

# YouTube Model Builders eMag

A Free YouTube Model Builders e-Magazine  
Produced by YouTube Model Builders.

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COMMUNITY

YTMB LIVE! SHOWS  
YTMB HANGOUTS

VOLUME 2

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MAY 2016

ARTICLES YOUTUBE CHANNELS COMMUNITY TIPS & TRICKS

## Working On the Garden Railroad

FEATURING THE WY SCENIC MODEL RAILROAD

### INSIDE THIS ISSUE:

- Tributes to Mike Jensen and Mark Hoffman
- THINKING "G SCALE" BIG
- Garden RR—First Things First
- Garden RR & Track Planning
- Steam Down On The Farm
- Building a Covered Bridge
- Vision vs. Version

Be Sure To Check Out Columns From  
Jack Hykaway, Geno Sharp, The Track  
Planner, and Harry M. Haythorn

BE SURE TO CHECK OUT

**YouTube Model Builders LIVE!**  
Join Us LIVE Every Month

Cover Photo:  
Thomas Wyssmann



# Welcome YouTube Model Builders!

**W**e are excited to present this special **Garden Railroading** issue of the **YouTube Model Builders eMag** to the community. The YouTube Model Builders “Team” is committed to putting the “eMag” together with the assistance from the model railroading community at large.

We deliver a useful and informative publication for model railroaders who travel this vast net of information. In this publication, we include many informative, tutorial-based articles, information on happenings in the community, listings of up-and-coming YouTube channels, information about the **YouTube Model Builders LIVE!** show, **Hangout Presentations**, along with general information that is inspirational in building of our model railroads.

## **Our Vision:**

To establish free, online resources as a primary source for model railroad techniques and inspiration in an ad-free, selfless service environment.

## **Our Mission:**

The mission of YouTube Model Builders is to inspire individuals for sharing model railroad building techniques through the use of YouTube and other free online resources. Our goal is not only to share knowledge in a community but also assist individuals who are learning or looking for inspiration through the online model railroading community.

— The YouTube Model Builders Team

# Editor's *Note...*

Happy spring! As the weather turns warmer, many of us naturally focus some of our precious model railroading time on outdoor activities, and to working on our yards, and of course, gardening. We run to the nearest nursery and buy new colorful plants, perhaps plant a tree, and make our winter-stricken landscaping come back to life. This is a perfect time for us as model railroaders to also think about garden railroading. We may not be ready to build one just yet, but we as modelers are always interested in learning new things.

Given the above, the theme for this issue of YouTube Model Builders eMag is, you guessed it, garden railroading. However, we first begin this issue with tributes to two great model railroaders from our community who have recently passed away: Mike Jensen and Mark Hoffman. Thanks to Deryk Glass and Harry M. Haythorn for putting together these tributes.

Thomas Wyssmann from Switzerland is our featured modeler and on the cover you will find a picture of one of his logging engines on his WY Scenic Model Railroad. In his article he gives us a glimpse into his current layout and his plans for expanding it. You can also view many wonderful pictures of his railroad in the Community Collage section. In his Q&A piece "Thinking Big – 'G Scale' Big," Jack Hykaway interviews Mr. DCC – Bruce Petrarca and Keith Edwards (also featured in the July 2015 issue of the eMag) about their experiences with their G scale garden railroads. We send a big thank you to both Bruce and Keith for their time in answering questions about their railroads.

Rick Lynch, from his perspective as a former landscaper, discusses steps necessary in creating a garden railroad and gives us some insight on what types of plants to choose that will be most effective in a garden layout. Rick's article is a companion article to Bill Beranek's insightful article on track planning for a garden railroad. Both are very interesting to read.

Lloyd Henchey shows us step-by-step how he scratch built his "red" HO scale covered bridge for his layout. These steps can be used to create a similar bridge for outdoor use on a garden layout or any other scale for that matter. Andy Crawford gets us thinking with his "Food For Thought..." article "Vision vs. Version" in which he explains his viewpoint on how well modelers really meet their vision of their layout and how "order of events" can determine the version of outcome for your envisioned layout.

In his column "Harry's UP-Hub" Harry M. Haythorn writes about the Pacific Railway Act of 1862 and the creation of Union Pacific. Harry also writes about a live steam railroad on a farm in McCook, Nebraska. Jack Hykaway details the "Gorgeous" GG1 in his column "Jack's Junction" and Geno Sharp shows how easy it is to create our own custom-made decals in his column "Geno's Corner."

Garden railroading is not an easy hobby to get into and nor is it a cheap endeavor by any means. We hope that with this issue we have given you some thoughts to ponder on the subject and a nudge in the right direction!

Happy ~~model~~ garden railroading!

– **Loggin' Locos**  
Editor-In-Chief



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# A Tribute to Mike Jensen



By Deryk Glass

**H**ello fellow modelers! As most of you know, we recently lost one of our own, Mike Jensen. Some may have known him through his [YouTube channel - KU4PC](#). Mike modeled an area that was local to his residence in Florida; he called it "The 15th Street Layout," and it involved FEC

and CSX. I had the pleasure of knowing Mike on a more personal level and thought it appropriate to share some memories of this man who became a much appreciated part of our wonderful community.

I got to know Mike through YouTube, in much the same way I

have gotten acquainted with all of you. He subscribed to me and started commenting on my videos. I returned the favor by subscribing back to him. The first thing I noticed when I watched Mike's videos was the incredible detail on his 15th Street layout. At times, I wasn't sure if I was looking at a model railroad



“Mike was also a jokester and had quite the dry sense of humor. You could never tell if he was joking or being serious.”

or a scene right out of real life. We continued to watch each other's videos; this usually involved me praising his work and Mike always supporting my adventure, providing some valuable tips along the way.

Eventually, our communications evolved into telephone conversations and Facebook messages. In fact, little did Mike know that, by this time, he had already become a staple within our community. He had touched the lives of numerous other modelers including Geno Sharp, Bryan Voltz, Tim Garland, and many, many others within the YouTube modeling community.

There are some things about Mike that not everyone knew. Mike loved the diesels; he absolutely hated steam and he wasn't afraid to tell you! Another thing that really bothered him was modelers who spent the time to make fantastic looking scenes, but never took the time to paint their track or put extra ties in the gaps between pieces of track; I had to agree with him on that!

Mike was also a jokester and had quite the dry sense of humor. You

could never tell if he was joking or being serious. I remember one embarrassing joke he pulled on me. (It's embarrassing because I was dumb enough to fall for it.) Some of you may remember that in 2014, Union Pacific DDA40X #6944 was sent to the Norfolk Southern locomotive shops in Altoona, PA for a cosmetic restoration. Of course, that was a pretty big deal to see something like that here in Pennsylvania. Anyway, one morning Mike, Bryan Voltz, and myself were chatting on Facebook. I mentioned that NS was supposed to be moving the locomotive from the yard to the shops any day now and that I wanted to get some footage of it. Mike replied a little later that he had talked to Nick Norfolk, and they were moving the locomotive within the hour. Well, I grabbed my camera and flew out the door before I had a chance to really think about what he said! Needless to say, when I got to the locomotive shops, nothing was going on. Then it hit me ... NICK NORFOLK. Wow, I was such an idiot! I was so mad at Mike that day, but I think I was actually madder at myself. Looking back on it now, I

just smile and laugh to myself. I will forever remember that day, and Mike. Always the jokester.

I'm sure many of you have a story of your own about Mike Jensen. Hold on to those, for those memories will allow Mike and his I5th Street layout to live on ... through us! The YouTube model railroading community will forever remember Mike Jensen and the inspiration he provided to each and every one of us.

Your modeling friend forever!

Deryk Glass 

## About the Author

Deryk Glass is a fellow model railroader and you will find him floating around YouTube and various other places within the 'community.'

Living in central Pennsylvania, Deryk grew up around trains and became fascinated with them from the time he could first walk. Deryk received his first train set at the age of 5; and the rest, as they say, is history!

Deryk doesn't limit his modeling to just trains; he also enjoys building model kits (mostly of the automobile and Star Trek variety). Some of Deryk's other passions include Mustangs and motorcycles.”

You can catch what Deryk is up to on his YouTube Channel [DG Model-works](#).

# A Tribute to Mark Hoffman



By Harry M. Haythorn, UPHS #4043

**I**t seems all the good guys go too soon, and our friend and fellow model railroader Mark Hoffman is no exception. Mark was a model railroader and rail fan from the time he was 9 years old, and for 45+ years Mark loved trains. Mark was originally from Reading, PA and later moved to Nevada. Mark passed away at the age of 55, from cancer.

I met Mark through the [Model Railroad Train Club on Google+](#), which is owned by Lloyd Fellon, and the three of us became fast friends. He was not just a model railroader, but also a real life railroader; he worked for Conrail, as a diesel locomotive electrician and as a hostler, and later he worked for Union Pacific on a track maintenance crew. He was also a member of the Nevada State

Railroad Museum, where he trained to be a fireman on steam locomotives.

Mark loved all railroads, but the Reading, Pennsylvania, and Conrail were his favorites, and his locomotives and rolling stock reflected that. His layout was based on the eastern US and featured scenes like Pennsy's Lofty Tunnel. Mark could hang with





*Mark at age 11 with Pennsy #900.*

the best of them; he could scratch build and kit bash, he could paint and detail like a pro, and he always had an encouraging word for budding

good friend Mark Hoffman goodbye and highball, and may your signal always be green and clear! 🚂

*A picture of Mark's layout.*



## About the Author

Harry is a rancher in Nebraska who works with his father and grandfather to help run their 22,000-acre, 1500-head of mother cow, ranch. Harry has been model railroading for over 20 years and models the Union Pacific Steam era from the 1930's to the 1960's, in central and western Nebraska. Harry is a Sustaining Member of the Union Pacific Historical Society and a member of the UPHS Streamliner 100 club. He is a National Model Railroad Association member currently working on his Master Model Railroader Certificate.

Harry regularly posts videos on his YouTube page. You can follow Harry as he works on his 7th layout at <https://www.youtube.com/channel/UC6-MPHmYU3Cc2uEVfjZDIcQ>.

# THE WY SCENIC MODEL RAILROAD



By Thomas Wyssmann

**The Challenge of Building a G  
Scale Railroad in the Backyard  
and Areas Around the House.**



*Photo Courtesy of Thomas Wyssmann*



*Figure 1 — Most of the track is arranged at a comfortable height for both operator and observers - and the horses enjoy the amusement.*

**I** felt that my layout should be just a scenic model railroad open for any fantasy, and I wanted to represent the earlier eras of narrow gauge railways in the Rocky Mountains. For this reason, I named it simply the *WY Scenic Model Railroad*.

## The Idea

The layout had to fit within the conditions and restrictions of my circumstances. It was clear to me from the outset that my layout would have to be built on the unused part of our terrain, making no changes to the existing uses and vegetation of our terrain. To have enough area, this meant I had to lay tracks under bushes and trees. The sanded paddock for our horses is located directly beside the main area of the layout (See Figure 1). Other confounding factors were realities: Leaves, sand, dirty splash water, and dust. What a freaky project!

## Building the Layout

In the first phase of this project, I laid 360 feet of track. For roadbed, I

used only gravel and wood; in general, I used materials that would be easy to get, replace, and dispose. I laid most of the track on wooden constructs, such as trestles of some kind. I ended up laying only about 1/3 of all track directly on the ground, and the rest I laid on bridges. This was a lot of work. To enable train operations as quickly as possible, I decided to use chipboard for temporary roadbed in some places.

Wherever tracks crossed footpaths and ran under bushes or trees, I laid paving stones for stability. I had the idea to build a layout where at least three trains on different timetables/routes could run simultaneously. Also, trains running in the opposite direction had to be able to pass one another in some sections. At one or two points of the layout, I wanted to have permanent storage for eight to ten trains on sidings; naturally, the trains would have to be kept safely under cover to protect them from the weather. I also wanted the layout to provide two or three points where additional sidings or branch lines could be attached in the future.

For controlling the trains, I decided to use a system with wireless throttles; and for automated train operation, I chose to use computerized controls so those trains could be run and monitored.

Even though my layout doesn't have hills, it isn't flat. The tracks lead over three levels. The first level is 2 feet above the principal plane, the second level is 3 feet high, and the third level is 4 feet high. I wanted to utilize prototypical track characteristics, but given these facts, I had to interestingly arrange the track with gradients of up to 8 degrees. I chose to put scenery in only a few small places; I restricted my buildings principally to some railroad logging and mining facilities and, of course, small station buildings. In summary, it can be stated that this layout is neither a typical garden railroad nor one that could claim to be spectacular.

## The Details of My Railroad

The dimensions of this layout are roughly as follows: The section of the shed in which the trains are

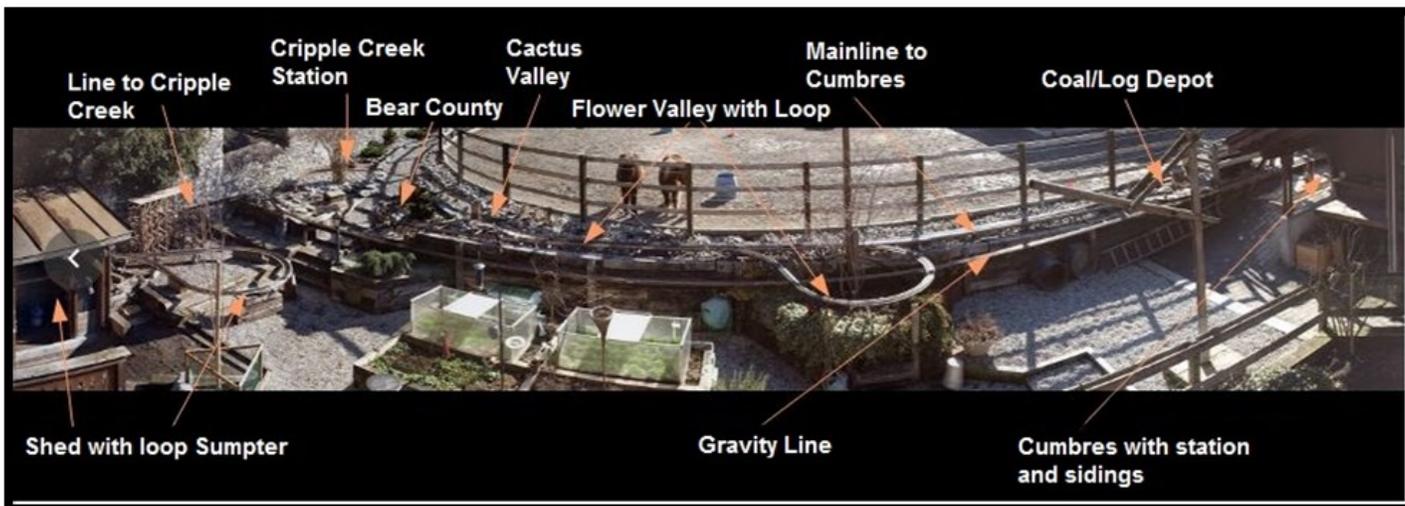


Figure 2 — A broad view of the layout.

stored is 18 feet x 4½ feet; the track loop is 12 feet x 9 feet; the area along the paddock with the main line is 95 feet x 10 feet. Figure 2 is a panoramic photo that shows the principal points of the layout. Figure 3 illustrates the plan of the entire layout, including future extensions.

I was able to use half of the shed behind our house for storage tracks. Beside the house, where the area adjoins to the paddock, I installed two longer routes. Behind my wife’s workshop, I linked both routes with a curve under a walnut tree; this area is known as *Cumbres*.

The distance between the paddock fence and the wall of stacked ties is only 2 feet wide, which is too small to lay three tracks side-by-side. On the gravel there, I installed tracks on a simple trestle for the upper lines and decided to lay the other track line on a kind of bridge alongside the stacked ties with a huge gradient, which I call the *Gravity Line*.

In the shed, I have set up ten storage tracks on two levels. Outside the shed, a loop – known as *Sumpter* – is connected to the lower level of the

storage tracks, where trains can pass through and return into the shed to drive up in the back over a sharp curve to the upper level. From the upper level, trains can exit toward the main line. Electrically, the tracks in the shed, including the loop outside the shed, are divided into 15 segments. The rest of tracks outside are divided into 12 segments. This is shown in Figure 3 and Figure 4. Figures 5 and 6 show the interior of the shed. Figures 7 through 10 highlight more features of the layout.

The whole layout is built with stainless steel flex track; only the turnouts are of nickel-plated brass. The layout is full digitized, and the electrical power passes through the track to drive the locomotives and other rolling stock. Along both axes of my layout, a 1 inch pipe is laid in the ground as a conduit through which all wires pass (digital track power, scenery and turnout power, a feedback and programming bus, and some wires in reserve for future use). Five boxes for housing the electronic components (see Figure 11), and electrical connections are placed at different points over the

full length of the layout, at the points where turnouts and/or scenery are located. From there, power is fed into the tracks.

I use a 300 watt booster; I adjusted this unit to supply 18 to 20 volts of driving power with a current of up to 15 amps. This is enough to power ten short trains, of which five can drive simultaneously. To deliver power for the turnout drives and for lamps and other mechanisms in the scenery, I use a detached transformer with 18 volts with a maximum of 2.9 amp AC. The frogs at most of my turnouts are not electrified.

In the spring it is necessary to remove any remaining leaves and branches and – of course – all of the other filth that accumulates. All turnouts have to be tested for ease of motion. (Cleaning goes easy with a tweezer and a paint brush.) I lubricate all movable parts with a spray of a synthetic lubricant with Teflon®, and I scrub the running surfaces of the track with cleaning spirits. For the parts where a film of dirt adheres, I use fine sandpaper. I also give attention to the nickel-plated parts.

