotive lash-ups and long trains might not seem the most obvious choice. But to me, ever since 1992, when I saw an American train for the first

time, U.S. railroads are long freight trains hauled by several locomotives.

Modeling the present also keeps you busy after the layout is completed because you have to update things like billboards, locomotives, and railcars. On my trips to the United States, I usually take pictures of billboards, which I then print out on my laser printer and apply to the billboard stands in Daneville. Recently, I have started upgrading all my Union Pacific locomotives with yellow sill stripes instead of red ones. In my freight car fleet, I have begun applying the yellow reflective stripes that have become common on freight cars.

Discipline is the key

Building a third layout is so much easier than building the first. When I constructed my first layout, I hardly knew where to



Highway 58 crosses over the tracks at the west end of Daneville. The overpass creates a nice entrance to the Daneville scene.



Most of the buildings in Daneville were saved from my old layout. I upgraded their old turf lawns with new fibergrass lawns before installing them on the new layout.



When you pass the Daneville railroad yard, going east on Highway 41, you get a clear view to the mainline tracks.



From time to time, I renew the billboards in Daneville to keep them current.

start or where to end. This time, I knew exactly what would be the best order of completing the tasks involved in building a model railroad. I made this layout very methodically. I first completely finished the benchwork including the subroad-bed, fascia, and valance. Then, I applied sound-deadening roadbed to the entire layout, followed it with cork roadbed, laid all the track, and so on through all the steps. It can sometimes be hard to keep disciplined in completing each step before moving to the next. When I pulled and soldered all the wiring for the track and turnouts, there was a time or two when I was very tempted to leave it for a while and start on something more interesting, but I pulled myself together and finished the job, and afterwards, I was happy I did.

It is a good idea to finish each step completely before moving to the next, especially the messy ones, so you have to clean up as few times as possible. For example, I created all the plaster roads at the earliest possible stage of layout construction because sanding them smooth creates a lot of dust. That way I kept the dust problem to a minimum.

It is also much quicker to build a layout when you finish each step of the construction before moving to the next.

Nothing is perfect

I learned a lot from building this layout, especially while creating my first photographic backdrop, and I hate to say it, but I have already spotted several things on the backdrop I wish I had done differently. I am



The west end of Daneville is not the best part of town, but if you need liquor, ice, or ammo, this is where you get it.



BUILDING BENCHWORK

Before I started on the benchwork, I installed the lighting for the layout. The lighting consists of a series of fluorescent lamps mounted behind the valance. It is easier to mount the lamps before the benchwork is constructed because you have easier ac-

cess to the lamps when you install them, and I was able to position a step ladder right below the lights. That way I also had excellent working light when I constructed the benchwork and the layout itself. I use full-spectrum fluorescent light tubes with



A view across the room with the freestanding section in the foreground and the Daneville area with the staging below in the background. I used 1 x 2s for the frame construction and 2 x 2s for the center posts in the freestanding section.



The staging below Daneville is the only thing from my old Daneville layout I kept. I had to make a new framework for Daneville as the scene is 3" deeper than on my old layout.



A view under the freestanding section. Having center posts instead of legs on each side of the frame makes the aisles feel wider.

a color temperature of 4000° Kelvin. This color temperature provides cool light, which produces higher contrast and is preferred for visual tasks. These lights are often used in butcher shops because they make the meat look fresh and savory.

I have to admit I am not a skilled carpenter—far from it. I do my best, but I know my work does not reach professional standards. I have learned one thing though: it pays to use high-quality materials for your benchwork. Remember, it is the only thing on your layout that is almost impossible to change later on if you are not pleased with it.

From my previous layout, I learned that you don't need to use heavy lumber to obtain sturdy benchwork. A lightweight wood



I mounted 1/4" medium density fiberboard (MDF) back to back on the posts as a scene divider and as a base for the backdrop.



I cut out the subroadbed from 1/2" MDF. The grades on my layout are kept around 2.0–2.2 percent. I placed wood blocks under the subroadbed to build up the grades. I used a homemade tool to measure the exact grade. The tool consists of a 1-meter-long board with a screw attached to one end and a carpenter's level placed on top of it. How long the screw sticks out defines the steepness of the grade. If it sticks out 2cm, the grade is 2 percent on a level board.



