Yards, Trains and Destinations: Planning Model RR Operations

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What IS Model RR “Operations”?

(My opinion): A model railroad “designed for Operations” is designed to replicate the look, feel, purpose and tasks of actual railroad operations.
That means moving traffic for a purpose

• Haul coal?
• Passenger service?
• Granger service?
• Bridge line?
• Branch line?
• Single industry?
• Port service?
• Class-1 (Manifest freight, unit trains and yards?)
Ways to move freight and serve customers

- Pickup/setout via trains out of staging
- Local trains and turns from on-layout yards.
- Peddler freights or way freights staged on the layout.
- Switchers dedicated to a town or industry.

All above can be designed WITH and WITHOUT yards

But there is still an origin and destination for traffic.

Common needs for all:
- Train(s) to run
- Cars to deliver and pickup
- Industries, towns, stations or locations to service
Getting Started Planning your operation

• Make a list of all the industries, or industry spurs, or towns, you are modeling.
• Creating a ‘schematic’, or simple line drawing, showing the towns or industries, in order, can help.
• Decide how trains will serve each town:
  – Run directly from staging to the town or industry?
  – Originate from a yard, town or other industry?
  – Work WITHIN the industry?
• Single staging yard connected to both ends (C&S, KCS 3rd)
  – Provides for automatic restaging between sessions.
  – With a sincere layout, loaded coal trains always run one direction, empties the other, so no need to change out coal loads etc.
  – Can provide for continuous running (for an open house, etc.)

• Staging yard at each end (ATSF Panhandle)
  – Provides room for more trains (nearly double if both are the same size.)
  – Harder to restage: need to turn trains or have a reverse loop, or run around locos and cabooses if used. May need to remove/replace loads in open cars.

• No staging yard.
  – Can use on-layout tracks like yard or interchange tracks that cars are pulled from or set-out to.
  – Off layout cartridge, “fiddle yard”, etc.
  – Ideal for smaller layouts, layouts that model a single industry like a steel mill or switching in a single town, etc.
On-layout staging: Coeur d’Alene

This Coeur d’Alene Industrial Park layout is an operating layout at 13’ x 7’ in HO.

“Staging” tracks for interchange traffic, inbound and outgoing.

A schematic is not really need for this: a list of all the spurs, and car types needed for each, is all that is necessary.
A simple example: Coeur d’Alene

Operation here could consist of a single job that:
1. Picks up cars from the interchange tracks.
2. Delivers to the various spurs (each should be named)
3. Returns cars picked up at the spurs to the interchange tracks.

For a new session, just flip the car cards or generate a new switch list.
Coeur d’Alene Industry Switchlist Example

<table>
<thead>
<tr>
<th>Color</th>
<th>Action</th>
<th>Type</th>
<th>Car</th>
<th>To/At</th>
<th>Load</th>
<th>From</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>✅</td>
<td>Deliver</td>
<td>reefer</td>
<td>RS47</td>
<td>Denson Fruit</td>
<td>beef</td>
<td>Elm St Yard</td>
<td><img src="image" alt="beef" /></td>
</tr>
<tr>
<td>✅</td>
<td>Deliver</td>
<td>50ft box</td>
<td>XM7</td>
<td>Russel Potato</td>
<td>potatoes</td>
<td>Elm St Yard</td>
<td><img src="image" alt="potatoes" /></td>
</tr>
<tr>
<td>✅</td>
<td>Send</td>
<td>50ft box</td>
<td>XM5</td>
<td>Team Track</td>
<td>Empty</td>
<td>Elm St Yard</td>
<td><img src="image" alt="empty" /></td>
</tr>
<tr>
<td>✅</td>
<td>Send</td>
<td>50ft box</td>
<td>XM11</td>
<td>Idaho Springs</td>
<td>Empty</td>
<td>Elm St Yard</td>
<td><img src="image" alt="empty" /></td>
</tr>
<tr>
<td>✅</td>
<td>Send</td>
<td>50ft box</td>
<td>TM20</td>
<td>General Electric</td>
<td>Empty</td>
<td>Elm St Yard</td>
<td><img src="image" alt="empty" /></td>
</tr>
<tr>
<td>✅</td>
<td>Deliver</td>
<td>50ft box</td>
<td>SM29</td>
<td>Idaho Springs</td>
<td>tinplate</td>
<td>Elm St Yard</td>
<td><img src="image" alt="tinplate" /></td>
</tr>
<tr>
<td>✅</td>
<td>Return</td>
<td>50ft box</td>
<td>XM8</td>
<td>Elm St Yard</td>
<td>appliances</td>
<td>General Electric</td>
<td><img src="image" alt="appliances" /></td>
</tr>
<tr>
<td>✅</td>
<td>Return</td>
<td>reefer</td>
<td>RS211</td>
<td>Elm St Yard</td>
<td>frozen food</td>
<td>Russet Potato</td>
<td><img src="image" alt="frozen foods" /></td>
</tr>
</tbody>
</table>