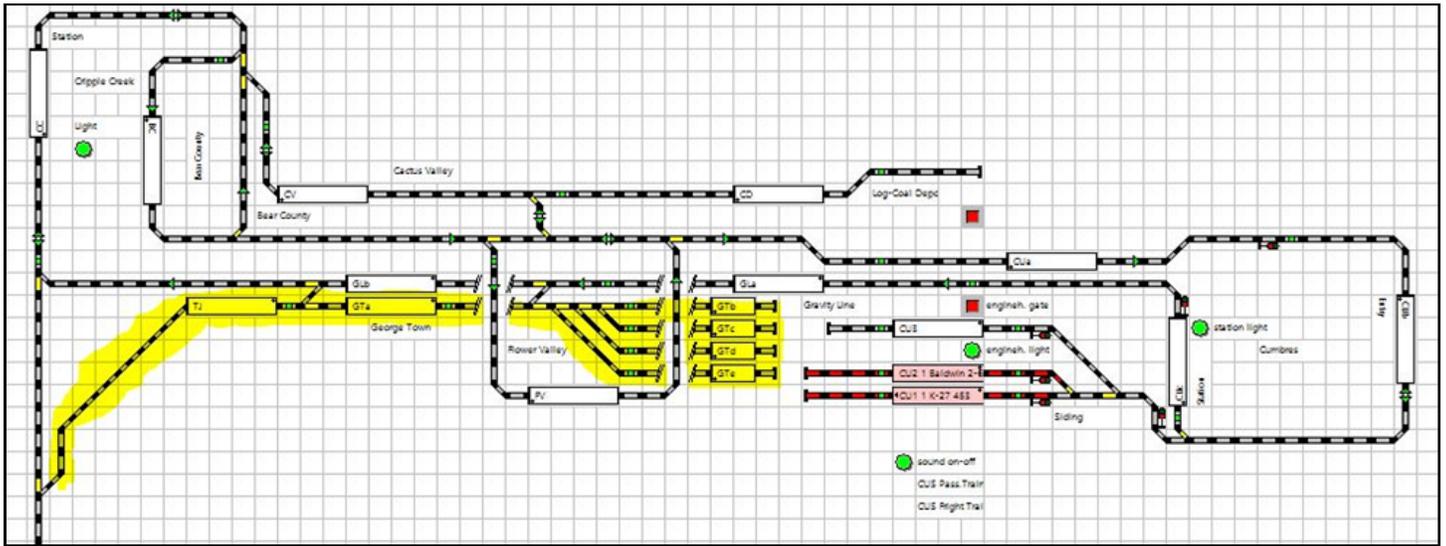


Figure 3 (above) — The layout plan, including ongoing/future construction projects, highlighted in yellow.

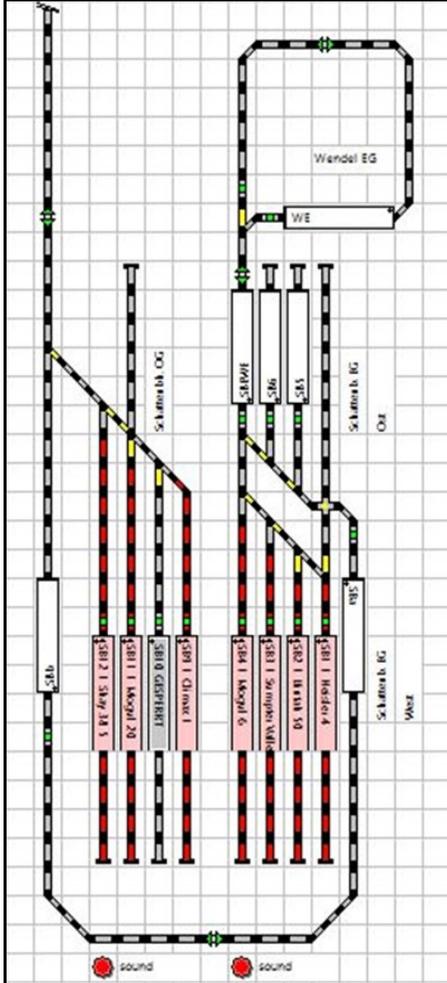


Figure 4 (left) — The plan for the shed with storage and climbing tracks.

clear away the leaves before the first snowfall.

## The rolling stock: Storage and Maintenance

My collection of locomotives is composed substantially of geared and non-geared steam locomotives of the earlier eras: 2-truck Climaxes, Heislars, 2- and 3-truck Shays, Mallets, Moguls, a C-19 (Consolidation), a K-27 (Mikado) and few others. All are manufactured either by Bachmann or LGB. I purchased most of them (and the cars) through online auctions. The cars are manufactured by Bachmann, LGB, USA Trains, and

Delton (from the '80s). Naturally, most of them had to be reconditioned. Little by little, I repair or modify, decorate, and weather my models. I equip all locomotives with digital sound decoders from ESU or ZIMO. In the case of the older models, it was necessary to modify the wiring of power pickups, motors, and lights, and to remove the original printed circuit boards. (You can see some photos of my models in the Community Collage section of this issue of the eMag and on my [blog](#).)

From April/May to October/November, a large part of my rolling stock is stored on the sidings in the

Figure 5 and 6 — Interior views of the shed with storage and climbing tracks.

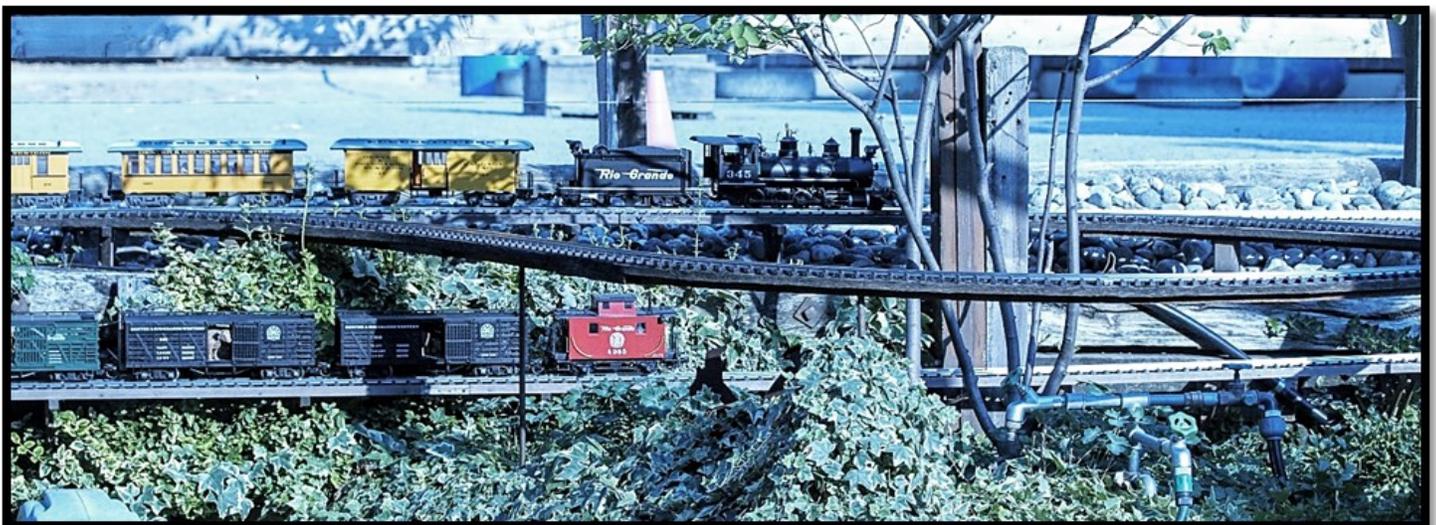


From time-to-time during the season, I repeat the procedure with the cleaning spirits and/or sandpaper on different sections of the layout every 3 to 4 weeks. On the rare occasion if problems occur, I clean the whole layout. After leaves fall in autumn, I



Figure 7 (above) — At the left is the shed with its two exits: the upper line goes to "Cripple Creek", and the lower line goes to the "Sumpter" loop. Over box girder bridges and a trestle, the trains reach the main line at "Cripple Creek Station" at the very back of this picture. On the right side of the photo, the lines lead to the "Coal/Log Depot" and "Cumbres" at the opposite side of the layout.

Figure 8 (below) — A "hovering" loop at Flower Valley, where trains can turn back towards "Cripple Creek."



shed and on the two tunneled sidings at the other end of the layout. (These sidings are shown in Figures 9, and in Figure 10, with and without the tunnels in place.) That way, operations can start anytime, and the trains can proceed from a protected area to the outside.

In wintertime, all rolling stock is stored in my workshop to prevent the grease in the gears from hardening in cold temperatures, and, natu-

rally, to make it easy for me to make revisions to them.

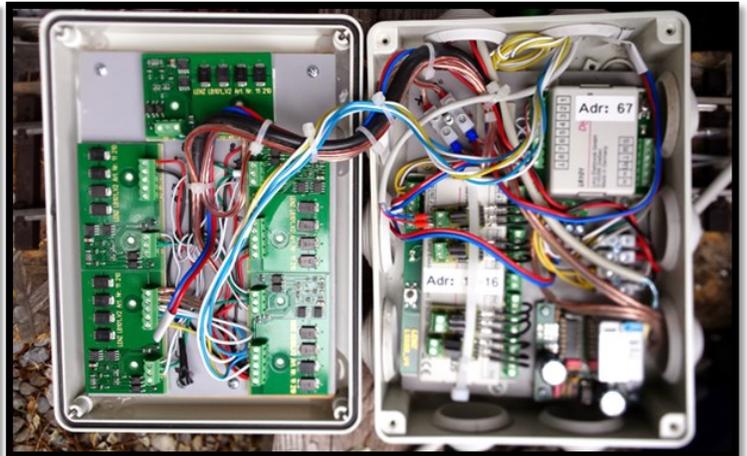
Principally, I lubricate my rolling stock when it is necessary. I lubricate the steam locomotives individually every 4 to 8 hours of driving, or every time I clean them. (That depends on the complexity of their drive mechanisms and on the degree of their dirtiness.) From time to time it is necessary to clean the wheels; I use Q-Tips with cleaning spirits or solvents to do this.

## Different Scales

Not all of my rolling stock are of the same scale; their scales are: Bachmann 1:20.3, LGB 1:22.5, and USA Trains and Delton 1:24. Some simple rules I use to handle differences in scale are as follows: (1) don't combine cars of different scales; (2) the combination of locomotive and cars may have, at most, one scale grade of difference; and last, but not least, (3) optically, the combination must be acceptable.



Figure 9 (above) — The 3 sidings at Cumbres: A short one with a small loco shed (center) and two 13 ft. long ones for longer trains (edges of the photo). Usually, the two long sidings are covered with a transparent tunnel are used as storage. Figure 10 (bottom left) — Trains can head on to Cumbres, passing the "Coal/Log Depot" and return over the Gravity Line to Cripple Creek. Figure 11 (bottom right) — One of the boxes housing layout electronics



## Future Development & Extensions

For one thing, I currently cannot operate the bigger locomotives, because they cannot drive through the sharp curves of the existing loops; I also need a wye that is wide enough to handle these locomotives. For another thing, I would like to have a couple of sidings at the center of the layout where I can perform switching and compose my trains. For this need, I have started two projects that should be finished by midsum-

mer: One is a driveway from the Gravity Line directly into the shed's upper level, called *Triangular Junction*. The other is to build four sidings along the Gravity Line, called *Georgetown*. 🚂

## About the Author

Thomas Wyssmann, who lives in Switzerland, is semi-retired and spends most of his leisure time caring for his horses, trail riding, and for

the past few years, with model railroading. His first experience with model railroading was as a boy when he, together with his older brother, obtained some Märklin stuff. Later, during his school years, Thomas was only concerned with building and flying model aircraft; this was his hobby until he was graduated and became employed.

For tips and more technical details, next steps, or simply photos, check out Thomas's [blog](#), [Google+ profile](#), and [YouTube channel](#).

# THINKING BIG

## “G SCALE” BIG



By Jack Hykaway

### A Q&A with Bruce Petrarca (Mr. DCC) and Keith Edwards.

**W**hen I think of model railroading, my mind immediately takes me indoors and into a brightly-lit room where tiny trains slither along a meandering mainline. Now that spring has sprung, modelers with indoor layouts are enjoying their time outdoors, away from the layout. For them, their winter modeling season is coming to a close. However, as temperatures warm, there's one group of modelers who have just begun working on their layouts. The garden railroading season has recently kicked off for the year, and modelers are busy planting, running trains and enjoying their railroads in the great outdoors.

Although I've never had the opportunity to build one, garden railroads have interested me for as long as I can remember. When I was five, I went for a ride on the 1:7.5 Assiniboine Valley Railroad through a private park. Years later, I had the chance to visit the smaller 1:22.5 (G

Scale) Lauritzen Garden Railroad at the Lauritzen Botanical Gardens in Omaha, NE.

The Lauritzen Garden Railroad was very impressive. Tracks curved

along a hillside on countless different levels. Trains raced across huge scratch-built bridges and ran between hand-carved wooden buildings as they traversed their respective routes.

*Two UP trains cross bridges on the Lauritzen Garden Railroad. Notice the different track elevations and impressive scratch-built bridges. Visit [www.lauritzengardens.org](http://www.lauritzengardens.org) for more information about the gardens.*





*Bruce's impressive Rocky Mountain Pacific Layout. Photo courtesy of Bruce Petrarca.*

The bridges, some over ten feet long, and the flawless operation of the trains got me wondering how these impressive garden railroads were built. Were the railroads designed around the garden or was the garden designed around the railroad?

To answer my many curiosities about garden railroading, I reached out to two experienced garden railroaders. Bruce Petrarca (also known as Mr. DCC) and Keith Edwards are avid garden railroaders who graciously agreed to answer a series of questions that I had prepared.

**Tell us a bit about your railroad. How long have you been garden railroading?**

**Bruce:** “My current Rocky Mountain Pacific (RMP) layout is a work in progress. At this point, I am barely able to run trains around the display. Currently, I’m working on getting

the operation of the layout functional. The RMP is based in southwest Colorado during the 1930s, and trains will be operated and will move freight and passengers amongst towns.”

Please visit [mrdccu.com/layouts/RMP](http://mrdccu.com/layouts/RMP) for more information about Bruce’s RMP layout.

**Keith:** “Work began on the Sandwell Valley Railway in 2001. The original line was a circuit around the back garden with three passing loops. This design was chosen so that it could be computer controlled with trains running in opposite directions, starting and stopping at passing loops completely automatically. I wrote the program for this but never got round to implementing it. In 2008, my wife wanted to have a conservatory built. This required the line by the house to be taken up along with my best station. In the years that followed I didn’t work

much on the layout. I had the idea of running the railway into the side garden and through my shed, which I had customized to look like a railway station. This was completed in 2011, at about the same time that I started my blog. Now, I can run trains around the back garden or around three sides of the garden and then in a figure of eight with the line passing over itself. This needed gradients of about 1:30. Last year I began work on another extension in the side garden. This was to have been a terminus station and turning wye but, unfortunately, before it was completed, I had an accident while caving and fell down a pitch breaking my pelvis and spine; so, it’s still incomplete. I’m hoping that I will be able to start work again later this year.”

**What got you interested in building a garden railroad?**

**Bruce:** “I was a founder of the Pebble Creek Model Railroad Club



*A scene on Keith's spectacular Sandwell Valley Railway. Photo courtesy of Keith Edwards.*

([pcmrc.org](http://pcmrc.org)) in the late '90s. We had a sectional HO layout. In 2001 we were offered space and some seed funding to start a garden railroad. One of our members had been into garden railroading for several decades. Once the club layout was started, I started fiddling with garden railroading on my own."

**Keith:** "I don't really know! As a young boy, I had an indoor Hornby Dublo layout, but never pursued the hobby as an adult until I started work on the Sandwell Valley Railway. I've always liked steam trains and a few years ago I saw LGB stock in a hobby shop. I think it might have been my wife who suggested a garden railway. She likes the railway, but not open days."

**What are some of the important steps in building a garden railroad? Does one build the layout around the garden or the garden around the layout?**

**Bruce:** "I can't speak for many folks, but here's what I did. We live in the Arizona desert, so what works and is necessary for us is vastly different from what is needed elsewhere. The current RMP layout was built using the small amount of space in our back yard inside our wall. I worked on the track plan for a long time. We then made a few hardscape changes to the yard. I put down track and spent about two years getting it to the point where it was leveled, graded and physically complete. Then came the wiring.

That is where I am now. The layout is about 50 feet by 25 feet, including a waterfall. Not a big garden pike. However, it has all the necessary elements to run passengers and freight between two mountain towns, spotting and picking up cars along the way. There are many industries to serve and all the facilities to service the locos and cars (including ice)."

**Keith:** "Definitely the layout around the garden. The garden must be a nice place to be. Trains can enhance a good garden but they cannot replace it. My railway has all been built on concrete foundations and it has been well worth the effort as the running is superb and maintenance fairly minimal. I've really en-



*Busy times at Birdlip Junction on Keith's layout. Photo courtesy of Keith Edwards.*

*Bruce used rosemary plants (pictured here lining the back wall) to simulate pine trees. Bruce is planning to paint the back wall to give the impression of a canyon receding into the distance. Photo courtesy of Bruce Petrarca.*





*Leaves have blocked the line on Keith's layout. Weather and the changing seasons do affect a garden railroad's operability. Photo courtesy of Keith Edwards.*

joyed the civil engineering aspect of building a garden railway - it's like the real thing in miniature, from deciding on the route to surveying and construction. My railway has cuttings, embankments, bridges (over and under) and tunnels - just like the real thing. Sometimes this has required a lot of head scratching but I've always enjoyed problem solving."

