

The Modeler's Journal

A Free Journal for Today's Modeler

VOLUME III

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A Custom-Built Model Railroading Experience

An Interview With James Adams of Affordable Model Railroads

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

Cover Photograph Courtesy of James Adams



Editor's Note...

In this issue of *The Modeler's Journal*, we feature an exclusive interview with James Adams of *Affordable Model Railroads*. This interview is a great opportunity for modelers to explore another option that is available to them for having a professional and custom-built model railroading experience. James tells us how he got started in designing and constructing high-quality model railroads and producing high-quality backdrops. He discusses his penchant for delivering a quality product with a hands-on approach, the types of modelers for whom his service would be beneficial, and how they can either build parts of a layout or a full-blown custom layout with all the bells and whistles. James's model railroading services and backdrops are definitely worth considering!

In his article entitled "Givens & Druthers - Setting Unrealistic Goals," the Track Planner (Bill Beranek), discusses the needs (the Givens - things that modelers cannot compromise), and the wants (the Druthers - things modelers would like to include but could do without), that modelers have and how unrealistic goals, limited space, and era impact the success and enjoyment of a model railroad. He also provides some remedies to help overcome these quandaries.

In his column "UP-Hub," Harry M. Haythorn provides ideas for building trains for business and excursion trips, just like the UP has run over the years. You don't want to miss this one!

In his article "Purple Craze - Relief for London," Jack Hykaway writes about how the opening of the high-capacity, high-speed underground rail link in London, England known as Crossrail promises to alleviate congestion in their transportation network. It is an interesting history of the development of this rail and hope for a battered transportation system.

We hope you enjoy this issue.

Happy modeling!

– **Loggin' Locos**
Editor-In-Chief



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A Custom Approach to Model Railroading

An Interview with James Adams of Affordable Model Railroads
By JD (Loggin' Locos)

All photographs courtesy of James Adams and Affordable Model Railroads.

A few months ago Bill Beranek - The Track Planner (who writes the “A Perspective on Track Planning” column in this publication) and I were discussing ideas for upcoming articles. I asked him about the model railroad design and planning projects on which he had recently been working. Bill mentioned that there are a few projects he is currently working on for model railroads being custom-built by [Affordable Model Railroads](#).

[Affordable Model Railroads](#) is a custom model railroad design and construction company operating out of Humboldt, Tennessee and is owned and operated by James Adams.

There are many model railroaders with whom I have spoken over the years that wish they had some professional help in one or more areas such as designing, constructing benchwork, track laying, or wiring, etc. - or even have the full layout built from beginning to end so they could watch the build process and learn from the professionals. From what Bill tells me, [Affordable Model Railroads](#) is exactly that and much more. Bill also mentioned to me that James, the owner, is very passionate about the hobby and is very quality conscious and will not cut corners just to get the work done.

I wanted to learn more about James and his [Affordable Model Railroads](#) business, so I decided to reach out to him for an interview. The following is my conversation with James:



Backdrop scenery of Mormon Rocks.

Affordable Model Railroads

TMJ:

Thank you for taking the time to speak with me about [Affordable Model Railroads](#) (AMR) and your backdrop business. I very much appreciate your time.

Before we get started, I want to thank Bill Beranek - The Track Planner for providing me some background on AMR. I think he is a very impressive person who knows and understands both model railroading and real train operations. Please tell us a little about your working relationship with Bill.

JA of AMR:

“The Track Planner and I work closely together on many of the designs. He is absolutely a MASTER at designing operational layouts, whereas I pride myself on designing for display layouts. It’s quite funny because I’ll often nag at him saying ‘Bill, there’s no place for the mountains here?’ Or ‘Why not take away that industry and put in a spectacular high trestle bridge instead?’

In all seriousness, our strengths really complement each other. When one of us has ‘writer’s block’ where we can’t overcome an obstacle in

the design, the other can come up with an elegant solution. It’s truly an important part of us working so closely together.”

TMJ:

How did you get started with Affordable Model Railroads?

What was your motivation?

JA of AMR:

“Well, it’s a long story. During the economic downturn at the end of 2010, I was living in Oregon and basically, I was unemployed and I was unable to do my previous work as a nightclub DJ. I took early retirement from DJing. My other daytime job was designing and manufacturing signs, however with all the businesses closing, they weren’t doing a lot of hiring in that industry. So, I thought, what are the other skills do I have that people might want?

Hey! There are companies that build model railroads, and I’ve been building model railroads since I was nine years old. Maybe I’ll give that a shot. I sent a bunch of resumes to all the builders that I could find. I got a bunch of rejections back; nobody was hiring.

So, I did what any broke DJ would do. I sold all my DJ equipment for enough money to buy a couple of

months’ worth of rent and some supplies to start building model railroads.

It was definitely motivated by my overall interest in the hobby. The first club that I belonged to – I can’t even remember the name of it, it was a modular club in Tucson. It was the summer after my senior year in high school when I had a vehicle. I went to check it out one day when they were having a meet at one of the local malls. I went and asked what it would take to join the club. I think the fees were five bucks a month, and so I joined, and I began to build a module. It was a 4’x2’ module, it was pretty basic, and I would change it out from time-to-time if I wanted to experiment with new techniques.

Then, I left the hobby for a little while as most people do. College, girls, cars, and girls distracted me for a few years. Then a job and career got in the way. I didn’t want to wait until I was retired to build a railroad, so I decided to start building railroads in 2011 and live vicariously through the layouts I would build for my clients.”

TMJ:

How did you build your experience? Did you build your own model railroads as a hobby?



Backdrop scenery of Mormon Rocks.

JA OF AMR:

“Well, I got my first train set through my brother who was two years younger than me. It was a circle of track, three cars, and a caboose that he received for Christmas. He had it set up around the Christmas tree on the carpet and we ran it all day until we had the carpet fuzz bunched up in the gearbox and the motors. My brother went running and crying to our mother, complaining about how it wouldn’t work.

My birthday is shortly after in March, so I thought, ‘Gee, if I trade my brother whatever I had received that year for his broken trainset, that should qualify as a pretty good deed, so maybe I could talk my dad into a more expensive birthday gift and get me a new locomotive...’ So that’s what I did.

I still have the model. It’s an Athearn, painted in D&RGW colors and it features the first generation of the brand-new dual flywheel from Athearn according to the salesman at the hobby shop. It’s pretty basic with one lightbulb that you can see through the glaze-less windows. I painted it for the bicentennial in 1975 and sent photos of the locomotive into Model Railroader Magazine. They did the judging and I didn’t place, but I did get an honorable mention – even though most people who submitted something probably got a certificate for honorable mention – but that was still pretty exciting for my 14-year-old self!

I was inspired to pursue other projects in model railroading. Little did they know that 50 years later I was an advertiser in their magazine, so an

honorable mention certificate did it for them!”

As soon as that Christmas tree came down, my parents – best parents in the world – let me use the corner of that room to set up a 4’x8’ module on sawhorses so I could experiment with different things; things I had read in magazines and things I had come up with on my own. As I got older, I joined some clubs – both in Tucson and later in Phoenix. I moved around a lot once I was an adult to pursue DJing and I joined model railroading clubs pretty much everywhere I went. I got to know a few friends who were modelers and I’d go help them out with their layouts as well.”

TMJ:

Was anyone else in your family a modeler?

JA OF AMR:

“No, my brother was more of an airplane nerd – he ended up being a pilot, so I guess we’re both now living out our childhood dreams. I was the only train fanatic in the household.”

TMJ:

Quality is everything in model railroading. How do you maintain your quality standards, and why is that important?

JA OF AMR:

“Word gets around really quick if you have a superior or inferior product. Anybody can come into the market and lowball on pricing with a shoddy product. Throughout the process, we try to do the best quality that we can. In reality, all it takes

is one dissatisfied customer to spread bad news like wildfire.

I’m very hands-on. All the on-site jobs - I like to supervise personally. I like to do that so that there is a level of comfort and trust established between my crew and the client.

Quality is really important to me. I’m very meticulous and things have to be done to my standards. I have people working for me, and everyone on the crew pitches in.

I’ve got local guys in Tennessee, as well as guys who are located all over the country that help out with projects that are a little farther away from my home base. We’ll fly guys out to projects if they’re willing to travel to work for us. They’re usually happy because they get paid to play with trains for a couple of weeks and they do good work, so it’s a win-win!