A view of the 2.2 percent grade on the future desert scene. Where sections of subroadbed join, I glued an extra piece of MDF below to reinforce the joint.

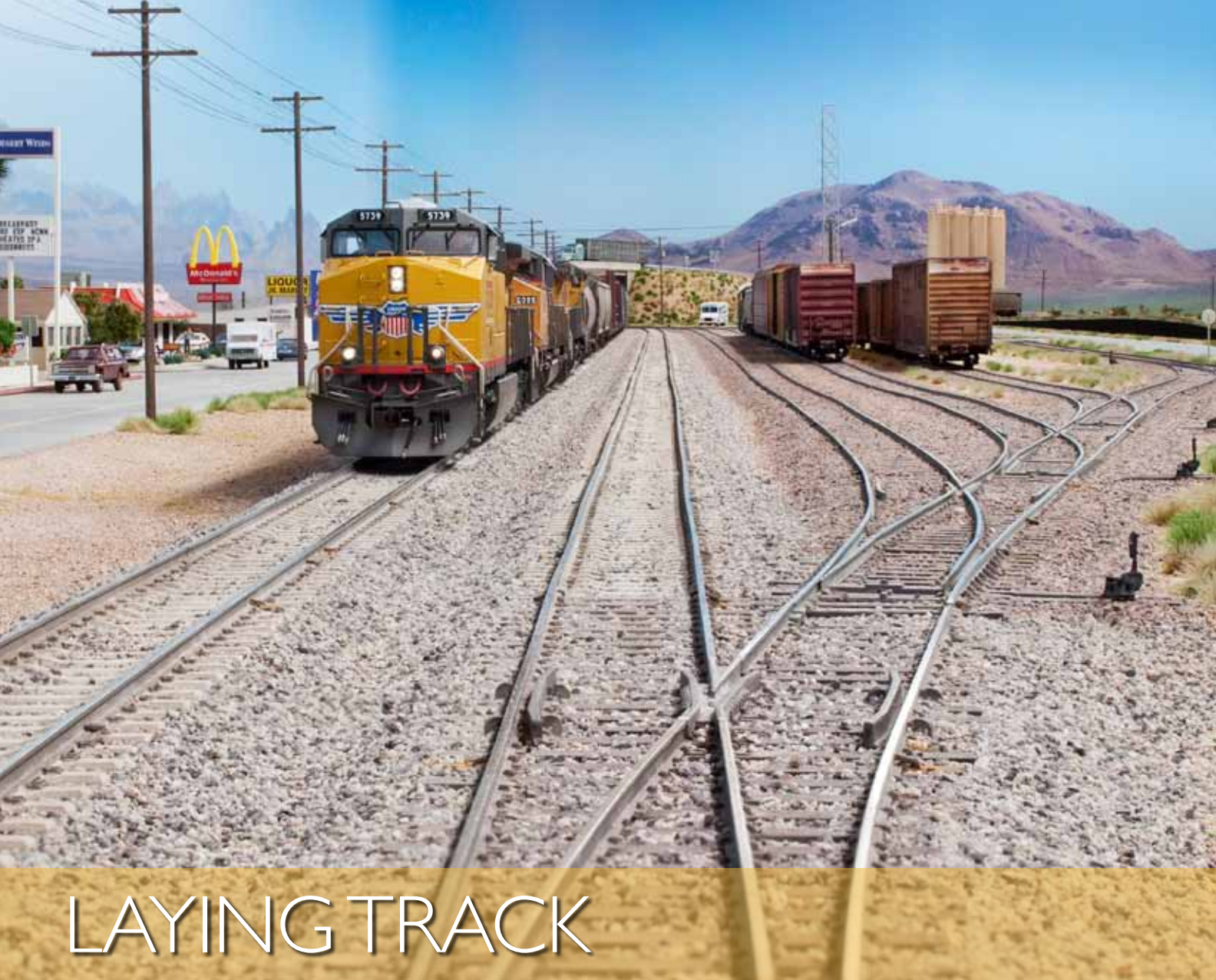
Making level roadbed



1. When the grade is established, the wood pieces I used for shimming the subroadbed are replaced with risers. I clamped the risers to the benchwork and attached them to the subroadbed with screws.