**What materials/plants do you use for the majority of your scenery? What are some good characteristics in plants/groundcover to look for when using plants for a garden railroad?**

**Bruce:** "The only 'scenery' I have at this point is rosemary plants that hug the back wall to create the effect of background pine trees. Remember, this is the Rocky Mountains. Since I'm trying to put 10 pounds of railroad into a 5 pound sack, there is not a lot of room for plantings.

Most, if not all of the plantings will be backdrop, not internal scenery. But that's the nature of Rocky Mountain railroading: functional towns surrounded by the best backdrop in the world. In the desert, a good plant is one that will survive."

**Keith:** "I'm not a gardener and I leave all of the decisions about planting to my wife. There's a constant battle with the foliage which is always trying to take over the railway. One of my hobbies is making videos of the railway so I've tried to keep the railway away from things that are obviously out of scale. The fences are all clothed with greenery so that they do not spoil photographs and video scenes."

**Have you ever built an indoor layout? If so, do you find construction of a garden railroad easier or more difficult than constructing an indoor layout? Why?**

**Bruce:** "Yes. Garden Railroading is more difficult. It's harder to find "scale" stuff, I have the weather (and two dachshunds) to deal with, there are fewer choices of everything (structures, rolling stock), and I have to worry about the temperature and the climate. We may not get much rain, but we get hot (track runs from 160° F to below 30° F). If one wants to throw some track on the ground and run around, garden railroading isn't too difficult. However, I want things to be to scale. There are at least 5 scale ratios available in the USA. But only two are prototypically correct for American railroads (1:32 for standard gauge and 1:20.3 for 3 foot narrow gauge)."

**Keith:** "Not since I was a child and I do not want an indoor layout now. I would say that building outdoors is much more challenging, but that's the fun."

**Are there any measures you take to weatherproof your layout, structures, lighting, and rolling stock? Do many of the products already come weatherproofed?**

**Bruce:** "Weatherproofing in the desert is keeping things inside during the summer. I have two sheds to store rolling stock and structures when they're not in use. The good news is that the ground is so dry that I didn't have to take serious steps to insulate the track connections."

Check out Bruce's article about insulated track connections here: [http://model-railroad-hobbyist.com/magazine/mrh-2015-07-jul/di\\_dcc-garden-wiring-tips](http://model-railroad-hobbyist.com/magazine/mrh-2015-07-jul/di_dcc-garden-wiring-tips)

**Keith:** “The track is not affected by the weather and stays out all year, the bridges and tunnels are concrete and aluminum so they are also not affected. The buildings are a mixture of plastic and concrete. Everything stays out in the summer but I do bring the plastic buildings inside during the winter. The locos are all stored indoors but a lot of the stock is stored in the garden shed.”

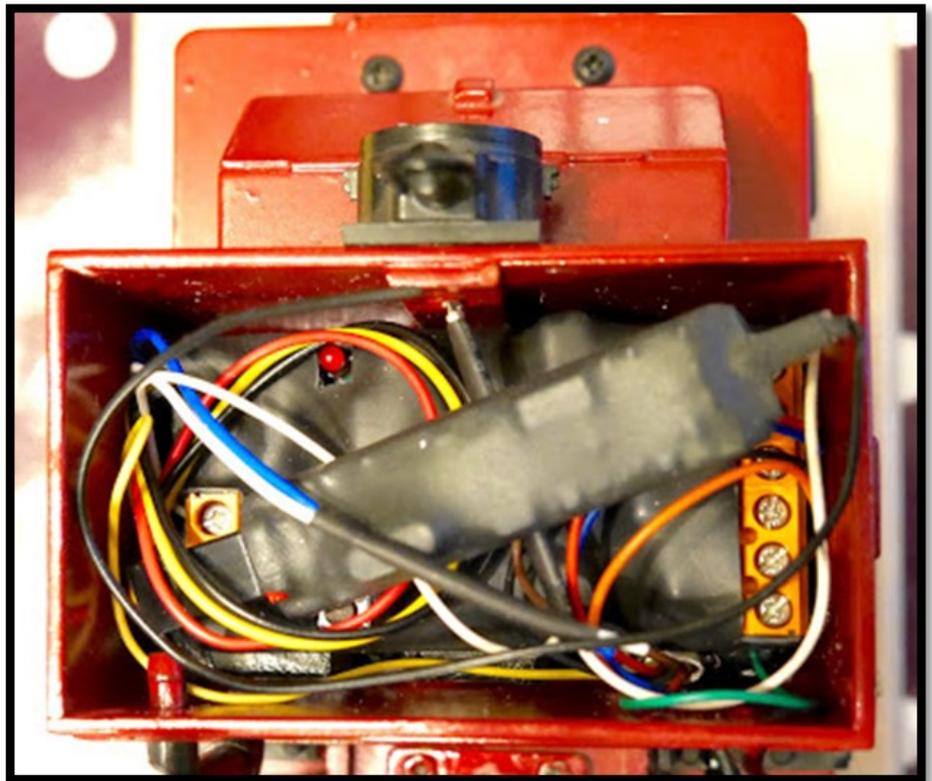
**How do the locomotives operate, and how do you control them? Do you use a particular system to control trains around the layout?**

**Bruce:** “This is still a work in progress. I’m currently using DCC through the track, since that was my business ([www.litchfieldstation.com](http://www.litchfieldstation.com)). However, brass track leads to drop-outs and loss of motion and control. I’m currently experimenting with the Tam Valley DRS system of over the air DCC.”

**Keith:** “The layout can be operated on the LGB MTS system with several of my locos chipped for digital control but over the last couple of years I’ve been converting locos to battery power and radio control operation. These days I prefer battery operation as it means I do not have to clean the track.”

**What are your favorite and least favorite aspects of garden railroading?**

**Bruce:** “I am frustrated by the lack of ‘stuff’. When you add the issue of getting the right ‘stuff’ in the proper scale, it becomes a complete nightmare. I love watching the trains re-live a bygone time.”



*This photo shows the electronic components of one of Keith’s locomotives. Photo courtesy of Keith Edwards.*

**Keith:** “The best bit for me is the construction - the railway doesn’t get run very often. The worst bit is track cleaning.”

I’d like to thank Keith Edwards and Bruce Petrarca for answering my questions so thoroughly.

Be sure to check out more of Keith’s spectacular Sandwell Valley Railway on his [blog](#) and on his [YouTube Channel](#)

Find Bruce and the Rocky Mountain Pacific on the World Wide Web at [www.mrdccu.com](http://www.mrdccu.com), and visit [www.mrdccu.com/curriculum/mrh-magazine.html](http://www.mrdccu.com/curriculum/mrh-magazine.html) to read Bruce’s columns. 🚂

## About the Author

Jack Hykaway is 17 years old and lives in Winnipeg, Canada. Model railroading and rail-fanning are his favorite hobbies. He spends his free time working on his HO scale layout, or trackside waiting for the next train to roar past. Jack has been in the model railroading hobby since he was seven years old. Like most people, Jack started with an oval of track, and a rugged train set. He built his present layout when he was 11 years old, and he is constantly upgrading it. However, there is still a long ways to go. Climb aboard and follow Jack’s progress on the Silver Lake Junction layout on his YouTube channel at <https://www.youtube.com/user/WinnipegRailfanner1>.



## THE JOINING OF A CONTINENT

**O**n July 1, 1862, President Abraham Lincoln signed the [Pacific Railway Act of 1862](#), and in doing so he also created the Union Pacific Railroad. The Pacific Railway Act gave the task of building the first transcontinental railroad to two companies: the Union Pacific Railway, with their eastern terminus being the edge of the frontier along the Missouri River, which would head west; and the Central Pacific Railroad, an existing railroad in California, which would start at the Pacific and head east.

Before the advent and completion of the transcontinental railroad, a journey from the large population centers in the east across the western half of the nation was very dangerous and could take up to six months on horse or by wagon through treacherous mountains, wide and raging rivers, and the great expanse of the Great Plains; or if you were a sea-going fellow, you could take 6

weeks and go around South America's Cape Horn.

The Baltimore and Ohio Railroad was the Nation's first railroad, and it was incorporated in 1827. Many more roads soon followed in the east and south, and in California to the west. The idea of building a route from coast to coast soon followed. During the 1850s, Congress sponsored many surveying excursions across the great, expansive west.

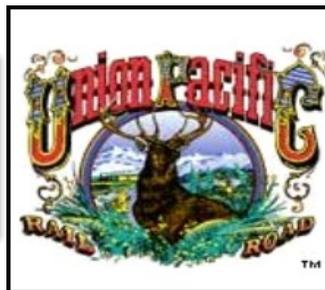
During one of these trips, Theodore Judah, a civil engineer who helped build the first railroads in California, promoted the idea of using the 41st parallel, thus running the railroad through the flattest parts of the country in Nebraska, Wyoming, Utah, Nevada and California. He became so obsessed with the idea of this route that he became known as "Crazy Judah." Judah was shown the best route through the Sierra Neva-

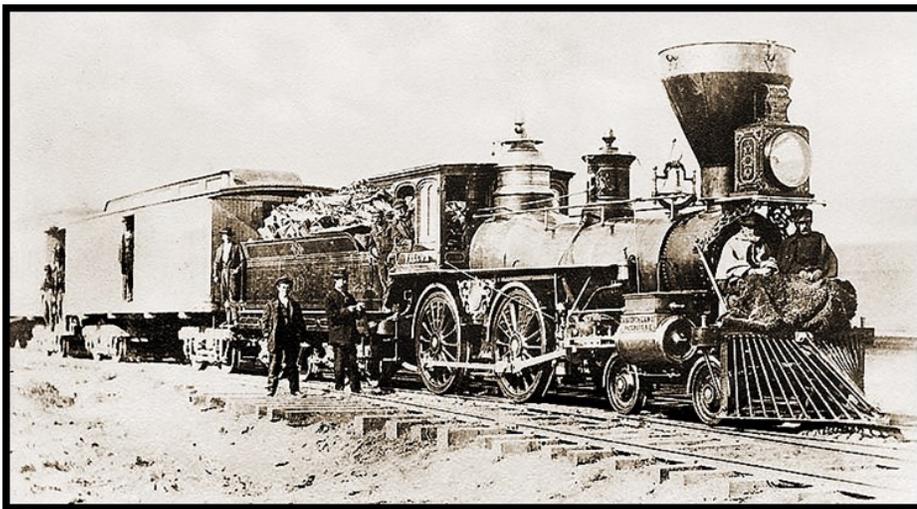


da Mountain Range by Daniel Strong, a merchant in California. Strong showed Judah an old immigrant road through Donner Pass, which had a gradual rise in elevation and only crossed one mountain instead of two.

Judah and Strong began seeking investors and drew up letters of incorporation for the Central Pacific Railroad Company. The two men found backing from four Sacramento businessmen: Collis P. Huntington and Mark Hopkins, who were wholesale dry goods and hardware merchants; Charles Crocker, a wholesale grocer; and soon to be governor (and co-founder of Stanford University), Leland Stanford. These later became known as "The Big Four."

Huntington and his partners used Judah's map and presented them to Congress in October 1861. But with the country in the turmoil of





*The Central Pacific's "Jupiter" heads east towards Promontory Summit, north of the Great Salt Lake. The "Jupiter" was not the original engine to pull Stanford's special train, but was used when the "Antelope" was damaged due to an accident en-route.*

the Civil War, many congressmen were leery of such an expensive venture. The Driving force was President Lincoln, and he signed the Pacific Railway Act into law, authorizing land grants and government bonds – amounting to \$48,000 per route mile of track laid – to the Central Pacific Railroad and Union Pacific Railway.

Even before Lincoln became the 16th President of the United States, he was a railroad attorney and had a great interest in a railroad that would reach the Pacific. On an 1859 visit to Iowa, he met the man who would later become Union Pacific's chief route engineer, Grenville Dodge. Dodge and his assistant, Peter Dey, would survey the potential route that the Union Pacific would follow. That route ran along the North Fork (channel) of the Platte River, to the Continental Divide in Wyoming at South Pass, and on to Green River.

On November 17, 1863, two days before the Gettysburg Address, President Lincoln issued an executive order designating the starting point of the Union Pacific to be where General Dodge had advised it to be. Dodge was adamant that the Union

Pacific's eastern terminus would be the Council Bluffs, Iowa/Omaha, Nebraska area and that the route would follow the Platte River Valley, in turn forever bringing the Union Pacific and Nebraska together. Union Pacific finally broke ground in Omaha in December 1863, but due to many delays, the first rails would not be laid until July of 1865, three full months after Lincoln's death.

Thomas C. Durant, a medical doctor turned businessman, gained control of the Union Pacific by purchasing over \$2 Million in shares and installing his own man as president of the road. Durant created the Crédit Mobilier of America construction company, which appeared to be to be an independent contractor, to build the railroad. This false-front contractor swindled the U.S. government out of tens of millions of dollars by lengthening the original route, and thus lining the pockets of Durant and many of his friends and associates in Congress.

Finding workers to help construct the Union Pacific was easy for General Dodge and his Chief Engineer, General Jack Casement, who hired many out-of-work Civil War veter-

ans – mostly Irish immigrants – who worked hard with only an occasional strike, whenever Durant withheld pay.

The Central Pacific also hired many Irish workers in the east and then had them shipped out west at a great expense to the railroad. After a short time, these workers were lost to the lure of gold and silver mines in California and Nevada. After losing these men, the Big Four of the CP tried to hire newly-freed slaves, immigrants from Mexico and even petitioned Congress for the use of the 5,000 or so Confederate Civil War prisoners, to no avail. Finally, James Strobridge hired Chinese laborers, who turned out to be the best workers that the Central Pacific had.

Both companies fought hardships in many forms, including searing heat in the summer and blizzards in the winter, plus the rough terrain of the mountains and attacks from the Sioux, Cheyenne, and Arapaho Tribes in Nebraska and Wyoming.

Both roads worked at a tremendous rate of track building per day, but the Pacific Railway Act had left out



*The east meets west on May 10, 1869 at Promontory Summit, north of the Great Salt Lake. With the last "Golden" spike, the transcontinental railroad had been completed. President Grant received the telegraph of the completion.*

one crucial piece of information: the location at which that both roads would meet. On April 9, 1869, Congress established the meeting point. It would be at Promontory Summit, north of the Great Salt Lake. With the aid of Mormon workers who were contracted for both railroads, they raced across Utah at the fastest rate of track-laying during the 6 years of construction. They reached Promontory Point on May 10, 1869. Cannons boomed and the telegraph lines buzzed with the word that the railroad had been completed.

The completion of the transconti-

ental railroad meant the time it took to go from the East to California was reduced from six months to two weeks. The dream of a Transcontinental Railroad was seen to fruition; the only thing was that President Lincoln, the biggest driving force behind it, had been assassinated on April 14, 1865, four years before it was completed. 🚂

### **About the Author**

Harry is a rancher in Nebraska who works with his father and grandfather to help run their 22,000-acre,

1500-head of mother cow, ranch. Harry has been model railroading for over 20 years and models the Union Pacific Steam era from the 1930's to the 1960's, in central and western Nebraska. Harry is a Sustaining Member of the Union Pacific Historical Society and a member of the UPHS Streamliner 100 club. He is a National Model Railroad Association member currently working on his Master Model Railroader Certificate. Harry regularly posts videos on his YouTube page. You can follow Harry as he works on his 7th layout at <https://www.youtube.com/channel/UC6-MPHmYU3Cc2uEVfjZDIcQ>.

# Creating A Garden Railroad



By Rick Lynch

## First Things First

**F**ind your space. I almost added the word "grasshopper" on the end there, because those three words sounded so Zen, but this is meant in a much more literal way. It may sound obvious to tell you to pick your space carefully, but I think we've all seen enough people plan a living room, or a garden, or a garage layout and get halfway through things and realize, "Hey! This 3.5 acre department store 'leather' sectional with built-in microwave, beer-cooler, nachos crisper, and thunder-dome speakers, won't quite fit in my efficiency apartment."

When planning your train garden, you'll need space for track, plants that get bigger over time, your mountains and buildings and bridges, and you'll have to be able to access all of this stuff without renting a crane to dangle yourself from above to work on it.

But there is more than just size to consider. Let's peek at my back yard for a moment to see just some of the things one must ponder on such a project. Looking out my back door, I see a vast, rolling, Versailles-like estate (okay, it's under 1/3 of an acre, but I'm a dreamer) and I realize that because of existing gardens, ~~my nagging wife~~ spousal preferences, a Beagle mix, a Chi-Poo mix, and a

tool shed, there is **no** space for a train garden. If I want one, it will have to be in the side yard.

But when it snows I see animal tracks in the side yard all the time. I don't think they're Yeti tracks or anything but even a merely inquisitive raccoon can do a lot of damage to our delicate toys, so that is something else to consider. Then there's the hose hook-up that's in the way. Hmm. Okay, I can get hose extender for that. What about power? I can drop a cord from the sun room window, or use a 50-footer and get power from the outside outlets in back of the house. That may work, but I would, of course, make sure I follow all local electrical codes and ordinances. I will have to go to the local hardware store and get all weather-proof gang/junction boxes, wiring, switches, and outlets. I will have to use buried conduits to run the wiring. If you are uncomfortable in any way with your DIY electrical skills, by all means you should consult a qualified electrician for help.

