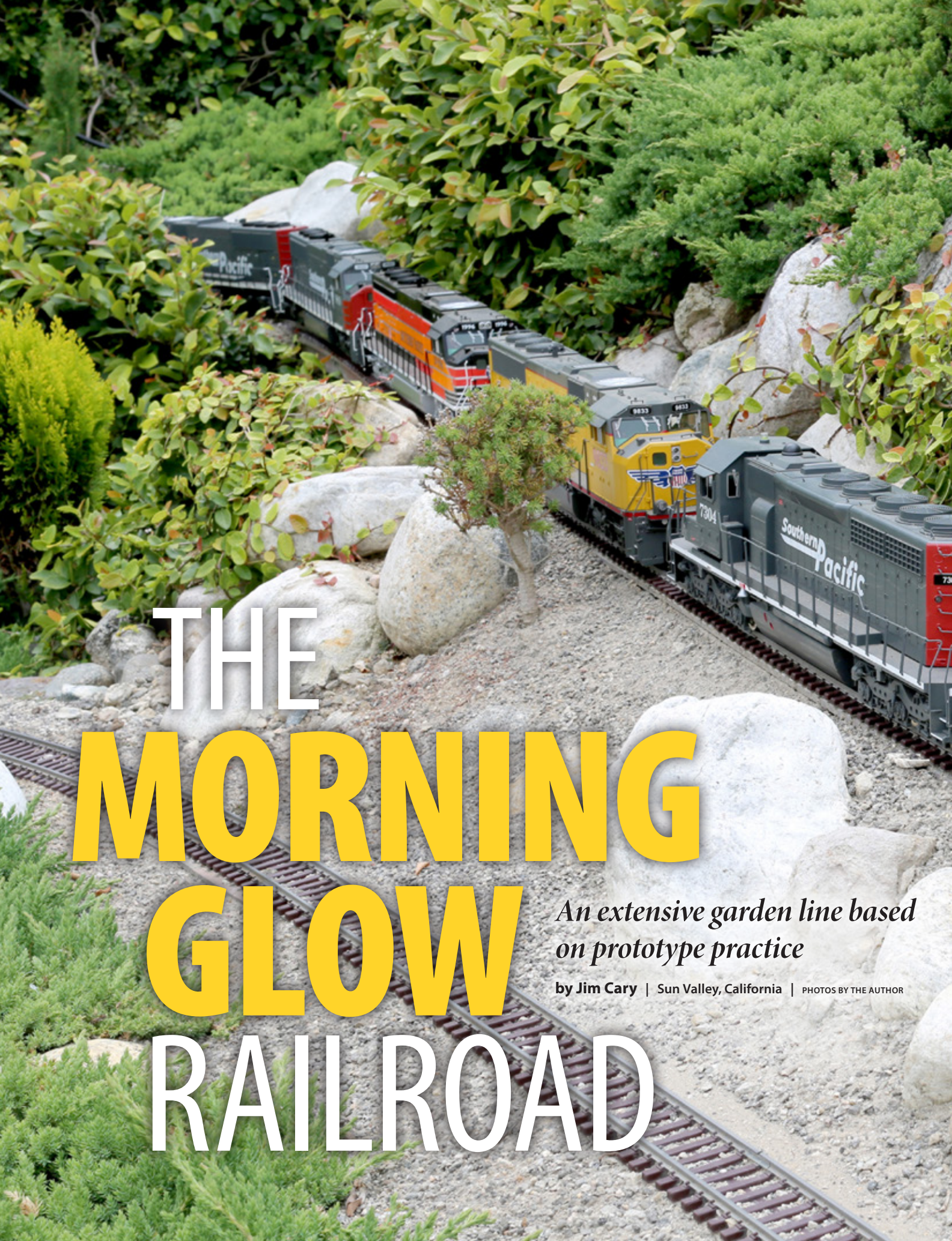


THE MORNING GLOW RAILROAD

An extensive garden line based on prototype practice

by Jim Cary | Sun Valley, California | PHOTOS BY THE AUTHOR

A multi-unit consist eases down the grade on Jim and Joyce Cary's Morning Glow Railroad. Creeping fig holds the embankment on the right in place.

1. This overall view of the Morning Glow Railroad was taken from the high point at Donner Pass. Donner Lake and meadows are in the foreground while the Tehachapi Loop is far distant at the other end. Blue, green, and red sedums, along with low golden chamaecyparis cover the ground between dozens of dwarf Alberta spruce trees.