Each person has their specialty, and we try to match each job with each person’s specialty. But that’s not always possible throughout the different stages of a project. Just because there’s no carpentry or benchwork to be done, my carpenter isn’t sitting there useless. He’s also trained in laying track and roadbed, for example, and would pitch in there. Everyone helps out because we’re doing work on multiple things at once.

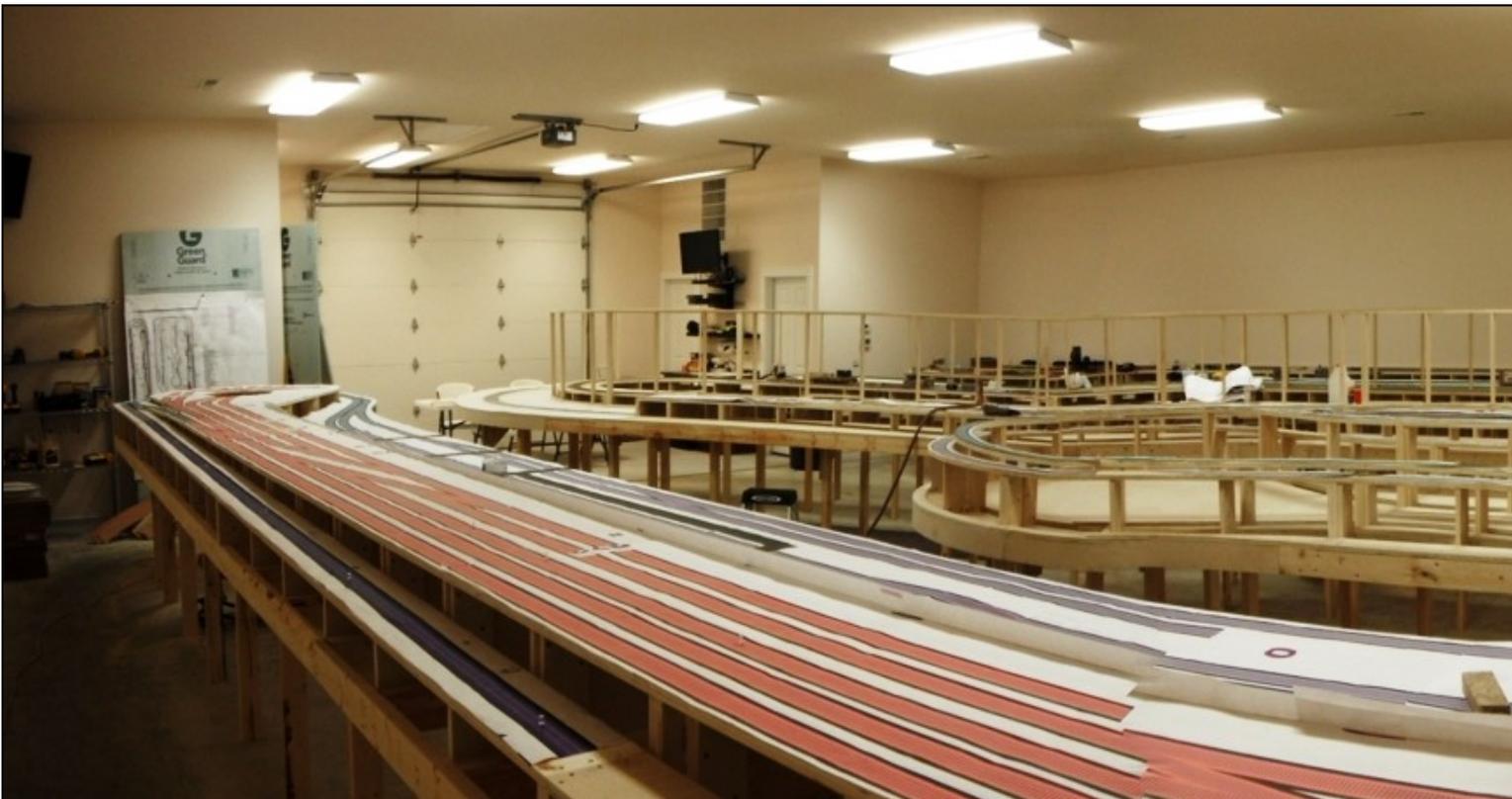
Because every project has a certain aspect of customization to it, each project is different and so the process of building the layout from start-to-finish can involve different tasks. But that’s the great thing about model railroading – it requires



A beautiful river and mountain scene with two bridges and a tunnel created by Affordable Model Railroads.



Above: A large model railroad layout that has been custom designed is being constructed in a methodical manner.





Below: A panoramic view of the above model railroad layout under construction.



someone who is talented in multiple disciplines to build a layout that looks good and operates smoothly, and someone who is patient, because as we all know there are things that REALLY will test your patience.”

TMJ:

What types of people make up your client base?

JA OF AMR:

“Type 1: People who maybe have been building a model railroad for many years, and for whatever reason – mobility or time concerns – cannot or do not want to complete it on their own. They will hire us and we’ll come out and finish it for them. Or, some who have been working on their layout and it’s not quite coming out how they wanted it to, whether it is because of a lack of knowledge or skill or whatever. Many of these people will hire us to come out and fix, rebuild, or add to their layout – sort of like contractors who come in and renovate your home.

Type 2: High-level or highly-paid corporate executives who want a model railroad but aren’t able to invest the time required to build one. In most

of these cases, it is cheaper for them to hire us to build their layouts than it is for them to take time off of work.

Type 3: People who don’t have, or don’t think they have, or don’t want to take the time to develop the necessary skills to build their dream layout. Everyone jumps in thinking that they’ll knock it out of the park on their first try, but in reality, it’s the opposite – I wouldn’t presume I could pick up a scalpel and perform heart surgery, although that’s an extreme example. You have to practice whatever you do.”

TMJ:

Do you have to be wealthy to afford a turn-key layout?

JA OF AMR:

“Of course, wealth is a relative term. We can build anything for the client, from reasonably priced \$5,000 - \$10,000 layouts to museum-quality displays that may have a price tag of a million dollars. It’s really up to the client to decide how much they want to spend. So, I’d say no, you don’t have to be wealthy to afford one of our railroads. You know, most of our clients are retired, with some savings and a decent pension. *Every-day folks can pretty much afford to have a layout built for them through us.* We do also offer payment plans or loan payout plans so that the layouts become more affordable for many people.

We also offer ‘a-la-carte’ services where we can complete a certain aspect of construction for less than if we had tackled the whole construction of the

layout. For example, many do not have the confidence to install the wiring for their DCC systems. We can be hired to complete that task, install the system and wiring for you, and leave you to construct the rest of your layout.”

TMJ:

How do you manage client expectations? How much do the clients participate?

JA OF AMR:

“For the most part, there’s a lot of back and forth communication with the client. To start – once the client has hired us, we will send them a general survey to complete so that we have an idea of what they want to be designed into their layout, as well as get an idea of any materials which they may already have or what type of equipment they want to run once the layout is complete.

The design process is very dynamic. We send them an initial draft, and they will either approve it or turn us in the right direction. Most times it takes many revisions to get it just the way they want it and it depends on the client and whether they want a layout that is operations-intensive or if they are satisfied with watching the trains roll by through spectacular scenes.

Timeframes are established based on the design, and while we try to hit those goals as much as we can, there are so many sources of delays. Sometimes manufacturers do not have the availability of materials (turnouts, track, specific structures, or scenic materials, etc.), yet many clients insist on a certain brand of





product they want on their display. Therefore, often because of elements that are out of our control, some projects do tend to follow looser timelines.

Once the design is approved, the construction of the physical layout starts. Benchwork and wiring are the two first phases of construction.

Last fall, a client insisted on modeling the Ohio River Valley, and some of the old steel mills along the river. He didn't want me using Google Maps to get an idea of the geography; so instead, he escorted me through the region so I could get a first-hand look. Obviously, this is much more immersive, and you really do get a fantastic understanding of the geography, the railroad, and the cultural history of the region.

In a nutshell, we engage the client as much as they want to be engaged. We're very willing to teach the client as well; that way they learn something from the process."

TMJ:

Some clients will have unreasonable expectations, how do you work with them so that they approve a realistic design?

