

# Track Planning and Layout Design

By Steve Moore

Question! What does it take to successfully build and operate a model railroad?

You Need to be: Modeler, Architect, Archeologist, Historian, Researcher, Geologist, Electrician, Carpenter, Painter

You Need to be Dedicated:

- See it thru to the end
- Time
- Money
- Effort

*Model Railroading “..is a Journey of Learning and Discovery.”*

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Why Build a Model Railroad?

What are your Expectations?

## Design Goals

1. To have a model railroad that is satisfying to plan, build, operate, and share with friends.
2. To have a plausible or believable representation of a railroad in appearance and operation.

“The **purpose of layout design**, in my view, is to create a model railroad that depicts a **plausible** link in the national rail system at a particular **moment in time**.” -David Barrow, *How to Plan Your Layout*, June 1995 issue of Model Railroader Magazine.

3. Designed with the end in mind.

## Example

**Prototype Design:** follows the prototype in appearance and operation in roadnames, locations, and era.

**Prototype-Based Freelanced Design:** may follow some particulars of the prototype, but not all.

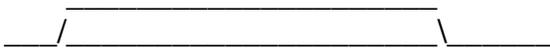
## Getting Started

- Point-to-point operation:  
True point-to-point operation, is more like what the prototype railroads do, moving people and freight from one point to another.
- “Sincere” Layout *John Armstrong* (meaning: a train passes only once through a given scene).

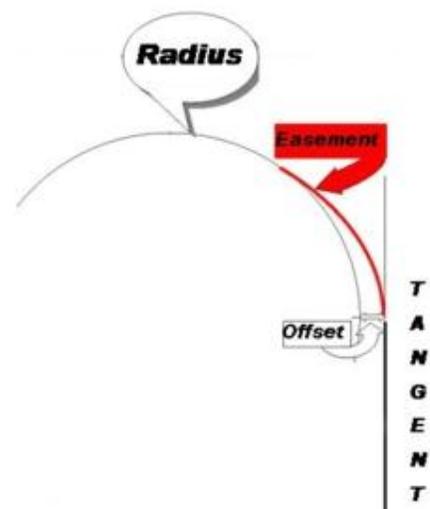
- Dedication: Time, Space, Money, Skills, Energy, Manpower

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- What attracts you to model railroading?
- What layouts have you seen: private, club, module, shows, magazines, TV, videos?
- What would you like to see on your layout?
- Previous experience building?
- Specific time or era, place in mind?
- Favorite prototype road name?
- Prototype or Prototype-based Freelanced Layout?
- Available space, (reality check)?
- Club, home, permanent, or modular layout?
- Moving in the next 20 years?
- Scale?
- Time, skills and money?
- Help building and operating the layout or are you going “Lone Ranger”?
- Train Control DC, DCC, other?
- Mainline or Switching layout?
- Minimum curve radius?
- Maximum grade?
- Industries?
- LDE’s, (*Tony Koester*- Layout Design Elements)?
- Mainline single, double, or multiple?
- Ample passing trackage?



- Easements, (if you are going to use them, allow for offset in the layout design)?
- Appropriate Turnout Size?



- How many People operating?

**Remember!**

“1<sup>st</sup> rule of layout design: Model railroads are always build by people, so the should always be built for people... I a word: Ergonomics.” – Don Mitchell  
(Quote was the 1<sup>st</sup> sentence in his Walkalong design book more than 30 yrs. ago)

- Single or multi-level layout?
- If multi-level, Helix?
- Interchange?
- Follow a prototype in operation and trackage?
- Linear, walk-along-side, or walk-into?
- Accessible staging or fiddle yard?
- Yard (classification or storage)?
- Train storage space?
- Turn consists and engines?
- Passenger service, freight only?
- Passenger service in operational plan?
- Crew Lounge area for operators?
- Engine facility (fuel stations, sand tower, and maintenance, or just a siding where a fuel truck can pull up trackside)?
- Car shop?
- Rip track?
- Caboose Track?
- Switch engine pocket?

**Research:**

- Historical and Modeling Societies
- RR Museums
- Local and State Historical Societies and Archives
- Personal Photos
- Topographical Maps
- Sanborn Fire Insurance Maps
- Prototype Magazines (Trains)

**Internet Research Resources:**

- Prototype RR Historical and Modeling Societies

- NMRA and SIGs
- Topographical Maps
- Modeling websites
- University Photographic collections
- Layout websites
- Railroad Museums
- Yahoo Groups
- Goggle maps, satellite, street level

**Givens and Druthers:**

Givens- Available space, money, skills (can improve, gain skills), available time (time can change), Energy.

Druthers- choices: (scale, era, equipment, location, etc.)

**Warning!!** Don't be in a hurry!

**Approach:**

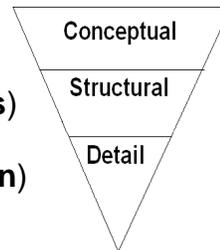
- Domino Approach- LDE's strung together in some logical pattern. -*David Barrow*
- Thematic Approach- taking the Givens and Druthers refining to purposeful arrangement. -*Byron Henderson*

**(Theme, Vision, Concept, Research)**

**(Givens, Druthers, Choices, Research, LDE Sketches)**

**(Refine, Final Design)**

Layout Design-Journal # 40



**Do's**

- Use only metal wheelsets, rollingstock, dummy locos.
- Use a side frame reamer, Reboxx or Micro-Mark.
- Keep all switching areas, and spotting locations, yards, sidings, level. Turnouts too.
- Make friends with a local hobby shop.
- Use appropriate turnouts for length of engines, rollingstock.
- Avoid "Duck-Unders". Short lift-out, swing-up or out section is much more ergonomically desirable.
- Use appropriate benchwork width. If necessary, access hatches.
- Choose an appropriate layout height so that you can easily access, and work on the top and underside of the benchwork.
- Use view blocks to isolate parts or scenes on the layout. This will make it seem like you are actually going from one place to another with your train, and will make your limited space seem larger.

## **Don'ts**

- Don't create a "spaghetti bowl". John Armstrong uses the term, a "sincere" layout design, meaning that a train only travels once through a given scene or area of a layout. This creates more of a true point-to-point operation, and is more like what the prototype railroads do, moving people and freight from one point to another.
- Don't use "Duck-Unders".

## **Suggested Reading:**

1. John Armstrong's *Track Planning For Realistic Operation*
2. *Model Railroading from Prototype to Layout* by Tony Koester
3. Andy Sperandio's *Model Railroader's Guide to Freight Yards*
4. *Layout Design Journal #40* (available at <http://www.lidsig.org/>)

***Whatever you do . . . have fun doing it!***

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