Our Morning Glow Railroad (MGRR) was developed after watching numerous videos, reading many *Garden Railways* magazines, then determining the type of garden railroad I wanted to construct. Its theme is based on the type of natural setting that I enjoyed the most, namely a vacation at a high elevation, in a mountainous area with tree-studded forests, flower-covered meadows, and patches of winter snow, along with the faint scent of pine trees, far from city life. A primary requirement for the railroad was to be able to enjoy our creation from both indoors and out, even when trains were not running.

I decided to have one long, single track in a folded-loop plan. Several trains running on the same track would emulate real world train-separation challenges. The design incorporates parallel tracks at various locations, all within the same single loop, to allow for multiple train meets. This design will allow one train to run unsupervised, without conflicts with other trains, if so desired.

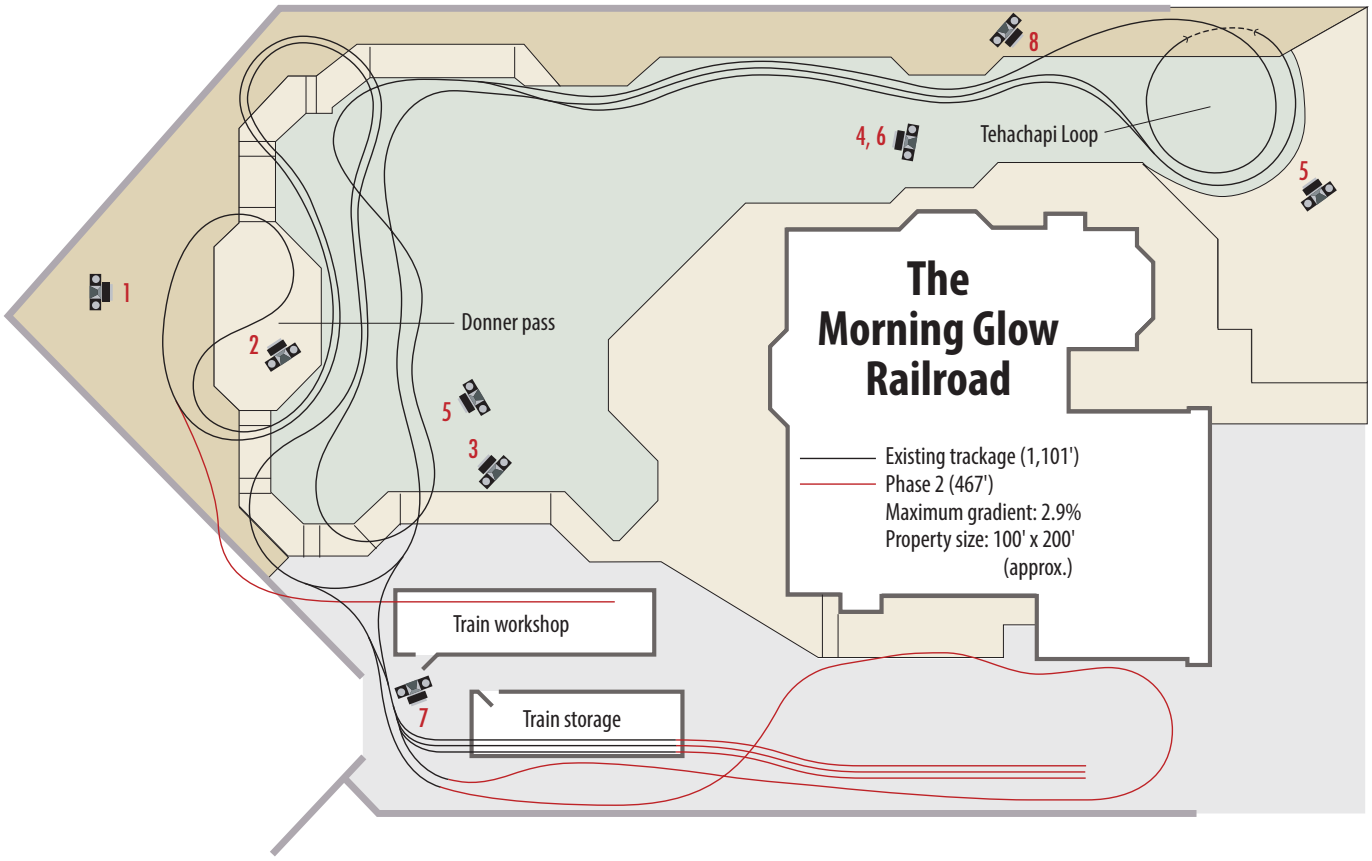
2. The SP Daylight stops traffic at the summit. Signals can be inverted and stored in their supporting pipes. Blue spruce sedum forms shrubbery on the right.