JA OF AMR:

"Many clients don't know how to measure a room accurately. I'd be glad to go measure their room myself, however many don't feel like they should pay for that service. It's really surprising to me that they feel I should be expected to lose money to gain their contract.

Second most, everybody wants enormous layouts in their ten-by-ten offices. Look, you can't fit a double-decked layout with 32" radius curvature and a helix in just any space; even professionals haven't figured out how to do that yet. Many people have unrealistic expectations from their space and their budget. We have to fill in the gap between what the client has imagined and what is realistically possible by educating them about some of the limitations in this hobby.

Modern-era modelers require more space to build a layout that works. Most of the modern equipment is massive compared to the locomotives and freight cars used 50 years ago, not to mention that the length of trains, sidings, and yards have increased as well. So really, to fit a modern-era layout with a yard and passing siding into a small space does

take some compromise.

And train length is a huge issue. Many clients have misconceptions that they'll be able to run prototypical, 100-car coal trains with DPUs on their 10-by-10 layouts. It's just not possible, and so I have to advise them that those expectations are unrealistic and cannot physically be met with their space constraints."

TMJ:

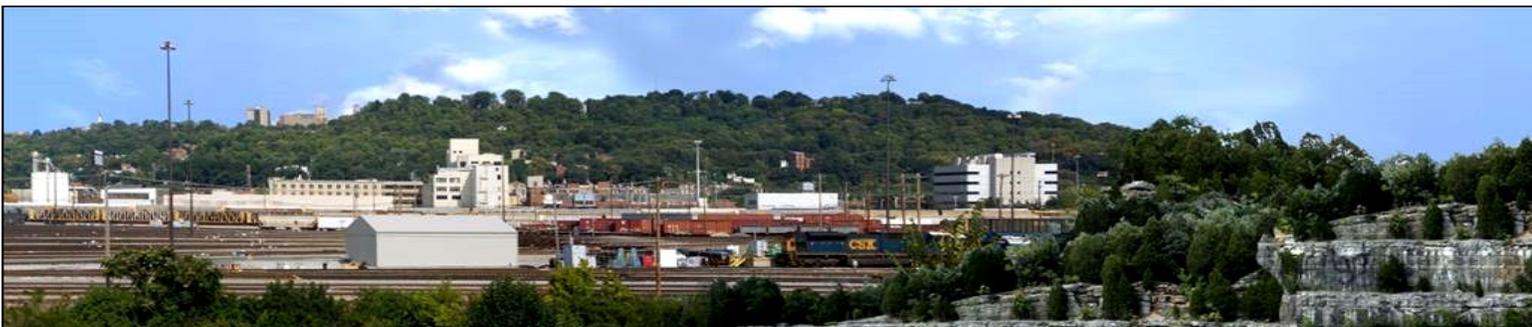
Where do you think the model railroad hobby is headed?

JA OF AMR:

"The hobby has definitely changed, partially because of the way life is. We've had it so good in this country for so long, with every service we could dream of being offered to make our lives better. The hobby is nice, but a lot of people now have been divided into two groups: the modelers who want to build the kits and do everything from scratch, and the ready-to-rollers, who would prefer to skip the construction phases and run trains. *We provide that service; a turn-key layout that's ready to go.*

It's not that the hobby is dying; it's morphing into something different.

Below: A 24" tall by 24' long custom-blended backdrop that incorporates three different skies including one of a thunderstorm.



It's an evolutionary process, with the advent of finer details, better ready-to-run quality, and now people are morphing from having to build everything themselves to expecting that they can contract these tasks out to companies and businesses like us. It's the same as buying property for a cabin – few today will go out and build it all themselves. Instead, most contract the work out.

Another note is that our hobby is transitioning further and further into the modern era. I mean, it's been, what, 40 years since there was steam in regular service. So now you have five or six generations who have never seen live steam running in their entire lifetime. I'm not young, but I try to pride myself on staying young mentally – I don't want to become one of those people who drive down the highway at 10mph from below the steering wheel.

When I grew up in the 70s, we lived within half a mile – with a clear view – of the SP tracks near Tucson, Arizona, so my first recollection of big locomotives was SD40s. I'd watch coal drags being brought in and dropped off at the Tucson Gas and Electric power plant. Because that's all I knew, I brought those memories into my early modeling.

Although, with that said, I do prefer the modern era now. Ironically though, my favorite locomotive remains the SD45-series diesel. The SD45 tunnel motors being trackside on the SP bring me back to my childhood. The cowled versions of the 45s are just as good."

TMJ:

Thank you for that honest look into your model railroading business – very interesting indeed. You also have another component to this service which is making custom backdrops for the scenery. Let's talk a little bit about that.

Railroad Backdrops

TMJ:

Why did you start a backdrop business?

JA OF AMR:

"Backdrops are an interesting part of the construction process. I can't paint, so I needed to come up with some way to add a good-looking backdrop to my clients' layouts. So, I went to the printers to print backdrops from photos. As it turned out, a lot of people were impressed and had never thought to do that, and although several businesses were

doing it, it wasn't super popular yet. It grew grassroots until about four and a half years ago when I put an ad in a couple of magazines for photo backdrops to see what would happen, and it took off!"

TMJ:

Why are backdrops so important? Do you think their importance in completing a scene is overlooked by many modelers?

JA OF AMR:

"It's one thing to walk in to see a very nice layout, but if there's a blank wall behind it, there's no depth. The backdrops really add depth and space to your layout. We're used to walking outside with huge horizons in front of us. It's amazing how much larger it makes your layout look, especially if you get your backdrops tall enough so that they're kind of above the visual sightline. Then, the brain doesn't focus on the top part of the wall, so the backdrop draws the eyes into the layout.

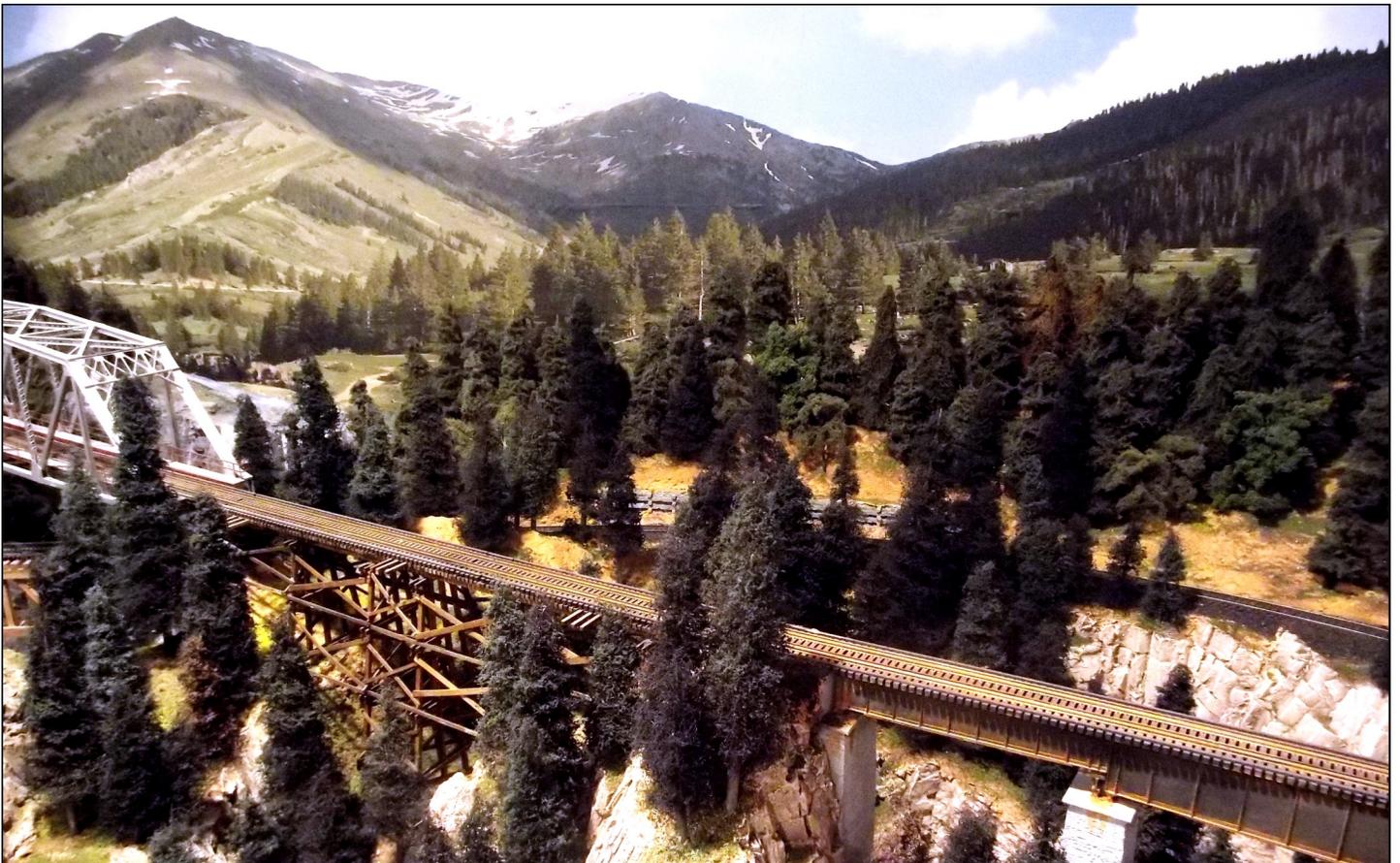
The photo backdrops also give a great sense of location, without having to model the important (and often large) landmarks. For example, modelers who are sports fans and