Switchlist and diagram from Train Player™ Software. This software, available at [http://www.trainplayer.com/](http://www.trainplayer.com/) is a great tool for designing and then testing the operations on a model railroad, before committing to build it. An operating version of the KCS 3rd Sub is included.

This would work just as well with car cards: just flip the cards each session.
A small layout with more operating options

- Could run a “road switcher” from the staging cassette to Town 2.
- Main line running through “Field”
- Local switcher in Town 2
- Interchange traffic w/ NS.
- Can you think of other ways to operate this?

Another example of a smaller layout, this one using a staging cassette.
Now let’s take a look at the KCS 3rd Sub

Mushroom / upper level.

“Mushroom” concept.

Looks complicated, right? But not really ....
Same diagram with less detail
The layout reduced to a simple line drawing

• **HOW?** “Play train”: look at the track diagram, and follow it, listing or putting the towns/industries in order as you encounter them.

• The complicated looking KCS 3rd sub, for a southbound train starting at north staging, consists of the following towns in order:
  – Watts
  – Stilwell
  – Marble City
  – Sallisaw
  – Spiro
  – Poteau

Not shown: There is a small yard in Sallisaw, major yard in Heavener, and branch lines at Marble City and Heavener.
ANY layout can operate as a “point to point”

The KCS 3rd is actually a circle! So are the C&S and Green Country. So you CAN do this with any layout. Not so different from the “basic oval” at right!
So how did we decide how to operate this?

• (We cheated: we just copied the prototype.) BUT with the C&S, which is a similar layout, we had to invent the operation. It turns out both operations are VERY similar.

• Some trains just run across the layout from staging to staging.

• Others run the whole layout but drop cars at various locations.

• Some trains originate from one of the two yards (from cars delivered there by other trains) to service one or more towns or industries.

• Some jobs are local and start and end on a branch line, industry, or in a yard or town.
Train routes on the KCS 3rd

Division Manifests: drop and pickup at Heavener

“Super Dog”: drop and pickup at Sallisaw, Marble City and Westville
### KCS 3rd Example Work for a Dodger

**Waldron Dodger**

**SWITCH CARS CAREFULLY AND SAFELY**
**AVOID ROUGH HANDLING**

<table>
<thead>
<tr>
<th>Engine</th>
<th>Train</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCS 799</td>
<td>WD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Departs</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:20</td>
<td>Heavener</td>
</tr>
</tbody>
</table>

**CREW:**

**Manifest Leaving Heavener at 11:20**

**Waldron PICKUPS:**

<table>
<thead>
<tr>
<th>RN</th>
<th>CAR INFO</th>
<th>TRACK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- KCS 153294 wax. Brown L 066 Furniture
- GATX 91713 Tank Chem Black E 007 Furniture
- ATSF 308205 imp. Cou-Food Tacos E 009 Scott County Feed
- KCS 310538 imp. Cou-Food Tacos E 009 Scott County Feed
- KCS 503045 Woodship Brown E 011 Inti Paper
- GATX 8184 Tank Food Day E 005 ValMac
- ACFX 88588 Tank Food Black E 005 ValMac
- ATSF 300358 imp. Cou-Food Brown L 005 ValMac
- AMCX 6609 Hsp. Cou-Chems Gray L 007 Furniture
- KOITX 879 Tank Oil White E 010 Clglo

**Waldron SETOUTS:**

<table>
<thead>
<tr>
<th>RN</th>
<th>CAR INFO</th>
<th>TRACK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- OGRW 15307 imp. Cou-Food Gray E 005 ValMac
- KCS 308684 imp. Cou-Food Tacos E 005 ValMac
- CNW 400026 imp. Cou-Food Yellow L 005 ValMac
- WP 4006 Box Brown L 006 Furniture
- RAIX 8183 Tank Chem Blue E 007 Furniture
- GATX 98934 Tank Chem White E 007 Furniture
- SP 496688 imp. Cou-Food Gray L 009 Scott County Feed
- SCLX 516 Tank Oil Orange E 010 Clglo

*Note: this is a PARTIAL switchlist.*
Yard Basics

• **Purpose**
  – Prototype yards generally exist to sort and route cars.
  – Some are used to store cars until needed.