I spent many hours at different locations along Cajon Pass and the grade from Bakersfield to Tehachapi, breathing in the diesel sounds (and sometimes the fumes) from the massive lash-ups of Southern Pacific/Union Pacific and BNSF. Many had six locomotives on the front, two in mid train, and one or two locomotives pushing from the rear, up or down these severe grades. They always left me standing in awe. I decided to re-create this on our railroad by modeling diesels from 1960 to the present.

The design

I fired up an AutoCAD workstation and brought up our property site plan. I picked out rough points to create a free flowing, multi-radius track path through the property.

Then I surveyed all of the vertical grades of the property with a



MARC HOROVITZ

The railway at a glance

Name: Morning Glow Railroad
Size: Irregular L-shaped 100' x 150'
Scale: 1:29
Gauge: № 1 (45mm)
Era: 1960 to present—all diesel
Theme: Southern Pacific—Donner Pass to Tehachapi
Age: 3 years
Motive power: All battery
Length of mainline: 1,101'
Maximum gradient: 3%
Track: Code-250 stainless steel; #10 pneumatic turnouts
Minimum radius: 7'
Water features: 500-gallon fish pond and waterfall
Control system: CVP AirWire
Sound system: Phoenix P8
Website: *www.MorningGlowRR.com*

3. A three-locomotive consist makes a slow descent from Donner Pass, with glowing dynamic-brake resisters howling. A clump of blue lobelia grows down front on the dry creek edge.

rotating laser sender/receiver. I had approximately 72" of vertical grade to work into the plan. I then flexed and flipped the plan, creating overlaps and crossings to lengthen the track. With slight nudging here and there, the track grades fell into place. These included long, 3% slopes that emulated portions of Donner Pass or Tehachapi.

Track-support system

I used what is commonly called an HDPE (high-density polyethylene) ladder-track system. This was made from 1½" x 1" HDPE fence pickets, used as vertical stakes. These stakes were set 24" apart and

4. Three parallel tracks carry trains through the lowlands of the California Central Valley. Boulders amid plantings keep foot traffic away from the trackwork.

5. Long, modern freight trains are a signature of the Morning Glow Railroad. Chartreuse arborvitae shrubs contrast the blues of creeping dwarf junipers and the deep greens on conical spruces, all highlighted by near-white boulders.

driven into the ground as far as they would go. Attached to each side of each stake, with stainless-steel screws, were two, continuous, track-support rails made from of ⅝" x 3½" dark-brown HDPE bender board, adjusted up or down on curves to create the proper super-elevation.

All track is stainless steel, code 250, 60" rail. Rail joints are staggered 30" from the opposite joints for smooth, natural curves and transitions. Most turnouts are #10s, to facilitate higher speed and smooth track changes. A 1/16" gap between rail ends, held in brass joiners, allows for expansion and contraction due to temperature. All track, tie strips, and turnouts are by Sunset Valley.

A long siding holds entire trains, allowing faster passenger trains to pass slower freights. A four turnout, double crossover allows any train on the line to be turned to the opposite direction, adding operational variety.

Pneumatic switch-machine pistons, activation solenoids, tubing, and connectors are from Sunset Valley. All are controlled by a CVP AirWire Linker with multiple activators. All turnouts are controllable from any CVP AirWire T-5000 hand-held controller, regardless of train frequencies.

6. Santa Fe Super Chief, headed by an A-B-B-A consist, makes good time across the flats.

When landscaping, we made every attempt to blend existing and new boulders, trees, and plant material into the topography and surrounding landscaping of the property. Emphasis was placed on upper-elevation alpine influence and lower-elevation landscaping, even though they are only separated by six feet, not 6,000.

A removable, lightweight aluminum-and-fabric shade structure was built, designed to block the view as little as possible. An adjacent, removable handrail for safety in ascending the mountain to Donner Pass (elevation 6') is provided, primarily for visitors at open houses.

Plants on the Morning Glow Railroad

Sun Valley, California | USDA Hardiness Zone 10

DWARF CONIFERS

Dwarf golden thread-leaf cypress
Chamaecyparis pisifera 'Filifera Aurea Nana'

Dwarf Italian cypress
Cupressus sempervirens 'Tiny Tower'

Dwarf Japanese garden juniper
Juniperus procumbens 'Nana'

Dwarf Alberta spruce
Picea glauca 'Conica'

Jean's Dilly spruce
Picea glauca 'Jean's Dilly'

Golden arborvitae
Thuja orientalis 'Aurea Nana'

BROADLEAF SHRUBS AND VINES

Variegated wintercreeper
Euonymus fortunei var.