Below: This backdrop scene is composed of the Cincinnati Freight Yard, the Tennessee Rock Cut Continuous backdrop, and the Tennessee Rock Cut Continuous backdrop, which is repeated.





*Above: No scenic model railroad is complete without a trestle bridge.
Below: The backdrop seamlessly integrates with the custom-built scenery on this beautiful layout.*



would love to include their team's home stadium in their displays simply don't have space - models of which would be way too large to incorporate on their layouts. Several of my backdrops feature images of sports stadiums - for them, it's a great alternative. And many people have told me how eye-catching they are."

TMJ:

What makes your product different from what's already out there in terms of both looks and quality?

JA OF AMR:

"Our backdrops definitely raise the bar. They're creative and quite stunning when printed on large photo-quality paper. The most popular backdrops are the ones that depict mountain scenes. The single most popular one is called "Mountain Vista", a four-panel backdrop which spans 24 feet before it repeats. All of the backdrops are made in such a way that they can be mirrored left-to-right so that transitions between panels are smooth. If the scene is transitioning, we can change the image in Photoshop so that there is a smooth transition between each scene, even if it's made up of three or four different panoramas.

For those looking for something a little bit "extra", we even have a thunderstorm depicted on some of our backdrops. The one thing, even if you go to some of the other backdrop companies out there, is that the clouds are always muted and unrealistic. Even though the scene doesn't necessarily repeat, the cloud sequence always does. You know, if you look out on the horizon, you never see a repeating cloud se-

quence. It just never happens. It's so unfortunate that companies have overlooked this because adding dramatic clouds adds so much depth and interest to your model.

But really, it's not just about the way the finished product looks. The high quality provides better functionality of the backdrops. You know, with the paper backdrops, they are completely wrecked if they get saturated with paint, or scenery glue, or whatever. So, by using higher-quality, sign-grade material, the backdrops can be installed and then left relatively unprotected. It's really important to make things as bulletproof as possible! To me, it's a no-brainer.

[Model Railroader did a video](#) using our polypropylene backdrops and they made it look like an over-the-top late-night infomercial about the durability. They were, you know, spray-painting them, throwing plaster at them and then cleaning it with alcohol and harsh chemicals. They were trying to destroy the thing, and the backdrops stood up to the chemicals perfectly. We haven't yet found any household chemicals that will damage our backdrops. So far, there are only two harmful things to our backdrops – permanent Sharpie ink and MEK, which will melt the plastic, but that's what it's designed to do!"

TMJ:

How does one go about ordering your backdrops? Are they customizable?



Watch Video

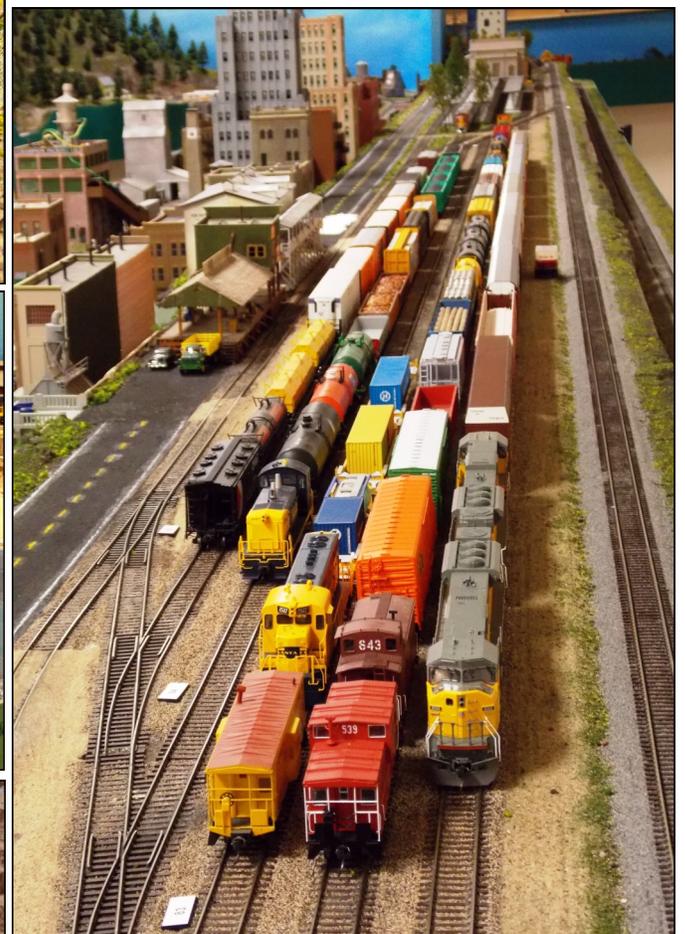
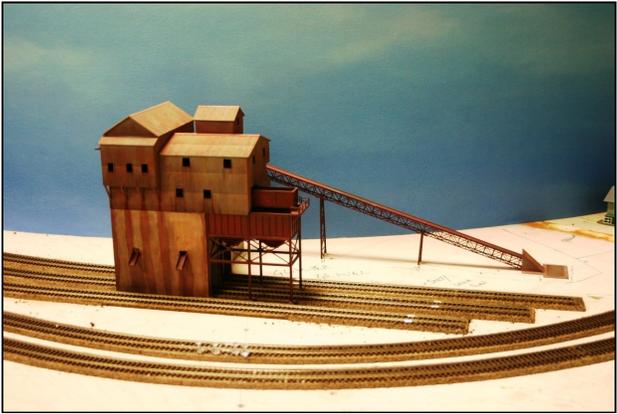
JA OF AMR:

"The way it works is that you can pick your scale, then your category, and then the backdrops. We currently have 570 backdrops available, so there's a lot to choose from. If you know you're looking for a city scene, selecting this will bring you right to our selection of urban backdrops. We have so many categories from power plants, to wetlands, to everglades, to marinas, to rural settings, and many more.

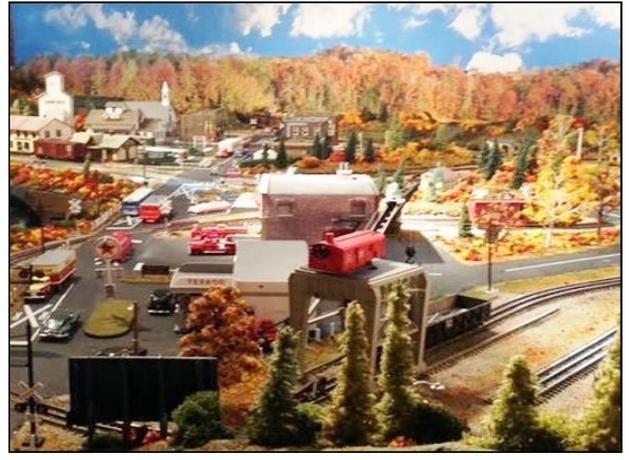
But we can make whatever the client desires. Because the backdrops are all built on layers, I can take a city scene, put a mountain scene behind it and finally stack the clouds behind that. I also have a series of individual buildings that are older architecture. One of the most popular requests is, 'do you have anything from the transition era?' Since I never took any photos back then and I can't travel through time to do so now, I take present-day pictures of buildings from that era and then stitch them together in Photoshop afterward to recreate cityscapes in the 40s and 50s.

