The main line, passing siding, and spur all have distinctive looks on Paul Dolkos' HO scale diorama. Follow along as Paul describes the different techniques he uses to model each type of track and roadway.

Modeling different types of track

Make your main lines, sidings, and spurs more realistic

By Paul J. Dolkos • Photos by the author

Railroads refer to track and ballast as the roadway. Even on the same prototype railroad, the look of the roadway can vary greatly. These track, ballast, and scenery variations offer a lot of modeling opportunities when you adapt them to your model railroad.

The condition of a roadway depends on how it's used. A main line usually has heavy rail and closely spaced ties on a pristine mound of gray rock ballast. A siding or secondary line often has lighter rail on a shallower mound of darker-colored ballast. An industrial spur can have wider spaced ties and rails that are obscured by weeds or partially buried by dirt.

The condition of the roadway can also reflect the prosperity of a railroad, since track maintenance is expensive. For example, as the number of railroad

Fig. 1 Height variation. Sidings often have shallower ballast piles and lighter rail than main lines. On his diorama Paul used HO scale roadbed and code 100 track for the main line and N scale roadbed and code 83 track for the siding.

bankruptcies increased throughout the 1960s and 1970s, many main lines were weed-covered and unkempt.

For this article I built an HO scale diorama with a main line, siding, and an industrial spur. I'll use it along with some examples on my home layout to give you some ideas for how you can model each different type of track.

Varying roadbed height

One of the first things that you'll notice about prototype track and ballast is that the main line is higher than secondary lines, such as sidings. Industrial spurs and yard tracks are often at or near ground level.

For my diorama's track I used cork roadbed to represent the height of the ballast pile. A layer of prototype ballast usually ranges between 12" and 30" with the largest amount of ballast reserved for main lines.

As you can see in **fig. 1**, I used HO scale roadbed for the main line and N scale roadbed for the siding on my scene. This provides about a scale 7" difference in height. I laid the track for the industrial spur directly on the plywood subroadbed.

Track codes and tie spacing

Model railroad track comes in different rail heights, referred to as codes. Some common codes are 100, 83, 70, and 55, which represent 156-pound, 132-pound, 100-pound, and 75-pound prototype rail.

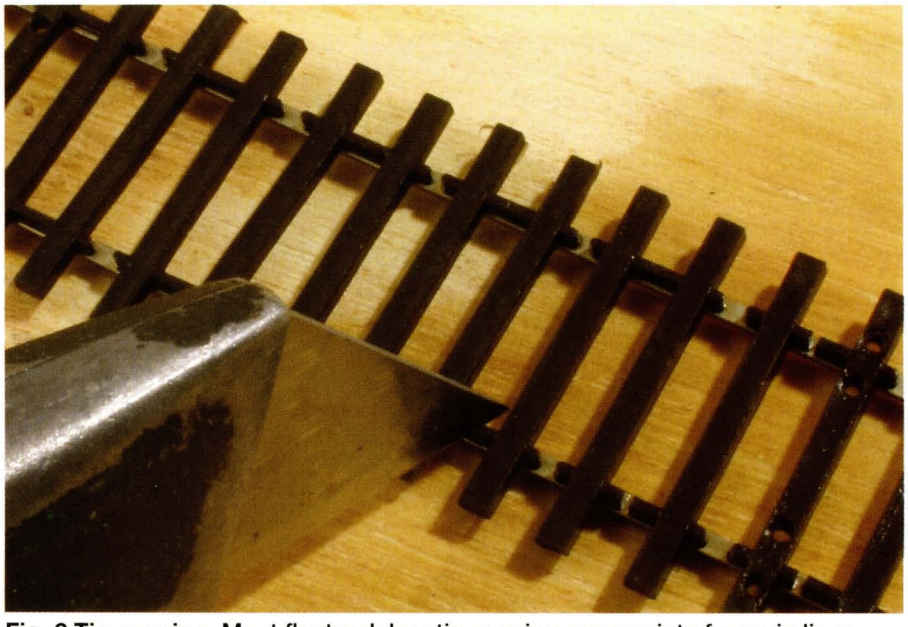


Fig. 2 Tie spacing. Most flextrack has tie spacing appropriate for main lines. For spurs Paul moves ties farther apart after first cutting the connecting links.

