

NMRA – GREAT LAKES EXPRESS 2007

Clinic on

**BASIC MODEL
RAILROAD OPERATION**

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WHAT YOU NEED

LAYOUT REQUIREMENTS

DISPATCH BOARD

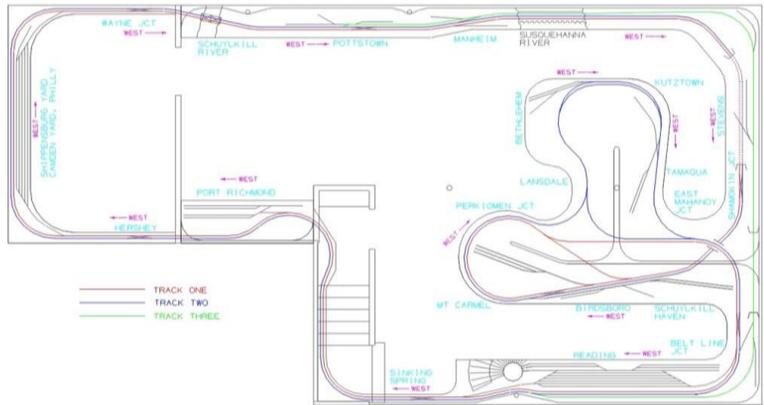
TRAIN ORDERS

OPERATORS

QUESTIONS

BASIC MODEL RAILROAD OPERATION

WHAT YOU NEED-



READING LINES, CENTRAL DIVISION
OPERATORS SYSTEM MAP

Layout

Of course, to operate trains on a layout, you need a layout! Your layout can be as small as a 4x8 with a loop of track and 2 or more sidings, or as large as a basement empire with 2 or more levels. Of course, the larger the layout, the more people you'll need and the more trains you can run and probably have more fun.

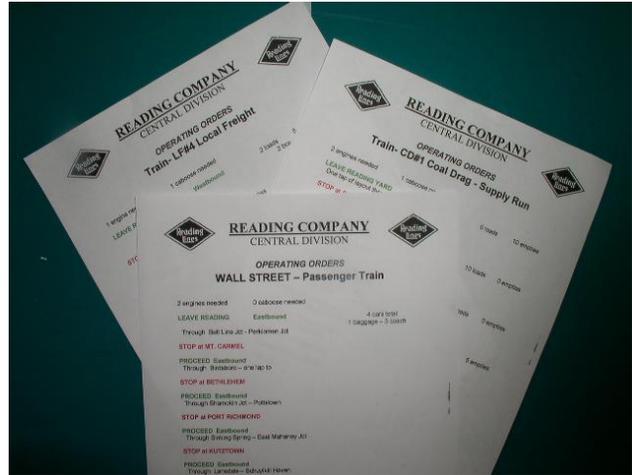


Dispatch board

Depending on your layout size, you'll need a Dispatch Board. This Board will allow you to keep track of trains on the layout and keep them running without any corn field meets, hopefully!

BASIC MODEL RAILROAD OPERATION

WHAT YOU NEED-



Train orders

In order to operate, or run trains on your layout, train orders, switch lists, instructions of some sort are needed. Sure you can simply make it up as you go, but that is a bit too random for real operations. The proto-type never ran trains on a “whim” and where-ever they wanted, neither should you.



Operators

While you can operate by yourself, I believe most of us have already experienced the fact that having friends help you with your railroad is much more enjoyable. Operations, even simple ones, are the same way, so get some friends involved for some fun!!

BASIC MODEL RAILROAD OPERATION

LAYOUT REQUIREMENTS

Main line and passing sidings complete

As mentioned in my opening, you must **have** a layout to operate and your layout has to be completed to a minimum, in order to operate properly. At a bare minimum, your mainline and all sidings should be in place. Turnouts can be all hand thrown, so powering turnouts can wait.



Staging or main yard

You should also have at least one yard on your layout, either a main yard and/or a staging yard. These are where your trains will start and/or stop when their duties are complete. And you need someplace to store extra rolling stock, in order to switch these with cars that are at industries on your layout.



Can operate 2 or more trains at one time

While you can certainly operate with only one train, that can get a bit boring, as there is no challenge in getting your switching completed before another train has to use the mainline. And in operating only with one train, you've pretty much eliminated the need for anyone else to have fun with you as you operate. I would suggest that your layout needs to support at least a 2 train operation, so block wiring and/or all DCC wiring should also be complete, before we begin operating the layout.