Can I elevate part of the tracks or the whole layout, or cover it if I need to? Yep. I can do that.

Next we come to the all-important soil drainage question. If you plan on digging out the **entire** train garden area (more on this later), as opposed

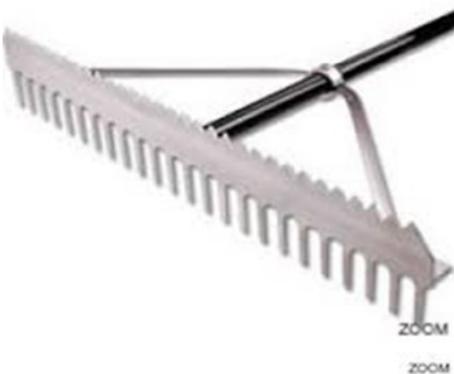
to just the road bed itself, this question is not important. If you are only going to prep the road bed, you need to test the soil. If you don't know how, simply go to the Google machine and you'll find lots of easy soil drainage tests you can do in minutes. These usually involve digging a small hole, filling it with water, and timing how long it takes to drain. If your soil does not drain well, you will have to elevate your track or build some sort of "box" or frame surrounding your layout (or along the track bed) into which you can dump, say, gravel to build up your layout. My side yard drains well, so that's where my layout goes.

Next I ~~trick my dumb kids into thinking this will be a blast!~~ introduce the next generation of train hobbyists to our wonderful hobby by getting my kids to help with the project. Seriously, I probably don't need to tell you about the joys of working with your kids on a project like this. It makes everything better in every way and it speeds things along.

Now it's time to plan the layout. I presume I need not say much here. I would only advise a simple layout if this is your first outside project. Remember, you'll be dealing with variables not found in your basement, chiefly plants that get bigger over time.

Time to start building. Obvious steps here, gang. First, clear the space: weeds, tree stumps, dead rats, poison ivy, melon-sized wasp nests—they all need to go.

Next comes leveling. Unless you live in Florida or anywhere else with very sandy soil, you must use a true leveling rake to level your space. If that is not a federal law, it should be. Using a leveling rake makes the job infinitely easier and will ensure a much better finished space. Leveling rakes are a bit more expensive than other rakes (\$45 or so) but are well worth it.



Now the big question: Do I dig out only the actual road bed or do I dig out the entire area? It's more work, but I would definitely dig out the entire area, especially if we're talking about a small space. Digging out the entire space means you don't have to worry about nice, dry, perfect road beds that get flooded in heavy rains because the 90% of your layout that is not road bed has poorly draining soil. And can you imagine the hassle of trying to add new track on this layout if all the surface has not been prepped? You'd have to remove **everything** and try to dig little trenches around existing road bed. Why, that's madness!

Either way, here's my formula for final prep. Dig 3 inches deep and fill your space halfway to the top with crushed stone dust. Tamp lightly. Water gently. Tamp lightly again. Fill almost to the top with more crushed stone dust. Tamp and water, gently and lightly. Fill the rest of your space with regular stone or ballast of your choice. Tamp and water again. I don't use stone dust all the way to the top because it is so fine, it could get inside and damage your engines, even if they are designed for the outdoors. So why chance it?

After the tracks go down, you will pour another dose of regular stone or ballast right on the tracks to further stabilize them.

If you choose to dig out **only** the road bed, dry fit it on your level space, carefully mark with string, and dig out a trench 6 inches wide and 3 inches deep. Prep the trench with stone dust as described above.

At this point, especially because we're probably talking about a small space, I would lay down weed-blocking fabric. You'll still get weeds from airborne seeds, but you won't have to worry about the hundreds of seeds already in the soil below your stone dust.

## Now For The Plants...

If you've prepared the entire bed, you'll have to dig out little pockets to dump soil into, or use beautiful stones to build up mountains/ planters and fill those with soil.

There are certainly hundreds of plants from which to choose, but let's keep this simple, shall we? Al-

most all, if not all, of your plants should be simple ground covers and simple dwarf or miniature conifers.

My all-time favorite ground covers are all readily available in my area (Mid-Atlantic, USA), and do well in all kinds of environments. Topping the list are phloxes, sedums, hens & chicks, and creeping thymes. Keep in mind, your region will dictate what plants are available in your area, so you may have to substitute similar plants to the ones that I am discussing here.

Phloxes and sedums, especially dragon's blood sedum, are the most beautiful and spread quite nicely. All the plants named above are true ground covers, and that means they will indeed cover every inch of your space in a short time. They don't grow like mutant plants in a horror movie, however; you will be able to keep them in check with a little bit of routine maintenance. None of these plants needs much in the way of fertilizer or care, or even much water, and the hens & chicks are especially drought resistant.

With all of these plants, check the labels carefully to ensure you are getting what you need. The thyme, for example, must be a creeping variety; other varieties have leaves that are far too large to work in a train garden.

The best green plants, lacking showy blooms, to use are creeping junipers. Again, check labels, and make sure you get the size juniper you need; there are **lots** of juniper varieties out there.

You can utilize dwarf or miniature varieties of ornamental or fountain



*Top left: Juniper Bush; Top right: Creeping Juniper Bush; Middle and bottom left: Various Sedums and Ornamental Fountain Grass; Middle right: Chicks and Hens Plant; Bottom right: Blue Phlox.*

*Pictures used under CC 1.0 Universal Public Domain, CCA 2.0 Generic, CCA 3.0 US, and CCA-SA 2.0 Generic Licenses.*

grasses as a backdrop to ground cover, or as a center piece to a peninsula or island-shaped plant beds that trains can loop around.

Lastly, there are your dwarf or miniature conifer trees. These are just a little trickier to deal with because of some pruning needs, but just look at photos of train gardens, and I'm sure

you'll want some of these trees badly, pruning required or not. I like the miniatures better than the dwarfs as the miniatures will stay in the 2 feet height range after 10 years, while the dwarfs can get to 6 feet in 10 years.

When designing your garden you should give consideration to how you and others will view the garden and your railroad. Think about creating island or peninsula-shaped points of interest using a combination of plants, gravel, rocks, boulders, and various grasses. Think about adding walkways so you and your guests can view and follow the trains through the garden, enjoying both your railroad and your garden.

Use shredded bark mulch to line

your plant beds, track beds, and even walkways. Use contrasting colors in your plant selection so you do not end up with a boring, monotone garden. Use various plant heights, planting the smallest ground cover along track beds, along walkways, and along the edges of plant beds. Layering taller plants towards the rear (or against walls and fences), and smaller, low-growing plants towards the front edges of plant beds will give you that professionally designed look.

For those who feel uncomfortable about designing your own garden, I would recommend you seek professional design assistance from a certified landscape designer or a local horticulturist.

Now that I have my garden planned, I now have to give thought to my track planning. For that I will use a professional track planner such as The Track Planner (Bill Beranek). See his companion article "Track Planning and Garden Railroad" in this issue of the eMag.

There you have it, gang! It's still May and the perfect time of year to get outside and create some magic.



### About the Author



Rick Lynch is an accomplished writer and a former landscaper. He is now a writer for the federal government. His son is a model railroad enthusiast who recently contributed to this publication (see Patrick Lynch's article in the July 2015 Issue of the YTMB eMag). They live in Virginia.



# Track Planning and Garden Railroading

## What Would Designing a Garden Railroad Entail?

By William (Bill) J. Beranek —The Track Planner

**W**hen JD ([Loggin' Locos](#)) asked me to write an article about track planning and garden railroads I was, at first, hesitant because I have not been asked to design a garden railroad before, and I wasn't exactly sure what was required. But, it did get me thinking, "What would designing a garden railroad entail?"

Obviously, the design approach would be different. No longer do I have to be concerned about the square footage, the room shape, door and window locations, support posts, stairways, closets, etc. The questions for designing a garden railroad would have nothing to do with the normal obstructions designers have to contend with.

The part of the country where the garden railroad is going to be built can greatly affect the overall design. Someone living in Phoenix, AZ, where it is reasonably flat, doesn't have the same terrain issues as those living along the Front Range or western slopes of Colorado.

Some questions would remain the same, though:

- 1) will the railroad have a specific theme,
- 2) will the railroad be set in a specific era,

- 3) will the railroad primarily be for display, or does the owner want some prototypical operations, and
- 4) will the railroad include yards, cities, mountains, tunnels, and bridges?

Below, I have come up with a series of likely questions. For the most part, they are simple, common sense questions one would need to ask.

### Start Slow

With a bedroom-sized layout, people tend to jump right in and start building, many times without a well-thought-out vision or plan (i.e. track plan). When designing and building a garden railroad, taking your time to think through all the possibilities and pitfalls is a must.

Normally, mistakes made with an HO scale layout can easily be corrected. These mistakes may take a little more time to fix and come at a financial cost, but they are not on the same level as mistakes made on a garden railroad. Not only are one's mistakes bigger, but they are much costlier, as well.

The best advice when designing a garden railroad: go slow!

### Area Size

With the traditional, indoor model railroad there always seems to be a constant search for more space; there never seems to be enough. With a garden railroad it is possible to have either too much space or not enough.

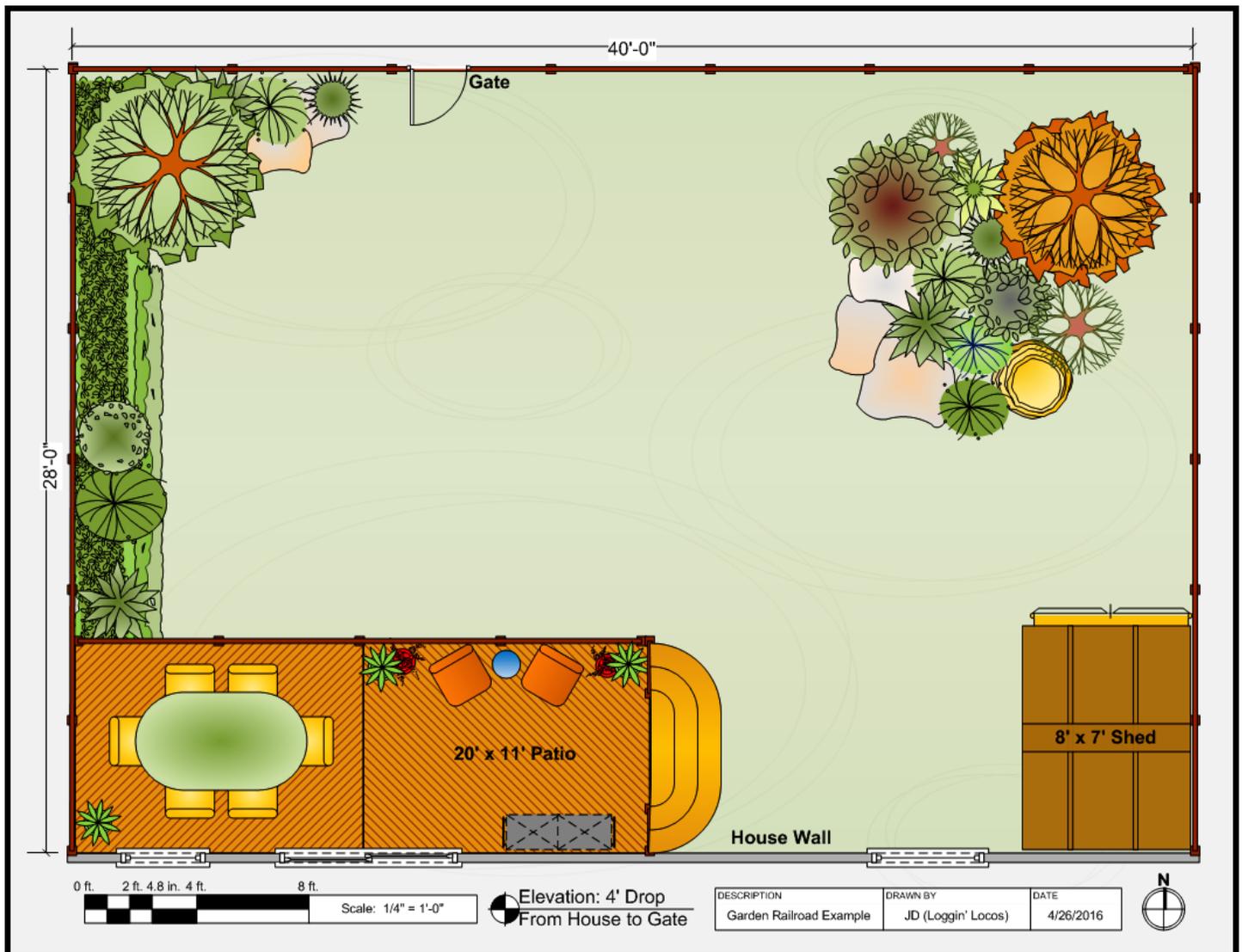
Having too much space may not seem like a detriment, until you realize everything in G scale costs more. Everything from track, to turnouts, to engines and rolling stock costs more ... sometimes a lot more! Having a large space to work with may not always be a positive.

Having too small of a space can cut back on the overall cost of the project, but that may also mean you cannot build your dream garden railroad.

### The Terrain

Probably the first questions to ask would be about the terrain. Is the terrain flat or does it slope? Does it slope front to back, back to front, side to front, side to back, or side to side? How steep is the slope? Are there trees, benches, and other outdoor obstructions the plan will have to work around?

When designing a traditional (indoor) layout, none of those ques-



*An example of a 28' x 40' garden space prior to track planning. The rear of the house is at the bottom of the drawing and the backyard gate is at the top of the drawing. Notice the 8' x 7' shed that can be used as a workshop, a preparation and staging area for engines, and as a storage for engines and rolling stock. Also notice the plant beddings on the right and the "island" style landscaping with boulders, ornamental grasses, various conifers and other ground cover plants. There is a 4 foot drop in elevation indicated from the rear house wall to end of the back yard.*

tions are relevant. The floor is flat (you hope). There is a specific amount of square footage of space to work with. Walls and other interior obstructions will have precise locations.

A major cost factor, in the initial design phase of a garden railroad, would be if the designer has to travel and do an on-site inspection. Is the location in the same town, or is the space located in a different town or even a different state, adding signifi-

cant costs to the project?

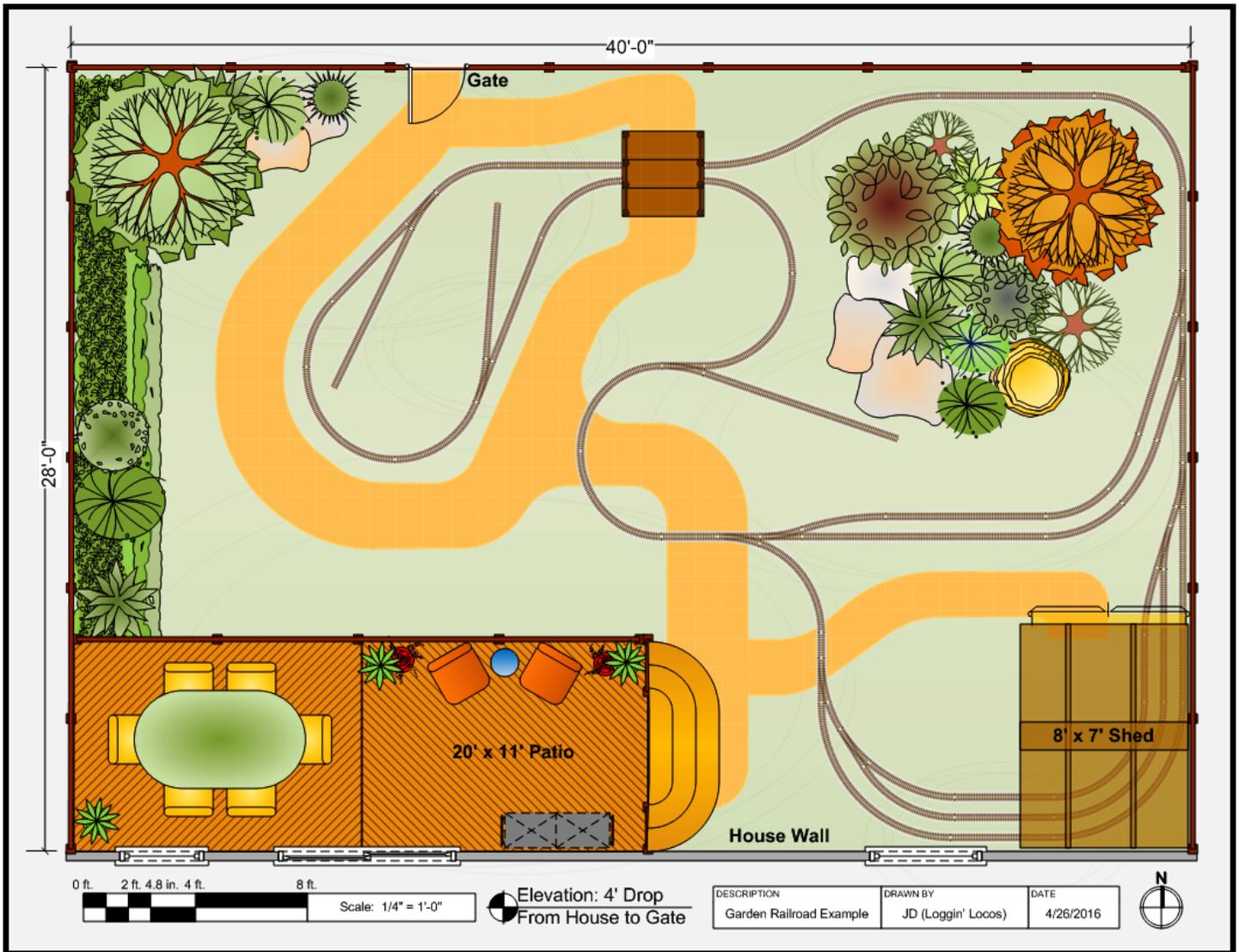
From a designer's point of view, being able to physically inspect the site would give a much better perspective than looking at photos. Obviously, this is something the designer doesn't have to worry about when designing a traditional, indoor layout.