2. Next, I placed a carpenter's level across the top of the subroadbed, loosened the clamp, and twisted the riser until the subroadbed was level. Then I attached the riser to the benchwork.



LAYING TRACK

One of the main reasons for my decision to rebuild my Daneville layout from scratch was the high level of track noise on my old layout. I hadn't paid much attention to it until I started using locomotives with sound decoders and discovered that the wheel noise from the freight cars rolling over the track almost overpowered

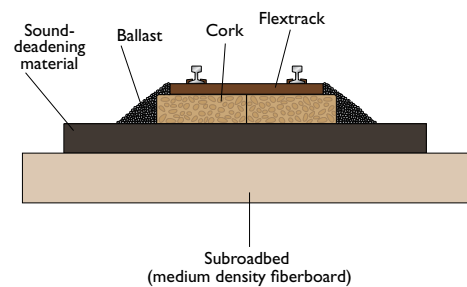
the sound of the locomotives. Fortunately, my good friend Flemming Ørneholm had solved the track noise problem on his layout, so I simply borrowed his idea of adding a sound-deadening layer between the subroadbed and the roadbed. The material I used comes as 4mm-thick asphalt-based panels that is meant for reducing the noise in automobiles and other vehicles. The material is very heavy and counteracts the vibrations in a car body.

I cut the panels in strips of various widths: 2"-wide strips for straight track and 1/3"-wide strips for curves. Under multiple tracks, I used pieces that matched the total width of the tracks. Flemming also applied a layer of foam rubber from an exercise mat under the material, but I

skipped that step and applied the strips directly on the MDF (medium density fiberboard) subroadbed hoping it would be sufficient to reduce the noise enough to give the sound decoders a chance. I don't mind some wheel noise as long as I also can hear the locomotive sounds. After all, trains are not silent.

The self-adhesive, sound-deadening material is easy to apply. You need to clean off all sawdust from the surface before you attach the pieces, or they won't stick properly.

The material is coated with a thin cling film. I was afraid that the glue I use for ballast wouldn't stick properly to the film, so I removed it. I don't know if this was necessary, but I didn't want to take any chances.



I drew the center lines for the track on the subroadbed at the Daneville area, utilizing my homemade "curve-with-easement ruler" that has a 33" radius curve on the outside and a 31" radius curve on the inside.

The film was not easy to remove. It has a tendency to come apart when you pull it, so I could only remove small pieces at a time. I found out that if you heat the surface

with a hair dryer first, the film becomes easier to remove.

After my layout was finished, we test-ran two different locomotives on Flemming's layout and then on mine to see how much difference the layer of foam rubber on Flemming's layout made. On Flemming's layout, there was almost no wheel noise at all. On my layout, you could hear wheel noise but not in any annoying way. It was a deeper and more pleasant sound than on my previous layout.

The conclusion is that if you prefer totally silent track, you can follow Flemming's method and add a soft layer of foam rubber followed by a layer of sound-deadening material under the cork roadbed. If you don't mind some wheel noise, a layer of sound-deadening



I applied the sound-deadening strips to the subroadbed. The asphalt-based sheets are self-adhesive, so you just remove the backing paper and apply it. Make sure that the surface you apply it to is free from dust.

material is sufficient. If the sharp metallic sound of wheels doesn't bother you, you can attach the roadbed directly to the subroadbed without any other materials under it.

The room size also makes a difference in how you perceive the sound. The smaller the room, the more noticeable the sound will be.



This picture shows the Daneville area with the sound-deadening material in place. On straight areas with multiple tracks, I used larger sheets instead of strips.



The sound-deadening material does not bend easily, so I made the curves from many narrow strips instead of a few wide ones.

Cutting sound-deadening material



1. I cut the sound-deadening, asphalt-based sheets into strips. The material is hard to cut, so I only cut about one-third of the way through the sheet. In order to not disturb the backing paper, I cut them from the back side.