BASIC MODEL RAILROAD OPERATION

LAYOUT REQUIREMENTS

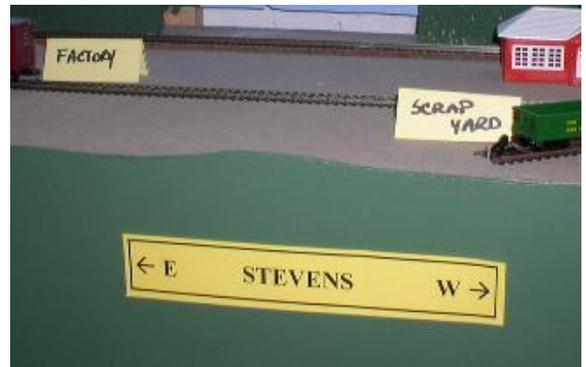
Layout direction – East-West/North-South

If we are going to operate trains in some sort of order, we need direction! This includes direction of the trains travel, such as north-south, east-west. You can decide what direction your layout is running and almost anything is correct. Your mainline should be in one direction and branch lines can be in other directions.



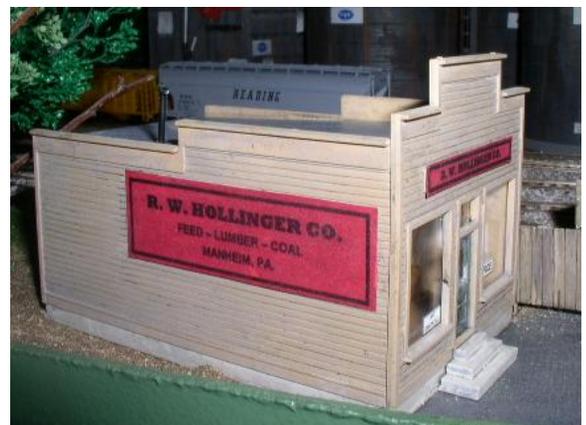
Make labels and post around layout during construction

Once you've decided on direction, you should also name towns and industries for your sidings. Make simple signs on a computer, print them off and post around your layout. You can even do this before the track is complete. You can also name junctions of track, cross-overs, number signal bridges and even name road crossings. All of these names reference points will enable the Dispatcher to hold a train at any given location on the layout.



Gets visitors and friends familiar with layout directions

With signs all around your layout, your friends, visitors and even you, will start to remember locations/directions as you build the layout. When it's time to operate, many will be familiar with the layout and names, which will aid them in operating trains on the layout. It's a great thing to do and as early as possible, as once named, you can start to refer to "places" on the layout by their name, not just "over in the corner".....