• **Yard capacity (considerations for smooth operations)**
  – If trains will be built at the beginning of the ops session, there should be room for all cars needed to make up outbound trains.
  – If trains are built “just in time”, (after arrival of trains with inbound cars) room is only needed for the number of cars that will be dropped.

• **Operation**
  – Switched by passing or originating crews
  – Dedicated Yard crew(s)

• **Configuration**
  – Single-ended
  – Double-ended
Car Routing Analysis: Heavener Yard

Trains:
• 2 NB Manifests
• 2 SB Manifests
• Sallisaw Dodger
• Ft. Smith Dodger
• Waldron Dodger
• Heavener local

Concept:
1. Cars move between off-layout (Shreveport, Pittsburg) and Heavener.
2. Cars move from Heavener to various towns and industries.
3. Cars delivered to Sallisaw may move on another train.
Yard Design
Yard Design

- Ideally, there should be a track dedicated to each major town or destination, or for each outbound train.
- Can be based on prototype if you have sufficient information on how the prototype operated, and sufficient room for the required tracks.
- If space is lacking, tracks can be shared for multiple destinations, but, there should be a way to indicate the destination so cars are easily marshalled for outbound trains or trains exchanging cars.
KCS Heavener Yard Schematic
KCS Heavener Yard (Drill end) Pictures
C&S Osage Yard
Example: KCS 3rd Drill Switchlist for train 82
Collecting cars from the classification tracks

Scheduled work for train (FSD) Ft Smith Dodger
Departs Heavener Northbound at 06:30

<table>
<thead>
<tr>
<th></th>
<th>Pickup</th>
<th>KCS</th>
<th>4106</th>
<th>GP30</th>
<th>from 5 Spiro &amp; Sallisaw</th>
<th>ADDRESS 4103</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pickup</td>
<td>KCS</td>
<td>4103</td>
<td>GP30</td>
<td>from 5 Spiro &amp; Sallisaw</td>
<td>ADDRESS 4103</td>
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<tr>
<td></td>
<td>Pickup</td>
<td>WP</td>
<td>38214</td>
<td>Box</td>
<td>Brown from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Poteau</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>KCS</td>
<td>116313</td>
<td>Box</td>
<td>Tuscan from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Poteau</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>KCS</td>
<td>17927</td>
<td>Box</td>
<td>Brown from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Poteau</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>RBOX</td>
<td>34431</td>
<td>Box</td>
<td>Orange from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Poteau</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>ABOX</td>
<td>51238</td>
<td>Box</td>
<td>Yellow from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>ULTX</td>
<td>70873</td>
<td>Tank Oil</td>
<td>Black from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>ACSX</td>
<td>933025</td>
<td>Tank Gas</td>
<td>Gray from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>ACFX</td>
<td>79621</td>
<td>Tank Oil</td>
<td>Black from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>NP</td>
<td>76905</td>
<td>Hop Cov</td>
<td>Gray from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>CCR</td>
<td>6207</td>
<td>Box</td>
<td>Blue from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>CP</td>
<td>80977</td>
<td>Box</td>
<td>Green from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>KCS</td>
<td>29900</td>
<td>Hop Cov</td>
<td>Brown from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>VUHX</td>
<td>103</td>
<td>Hop Cov</td>
<td>Green from 6 Poteau &amp; Ft Smith</td>
<td>-&gt; Ft Smith</td>
</tr>
<tr>
<td></td>
<td>Pickup</td>
<td>KCS</td>
<td>331</td>
<td>Caboose</td>
<td>Silver from Caboose</td>
<td>-&gt; Heavener</td>
</tr>
</tbody>
</table>

‘Trim’ job collects cars from the classification tracks, and blocks them in switching order. The train crew could also do this themselves.
Delivering the freight

Sallisaw Dodger

Quarry Job

Super Dog
Thank you.

Want more information? See the KCS 3rd Sub web site (and sign up to operate if you like!) at kcs3.webs.com/ Or email Steve Davis at SteveDavis@skylinecomputing.com