## Setting Track Elevations

Track elevations would be another concern and would certainly play a

role in the design. Many garden railroads are designed so tracks double back over or under themselves. When designing a traditional, indoor layout, the designer starts with a minimum bench height; then, depending on the maximum grade, he/she sets the elevations for the rest of the track work.

With a garden railroad, the designer has to think about track elevations at the outset, but in a different way. How close to the ground will the



The preceding drawing was used to design the track plan in G scale. A grand view of the whole layout can be seen from the patio (where you enter the back yard). Walkways were added to the landscaping in order to allow visitors to follow the trains and view the individual “scenes” within the layout. A peninsula was created to provide a loop back and the route to and from this loop passes under a mini foot bridge.

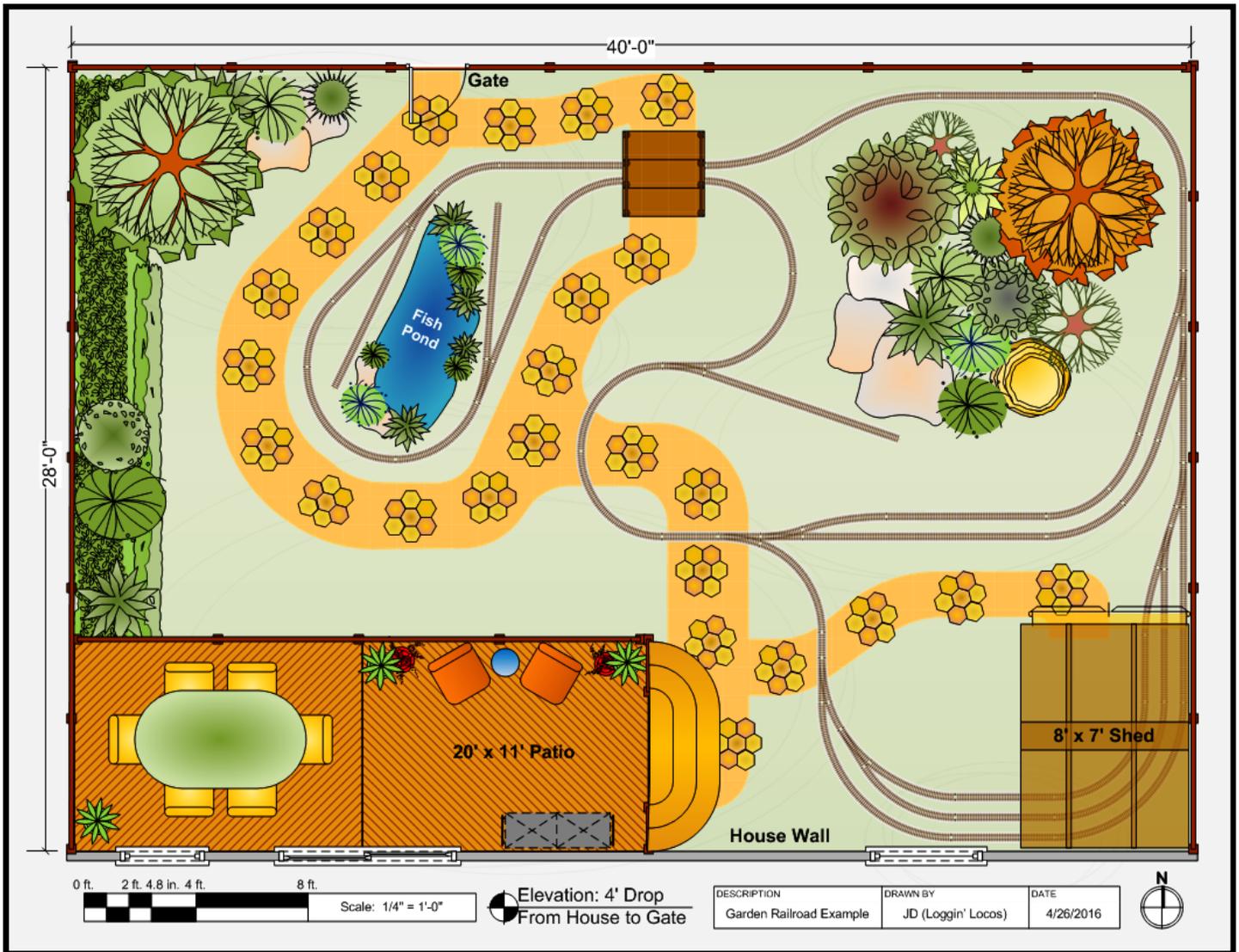
The trains can either return to the shed for staging or maintenance work, or continue through on the mainline and/or the bypass. There are plenty of opportunities to place several industries along the route which can easily be served off of the mainline. In addition, there are three separate points where the tracks pass over the walkway. Tunnels could be used there to route the trains under the walkway if so desired. The tracks also traverse along the right fence and behind the “island” landscaping. This makes for a more interesting vignette or scene display.

roadbed and track sit? Is the roadbed raised or does the roadbed sit directly on the ground? If elevated, how will the roadbed and track be elevated? How high will the track and roadbed be elevated... 2", 6", 12", 24" or maybe even 30" off the ground?

Having roadbed and track set too low to the ground can make leaning over working on a garden railroad very uncomfortable. Equally, having roadbed and track set too high could make it difficult to do landscape and scenery work. It's like having bench work that's too wide, making it difficult to reach into corners.

## Natural Drainage Patterns

Obviously, drainage is something one does not have to worry about with indoor layouts. With a garden railroad, the designer has to be mindful of how the area naturally drains.



Additional features such as pavers on the walkway and the fish pond can be added to the garden layout as shown above.

JD ([Loggin' Locos](#)) created the garden drawing which was then used by [Bill Beranek \(The Track Planner\)](#) to create the G scale track plan. One of the lessons learned from completing the exercise of creating the above example garden railroad plan is that it takes a good amount of coordination between designing the landscaping and designing the track plan. One cannot be done in a vacuum from the other—they both go hand-in-hand. You may begin with the track plan, or if you have some existing landscaping, you may choose to begin with the landscaping in mind. Either way you have to diligently coordinate the plans so they work well together. Any mistakes can be costly.

Normally, there are natural drainage patterns for all landscapes. This would affect the placement of bridges and culverts, allowing the natural drainage pattern to flow away from the railroad. Again, this is another very good reason for the designer to do an on-site inspection.

## Viewing the Garden Railroad

The designer needs to think about how the railroad is going to be viewed from the instant the visitor enter the garden area. How will the placement of “paths and walkways” affect the viewing of the layout?

Paths and walkways need to have a logical flow, so the visitor can see the layout from numerous angles and visit the individual scenes in logical sequence.

With an indoor layout, one wants to create as many view blocks as possible. This creates the impression the

layout is larger than it really is. On the other hand, most garden railroads are initially viewed in their entirety. When a visitor enters a garden railroad, he/she is able to see as much of the railroad as possible. They see the “big picture” first, and not small, individual scenes.

Also, remember, landscaping plays a big part in the viewing of a garden railroad.

## Placing Industries

A lot of thought has to be given to the placement of industries. The terrain will, to a large degree, dictate placement. However, placing industries along and too close to the mainline can create tight “S” curves where the turnouts enter the industry spur. If the “S” curves are too sharp, garden-sized rolling stock and motive power will have serious issues negotiating the curves. Industries and spurs need to be placed further from the mainline to reduce the “S” curve effect.

While sharp “S” curves on traditional indoor layouts are not good, having sharp “S” curves on garden railroads can be doubly bad.

## Placing Turnouts and Maintenance

Like traditional, indoor layouts, the placement of turnouts is important. Installing turnouts in hard to reach locations can make operations much more difficult on a garden railroad. Plus, garden railroad turnouts generally require more maintenance than their indoor cousins. Weather conditions can play havoc with garden railroad turnouts. Trying to repair a turnout that has been placed in

some obscure location would not be enjoyable.

## Protection From the Weather

Weather issues are certainly something we don’t have to worry about with a traditional, indoor layout. Depending on what part of the country someone lives, protecting your motive power and rolling stock can be a major issue. Out here where I live (Colorado), winter plays a big role.

Some protect their engines and rolling stock by bringing everything inside during the winter months. Others go so far as to construct G scale-sized engine houses to store and protect their valuable engines.

Someone living in central or southern Arizona obviously doesn’t have the cold and snow to contend with. They have sun and heat, which can affect motive power and rolling stock, but in a different way. Leaving expensive engines sitting out in 100 degrees (plus) temperatures can’t be good.

These are but a few of the things a designer would need to consider when designing a garden railroad. I’m confident that, given enough time, I could come up with many more differences.

## Final Thoughts

Now that I have done the research and written the article, would I be more or less inclined to take on job of designing a garden railroad? The short answer is “yes,” now that I realize what is involved. Before writing this article, I firmly believed a

garden railroad would be simpler and less complex to design than a three- or four-level basement layout. While a garden railroad has some of the same issues and concerns that a large basement layout has, I now realize there are many other things that have to be considered and worked out before beginning the design phase.

I want to thank JD ([Loggin’ Locos](#)) for “pressing” me to take on this article. While I was hesitant, at first, I can honestly say I learned things that will serve me well in the future, and hopefully, if I do get the chance to design a garden railroad, I will do a much better job. 

## About the Author

Bill Beranek - The Track Planner has over forty years in the model railroading hobby. Bill enjoys golfing, travelling, and of course designing “prototypical operations” focused track plans. He has been a member of a local 135+ member model railroad club since 2003 and has served twice as the club’s president, twice as a board member, and is currently serving as the club’s treasurer.

Bill is currently working on his latest triple-deck HO scale layout depicting the SP&S (Spokane, Portland & Seattle Railway) in southern Washington and the OTL (Oregon Trunk Line) on the upper level in northern Oregon in the mid 50s.

You can find more about Bill—The Track Planner at:

[www.thetrackplanner.com](http://www.thetrackplanner.com).

# COMMUNITY COLLAGE



In this issue we feature Thomas Wyssmann's fantastic garden WY Scenic Model Railroad in Switzerland. Thomas's G scale garden railroad represents the earlier eras of narrow gauge railways in the Rocky Mountains. You can find more about the WY Scenic Model Railroad layout and the articulated logging engines that run on it on his [blog](#), [Google+ profile](#), and [YouTube channel](#).

In each issue we choose one YouTube model railroader and feature a collection of photographs of their layout, building structures, or any other YouTube model railroad related project. If you would like to share pictures of your layout in the Community Collage, please contact us at [YTMBMag@gmail.com](mailto:YTMBMag@gmail.com).



# PICK 3

**I**n each issue we share with you three YouTube Model Builders' channels that provide the community interesting ideas, tips, tricks, and resources. Here are three channels where you can learn more about the joys of creating and running a garden railway.



## **gardentrains**

<https://www.youtube.com/user/gardentrains>

This channel contains many operations, product review, and how-to videos on the topic of (can you guess?) garden trains. If you are thinking of building your own garden railroad, this is a great place to start. (The video on cleaning debris off of the track is particularly interesting.)



## **Ge Rik**

<https://www.youtube.com/user/rikbennett9>

Rik's garden railroad models a fictional 3' narrow gauge railway set in the Cheshire countryside in England. His YouTube channel also includes videos of visits to a number of UK narrow gauge railways, where you can see in action the prototypes of many garden railroad locomotives. If you're a beginner, check out his "How to build a Garden Railway in 10 Steps" video.



## **DebenValleyLightRail**

<https://www.youtube.com/user/DebenValleyLightRail>

The Deben Valley Light Railway is a garden railroad that models a fictional line located in rural Suffolk, England. It is a railroad that has seen better times and the future of which looks rather grim, but they keep on rolling. This is a great site to see live steam model locomotives in action.



Into Facebook?

[Check out the YouTube Model Railroaders Facebook page!](#)



# CUSTOM-MADE DECALS

## THE PROS AND CONS

By Geno Sharp

**D**ecals - there are tons of them on the market today from a variety of different manufacturers. From decals for locomotives and rolling stock to decals for store fronts and signage, there's a good chance that you can find decals that suit your project.

However, even with the wide range of decals available on the market, there are occasions when a particular project calls for decals you just can't find. So, what to do? You can hire a custom decal maker to produce your own design, but that comes with a hefty price tag. Most custom decal makers will charge you a design fee, which, depending on your design, could be upwards of \$50. Add to that a charge for each decal sheet you purchase, and you're looking at an expensive logo! If you're like me and you are on a budget when it comes to your model railroading purchases, an expensive set of decals can close the door on a project.

Thankfully, there is another option. You can make your own decals - it's not near as hard to do as a lot of folks think it is. With a little product

research and some trial and error, you can create almost any type of decal for a custom project.

I have been making my own decals for my custom projects for about six years now. I print my decals using a laser printer. I have tried both the ink jet and laser printers to produce decals and, in my opinion, the laser printer is the way to go. I found that the decals printed with the ink jet printer never really dried on the decal paper, even after applying a sealant. I always ended up with some fading and smears when applying the decal. Decals made with the laser printer are crisper, sharper and do not fade when dipped in water.

What about the cost of a laser printer? It's true, a new laser printer can be on the pricey side - a mid-range model can go for 200 bucks. With a little online research, there is an alternative. I found a reconditioned laser printer on a very popular auction site for 40 bucks - not a bad find! The printer has served me well since I bought it 6 years ago. I only use it for decals and signs, and after 6 years, I've only had to replace the ink cartridges once. Color ink car-

tridges can also be expensive (anywhere from \$40 - \$80), but I found replacement cartridges on the same popular auction site for under 15 bucks a piece. 15 dollars is well worth it for 6 years of service.

When buying decal paper, you need to make sure to purchase the laser decal paper and not the ink jet paper. There is a difference - I have found that the heat from a laser printer will make ink jet decal paper tacky and the decal will smear when rolling through the printer.

If you choose to go this route, there are some draw backs you need to keep in mind. Most laser printers will not print in white. To solve this issue, I print many of my decals on white water slide decal paper. The only issue with this is that you have to trim right to the color edge of your print so there are no white edges surrounding your decal. Also, when applying decals to dark, painted surfaces, if printed on clear decal paper, the lighter colored decals do not show up well on the darker surfaces. Another drawback is that this process works great for HO scale and larger, but it doesn't work so

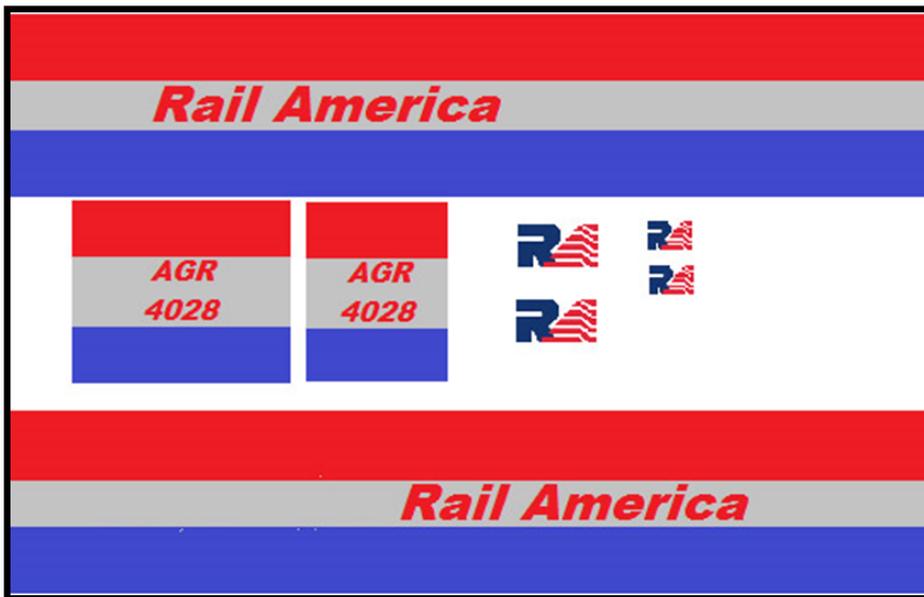


Figure 1— Programs such as Microsoft Paint help with decal design.

well for N scale. The smaller you shrink the font or the image, the less legible it becomes. However, with the cost of commercial custom decals, and with the modeling I do, I can live with these small issues.

There are no special computer programs you need. I make all my decals using Word Pad or Microsoft Paint (both are free for download from Microsoft). I simply design the decal set I need for a project, and

print it out. Here is an example of a design layout I created using Microsoft Paint for a locomotive decal set I plan to model (see Figure 1).

I also use Google to search for images of the signs or lettering I need and then resize it for the particular project. In a lot of my custom projects, I use images of actual signs from real buildings and bill boards (see Figure 2). I use real signage and lettering from police cars, emergency vehicles and other common highway vehicles and cut and paste them to make decals for my cars and trucks.

The locomotive and rolling stock decals for my custom and freelanced projects turn out pleasingly well when applied to the models (see Figures 3 and 4). Once you play around with a few small projects, the

Figure 2 — Downloaded signage is a good source for decals on model buildings, billboards, and vehicles.