BASIC MODEL RAILROAD OPERATION

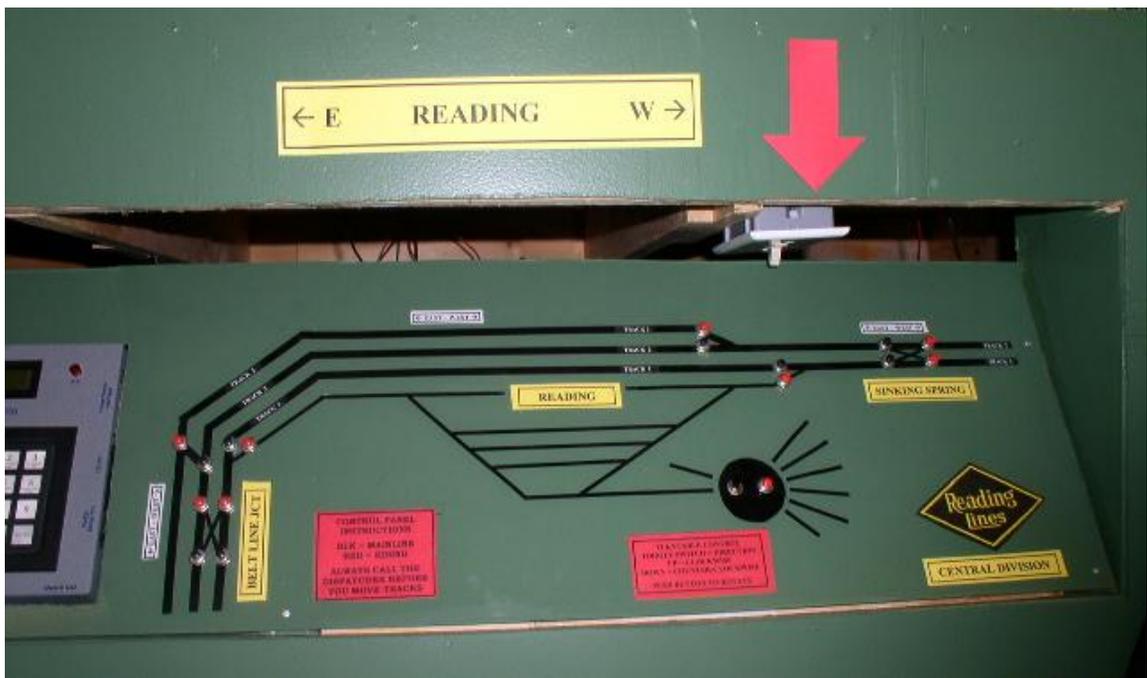
LAYOUT REQUIREMENTS

DCC works best, cab control OK –

with Cab Control, operators throw blocks, DCC no block switches
Yes, DC-Block control will work for operations, even if the operators have to throw/switch their own blocks on local control panels. It will complicate the evening, but it can be done. Best practice for block control is to have all blocks thrown by a Dispatcher, which means that a dispatch panel with block control switches and wiring needs to be in place before operations should begin. That in itself is quite a job to complete! DCC is easier, as there are no blocks to throw/switch, so the dispatch panel can be very simple, as we'll soon see.

All turnouts thrown by operators

As mentioned before, turnouts need to be installed for sidings and crossovers if you are using a double track mainline. BUT, they can all be hand thrown for the time being. Dispatcher controlled turnouts and/or local panel control of turnouts can happen later, as the rest of the layout is finished. Depending on the brand of turnouts, ground throws should be used to insure positive throw and to maintain the direction of the turnout. Peco turnouts are spring-loaded, so ground throws would not be necessary.



BASIC MODEL RAILROAD OPERATION

DISPATCH BOARD

Made of sheet steel/metal

For our simple dispatch board, we need a piece of sheet metal, frame it and paint it whatever color you like. The size needs to be big enough to put a schematic drawing of your track plan on it. You should have this schematic track plan already drawn to the size you want and then measure how big your metal needs to be. Sources for sheet metal would be found in the yellow pages.



Can be throw-away drawing of layout

If sheet metal is not available right away, see if you can get a few copies made of your schematic track plan at a local print shop. You can use these copies and mark on them directly or like the metal dispatch board we really want, place train indicators around the paper plan. Sticky notes or even train indicators of cardboard would work.

Paint and clear coat

As mentioned, paint your sheet metal with several coats of good spray paint. Let it cure for a few days and then add a couple coats of clear coat. Let that cure for several days too.

Automotive pinstripe tape

Available at automotive stores, pinstripe tape usually comes in 3 sizes, 1/16" 1/8" and 1/4" widths. I used the 1/4" for the main lines and 1/8" for sidings, crossovers, etc. If you want a curve in the tape, gently press your finger on the tape as you bend the tape to your curve size.

Layout in line/schematic form, include all tracks and sidings

You need to create a schematic drawing of your layout's track plan. It's best to start at a yard and go in one direction. Once you get back to your start point, you can determine if you need to make a break points and have the schematic on 2 or more lines. You should draw out all track, including sidings, crossovers, etc. Do not worry about trying to do this to a scale.

Computer made labels

Now it's back to the computer and some simple word processing to create labels for your schematic track plan. Or there are label makers that also do a great job. Make labels for the town names, direction of train travel- north-south-east-west, and for any special features like junctions, bridges, etc. You can label as much or as little as you want.

Protective cover

Once everything is on the board, it would be nice to have a plastic cover to protect your work. Clear acetate or perhaps lamination material would work as a clear covering.