The photographs are shot at 24 Megapixel, but most backdrops are made up of a handful of photographs. The master file of the final backdrop is usually 290 MB in size, even when I shoot them in JPG format. Shooting in RAW would simply require too much data to store.

Once the client contacts me, my job is to meet their expectations and deliver whatever they desire. Generally, I point them in the right direction and sometimes they send in photographs that they would like to have made into backdrops. It's fun







because every project is different.

If you're ordering something straight off of the website for your layout, it will take anywhere from a couple of days for small orders to a few weeks for larger ones, depending on the options available and how decisive the client is. There are different grades of material that we use – the photography resolution stays the same. The matte-finish photographic paper is the lowest grade, while the polypropylene material is our highest grade of material. We've also got an outdoor vinyl, which is UV protected so that colors don't fade immediately, though they will fade slightly after three years in constant sunshine. Both the vinyl and polypropylene materials can easily be cleaned if there's an incident.

The polypropylene is by far the most

popular material; approximately 70% of our orders are done using the plastic.

We can print in any scale desired, but we offer N, HO, S, and O prints directly from the [website](#)."

TMJ:

Do you have any famous clients?

JA OF AMR:

"Ha, yes and no. We don't have any movie star clients, but we have done backdrops for Michael Jackson, Michael Jordan, George Michael, Elvis Presley, Adelaide Stevenson, George Harrison, and Charlie Chaplin.

Unfortunately, they aren't THE celebrity, just folks who either share the same name or have put that name down on the order form. But

I still like to brag about that!"

TMJ:

Thank you very much for your time, James. It was very interesting to learn about the options available to model railroaders for having a custom-built layout and custom backdrops made for themselves and what is involved.



If you would like to find out more about [Affordable Model Railroads](#) and their [Backdrops](#) for your model railroad, please visit:

Affordable Model Railroads at:
<https://www.affordablemodelrailroads.com>

Railroad Backdrops at:
<https://railroadbackdrops.com>

A Perspective On Track Planning



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

Given & Druthers Setting Unrealistic Goals

In the previous issue of *The Modeller's Journal*, I talked about conceptualizing: looking at a blank canvas, and in my case, a floor plan or open area and determining how to best utilize that space. Unlike a painter, whose limitation is the edge of the canvas, the professional track planner often has to deal with a multitude of obstructions. Obstructions take many forms: walls, doors, windows, posts, electrical panels, water and sewer pipes, jut-outs and jut-ins, furnaces, water heaters, sump pumps, etc. Seldom does the professional track planner see a floor plan with no obstructions! Frankly, I can't remember the last design I did where there were no obstructions or only one obstruction.

Free-standing layouts, those not attached to walls, have to deal with

fewer obstructions. The point being, seldom do I have a blank canvas. Something is always affecting the track planner's conceptualization. In the last issue of this column, I stated that being able to conceptualize is a key part of being a successful designer. Conceptualizing how to deal with obstructions is a critical part of the process.

Unrealistic Goals

For the professional track planner, the hardest workaround can be the client. Clients tend to set unrealistic goals. Most understand they can't have everything. However, the hard part comes when they have to determine what they need to leave out. Generally speaking, clients have a

hard time setting realistic goals. Unrealistic goals result in the building of layouts to start and stop, multiple times. Below is a quote from a client after reading my last column.

"I read your article and it fits me to a T. For years I've been trying to build a layout. I had no plan, no knowledge about track arrangement, didn't understand operations and all I did was waste money and time. In one week, you did more than I did in years."

- Edward W.

Five decades ago, John Allen, the owner of the famous *Gorre and*

Daphetid Railroad (G&D), came up with the term “givens and druthers”. When John was planning the G&D, he made a list of the things that were “givens” - things he would not compromise on. The “druthers” list contained things that John would have liked to include but could live without. Most newbies probably have never heard of John Allen nor have seen pictures of his G&D railroad. It’s also likely that even fewer modelers know about the “givens and druthers” list. Almost five decades later, the “givens & druthers” list is still a very worthwhile exercise for every modeler to go through. Unfortunately, very few do.

In this installment, I would like to explore the “givens and druthers” concept and what kind of unrealistic goals my clients tend to set.

The Questionnaire

On my website is a questionnaire made up of approximately two dozen questions about a client’s interests and wants. It’s my form of the modern-day “givens and druthers” list. All potential clients fill it out. The answers not only give me an overall picture of what the client wants are but also point out where the client is being unrealistic. On almost every questionnaire, I can pick out one or two contradictions. The contradictions usually alert me to unrealistic goals. Many clients don’t realize they’re contradicting themselves.

The number one contradiction has two distinct but equal parts: space and era. In my opinion, space and era have doomed many model railroads. Clients have a hard time un-

derstanding how space and era are intertwined. Hopefully, the information below will help modelers understand the connection. I’ve included some possible remedies. I’m sure that to some, the remedies will seem extreme.

Space

When planning a new layout, model railroaders tend to overestimate the amount of model railroad they can fit into a given space. In many cases, they don’t understand how to best utilize the space they have. The best examples are multi-deck layouts and the use of helixes. About 40% of my clients have a strong aversion to multi-deck layouts - not because they don’t want more railroad space, but because it would require building a helix or some other way to connect the different levels. The two most popular arguments against helixes are, “it’s too hard to build” or “it takes up too much space.”

The first argument has validity. Some modelers simply don’t have the carpentry skills needed to build a helix. My counter-argument is to find someone to build it for you.

Unless your space is very limited, the second argument is without much merit. If you want to make the best use of the space you have, why not use all of it? I always counter the “it takes up too much space” argument with “do you understand that all of the space above and below your layout is free space?” It doesn’t require removing any walls and it doesn’t require convincing “the real estate procurement department” that you need more space. If not used, space is wasted.

Modelers who want multiple deck layouts but don’t want to build a helix think adding a steady incline between the levels is the simpler and better alternative. In theory, it sounds like a good idea - the thought being that a steady incline takes up less space. It doesn’t. The second thought is that it’s simpler to build. While it may be easier to build, it certainly doesn’t use less wood or track material. Most modelers who suggest a steady incline as the better alternative (to a helix), have never computed the numbers.

Here are the numbers. A helix with a 30-inch radius needs a space measuring approximately 5 ½’ x 5 ½’, or about 30 square feet. If you build a steady incline and you have a vertical height difference of 18 inches between the levels (which is what I recommend), and you want to maintain a steady 2% grade, you will need 900 inches; that is 75 feet of linear space! Very few modelers, if any, have 75 feet of straight space. Add turns in the corners of the room and your 2% grade effectively changes to approximately 2.5% or more due to the resistance caused by rolling stock traversing the curves.

When space is at a premium, a helix can be the difference-maker. It can be the difference between having a fully functional “prototypical” layout and a layout where the trains simply run in circles.

Era

Today, the twenty-something generation is almost three generations removed from the transition era. Today’s younger generation has grown up rail-fanning and watching

modern equipment service the modern industries. It's only natural for them to want to model what they grew up with and see every day. For the professional track planner, this is a serious ongoing concern; a concern that I predict isn't going away. If anything, it will probably increase as the next generation of modelers will opt to model the much larger motive power and rolling stock rather than the lesser-sized equipment from the steam or transition eras.

Today, my average track plan takes up between 200 and 300 square feet. While 250 square feet is certainly bigger than the old standard 10' x 12' bedroom (120 square feet), it is not a lot of space when you're trying to fit a moderately-sized inter-modal yard, a double-ended classification yard, a complete modern diesel engine servicing facility, a full-blown coal mining operation, large staging yards, branch lines, interchange connections, city and mountain scenes, and a host of other things.

Add to the list the need for large radii curves and the need for #8 turnouts at crossovers, it isn't hard to see why 250 square feet is not that large. As a point of reference, the eight or nine things listed above are the most common "givens" checked off on the questionnaire. I have not seen a meaningful increase in overall layout space, but I have certainly seen, in contrast, a significant increase in the size of motive power and rolling stock – which requires more space.