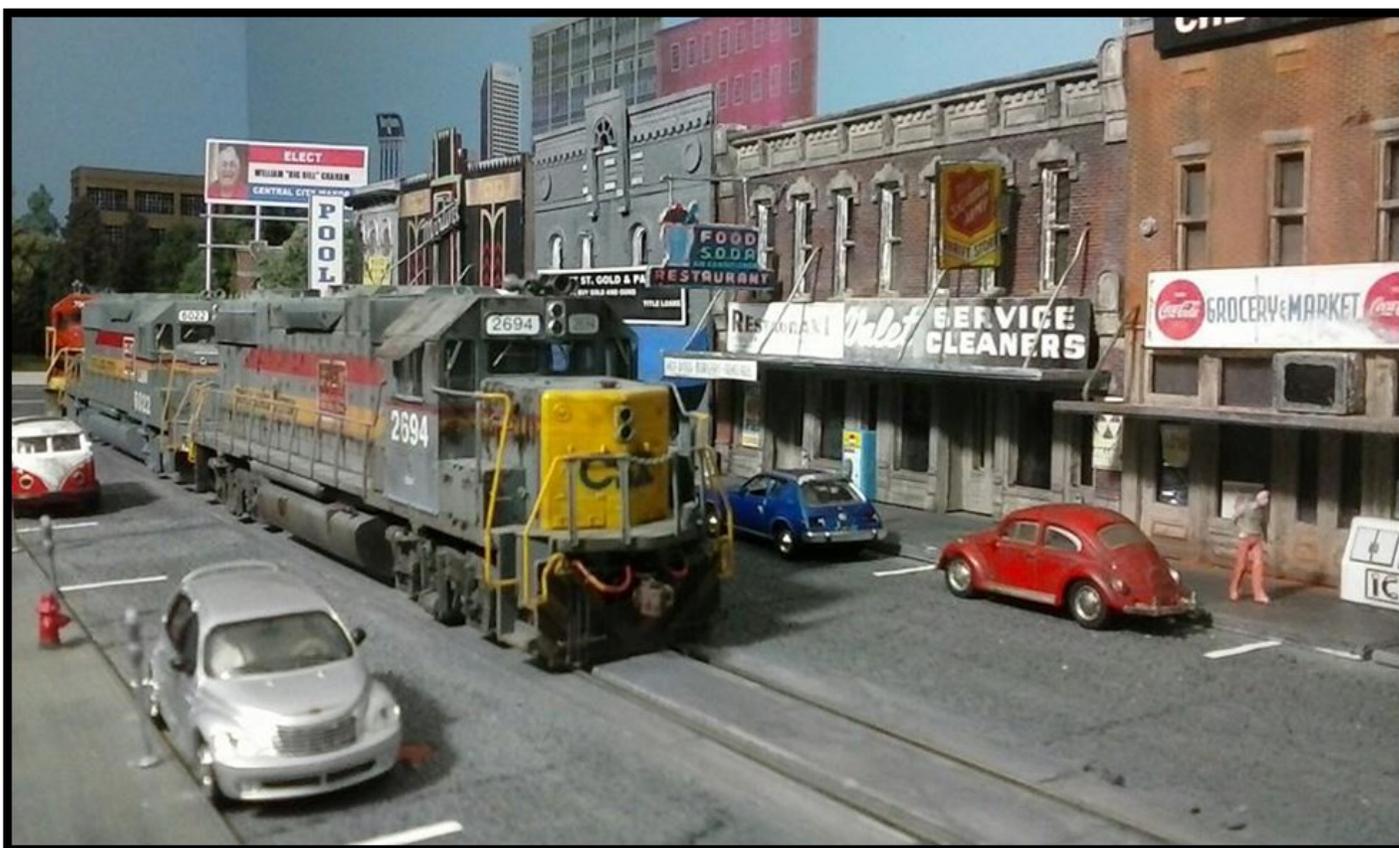




Figure 3— Home-printed decals are a great substitute for hard-to-find locomotive logos.

possibilities of custom projects are endless.

I hope that these thoughts will inspire some of you to try making your own decals. You can save lots of money and still end up with a very good, quality product. There is also the satisfaction of completing a custom project with decals and signs that you made yourself. It's a very neat way to add your own touch to a project.

Happy modeling and I will see you next time, in the corner! 🚂

## About the Author

Geno Sharp is a retired law enforcement officer with 21 years of service. Geno has been involved in model railroading for over 30 years and is now a YouTube channel owner. He produces a monthly layout blog vid-

eo for his YouTube channel, [Gknos modeltrains](#), as well as various "how-to" and structure build videos. Geno is currently working on a 2nd version of his Central City Belt Line Layout. His layout features many

highly detailed and weathered scenes. You can learn more about Geno's weathering techniques and about his Central City Belt Line on his YouTube channel [Gknos modeltrains](#).

Figure 4— You can weather right over the top of your homemade decals!



# A Perspective On Track Planning



By William (Bill) J. Beranek —[The Track Planner](#)

## Track Planning and Computer Aided Design Software (CAD)

**W**hen I was in school, during the mid '60s, I took architectural drawing classes. I learned how to draw floor plans, do three-quarter perspective views, hand print all the pertinent information on the drawings, draw three-quarter exploded views of machine parts, etc. This is probably a shock to the under-thirty crowd, but in the '60s, personal computers weren't even invented yet. I'll also assume there's a decent proportion of the YouTube Model Builders readership who weren't even born yet. Back then, everyone used T-squares, triangles, 4" and 6" compasses, and an architect's ruler.

I wonder how many of the younger members of the YouTube Model Builders community even know what a drafting board and T-square look like.

Today, if you have a PC (which almost everyone does) and \$75 to \$150 of disposable income, you can purchase a computer-aided model railroad track planning program. Most individuals, if they are willing to

put in the time, can learn to use such programs. However, the difference between these individuals and designers, like myself, is the ability to "use" the software. I'll explain this in more detail later in the article.

### Before Computers

Think about this fact for just a minute: today, anyone under the age of 35 has lived with computers their whole life! For the under-thirty generation, a computer is just something that's always been there, part of their everyday life.

My first "real" computer was a KAY-PRO luggable, which weighed in at around 8 to 10 pounds. It ran the CPM operating system. How many of you, out there, have ever heard of CPM? Storage was two 360KB, 5-1/4" floppy disks (and I do mean floppy) and a whopping 64KB of RAM (Random Access Memory). About 1990 to 1993, this luggable cost \$1,995.00! Last month, I purchased a new laptop that was hundreds of dollars cheaper, and is 160,000 times more powerful!



*The KAYPRO 10 "luggable" computer with a 10 megabyte hard drive.  
Photo used under CC-by-SA-2.0 License.*

There's a reason for telling that story: I have a series of track planning articles written by John Armstrong, one of the masters – if not the dean – of layout design and planning. The articles date from the early '50s into the late '60s. Every plan is hand drawn, with very precise measurements. It is amazing how accurate these (hand drawn) plans were.

Think of all the things John had to calculate, either on paper or in his head, before transferring those calculations to paper; it was truly amaz-



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## Up-Coming Article By The Track Planner\*

### July 2016 Issue

- Model railroaders who were ahead of their times

\* Proposed topic subject to update or change.

ing! Today, those are things that designers such as myself don't even think or worry about. We have templates for virtually every piece of track and turnout manufactured. In fact, I get slightly upset when I can't find a specific turnout template I need.

Regardless of what type of media John Armstrong used or what type of software today's designer uses, one still has to have the knowledge and expertise of how railroads operate to design not only interesting track plans, but ones that operate prototypically.

### Purchasing a CAD Program

Today, you can download CAD (Computer-Aided Design) track planning software from the Internet, for free. Most of these products include the basics, but almost all have a very limited set of advanced features.

For those individuals who use the free software, I have to assume it does what they want. However,

most free CAD programs are not powerful enough to design a 500 sq. foot layout with multiple levels and a complex track arrangement. Free is good, but it always comes with limitations.

The software I use (AnyRail), is neither the most expensive nor the most powerful program, but it has almost all of the features I need to design large, complex, multi-level track plans. Do I wish it had 3D rendering and the ability to run virtual trains? Sure. However, having extra sets of tools like that wouldn't change how I design. The advantage of 3D rendering is that it gives clients who have trouble visualizing in 2D a better perspective of what the finished product would look like.

More important than 3D rendering is a program that produces accurate and reliable results. Does what I design transfer over to the real world of building a model railroad? So far, I have not had any of my track plans not work as designed. For me, AnyRail is a very reliable product.

### Learning a CAD Program

The steep learning curve for any type of CAD software involves time and patience. It's not like using a word processor or typing emails; there's a lot to absorb. In many cases, the younger the person is, the faster he/she can learn the software. If you're someone like me, in their late 60s to early 70s, it takes a lot longer to grasp all the features built into any computer program.

Most of us tend to learn only as much as we need to get the job

done. Six or seven years ago, when I first started using AnyRail, it was primarily for my own needs or the needs of the members of my local club. I learned just enough to satisfy those needs.

As soon as I started charging clients for my services, I began to realize how little I knew. Taking someone's money tends to laser-focus you on the task at hand. During the first year of my track planning business, I learned more about AnyRail than I had learned in the previous five years. Almost anyone can learn a CAD program, given enough time and desire.

### Using the Software - A Different Story

Learning a program should not be confused with "using" the program. Being able to "use" the program is what separates designers from the individual who is designing a simple track plan for a spare bedroom. Having knowledge of how real railroads work allows a designer to use the software to design a layout that will operate in a prototypical manner. Purchasing and learning the software is really the easy part;

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knowing how to use the software is the hard part.

Whether you use a pencil and paper or a CAD program, you still have to have knowledge of how real railroads work. When I first started viewing YouTube videos, I was amazed at how many modelers were doing a very good job of building layouts, but many of the track plans were poorly conceived and designed. Again, they may have known how the software worked, but they did not understand how to use the software.

When one looks back at the track plans John Armstrong designed in the '50s & '60s, as compared to today's designs, there are similarities; but there are also many differences. Probably the best example is staging. You can look at dozens of Armstrong plans and you'll not find staging yards. Today, I and many other designers rarely design a track plan without staging.

Many of John's designs were folded dog bones with the mainline traversing over or under itself, at least once or twice. With this type of design, trains travel through the same scenes multiple times, usually on different levels. Today's designers tend to have trains travel through any given scene once, giving the operators the sense of actually going somewhere.

Walk-along track plans were rarely considered back in the '50s & '60s. Designs tended to be more of a walk-in type: once you walked into the space, you tended

to stay pretty much in the same location watching trains run by and around you. In my opinion, walk-along track designing has done more to change the philosophy of track planning than anything else, even DCC.

## Final Thoughts

Just as important as being able to use CAD software is the important fact that the software doesn't allow you to "cheat." I've had clients send me hand-drawn ideas for a track plan they would like to have me design. Invariably, the client puts too much railroad into too small a space. I've also had clients draw mainlines with corner radiuses of 12" to 13"! I even had one (hand drawn) plan, in HO scale, where the client wanted 11 yard tracks in a space only 15" wide!

You can buy the best, most expensive CAD program on the market and spend the time to learn it, but if you don't have a good, basic understanding of how real railroads operate and how that can be translated into a track plan, you're simply wasting a lot of hard-earned money and valuable time. 🚂

## About the Author

Bill Beranek - The Track Planner has over forty years in the model railroading hobby. Bill enjoys golfing, travelling, and of course designing "prototypical operations" focused track plans. He has been a member of a local 135+ member model railroad club since 2003 and has served twice as the club's president, twice as a board member, and is currently serving as the club's treasurer.

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# YouTube

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# Steam Down On The Farm



By Harry M. Haythorn, UPHS #4043

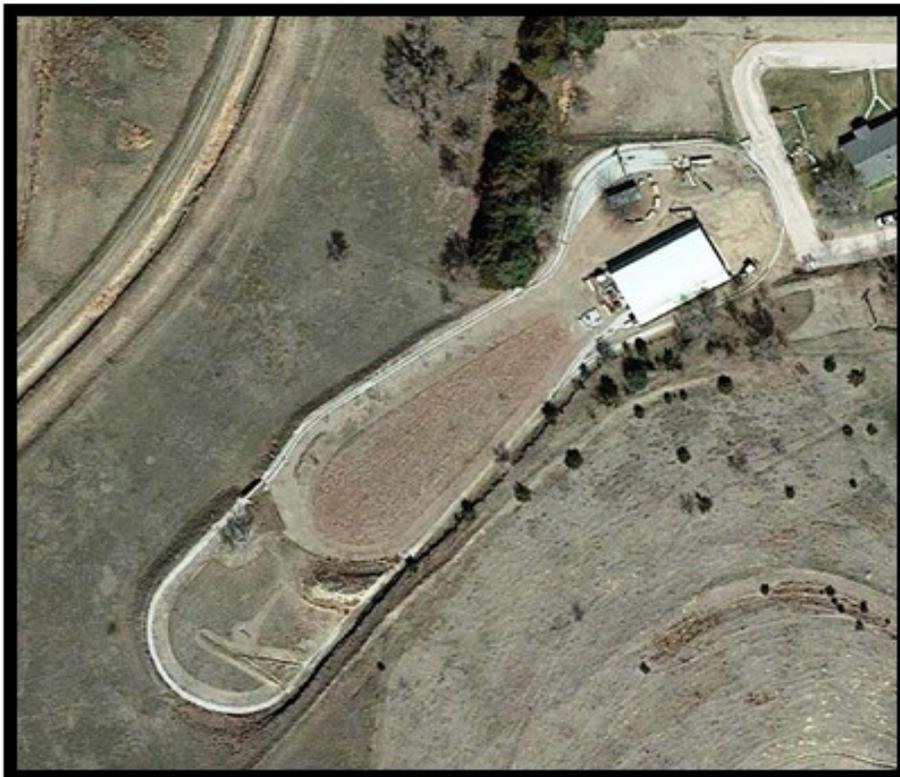
**L**et's take a little trip to McCook, Nebraska where Harvey and Erma Hinz are the owners of The Burlington Little Line, a 7-1/2" private live steam railroad on which you can ride. The railroad follows the International Brotherhood of Live Steamers wheel and track standards with 60' radius curves, and 1,300 feet of mainline track. (See Figure 1.)

A little history on the Burlington Little Line: almost 35 years ago, Harvey decided that he missed the



Figure 2 — Harvey at the throttle of the Union Pacific F-E-F-1 #800.

Figure 1 — The Burlington Little Line "layout".



steam locomotives on which he worked in his younger years as an employee of the Chicago, Burlington and Quincy Railroad. Harvey worked at the road for the better part of 42+ years, and because he missed those steamers so much he decided to build his own. Harvey's current fleet of locomotives includes a UP F-E-F-1 (4-8-4 first order), #800 (see Figure 2), and a CB&Q S-4A 4-6-4 Hudson, #4001 (see Figure 3). These locomotives are both propane-fired. Harvey's roster also includes a coal-fired 0-4-0 tank locomotive of European descent that was kit-built.

#800 and #4001 were both built by Harvey in his farm shop using scaled-down railroad plans and blueprints,



*Figure 3 — Burlington S-4A 4-6-4 Hudson #4001 awaits an engineer.*

*Figure 4 — #800 and #4001 loaded on Harvey's travel trailer.*





*Figure 5 — The sign that leads to Harvey's shop.*

and good ol' fashioned Nebraska farmer ingenuity and elbow grease. Only the major components such as wheels, couplers, valves and the like were of outside origin. Harvey has taken his engines to other live steam railroads around the country on its custom-built flatbed trailer. Figure 4 shows the pair of locomotives loaded and ready for travel.

The Burlington Little Line includes a turntable and an unloading platform so that visiting locomotives and equipment can use the railroad during the yearly open house. Other

notable features of the line are Malfunction Junction (Harvey's Shop with a spur inside to do any repair work needed on his or visiting locomotives, as shown in Figure 5), two bridges, and a nice 5-track yard (see Figure 6), plus (of course) the beautiful southwestern Nebraska scenery.

The Burlington Little Line is a railroad that can be enjoyed all year round. It can be shared with friends and family, and it is the ultimate Garden Railway, because it is one that we all dream about; it has locomotives that we can ride. The Burling-

*Figure 6 — The 5-track yard stays busy during open house.*



ton Little Line has been a labor of love for Harvey, and he has passed that passion on to his kid and grandkids, and many other friends he has made through the years.

If you are in the western part of Nebraska in late September, Harvey invites you to come on out to the farm during the open house that is held in conjunction with the McCook Heritage Days celebration. If you can't make it, I have some videos on YouTube that you can watch, from the last time we were there:

<https://youtu.be/3Y4jXe2TQH8> and <https://youtu.be/YBrAfZsejgY>. 

## About the Author

Harry is a rancher in Nebraska who works with his father and grandfather to help run their 22,000-acre, 1500-head of mother cow, ranch. Harry has been model railroading for over 20 years and models the Union Pacific Steam era from the 1930's to the 1960's, in central and western Nebraska. Harry is a Sustaining

Member of the Union Pacific Historical Society and a member of the UPHS Streamliner 100 club. He is a National Model Railroad Association member currently working on his Master Model Railroader Certificate.

Harry regularly posts videos on his YouTube page. You can follow Harry as he works on his 7th layout at <https://www.youtube.com/channel/UC6-MPHmYU3Cc2uE-VfjZDIcQ>.

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The first Tuesday of each month is Geno's Show!

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The third Tuesday of the month is an open presentation hosted by Dude Lindler.