Creeping fig
Ficus repens

GROUNDCOVER

Silver carpet
Dymondia margaretae

Rosemary
Rosmarinus officinalis

White stonecrop
Sedum album

Blue Spruce stonecrop
Sedum reflexum 'Blue Spruce'

Dragon's Blood stonecrop
Sedum spurium 'Dragon's Blood'

ANNUALS

Lobelia
Lobelia erinus

Sweet alyssum
Lobularia maritima

7. The five-track entryway to the recycled shipping container, which is used for storage of complete trains and recharging locomotive batteries.

The trains

The entire railroad is battery powered. Each locomotive carries two lithium-ion batteries, with an A/B switch and related charging plugs, accessible via a lift-out panel on top of each locomotive. Each battery provides about three hours of run time between charging.

CVP AirWire drop-in decoders, incorporating their Cruise Control and other advanced features, were installed in each locomotive. One feature automatically powers up or down to the next power level when resistance to a grade or curve causes a change in engine motor speed. This same feature works in reverse on the downhill grades, with automatic lowering of the power level and engine sounds, via Phoenix P8 sound cards. When descending long grades, pushing a button on the AirWire T5000 controller, in conjunction with the Phoenix sound card, activates the dynamic-brake howl. All locomotive body shells are left unsecured and can be lifted from the chassis to allow immediate access to the electronics, batteries, etc. inside.

Hand-held CVP AirWire T-5000 lighted controllers provide complete operator control of each train, including sounds and lights. Each train has its own frequency. If a train has multiple engines, they are all on the same frequency, formed into a consist (four engines, maximum). However, I run up to six engines (four in front and two mid train) in a single train quite successfully, not utilizing the consist feature.

Each engineer is equipped with a Motorola CLP1040 radio with earbud/microphone, allowing him/her to be in constant contact with all other engineers. This makes for a smooth operating session at a large open house without audible radios disturbing visitors.

Operating crossing gates and signals, with bells, manufactured by South Bend Signal, are installed, with MGRR custom, recessed, weather-tight storage tubes in place to preserve their detail and electronics between train runs.

Train storage

High on my list of priorities was to have almost immediate activation of any one of five trains to the mainline within 10 minutes and to have almost instant enjoyment, and/or to be able to entertain friends who dropped by on short notice. This meant that all trains had to remain coupled to their locomotives and be on the rails at all times, including when

8. A train circumnavigates Tehachapi Loop, passing over itself. Blue spruce and Dragon's Blood stonecrops fill the meadows between conical dwarf spruces, and an arc of four dwarf Japanese garden junipers create hills of low shrubs.

the locomotive batteries were charging. I store the trains inside a steel shipping container at the rear of our property, with a five-track access slot connected to the mainline by turnouts. All trains are backed into the container after a running session. They are positioned directly under 40 overhead chargers that enable 20 dual-battery locomotives to be charged simultaneously.

Prior to every running session, I run a GP9 pushing what I call my "Snail Flicker" (made by Earl Martin) one time around the entire loop. The Flicker is a rotating brush unit, set at an angle, with its own battery, that scrubs the right of way and flicks off anything that should not be there—twigs, pebbles, lizard tails, snails, tree nuts, and so forth.

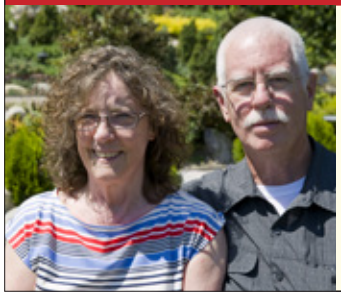
What I would change

If I were building the railroad today, this is what I would do differently:

- I would install my drip watering system prior to planting the Alberta spruce trees. I'd plant all Alberta spruces in ¼" hardware-cloth wire baskets, minimum 6" diameter by 8" deep, to keep gophers from feasting on the main stems of the trees.
- I'd double check all vertical clearances under bridges for double-stack container cars. I had to incorporate some vertical grade modifications and change some bridges after the fact.
- I would use a minimum radius of 8' (16' diameter) on all curves.

Future projects include upgrading all locomotive and passenger cars from incandescent to LED lighting. I also need to complete the phase-II extension at the south end of the property. To convey many of the details that could not be described in this article, please visit our website: *www.MorningGlowRR.com*

About the author



Jim Cary is a retired architect. He spent 45 years designing commercial retail facilities. He and his wife Joyce have been married for 49 years and have three children and 10 grandchildren. Joyce has been an integral partner in the creation and maintenance of the MGRR.