Are There Remedies?

Yes, there are remedies, but the remedies are not always popular.

This is where the "givens" versus the "druthers" collide. When it comes to space and era dilemmas, I have come up with three specific remedies. For the modern era modeler, these remedies will not be popular. But, if the modern era modeler is even halfway honest with himself, he'll have to admit, these remedies make sense.

Change Scales

Since the size of your space is probably not going to increase, one way to increase space is to change scales. If HO is your primary choice, but you can't fit everything into the available space, and you aren't willing to compromise, then moving to the N scale is your only choice.

Even if you change scales, a popular misconception is that you can double the size of your railroad. This is not true. With the right planning, you will increase the size, but you wouldn't double it. When designing track plans on different scales, three things don't change: the size of the space, the size of people, and the size of aisle widths.

What N scale allows you to do is increase the number of tracks (but this is not always a good thing), reduce bench work widths (making reach-ins easier), increase the distance between towns and industries, and create a better ratio of scenery to trains.

A common mistake in the HO scale is the tendency to have too much track in relation to the scenery. Going to N scale, allows you to adjust the ratio for the betterment of the design.

The most common argument against changing to N scale is that the equipment is too small, difficult to handle, and not easy on the eyes. If that is the case, then other remedies need to be considered.

Change Eras

For the modern era modeler, this is the hardest and the least desirable thing to do. If the modeler is in his early 20s, he's almost three generations removed from the transition/early-diesel era. For the younger modeler, it's almost ancient history.

Changing eras is another way to increase the size of your layout without acquiring more space. The transition/early-diesel era offers many advantages:

- In the mid-50s, 40- and 50-foot-long rolling stock was the norm and not the six-axle motive power
- There were no 85-foot box-cars in 1955
- Most industries were smaller, requiring less space
- #6 HO turnouts work just fine, plus #4s will work in most industrial areas, and #5s work well in freight yards
- You can run longer trains

A personal note: I used to model the late 70s through the early 80s. When my wife and I moved to a smaller home, I went from 24' x 24' layout room to a 16' x 13' room. My 70s and 80s equipment was too

large for the kind of operations-oriented layout I wanted. I solved the problem by selling everything from the old layout and changing the era to the mid-50s. Today, my diesel power is all four-axle and most of the rolling stock is 40- and 50-footers. In retrospect, I've never regretted this change.

Modeling Less Can Be More

This remedy may seem the most drastic but is the most cost-effective way to solve the space and era dilemma. Many model railroaders want to model large geographical areas of a prototype railroad which is "totally" not necessary.

Many times, those who model large class one railroads (UP, BNSF, etc.), try to include too much on their model railroads. An example would be the Union Pacific Railroad. When you have a railroad that operates across half the United States, how do you model it and still make it believable? A while ago, I had a client who stated, "I want to model [the U.P.] from Omaha, NE to Cheyenne, WY." We're talking about 500 miles! How do you begin to create a believable representation of 500 miles? The answer is you can't.

The best example I can give you of less is more is the Colorado Model Railroad Museum in Greeley, Colorado. The layout is one of the largest model railroads in the world encompassing 5,500 square feet. But the most interesting thing about the railroad is that it represents a section of Oregon from Klamath Falls to Lakeview. If you Google "What is the distance from Klamath Falls to

Lakeview," Google comes back with 96.2 miles. The museum's layout is in the top five in the world and it depicts less than a hundred miles.

If you run a train at a scale speed of 25-scale miles per hour from one end of the layout to the other and never stop, it'll take you over one hour! I know because I've done it. I think I've made my point about less can be more.

The Believability Factor

With every track plan I design, I'm constantly asking myself, "Is what I'm designing believable?" Even if I'm designing a freelance track plan, I want it to be believable. I want people to look at the track plan and say, "This could exist as a real railroad."

A great example of believability was Allen McClelland's Virginia and Ohio model railroad. Allen created a fictitious freelance model railroad. Because of the way the layout was designed and how it operated, Allen was asked many times about "what part of Virginia and Ohio did the prototype run through?" When people think a fictitious model railroad is mimicking a prototype, in my opinion, you've achieved the believability factor.

Final Thoughts

Hopefully, I have given you some good information regarding the problems a professional track planner runs into when space and era clash. No professional has the magic bullet, and as far as I know, no professional has come up with a new

way to overcome this space and era dilemma. I highly doubt the problem is going away anytime soon.

As new people enter the hobby and we get further away from the transition era, modeling the 70s and 80s is going to seem ancient to some.

The best advice I can give is to please be honest with yourself, understand you can't have everything, understand what is possible and what isn't possible, and finally, take a few minutes to sit down and make out a "givens and druthers" list of your own.



About the Author

Bill Beranek - The Track Planner has over forty years in the model railroading hobby. Bill enjoys golfing, traveling, 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 out more about Bill—The Track Planner at www.thetrackplanner.com.

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Building Business and Excursion Train Consists

All Photographs Courtesy of Harry M. Haythorn

Welcome back to the UP Hub my friends. In this installment, we will look at some ideas for building a consist of cars for business and excursion trips based on what has been run over the years in the 1:1 scale world. I will cover the basics using available cars and give you an idea of how and why to run those cars in a prototypical manner.

Let's first talk about steam trips and what types of equipment always follow the steam locomotives over the road, and why those cars are there. A steam trip requires much more planning than a standard trip - the locomotives are high-maintenance, there is a lack of turntables to turn them around, and the infrastructure for coaling and watering is no longer in place.

Now, let's talk about some of the

common cars that can be seen tagging along on a steam excursion. The *Art Lockman* baggage car serves as the steam crew's portable machine and equipment shop. It houses all kinds of tools and machines to perform work on the locomotives while on the road. This car has been released by Walthers and is readily available. The next car always seen with the steam locos is the *Howard Fogg*, which is an ACF Baggage Dorm. This car houses a steam generator to provide "house steam" for the locomotives as well as an electrical generator to provide power for the passenger cars. This car has been offered in brass by OMI, or you can purchase one custom-built by yours truly. Walthers has also offered the ACF Baggage Dorm in the past and this is what I use as a base for my *Howard Fogg* builds. The car is a great stand-in for the *Howard Fogg*.

Two other cars commonly seen on

UP steam excursions are the *Lynn Nystrom* Baggage and the *Reed Jackson/Sherman Hill* Concession Car. These are offered in brass by OMI, or through custom builds done by me. Finally, the cars that nobody can forget in a realistic steam consist are the two water tenders - *Joe Jordan* and *Jim Adams*. These modern cars have been offered by Scale Trains. If you model an era earlier than 2006, the original un-rebuilt tenders are offered by Scale Trains and in brass by OMI. Athearn turbine tenders make good stand-ins as well.

I'd like to discuss the rest of the fleet, starting with the power cars 207, 208, 209 *Howard Fogg*, and 2066. As mentioned earlier, these cars are used to provide electrical power for the rest of the train. Cars 207, 208 and 209 each provide enough electrical power to feed the needs of up to eight cars. Car 2066 is more powerful and it can power



UP 844 rolls into North Platte.

up to 16 cars if required. These cars can be spread throughout the consist, and each power car can be found seven-to-ten cars away from the next one, depending on the train's length. Once again, the 207, 208 and 209 are available in brass or through me, and 2066 is the only car that is exclusively available from me. We can't forget about the rest of

the fleet which is made up of coaches, domes, diners, and baggage cars. The train's markers are brought up by the theatre car.

As many of you have followed along with the various builds in the series, we will finally put all of these cars to work. Let's talk about these cars and where they belong within the consist, using a hypothetical steam

excursion that you're running through your layout.

A decision must be made as to which locomotive we should use. Most of you UP fans and modelers will at least have one of UP's three monster steam engines. I've chosen to use UP 844 on this trip, and some diesel insurance power provided by UP 1995. UP 1995 will contribute addi-

My HO UP 844 is ready to depart with a short train.





Power car 209 "Howard Fogg".

tional horsepower and dynamic braking power to help maneuver the twelve-car train over the mainline. The consist will be as follows: UP 844, water tenders *Joe Jordan* and *Jim Adams*, UP 1995, *Art Lockman*, *Howard Fogg*, *Reed Jackson*, *Lynn Nystrom*, the coaches *Katy Flyer* and *Portland Rose*, dome coach *Challenger*, diner car *Overland*, dome-lounge *Harri-man*, power car 208, sleeper *Willie*

James, and finally, the inspection car *Idaho*.