2. I made strips of various widths, which separate easily. The material is fairly rigid, so I made a number of narrow strips for the curves since they would be easier to shape than wider strips.



3. The asphalt-based material is coated with a thin cling film. I was afraid that the glue wouldn't stick properly to the film, so I removed it. The film is easier to remove if you first heat the surface with a hair dryer.



4. Pull off the film while the strip is still warm and soft. If it cools, the film has a tendency to come off in small pieces.



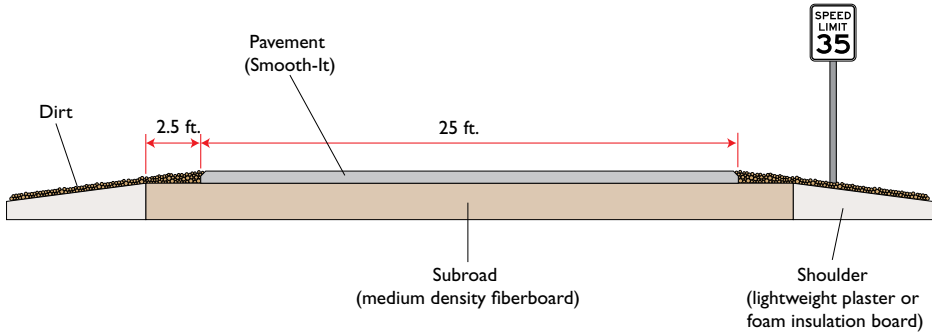
STREETS AND HIGHWAYS

My model railroad is designed from a rail-fan's perspective. Roads have taken me to all my railroad adventures, so next to the track, roads have the highest priority on my layout. Roads are wonderful scenic elements. I use roads to cut through the scenery and create viewing lines and scene dividers.

The widest road on my layout is the main street in Daneville. This three-lane street is almost 14 feet long. The high-

ways are all two lane. One of them goes on a bridge over the top of the track at the west end of Daneville, which creates a great scene divider. Another runs parallel with the railroad for more than 22 feet before it crosses the track and disappears in the distance. The narrowest roads on my layout are the railroad's service roads. These dirt roads run along almost every inch of mainline railroad track.

Cross section of road



Specifications and placement of road signs can be found on page 72.

I prefer to finish my roads completely before I begin to apply any scenery materials. Then you don't have to worry about getting the scenery dirty with sanding dust or spilling paint on it.

I try to keep my roads in prototypically correct width if I have the available space for it. My two-lane highways are 24–26 scale feet wide, which is close to prototypical width. I know this takes up space, but a too-narrow road just doesn't look realistic to me.

The main street in Daneville is, as I mentioned earlier, the widest road on my layout. The space in Daneville only allows for three lanes, but even though the main street probably should have had at least four lanes to be more prototypically correct, it still gives the feeling of a wide street. I have never had any visitors complain about the main street in Daneville being too narrow. On the contrary, I have had people ask why I wasted so much space on a street instead of having one or two more tracks for the trains.

Installing the main street in Daneville



1. I glued .040"-thick plastic strips along the side of the street where all the buildings are located. I used a common all-purpose glue from the local building supply store.



2. I pressed the strips in the glue, making sure that they were perfectly level. The sidewalks in front of the Daneville buildings will rest on the plastic strips when they are installed later.



3. On the other side of the road, I applied Woodland Scenics Paving Tape along the outside edge of the street. Paving Tape is a foam tape approximately .040" thick.



4. I mixed Smooth-It with water in a bowl. I stirred it carefully until there were no clumps left and poured the plaster on the road. Don't stir too hard because that will create a lot of air bubbles in the mix.



5. I spread the plaster evenly with a piece of styrene. After a few minutes, when the plaster set, I applied a thinner second layer of Smooth-It on top of the first.



6. After several days, when the plaster had dried completely, I removed the foam tape and sanded the surface. A power sander is very effective. I learned that you have to move the sander constantly and never sand the same area for more than a few seconds or else you risk sanding away all of the plaster.