Model Railroad Yard Design
Model Yards Are Not Prototypical

- We try to follow the prototype to aid in designing a layout, but . . .
- The prototype doesn’t have the traffic density like our models do, so yard design needs to pay more attention to not interfering with mainline operation.
- The prototype doesn’t need staging yards.
What are your objectives for your classification yard?

• What type of yard do you want?
  Is the yard a:
  – Division point yard
  – Intermediate yard
  – Local or industrial yard

• How many cars/trains will be switched?

• How long is your longest train?

• Do you need engine facilities?

• Are there other service tracks needed?
The BIG Question

How much are you willing to—

compromise?
What are the “rules” for a class yard design for your layout?

- Does not need to be large to offer operational possibilities
- Not a yard for storage of trains or rolling stock
- Does not need complex track work to offer operational enjoyment
- Can be designed for a specific purpose
  - Coal marshaling yard
  - Intermodal yard
  - Industrial
What are the “rules?”

Let’s look at the Ten Commandments for designing a model railroad classification yard.

Following these rules will help to provide a model yard that will enhance model railroad operations.
The First Commandment

Thou Shalt Not Foul the Main

• Model railroads have too much traffic—fouling the main will have serious impacts on operations

• Exceptions:
  – Lightly used branch line (one or two trains a day)
  – Pure switching layouts
The Second Commandment

Thou Shalt Provide a Dedicated Lead Track

• Backbone of the yard
• Tightly linked to the first commandment
• Turnouts should be facing point where possible
• Lead track should be as long as longest yard track
• Lead can do double duty (branch line, industrial lead, etc.)
The Third Commandment

Thou Shalt Not Foul the Yard Lead

- If yard lead serves double duty, keep the interference to a minimum
- Try to keep the lead free of crossings, turnout access to other tracks, etc.
- If unavoidable, try to coordinate so other activity fouls lead as little as possible
The Fourth Commandment

Thou Shalt Use Arrival/Departure Tracks

• One or more tracks used to temporarily hold cars while trains are broken down or built up
• Should not be used as classification track
• Need access from yard lead for switching
• Number of tracks needed depends on how busy (and big) the yard is
The Fourth Commandment

Thou Shalt Use Arrival/Departure Tracks

- May need to provide escape for engines after cutting off trains
- Don’t use as passing track if you can help it
- Needs direct access to yard lead, but not necessarily to yard body tracks
The Fifth Commandment

Thou Shalt Provide a Caboose Track

• Can be single or double-ended
• If stub track make sure it uses a facing-point turnout
• Best is to locate off yard lead or one of the A/D tracks if possible
• Lots of modeling opportunities (service platform, blue flags, time restrictions, specific crew assignments, etc.)
The Sixth Commandment

Thou Shalt Provide a Runaround

• Can locate off yard lead or ladder
• Needs to have clear track at least as long as longest car or locomotive
• The longer the better (within limits)
• Two are better than one (can be crossover or similar trackage)
The Seventh Commandment

Thou Shalt Be Able to Reach Everything

- General reach limit is 24”-30”
- Derailments
- Throwing turnouts
- Locomotives stalling
- Cleaning track
- Maintenance
The Seventh Commandment

Thou Shalt Be Able to Reach Everything

- Consider an access area if needed
- Can be access hatch or separate aisle on other side of yard (if there’s room, of course)
The Eighth Commandment

Thou Shalt Provide Auxiliary Tracks

• Basically non-revenue tracks
• These can be “storage” tracks
  – RIP (repair-in-place) tracks
  – MOW/wreck train tracks
  – Reefer icing
  – Cleanout track
  – Engine service tracks
The Eighth Commandment

Thou Shalt Provide Auxiliary Tracks

• Locate auxiliary trackage along layout edge if possible
• Great modeling opportunities
• Offers additional industries for operation
The Ninth Commandment

Thou Shalt Not Overcrowd the Yard

• Good rule of thumb is to have yard filled to no more than \( \frac{1}{2} \) capacity at any time.

• This \( \frac{1}{2} \) rule can also apply to individual yard tracks, depending on how they are used.

• If yard clogs often consider off-layout storage, or out-in-the-country storage trackage.
The Ninth Commandment

Thou Shalt Not Overcrowd the Yard

- If there is room in staging consider running an extra train to take yard overflow
- Don’t be afraid to add another yard track if traffic warrants
The Tenth Commandment

Thou Shalt Make It Easy to Run

- Provide a diagram or schematic with track types shown in various colors
- Consider a switch matrix so an entire switching route can be selected with a single button push
- If yard is large and complex consider using multiple panels
The Tenth Commandment

Thou Shalt Make It Easy to Run

• Make sure your track work is problem-free
• Provide a schedule to yard operators showing the schedule or order of trains, what destinations and blockings are appropriate for individual trains, and any special pickups or setouts
A Sample Yard

- main line
- a/d track
- to engine service & aux. tracks
- caboose
- yard lead
- yard body
- run-around
Tips for Class Yard Design

• Use curved switches to save space

• Be generous with switch size
  – Remember, there is a lot of forward and reverse switching moves in a yard

• Use double-ended class tracks if switching from both ends

• Stub ended tracks take less space and provide more storage capacity

• Double-slip and 3-way switches save space but can be “temperamental”. Use with caution
More Tips for Class Yard Design

• Add shelves for paperwork and put yard tracks to the front
More Tips for Class Yard Design

- If possible, label tracks to help operators locate classification tracks.
More Tips for Class Yard Design

• Have places for paperwork that are easy for operators to use
Staging yards

- Two kinds of staging yards
  - Stub ended
  - Double ended
- Stub ended
  - Takes up less space
  - Need to manually turn trains for next op session
- Double ended
  - Uses more space
  - Can prevent need to 0-5-0 trains between op sessions
Stub end staging yards

- Easier to “hide” on the layout—can have a 1 or 2 track stub end staging yard behind a backdrop
- Can pack longer trains in same space with stub end yard
- Less expensive
- Need to manually turn trains
Double ended staging yard

- Combine double ended staging yard with reverse loop to minimize handling of train and still provide out and back operation, and possibly continuous running potential
- Can use this design for loads-in/empties-out operation
- Requires more space and more turnouts
Tricks for Saving Space with Staging Yards

• Put staging yards behind backdrops or buildings
• Locate staging yards above and/or below layout, remember:
  – Z is free!
• Stack staging yards on top of each other
• Multiple small staging yards vs. one large one
• Put staging yard in room other than layout room
The NUMBER 1 question about staging is:

- How many staging tracks do I need?
- The “theory” is $2 \times N + 1$, where $N$ is the number of tracks you think you need
- The real answer is . . .

—You will NEVER have enough!
References

Sources of guidance:

• *The Model Railroader’s Guide to Freight Yards* by Andy Sperandeo, published by Kalmbach

• *How to Build Realistic Layouts – Freight Yards* published by Kalmbach