Now let's imagine what a diesel consist would look like with the UP 1943 leading the train. UP 1943 will pull a six-car consist of a business trip originating from Omaha, Nebraska. Behind 1943 will be power car 2066, porched business car *Feather River*, crew sleeper *Willie*

James, dome coach *Columbine*, diner car *City of Denver* and porched business car *North Platte* brings up the markers.

These cars are available in many forms and from many sources, but as I have said before, don't break the bank trying to buy the brass cars. Don't make your significant other want to kill you for chasing models

HO versions of 1943 and 2066 sit ready to roll.





#1943 and power car 2066 head west along U.S. 30 in Nebraska.

that you “just have to have.” Remember that there’s usually a stand-in available at a fraction of the price of that OMI brass model you’ve had your eye on.

Here are two consists of actual UP steam trips:

Consist #1 - Cheyenne to Council Bluffs:

- Steam Locomotive UP 844
- Water Car "Jim Adams" UPP 809
- Water Car "Joe Jordan" UPP 814
- UP 2010 C45AC BSA Heritage
- Step Car UPP 9336 Boxcar
- Tool Car "Art Lockman" UPP 6334
- Boiler-Dorm Car "Howard Fogg" UPP 209

- Baggage Car "Lynn Nystrom" UPP 5714
- Souvenir Car "Reed F. Jackson" UPP 5818

Cars Added at Council Bluffs:

- Power Car UPP 207
- Crew Sleeper "Omaha" UPP 200
- Baggage Car "Council Bluffs" UPP 5769
- Diner Car "City of Los Angeles" UPP 4808
- Dome Diner "Colorado Eagle" UPP 8004
- Coach "Texas Eagle" UPP 5483
- Dome Coach "Columbine" UPP 7001
- Coach "Sunshine Special" UPP 5480

- Dome Coach "Challenger" UPP 7015
- Coach "Katy Flyer" UPP 5468
- Coach "Portland Rose" UPP 5473
- Coach "City of Salina" UPP 5486
- Business Car "Kenefick" UPP 119

Consist #2 - Cheyenne to Pacific Northwest/Seattle:

- Steam Locomotive UP 844
- Water Car "Jim Adams" UPP 809
- Water Car "Joe Jordan" UPP 814
- UP 1996 SD-70M SP Heritage
- Step Car UPP 9336 Boxcar
- Tool Car "Art Lockman" UPP 6334
- Boiler-Dorm Car "Howard Fogg" UPP 209



Business car 104 "North Platte" and two others wait to head out.

- Baggage Car "Lynn Nystrom" UPP 5714
- Souvenir Car "Reed F. Jackson" UPP 5818
- Power Car UPP 2066
- Crew Sleeper "Wyoming" UPP 201
- Baggage Car "Council Bluffs" UPP 5769
- Coach "Katy Flyer" UPP 5468
- Diner Lounge Car "City of Denver" UPP 5011
- Dome Diner "Colorado Eagle" UPP 8004
- Coach "Sunshine Special" UPP 5480
- Dome Coach "Columbine" UPP 7001
- Dome Coach "Challenger" UPP 7015
- Coach "Portland Rose" UPP 5473
- Theater Inspection Car "Fox River" UPP 420

I hope that this article helps you with assembling your business and excursion trips on your railroad. Until next time UP Hub followers, I bid you a good day and all aboard!



About the Author

Harry is a rancher in Nebraska who works with his father and grandfather to help run their 22,000-acre, 1,500-head of mother-cow, ranch.

Harry has been model railroading for over 20 years and models the Union Pacific Steam era from the 1930s to the 1960s, 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

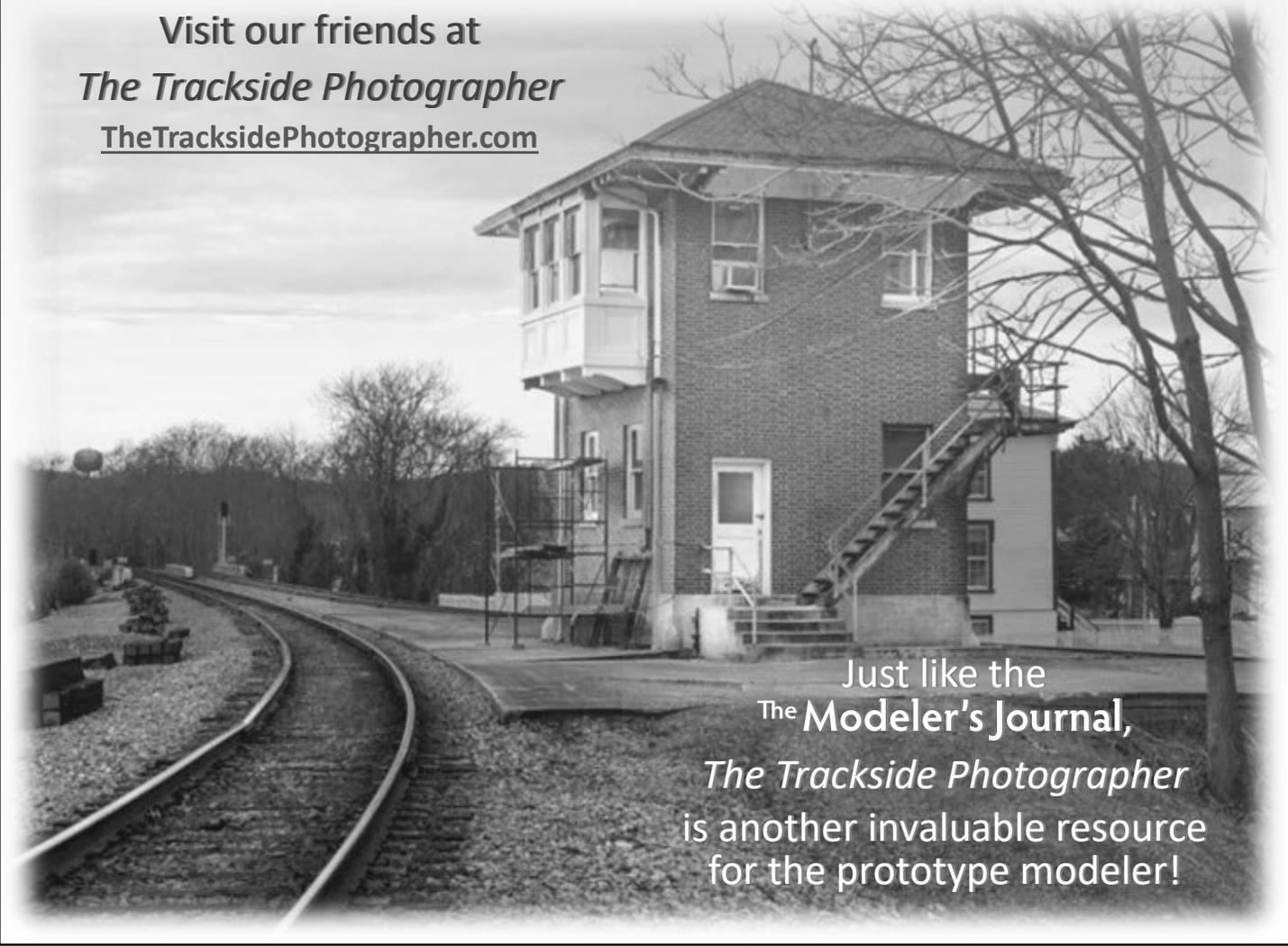
<https://www.youtube.com/channel/UC6-MPHmYU3Cc2uEVfjZDIcQ>.

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is another invaluable resource
for the prototype modeler!



By Jack Hykaway



Purple Craze Relief for London

Image by: ZeevoX [CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0/>)]

LONDON, one of the world's largest and most historic cities, is becoming busier and more congested as it continues to attract new residents, tourists, corporations, and students. In this new decade, the city is poised to grow even further, pushing its ancient systems to the limit. Bearing the brunt of this influx of people is London's vast and world-renowned transportation system, which has played an integral role in the city's dynamics essentially since its foundation.