Prototype railroads often used different size rail for main lines and secondary lines. Maintenance-of-way departments laid the heaviest rail along the main line and the lightest on industrial sidings and spurs.

On my diorama I used code 100 rail on the main line and code 83 on the passing siding, as you can see in **fig. 1**. You could also use code 83 for the main line, code 70 for passing sidings and other secondary lines, and code 55 for industrial sidings and spurs.

Tie spacing varied between main lines and secondary lines. Heavy-duty main lines typically required 24 ties per 39-foot rail section or a tie spacing of 11½" between tie edges. Sidings and spurs can have as few as 19 ties per each 39-foot section of rail, with ties spaced 16" apart.

Most flextrack has ties spaced appropriately for a main line. For secondary tracks, I cut the plastic connecting links as shown in **fig. 2**. Then I space the ties a few scale inches farther apart

Fig. 3 Weathering ties. Wood ties, even those treated with creosote, turn gray as they age. Paul replicated this effect by applying a wash of alcohol and Polly Scale Dust. He brush-painted the rails with brown and rust colored acrylics.

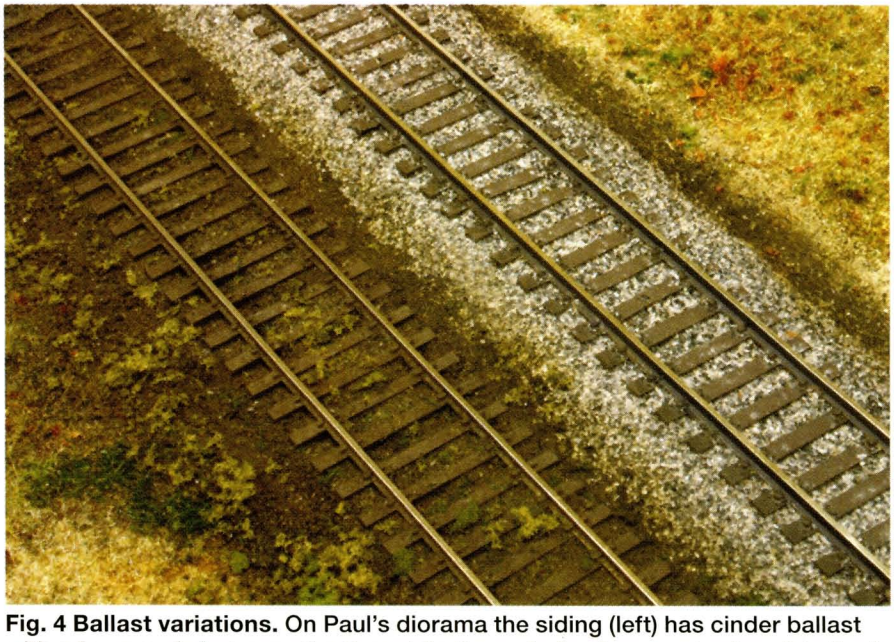


Fig. 4 Ballast variations. On Paul's diorama the siding (left) has cinder ballast with a few weeds between the ties while the main line has crushed-rock ballast and is weed-free. Railroads didn't maintain sidings as rigorously as main lines.

before laying the track. For industry spurs I'll also skew several ties.

Weathering track

After laying the track, I airbrush it with Polly Scale Roof Brown. This flat, neutral color eliminates the sheen of the plastic ties and the bright metal shine on the rails.

Using a clean cloth or paper towel, I immediately wipe the railhead clean after applying the paint. This ensures that paint won't interfere with the electrical conductivity between the rails and locomotive wheels.

As with other pieces of railroad equipment, exposure to the elements takes a toll on rails and ties. Main line track is usually in better condition than secondary track.

Even creosote-treated ties turn gray over time. I simulate this by applying a wash of Polly Scale Dust on the ties, as in **fig. 3.** The wash consists of one part paint and four parts isopropyl rubbing alcohol. You could also drybrush the ties for a similar effect.

After weathering the ties, I brush-paint the sides of the rails. I use Polly Scale Grimy Black for main line track. I use rust and brown colors on sidings and spurs.