Open presentations are topic driven and fellow YouTube modelers are brought in to present and answer questions from the panel and the viewers.



Every fourth Tuesday of the month is the MRR Tech Show hosted by Barry Rosier and Mike Dettinger.

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### May 21st, 2016

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Panel Members: [Johnny Reb](#), [Miles Hale](#), [NorfolkWesternCinchValleyDist](#), and [William "Big Bill" Graham](#)

### June 18th, 2016

Spring is in the air. So, what are we doing on the work bench?

Panel Members: [Barry Rosier](#), and [William "Big Bill" Graham](#)



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By Jack Hykaway



# The Gorgeous GG1

**T**he Northeast Corridor (NEC) is the busiest passenger rail corridor in North America. This steel superhighway connects almost 50 million people from Washington, DC to Boston, MA, and passes through Baltimore, Philadelphia, New York, New Haven and Providence. The NEC has had the opportunity of hosting some of the most prestigious trains over the years, including yesterday's equivalent to today's Acela Express: the famous GG1.

The Pennsylvania Railroad (PRR) began electrifying its mainlines in 1915, when the PRR ran an 11,000-volt AC catenary twenty miles from the Philadelphia Broad Street Station to Paoli, PA. This was done to reduce rail congestion around the Philadelphia Station and on the mainline. MP54 electric MU (Multiple-Unit) cars were put into service shortly after the electrification of the line was complete. These MUs could be operated from both ends (eliminating the need to turn the train) and had much better acceleration than the steam locomotives. The MUs saved tons of time and as a result, eased traffic jams on the rails.

The PRR continued to electrify suburban mainlines around Philadelphia, but the railroad hesitated to electrify mainlines that stretched long distances. Why? There weren't any electric locomotives available on the market that were suitable to pull heavy trains long distances at high speeds.

In 1927, a spectacular innovation from the Westinghouse Electric Company changed the PRR forever. It was at this time that Westinghouse introduced an AC traction motor that was small enough to fit between the wheels of a standard-gauge locomotive. The PRR immediately started investing hundreds of thousands of dollars into electrifying hundreds of miles of mainline track across the network.

The PRR began electrification of its mainline between Washington, DC and New York City in 1931. The 11,000 volt, 25 Hz AC catenary was built in several small sections between major terminals along the route, and was fully completed in 1935. While they were spending hundreds of thousands of dollars on electrification infrastructure, the PRR was also investing huge money

into its brand new fleet of electric locomotives.

The PRR designed two types of electric units specifically for their new, electrified mainlines. 30 Class L6 units and 92 P5 locomotives were ordered, and construction started right away. The L6 was a 2,500 horsepower freight locomotive, and the P5, the GG1's little sister, was purchased for passenger operations along the mainline between Washington and NYC.

As short sections of the line were electrified, the PRR put the first of many P5 electric units into service. The L6s were still in the early stages of construction at the Lima Locomotive Works. Rail fans and citizens living along the PRR mainlines marveled at these technological wonders as they flew down the track.

However, in 1933, the PRR began having serious problems with its fleet of 64 box-cab P5 models. Serious design flaws – from a lack of power



output while the unit was under load to large cracks developing in the axles – were plaguing the fleet. A fatal grade-crossing accident involving a box-cab P5a put the production and delivery of 28 ordered units on hold. In the accident, the engineer was killed. To avoid any more crew fatalities, the design of the P5 was changed, and the 28 units that had been put on hold due to the accident were delivered with an elegant streamline design and a safer, center cab. The 28 units built after the design was changed were given the designation P5a, as they were mechanically and electrically identical to the P5s.

Even with the modifications, the P5a was never going to be a passenger locomotive. Its poor tracking performance would ensure passengers had a horrible ride at high speeds, so it was moved into freight service. PRR officials also realized around this time that the L6 locomotive wasn't going to be any better than the P5a, so production was halted. None of the thirty units being built ever left the shop.

To troubleshoot and analyze the performance of the P5s and P5as, a test track was built near Wilmington, DE. In 1934, the PRR leased a New Haven Railroad Class EP3a unit and brought it to the test track to compare with the smaller P5a. The

EP3a had a 2-C+C-2 wheel arrangement and proved to track far better than the P5a, which had a 2-C-2 wheel configuration.

The PRR was impressed by the EP3a's performance on their test track. The railroad was desperate for electric power, so they immediately ordered a prototype locomotive with the same wheel arrangement as the EP3a. This unit, built as PRR 4899 (later renumbered to 4800), sported a streamlined body and a center cab and was a slightly larger version of the P5a. It was designated as Class GG1 by the Pennsylvania Railroad.

The PRR tested the GG1 against a second prototype unit, the RI for many months on the test track and out on the mainline. The GG1 was found to be superior in all tests and the PRR was thoroughly satisfied with the locomotive's performance.

Raymond Loewy, a renowned industrial designer, suggested that the GG1's body be welded to give the locomotive a more elegant, streamlined design compared to the awkward riveted body of the prototype. He also suggested the use of pinstripes as a paint scheme to create the award-winning design we all know and love.

The PRR listened to his advice and an order of 57 GG1s with pinstripes and welded bodies was placed shortly after the testing was completed. This massive order was split between the Baldwin Locomotive Works, General Electric and the PRR Altoona Shops.

The PRR, as if it had been planned, had managed to find the perfect



*Pennsylvania Railroad's train "The Congressional" traveled between New York and Washington, D.C. and used the GG1 (an electric locomotive) for power.*

electric locomotive to run along their newly-electrified lines. GG1 4800, powered by the 11,000 volt AC current in the overhead catenary, pulled the first train along the New York-to-Washington electrified corridor in 1934.

The GG1 was an impressive machine, designed to haul heavy passenger trains at speed along the PRR's mainlines. These huge locomotives, which delivered a total of 4,620 HP (385 from each of the twelve traction motors), could pull a passenger train in excess of twenty cars at speeds of up to 100 MPH. The GG1 also had a spectacular acceleration, even under load, thanks to its capacity to deliver a short-term power output of a whopping 10,000 HP with upwards of 70,000 pounds of starting tractive effort.

The GG1 was a long locomotive – measuring 79 feet 6 inches between couplers. To navigate the tight curvature in the cities and in passenger terminals, the GG1 was articulated in the middle, and was built on two separate frames much like a Mallet steam locomotive. (See Jack's Junction in the March 2016 Issue.)

The GG1 outlasted the PRR and served faithfully on the Penn Central, Conrail, Amtrak and New Jersey Transit in freight and passenger services before the last unit was retired in 1983. Of the 139 units, only 16 have been preserved. Some have been restored, but it is not likely that any will run again because of the huge cost to rebuild and replace the electrical components. 

## About the Author

Jack Hykaway is 17 years old and lives in Winnipeg, Canada. Model railroading and rail-fanning are his favorite hobbies. He spends his free time working on his HO scale layout, or trackside waiting for the next train to roar past. Jack has been in the model railroading hobby since he was seven years old. Like most people, Jack started with an oval of track, and a rugged train set. He built his present layout when he was 11 years old, and he is constantly upgrading it. However, there is still a long ways to go. Climb aboard and follow Jack's progress on the Silver Lake Junction layout on his YouTube channel at <https://www.youtube.com/user/WinnipegRailfanner1>.

## Statistics Sheet: PRR GG1

Sources: TRAINS Magazine July 1970,  
[steamlocomotive.com](http://steamlocomotive.com), [spikesys.com](http://spikesys.com)

Class	GG1
Units Produced	139 (1934-1943)
Service Lifetime	48 years
Builders	PRR Altoona Shops, GE, Baldwin, Westinghouse
Price	\$250,000
Wheel Arrangement	2-C+C-2 (4-6-6-4)
Operation	Bidirectional
Length	79'-6"
Width	10'-6"
Height	15'-0" (with Pantograph down)
Driving Wheel Diameter	57"
Weight	460,000 to 477,000 lbs
Weight (Prototype)	460,000 lbs
Line Voltage	11,000 volts, 25 Hz AC
Current Collection	Pantograph
Transformer	4,800 KVA
Traction Motors	12,385 HP each
Horsepower (Continuous)	4,620 HP
Horsepower (Short-Term)	10,000 HP
Drive	2 twin motor geared quill drive
Gear Ratios	22:79 (90 MPH), 22:77 (100 MPH)
Max Speed	100 MPH (Passenger), 90 MPH (freight)
Tractive Effort	70,000 lbs to 75,000 lbs (starting)
Acceleration	1 to 100 MPH in 65 seconds
Boiler (Steam Heat)	4,500 lbs of steam per hour @ 200 psi
Boiler Water Capacity	2,761 gallons
Boiler Oil Capacity	424 gallons
Compressor	150 cfm displacement at 100 rpm
Blowers	2 at 55 HP
Auxiliary Battery	32 Volts, 300 amp/hours

# Google+ Hangouts And Etiquette



Dude Lindler

**Y**ouTube Model Builders works very hard to bring YouTube model railroaders together in what is called Google+ Hangouts. Google+ has many free resources for us to use and we look forward to taking full advantage of these resources.

What is Google+ Hangouts? It's an application that runs through a web browser that allows up to 10 people to connect with webcams. Using this forum for model railroading discussions is great! It builds friendships, inspiration for model railroad building, and most of all, a great place to air your designs, models, and share in your building adventures with others in real-time. Many of the YouTube video producers you know "Hangout" in these Google+ Hangouts.

Many builders simply place their webcam on their pro-

ject they are working on and show others what they are doing; it may be they are building a model, laying track, or working on anything model railroad related. Many look for feedback from the group, get questions answered, and elaboration on the many projects on which they are working. It's simply a great place to interact in real-time with other YouTube model railroaders.

These Google+ Hangouts are posted most every day on the [Google+ YouTube Model Railroaders Community](#) page. You are not required to use a webcam or even a microphone; you may only use the provided chat box if desired.

With the utilization of Google+ Hangouts by many model railroaders, YouTube Model Builders is now scheduling specific types of events for the community members. Here are two Google+ Hangouts

that we have arranged to help bring more model railroaders together.

## **Topic Driven, Tuesday Night Hangout Presentations:**

YouTube Model Builders invites specific guests to explain techniques in model building, and many times these individuals are invited to our topic driven hangouts based on videos they have produced. Showing the progress real time, the topic driven hangouts are moderated by YouTube Model Builders staff which keeps these hangouts on subject and informative. The Topic Driven Hangouts are much like clinics as they are more so for instruction and techniques shared by a presenting individual or individuals.

We now have three different types of Tuesday night hangout presentations. The

first type occurs on the first Tuesday of each month. It is Geno's Show, which is hosted by Geno Sharp of [Gknos Model Trains](#). The second type of hangouts are moderated presentations that are hosted by Troy Pendizmas of [Pacific North Central](#) and [Dude Lindler](#) on the second and third Tuesdays of each month respectively. The third type of moderated hangout presentation is the Barry and Mike MRR Tech Show which is moderated by [Barry Rosier](#) and Mike Dettinger. This show is presented on the fourth Tuesday of each month and focuses on the more technical aspects of model railroading such as DCC controls and JMRI. There are plenty of opportunities to learn from many experts in model railroading through these hangout presentations and shows. So come and join in the Hangouts!

### **General Moderated Hangouts: Thursday Nights**

Where many hangouts posted through the Google+ YouTube Model Railroaders encompass many subjects and often have many people showing their layouts, and discussion varies from model railroading to just general conversation, YouTube Model Builders has a weekly scheduled, Thursday night, general moderated hangout, to specifically keep on the subject of model railroading. The Thursday night hangout is moderated by Johnny of [Southeast Rails](#) and the topic selection is really driven by community feedback.

YouTube Model Builders as a team helps drive these Hangouts, to spread the word, and get the YouTube Model Railroaders involved. Many people participate and as these numbers have grown, a simple etiquette is followed for the hangouts posted on YouTube Model Railroad resources.

Below is a simple guideline for participating in any YouTube Model Builders hangout event:

- Always keep the conversation G Rated.
- Refrain from political/religion based conversations.
- When not speaking, mute your microphone.
- Keep the hangout fun and on model railroading subjects.
- Remember, you're in a room with others, try not to monopolize speaking time. Allow others to get in their input.
- If you have your camera on, please be presentable – remember others can see you!

Following these simple etiquettes will make hangouts fun, and most of all, suitable for anyone who might want to join! We hope to meet you in a hangout in the near future if you don't already participate! If you have any questions on this subject, feel free to ask any one of the involved YouTube Model Railroaders to help get you into the fun sharing in the Google+ Hangouts. 🚂

# How I Built My Covered Bridge From Scratch



By Lloyd Henchey



**P**arts of the scenery that we often see on a layout are bridges, such as trestle bridges, steel girder bridges, and truss bridges; but what we rarely see are covered bridges. The first day into the hobby, I was already planning on a “red” covered bridge that I would do from scratch. I must say that having a Civil Engineering background did help.

Why are covered bridges rarely, if ever, found on layouts? Is it because not many are available as kits? Not much information on building one is available? Well, now the information is available – online – and I hope I’ll be seeing more covered bridges in upcoming layouts.

It seems that the first covered bridges were built in the early 1800s and



*The finished “red” covered bridge in HO scale. The cover is tall enough to allow the tallest rolling stock to pass through and is weathered to show age.*

were mainly used to protect the deck (floor) timber so that it would last longer, because without a roof and walls, the deck would only last about 10-15 years.

In her 1989 book *Covered Bridges Today*, author Brenda Kreskler wrote that about 12,000 covered bridges once existed in the U.S.; she went on to state that fewer than 1,500 still existed by the 1950s, and that the number dropped to about 800 by the late 1980s. The National Society for the Preservation of Covered Bridges has worked toward preserving most of the remaining bridges.

To help me build my covered bridge, I needed to gather as much information as possible, such as height, width, length, and appearance. This brought me to do a bit of research on them, and I found some useful information, especially on [Wikipedia](#). I spent a few hours on the Internet looking at pictures on different sites, until I finally stumbled onto a set of plans to help me build my bridge.

*Figure 1 — The Corbin covered bridge near Newport, NH*



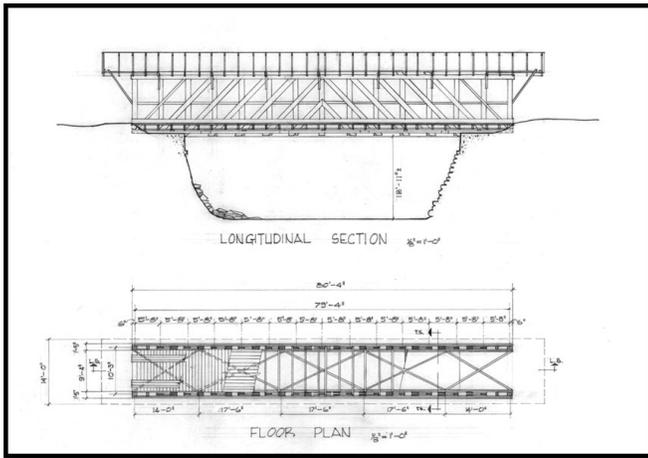


Figure 2— *Plans for the covered bridge.*

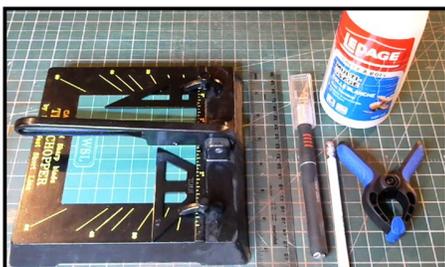
(See Figure 2.) The dimensions for the HO scale bridge are 4" wide, 12" long and 5" high, for a cost of about \$20 US and about 2 weeks of work, on and off. The materials needed for this project are shown in Figure 3 and the tools required are shown in Figure 4. See the list of materials and tools on the right.

First, cut the "lumber" needed for the frames of the walls from the balsa wood, and then build the wall



Figure 3 — *Materials for building the bridge.*

Figure 4 — *The tools I used to build the bridge.*



frames. Now, cut the wall planks from the balsa stock. For attaching the planks to the wall frames, I found it useful to construct a jig into which the wall planks are lined up, and then the wall frames can be glued to the planks inside the jig, all at once. (See Figure 5.)

Now work on the floor that will support the tracks. Just as you did with the walls, cut the frame and plank lumber from the balsa, and then use the same jig to arrange the floor planks and glue the floor frame onto the planks. (You can get away with using the same jig since the walls and floor have the same length.) Figure 6 gives more detail on the construction of the floor, and a completed floor can be seen in Figure 7.

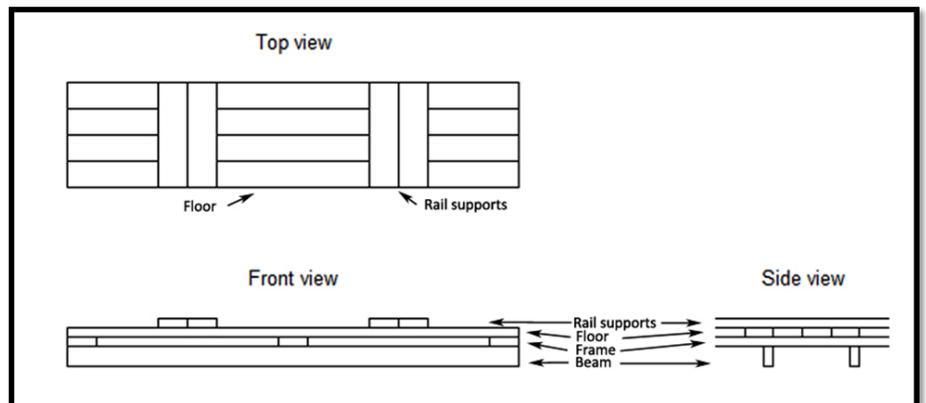


Figure 5 — *Attaching the wall frames to the wall planks.*

Once the walls have dried, install diagonal beams to the inside surfaces

of the walls. Then, build and attach roof support extensions to each end of the walls, as shown in Figure 8.