However, London's transportation system was rather unremarkable until the mid-1800s. Up until then, the city's surface streets, which provided the only means of transportation, were congested with carriages. London's growth was suffering because of this congestion – workers flocked to the city because of the

immense industrial power and job availability, but they were not able to safely and efficiently get to and from their jobs.

This was changed for some in the early 1860s when a private company realized there was potential to make a profit on constructing and operating an efficient railway system, which would somehow avoid street-level obstructions, buildings, and congestion. They looked underground for space, and subsurface-tunneling began on the world's first underground metropolitan railway line. The aptly-named Metropolitan Line was completed in 1863, connecting Paddington station with Farringdon station and six intermediate stations.

Over the last 160 years, London has expanded its subway tunnels to connect over two-hundred stations and

create nearly-seamless connections with overground trains, double-decker buses, and the National Rail network. The underground plays an integral role in the city's movement – so integral that if the trains stop rolling, so does the city.

As times change needs change – and this is no exception for the underground network. It is consistently being pushed to capacity as outdated systems and infrastructures try to cope with volumes of people and trains that they were never designed for.

THE SOLUTION

A new east-west railway line, which slices through the heart of the capital city, is nearing completion. Called Crossrail, the opening of this high-capacity, high-speed under-

The Crossrail roundel logo. This is a take on the Underground's classic red-and-blue roundel. Public Domain.





Canary Wharf station under construction.

Photo by Egriffin [CC BY-SA (<https://creativecommons.org/licenses/by-sa/3.0/>)]

ground rail link promises to alleviate congestion on London's existing underground, overground, and bus networks.

The preliminary proposal for Crossrail, developed 30 years ago, was spearheaded at the time by British Rail and Transport London. Completed in 1993, this scheme studied the feasibility and the costs of completing such an immense project. The engineers' estimates put costs around the £2 billion mark due to the nature of the project and a large amount of precision tunneling that would be needed to complete the

route through the core of the city. The government was onboard for the project, even despite its steep price tag. The government was well-aware of the benefits that the new line would bring to the city's businesses and its citizens, as well as the positive economic impact it would have in the vicinities where it served.

In the following twenty years, Crossrail never got off the ground. Governments came and went, and so did several recessions when all spending was significantly limited. Finally, after several approval attempts, the Crossrail Act of 2008 delivered on

the government's long-time promise; it gave Crossrail a confirmed route that would span from Maidenhead and Heathrow Airport in the west to Shenfield and Abbey Wood in the east. Costs for the project were to be shared between the government, Transport for London (London's transportation authority), as well as the business community who would directly benefit from Crossrail's arrival.

The first soil was overturned at Canary Wharf on May 15, 2009, when Lord Adonis (the then-Transport Secretary), hammered the first pile



*Picture Inside the bore of a Crossrail tunnel. Rails and catenary have yet to be laid.
Photo by Matt Brown [CC BY (<https://creativecommons.org/licenses/by/2.0>)]*

Watch Crossrail TBM Video:



Watch Video

into the North Dock in the Docklands. This would later become part of the foundation of the Canary Wharf station, an elegantly-designed structure half-submerged in one of the old ports at Canary Wharf.

Tunneling began with the launch of Phyllis, the first of eight immense tunneling machines used for the project. Phyllis and her seven colleagues have successfully burrowed 42 kilometers of new tunnels. The

tunneling phase began in 2012 and was completed when Victoria – one of Phyllis’ colleagues – arrived at Farringdon in 2015. The eight colossal machines, 6.2 meters in diameter each- big enough to cut large bores, worked simultaneously 24 hours per day under the watchful and skillful eyes of the tunneling crews.

The Tunnel-Boring Machines (TBMs) were operated by 20-person crews. Precision is the name of the game;

tolerances were set to within inches on the Crossrail project. These all-in-one machines are a wonder of engineering in themselves – they simultaneously cut away the earth, remove the material via a conveyer belt, support the unstable tunnel walls, and then position pre-cast interlocking concrete segments to stabilize the tunnel. Two types of TBMs were necessary – one to bore through drier soil, and one to successfully bore through saturated soil



A prism mounted to the side of a building in central London measures any movement in the structure caused by the Crossrail construction underground.

Photo by Mtaylor848 [CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0>)]

where tunnel collapse is much more likely.

During the tunneling, conditions were excessively monitored on the surface using lasers and receivers. Any subsidence or disturbance to the ground would directly affect countless historical buildings in the heart of London. Vibrations were also suppressed as much as possible by the tunneling crew. To add to the pressure, Crossrail tunnels would pass mere meters below

some of the most expensive real estate in the world. A minor slip could have resulted in the loss of millions of dollars and unquantifiable historical damage.

The deepest point of the new line plunges to a staggering 40 meters below the surface. Each tunnel is twin-bored, meaning there is one tunnel for eastbound trains and one for westbound trains. At some stations, the twin bores join and open up to form a vast underground cav-

ern, giving the new stations a very spacious and airy feeling.

As of today, all tracks have been laid, and test trains are running through the new tunnels. East and west of London, revenue trains are already running between suburban stations. Most stations within the city are not yet completed, though some are closer than others. Subsequently, the project's opening date has been delayed by nearly two years. Crews are working tirelessly to complete



*Farringdon station is nearly complete.
The platforms are well-lit and are separated from the tracks by modern platform-edge doors.
Photo by Tom Page [CC BY-SA (<https://creativecommons.org/licenses/by-sa/2.0>)]*

the final touches on the project, and Crossrail is estimating that trains will be running through central London by summer 2021. At that time, Transport for London will operate the new line as the Elizabeth Line.

THE TRAINS

Crossrail has purchased a fleet of new trains to use on the Elizabeth Line. The Class 345 trainsets are built by Bombardier in Derby. They are 200 meters long – one of the longest trainsets to run as a commuter train in the UK. The trainsets have a capacity of carrying 1,500 passengers each, which gives the seventy-train fleet a staggering total

carrying capacity of just short of 105,000 people at any given time.

The trains are powered via a 25kV AC overhead line, which travels through the pantograph to electric traction motors mounted on the axles of each car. Since all axles are powered, and because the body of the trainset is built primarily of aluminum (very lightweight), these trainsets can accelerate and brake very quickly. This significantly shortens travel times between stations, especially if the stations are closely-spaced as they are on the central part of the route. The Class 345s can reach speeds of up to 90 MPH in open sections of the route.

These trains also host a regenerative-braking system (like engine brakes on a truck), where the traction motors slow the train and the energy is put back into the system instead of being bled away as heat like in traditional braking systems. Crossrail estimates that regenerative braking uses about 30% less energy.

As for passenger amenities, trains on the Elizabeth Line are air-conditioned, feature Wi-Fi and 4G access (even inside the tunnels), and are accessible to all riders. Each coach has spaces for luggage, strollers, and wheelchairs. The walk-through coaches are thoughtfully finished to provide the best ride



Purple A new Class 345 trainset sits at Shenfield.
 Photo by Sunil060902 [CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0>)]

See How a Trainset is Built:



Watch Video

possible - and the designers also followed a very purple theme!

FURTHER READING:

- <http://www.crossrail.co.uk/>
- <https://www.railwaygazette.com/vehicles/first-class-345-emu-enters-passenger-service-in-london/44712.article>
- <https://www.railwaygazette.com/transport-and-mobility-projects/elizabeth-line-through-central-london-now-expected-to-open-in-summer-2021/55525.article>

- <https://tfl.gov.uk/corporate/about-tfl/culture-and-heritage/londons-transport-a-history/london-underground>
- <https://tfl.gov.uk/travel-information/improvements-and-projects/preparing-for-the-elizabeth-line?intcmp=56250>
- https://en.wikipedia.org/wiki/British_Rail_Class_345

About the Author

Jack Hykaway is a student, currently attending a post-secondary institution in his hometown of Winnipeg, Canada. He is an amateur videographer and writer and enjoys exploring and documenting nearby railroads and railroad operations in both written and visual formats of his work.

Jack's main focus of late has been producing his column *Jack's Junction* for *The Modeler's Journal*.

Follow along with Jack's videography on his YouTube channel at <https://www.youtube.com/user/WinnipegRailfanner1>.



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*Purple moquette pops under the sunlight inside of a Class 345 trainset.
Photo by Sunil060902 [CC BY-SA (<https://creativecommons.org/licenses/by-sa/4.0/>)]*