Types of ballast

Ballast varies according to the railroad's era, volume of traffic, and location. The earliest railroads used the most readily available material, including sand, dirt, and oyster shells. These materials trapped water, causing ties to rot, and proved more likely to wash away during a downpour.

Crushed rock quickly became the preferred material for ballast. The hard edges of the individual pieces interlock and provide a solid foundation for the track and ample drainage for water.

Railroads usually purchased ballast from local on-line quarries. Most railroads used granite when available, although some used limestone where that rock was more prominent.

In the steam era and into the diesel era many railroads used cinders and crushed blast furnace slag as ballast on secondary lines and spurs. On some main lines cinders were used as subgrade under rock ballast. Many Western and Southwestern railroads used

Fig. 5 Gravel-covered siding. Gravel from an adjacent lot can mix with ballast on a siding. Paul partially covered this siding (lower right) at the freight house on his home layout. He embedded the rails of the spur (at left) into the parking lot.

oil-fired steamers, so those roads had no ready access to cinders for ballast.

Individual pieces of ballast range from ¾" to 3" in size. Pieces of cinder ballast are usually at the smaller end of that range.

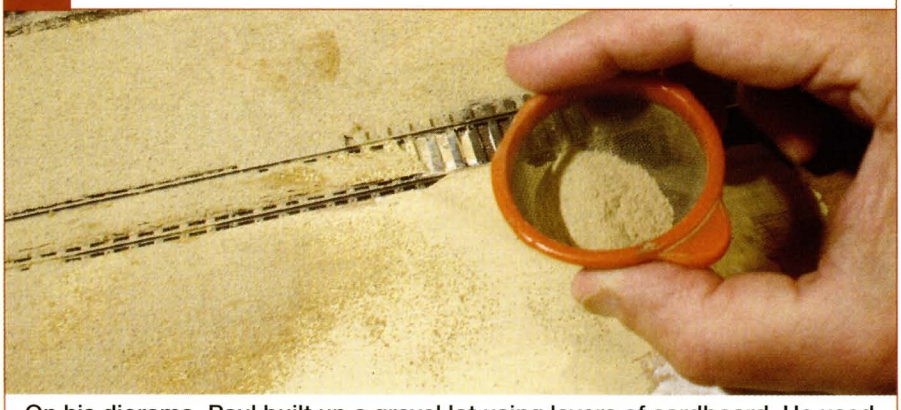
When choosing the ballast for your model railroad, examine the size of the individual pieces and don't simply rely on the scale marked on the package. Many modelers use N or Z scale cinder ballast on their HO scale layouts for a more prototypical appearance.

Model railroad ballast is available in a variety of colors, so you shouldn't have much difficulty matching the ballast found on your favorite prototype. Some modelers worry about running out of a certain ballast color. However, this happened on prototype railroads as well when a maintenance-of-way department had to change suppliers or a quarry closed.

Other ballast color variations show how well a stretch of track is maintained, as you can see in **fig. 4**. Ballast on secondary lines is less frequently cleaned and renewed than on main lines. If you're not using cinders for secondary lines, you can model this practice by choosing a darker colored rock ballast for your sidings and spurs.

On sidings or spurs next to lots or driveways, vehicle traffic can cause dirt or gravel to partially cover the ties. I modeled this effect on the siding in front of the freight house on my HO

Making dirt grade crossings and gravel lots



On his diorama, Paul built up a gravel lot using layers of cardboard. He used real powdered dirt as ground cover for the road surface.

On some secondary lines the space between the ties is filled with dirt to form a simple grade crossing or gravel lot. I added a gravel lot to the spur on my diorama. The following technique is less messy than using plaster alone.

First I cut pieces of cardboard to fit the space between the rails and the approaches to track. You could also use foam board or styrene. I built up the area where the lot crosses the tracks to a height slightly below the railhead to ensure that locomotive wheels wouldn't lose electrical contact. I also allowed about 1/16" on each side of the cardboard for flangeways. Then I attached the cardboard to the track and scenery with white glue.