Figure 6 — *Details of bridge floor construction.*



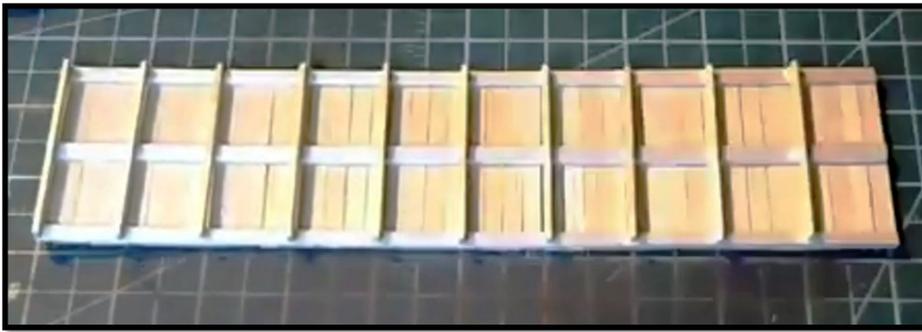
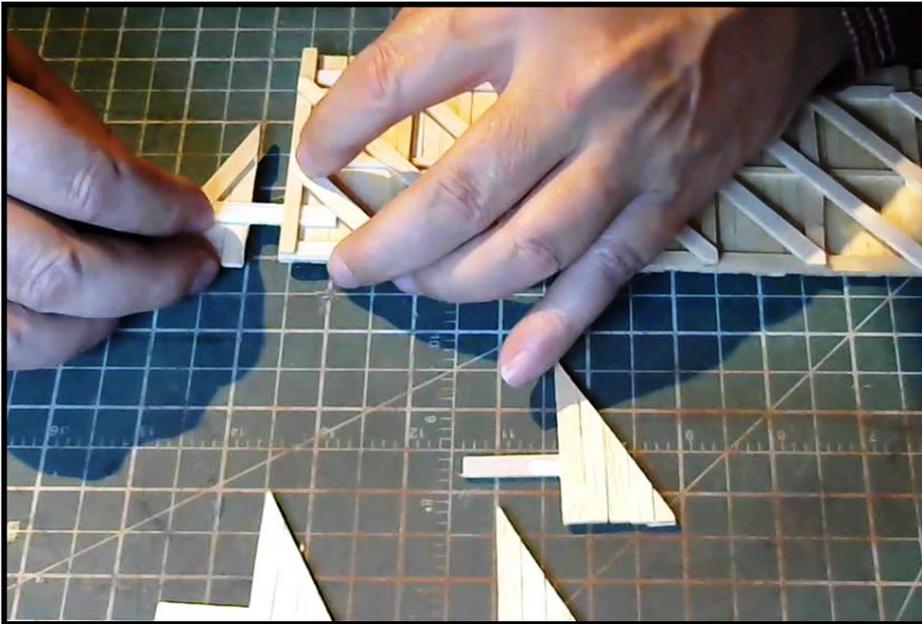


Figure 7 (above) — The completed bridge floor.

Figure 8 (below) — Roof support extensions are attached to the walls.



Then, toward the top of each wall, use an X-Acto knife to cut gaps in the planks for the full length of the walls. (See figure 9.) The reason I

did this is that this bridge will mainly be used on my layout by the passenger train, and I wanted the people inside the train to be able to see

Figure 9 — Cutting gaps in the wall planks.



through the bridge (but really, the wall gap is for looks).

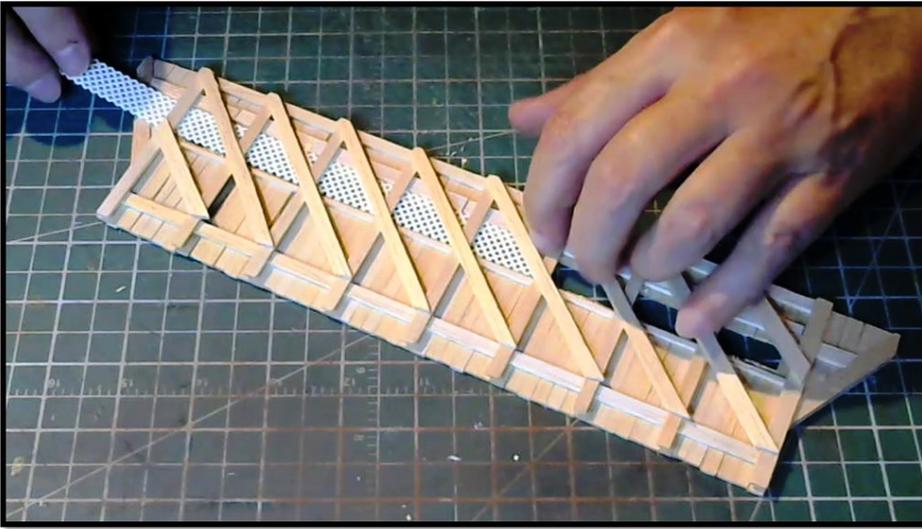
Next, cut lengths of plastic canvas to create a mesh to go into those gaps; before cutting, rotate the plastic canvas 45 degrees so that the holes in the mesh appear to be diamond-shaped. Position the mesh in the gap and glue it into place. (See Figure 10.) Figure 11 illustrates how the completed wall looks once the mesh has been glued into place.

As shown in Figure 12, I suggest you build a roof construction jig with the proper angle; the jig makes it easier to assemble roof trusses accurately when you have many to do. Once the trusses are dry, install all the roof planks, as seen in Figure 13.

Back to the wall again: when doing something from scratch, little problems might come along and make you go into the think tank, which is exactly what happened to me. Before assembling the walls to the roof, I decided to make sure the height of the inside was high enough for my tallest freight and tested it with my car carrier. Oops, I needed 1/2" more height for my walls ... Oh no!

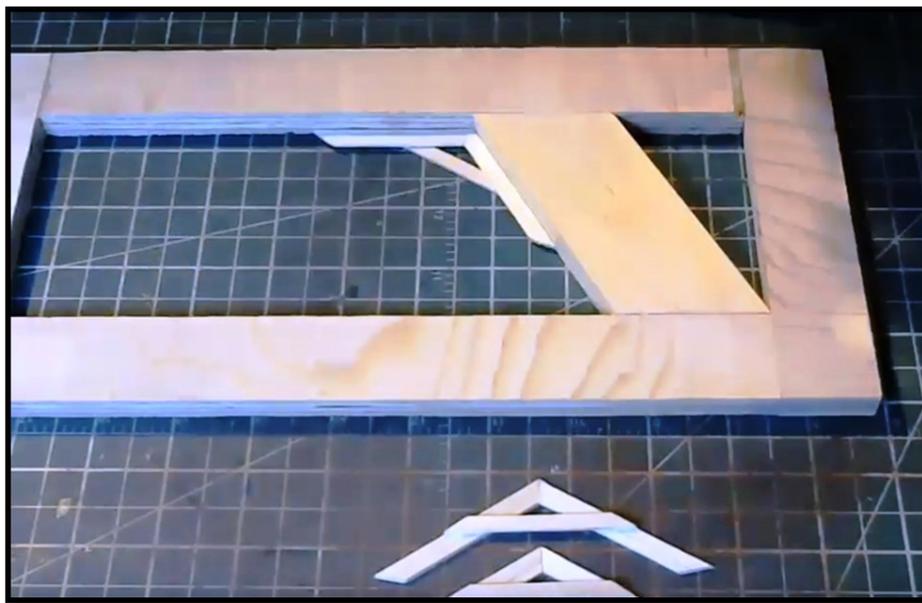
I had seen in pictures that some covered bridges had a screen on the top of the walls for the exhaust of the steam from the locomotives to escape; well, that's exactly what I decided to do, using the same plastic canvas as before. To make it easy to install to the wall, I used balsa lumber to create a frame (see Figure 14) and added vertical supports. Then, the framed screen was attached to the top of the wall (see Figure 15).

The next step is to build the front and back entrances to the bridge.



*Figure 10 (above) — The mesh is positioned before gluing it into place.*

*Figure 11 (below) — A finished wall.*



*Figure 12 — Roof trusses and the jig for constructing the roof trusses.*

Again I suggest you build and use a jig to hold the planks, then build the frame, and attach the frame to the planks. Finally, trim the planks to match the edges of the frame, as seen in Figure 16.

Before attaching the walls to the roof, paint the walls and age their bottoms to make them look like they are rotten, as can be seen in Figure 17.

Once the paint is dry, assemble the walls to the roof and add the Laser Art shingles to the roof. This process is illustrated in Figure 18.

The only thing left to do is to paint the roof, glue the track to the floor, and do a bit of weathering on the walls and roof.

I'm very satisfied with the result (Figure 19). It's very sturdy, trains fit through the bridge, and it has the look I was hoping for. You can see the video of my bridge build at <https://www.youtube.com/watch?v=59RTLW9WPCM>. I hope this will give you some ideas for your own bridge! If you have any questions, don't hesitate to ask me. 🚂



Want to get your YouTube channel featured or mentioned in the YouTube Model Builders eMag?

Contact us at

[YTMBMag@gmail.com](mailto:YTMBMag@gmail.com) and tell us about your YouTube

Channel.



Figure 13 (above) — Attaching the planks to the roof. Figure 14 (below) — Building and framing a screen for the wall top.

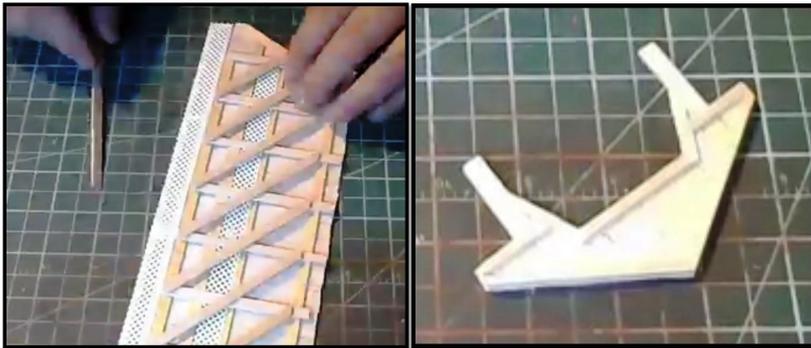
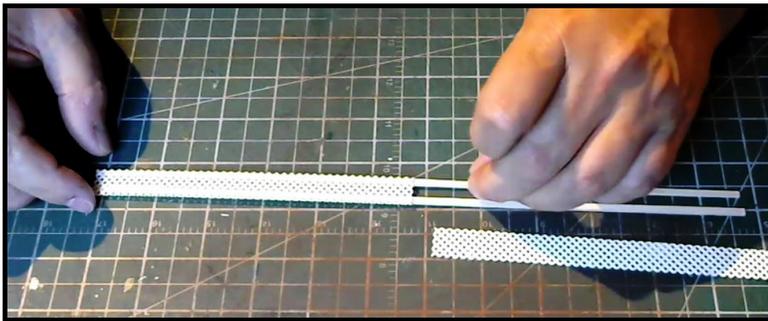


Figure 15 (above left) — Adding the screen to the top of the wall for extra height. Figure 16 (above right) — A completed bridge entrance. Figure 19 (below) — Finished, at last!



Figure 17 (above) — A wall, after painting and aging.

Figure 18 (below) — Attaching shingles to the roof.



## About the Author

Lloyd “Hawkes HO Layout” Henchey is 57 years old. He studied engineering, worked for an engineering firm and – since engineers love numbers – became a financial advisor. He’s been in that profession for 25 years, but now is enjoying semi-retirement. Lloyd has been married for 25 years, and he and his wife have a daughter and five grand-kids.

You can follow Lloyd on his [blog](#) and on his YouTube channel at [Hawkes HO Layout](#).

# Food For Thought...

In our feature called "Food for Thought," members of the model railroading community are invited to write an opinion editorial on some matter relating to the model railroading hobby. Topics may range from simply thought-provoking to downright controversial.

Please read it over, and then share your thoughts with us. Do you agree with the statements in his article? Do you disagree? Do you wish to add another point of view that you feel should have been made? You can send your response to us at [YTMBMag@gmail.com](mailto:YTMBMag@gmail.com). We'll pick some of the more interesting responses we receive and publish them in our next issue. Please include the text "Food for Thought" and the issue date in the subject line of your email, and let us know the name you'd like us to use if we publish your opinion. If you would like to submit an opinion piece of your own, please contact us at the same email address above. Submission guidelines can be found at [www.YouTubeModelBuilders.com](http://www.YouTubeModelBuilders.com).

Our author this month is Andy Crawford and his thoughts appears below. We look forward to hearing from you!



By Andy Crawford

## Vision Vs. Version

**A**re you building a new layout or modifying a current one? As I'm sure you know there are many things you must consider in order to meet the vision you have for your layout. I surmise that many of us will either simplify our vision or leave many of the layout's features out of the equation. I suggest that you determine whether or not you're meeting your vision or instead building a version of it.

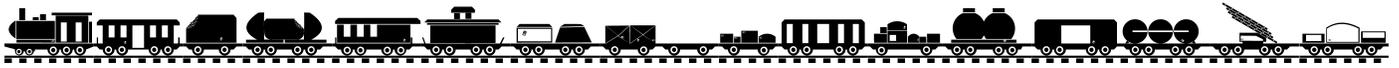
For example, let's say that you've built a Colorado mountain layout, but you have recently fallen in love with the coal-hauling roads of Appalachia. What to do? You decide that adding more vegetation and changing the roster of locomotives and rolling stock will fulfill that vision. I would suggest that this is an example of a version of the vision,

and that the true vision might require starting from scratch.

There are many other situations that aren't as dramatic as my previous example, such as the consideration of track vs. scenery, or the order of stages to be designed and/or constructed during a layout's development. Many modelers these days are reinventing the traditional design process. Some modelers are building scenery much earlier in the construction process and are having that scenery impact the track plan. This works especially well in industrial areas, where the construction and installation of structures will make

the track alignment and installation much more prototypical and easier to meet the vision of the scene. My singular point to make is: your vision may require you to rethink what considerations you have, and might possibly make you rethink the order you solve those considerations.

This particular "order of events" argument especially holds true for Garden Railroad folks. The argument of vision vs. version materializes in the garden. Are you building a railroad in your garden or a garden around your railroad? At first read these may seem to be two ways to say the same thing, but you might



want to see if your significant other sees it the same way. I assure you she, or he, will see the difference in building a railway through the garden as opposed to starting on a clean slate and building a garden around the railroad. This classic argument is one of the first considerations for an outdoor empire. How much will you let your environment dictate your railroad, or how will the railroad re-shape its environment?

**The argument of vision vs. version [and that of “order of events”] materializes in the garden. Are you building a railroad in your garden or a garden around your railroad?**

Scale is often a big part of this cycle and order of decisions. The argument about outdoor scale, G, F, #1, etc., is already a difficult topic to navigate. However, many modelers have opted for alternative scales used outdoors. O is growing in popularity in the garden, and many European modelers have even opted for OO (nearly equivalent to US HO scale).

Maybe opening yourself up to some new options will help you meet your vision or overcome some obstacles. I’ve often considered two-rail O Scale an excellent choice for garden railroading. While the equipment isn’t designed for outdoor conditions as most G scale equipment is, rail on plastic ties has the good durability in most scales. There are the obvious benefits to using a smaller scale in

the garden: you can have more “railroad” in a given space; there’s lots of equipment available; and there’s a huge operational potential.

Arguably most importantly of all, the use of a smaller scale in the garden reduces the railroad’s impact in the environment and allows the garden

to really shine. The railroad will not overwhelm the garden but rather compliment it. This, of course, contributes

to the WAF (Wife Acceptance Factor).

Scale is often my biggest argument against the traditional approach to layout design and construction. There’s a tried and true series of events that are accepted in the greater model railroaders community: Pick a scale, then a prototype to model, followed by designing a track plan, then it’s onto bench work, track, wiring, scenery, etc. These stages are almost always completed more or less in that order.

I’m adamantly against that process as being the best to meet your vision, not that it hasn’t worked for many people, and many beautiful model railroads were designed and built this way. However, I believe many of us would have made some different decisions if the order of those

decisions had been different.

I would encourage every modeler, regardless of what step in the process you’re at, to sometimes rethink in what order you’re building your layout. It may just open some new, unique opportunities and help you meet your vision. For me this way of thinking is reducing the difference between the version and the vision I envision. 

### About the Author

Andy Crawford, 37 years old, is a technology provider to mid-sized businesses and financial institutions, and a lifetime model railroader. Starting young in the hobby with a train set, like many others, and after spending a decade as an armchair modeler, he returned to the hobby a few years ago, in full force. He models a very exacting replica of a 15 mile section of the Clinch Valley District of the famous Pocahontas Division of the Norfolk & Western Railway in 1952.

His interest in exacting replication of the prototype, fine scale craftsmanship, weathering, and prototypical operation can all be seen in his work. For him, recreating the experience of being a railroad professional, 1/87th the size, in the 50’s is all the focus that is needed. You can check out Andy’s YouTube channel here: <https://www.youtube.com/channel/UC8I2bTYfzVY37328sGPD9Bw>.

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