I blended the edges of the cardboard to the scenery base using plaster. Once the plaster dried, I painted it and the cardboard with tan latex paint. Then I sprinkled the wet surface with fine dust that I collect from a dirt road near my home. I used ground foam to model a few random weeds.

After all of the scenery had dried, I cleared the flangeways with a utility knife. Then I lightly sanded the gravel lot to simulate tire tracks from vehicles crossing the tracks. – *P.J.D.*

Fig. 6 Clumps of weeds. Paul used Silflor MiniNatur Prairie Tufts and ground foam along the roadway and between the ties of the spur.

Fig. 7 The end of the line. Stub-end yards offer a lot of scenicking opportunities. Paul used prairie tufts and ground foam in this scene on his home layout.

Fig. 8 Grass seed follicles. Using tweezers, Paul pulled follicles off a grass seed tassel. He used this material to model tall weeds and grass.

scale Boston & Maine layout, shown in **fig. 5.** At some locations the space between the rails may be filled with earth to accommodate vehicles. See "Make a dirt grade crossing" on page 41.

Weeds and grass

Secondary lines and spurs usually have various amounts of vegetation encroaching the roadway. A lightly trafficked branch line may have a few scattered clumps of grass sprouting from the ballast, while a seldom-used spur may have large patches of tall weeds growing between the ties.

I use many different colors of scenery material. Along with shades of green, I use yellow and brown material to depict dry or dead vegetation.

I sprinkle fine and medium ground foam along the roadway and between the ties to depict small weeds. You can see the results in the siding shown in **fig. 4** on page 40. I secure the ground foam with a 4:1 solution of isopropyl alcohol and white glue. Before the glue dries I pick off any pieces of foam that have landed on top of the ties.

I use a variety of products for taller vegetation. If you still want to run trains over the track, make sure that any material that you install between the ties is flexible and doesn't derail rolling stock.

For larger clumps of weeds, such as those between the ties of the spur shown in **fig. 6**, I used Silflor Mini-Natur Prairie Tufts. This product is sold in 8" x 12" sheets of about 100 tufts. Each tuft peels off the sheet and is easy to install with white glue or scenery cement. This product is available in 1/8" and 3/8" heights.

Prairie tufts and ground foam also worked well at the ends of the tracks in a small yard on my home layout, as shown in **fig. 7**. A small stub-end yard at an industry or on a branch line is another location where tracks and ballast can be less maintained.

I apply static grass flocking for large patches of tall grass. Although some of the flocking material will land horizontally, enough of the strands will remain vertical to simulate a realistic grass texture.

First I apply white glue to the locations where I want patches of tall grass. Then I add the flocking using a shaker squeeze bottle (often called a puffer). Static electricity makes some of the fibers land vertically in the glue.

For better results you can use a Noch Gras-Master tool to apply flocking. This device electrically charges the fibers, causing a higher proportion of them to land vertically.

Fig. 9 Tall weeds. For the seldom-used spur on his diorama, Paul used grass seed follicles (left, foreground) to model tall weeds and applied static grass (right, foreground) for large areas of unkempt vegetation.

I've also had good results using individual follicles from a grass seed tassel, like the one shown in **fig. 8**, to model individual tall weeds. I pull off the follicles with tweezers and attach them to the layout with white glue. The follicles have a thin profile that's perfect for HO scale grass, but the material is fragile and requires some patience to install. I also use these grass seed follicles to model tall weeds near building foundations and retaining walls.

I installed grass follicles and static grass next to the siding shown in **fig. 9.** As on the prototype, a weedy siding or spur provides an interesting contrast to a neatly ballasted main line on a model railroad.

An even greater contrast to a highly trafficked main line is an abandoned right-of-way with half-buried ties, torn-up rail, and assorted debris like that shown in **fig. 10**. Partially dismantled track is an interesting scenic detail.

Whether a high-speed double-track main line or an overgrown industrial siding, accurately modeling different types of track will make your layout look more like a real railroad. **MR**

Paul J. Dolkos is a frequent contributor to Model Railroader. *His series of articles about detailing the railroad right-of-way appeared in the November 2007 through January 2008 issues.*

Fig. 10 Abandoned right-of-way. Modeler Dale Latham added a torn-up siding on his layout. The scene offered a lot of modeling opportunities.