BASIC MODEL RAILROAD OPERATION

DISPATCH BOARD

Styrene train blocks

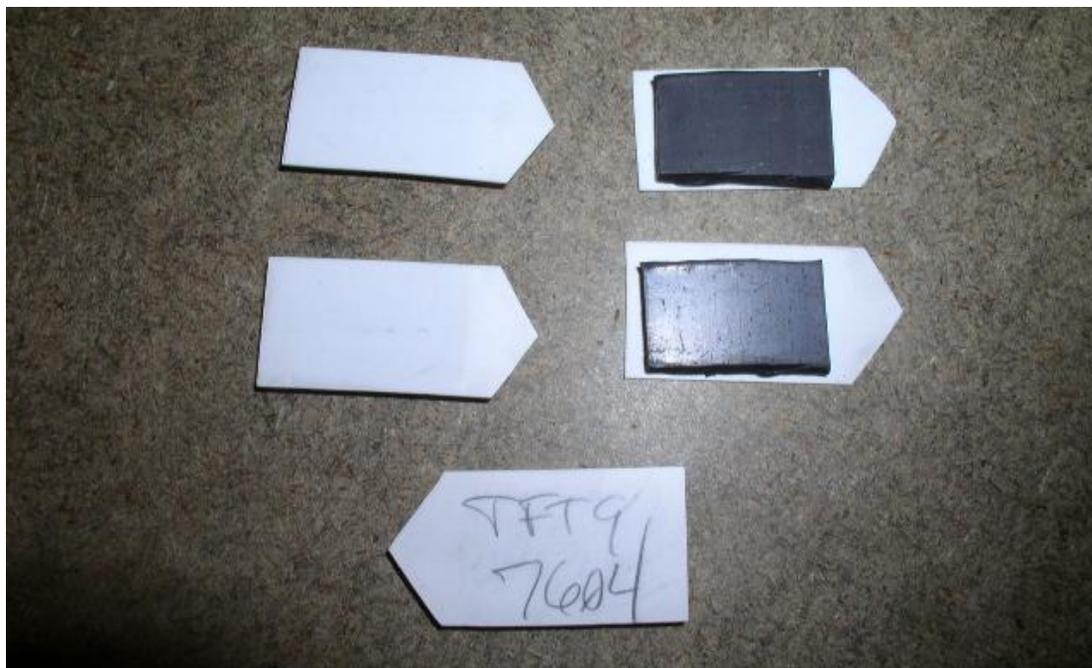
Using regular sheet styrene, in approx. 1/16" thick, cut out the shape seen in the photo. These are 1" x 2" including the point. You should make 3-4 of these times 1/2 the number of trains you think you will have on your schedule.

Easy to write on and erase using pencil

In using regular styrene, it is easy to write on and erase regular pencil on and off of these train indicators. The Dispatcher would write the train number, engine number and any other small important info he chooses. Of course, he writes on the indicator so that the direction of the trains travel corresponds with the arrow end of the indicator.

Use refrigerator magnets or buy business card magnets

To use these train indicators on your dispatch board, you need some thin magnet material. One good source of magnets would be all of the types of flexible refrigerator magnets that are given out free from many businesses.



BASIC MODEL RAILROAD OPERATION

TRAIN ORDERS

Start mapping out a train

Once the list is complete, you start mapping out a train, indicate direction, keeping in mind which direction for trailing point switch moves. Simply mark a start point, 1, 2 or 3 sidings to stop at and an end point. Once you have 6 to 8 trains mapped out on the matrix, it's time to "write" out the train order.

Write type of car and how many only

Using your matrix and train order "map", you now assign the type of cars that will be in your train and how many. This system is based on a simple swap of cars of the same type- box car for box car, hopper for hopper, etc. For open cars like hoppers, it's nice to have loads in those to be picked up and empty ones to replace them, which adds to the fun of moving cars/commodities around your railroad world.

List towns not specific industries, unless known

On your train orders, list the towns, maybe the sidings if there is more than one in the same direction and if they are known, the industry.

No timetable or fast clock – all trains are "extras"

In this operating system, all trains are run as extras, there is no timetable, except for an estimated start time for each train, which is in place to try to keep the trains spaced on the system, so the Dispatcher is not overwhelmed with too many trains at once.

NUMBER	TRAIN NAME DESIGNATION	direction	Time out	Schuykill Haven	Mt. Carmel	Tamaqua	Pottstown	Bethlehem	Manheim	Kutztown	Stevens	Port Richmond	Birdsboro	Sinking Spring	Hersey	Wayne Jct	Shamokin Jct	Perkiomen Jct	East Mahanoy Jct	Belt Line Jct	Lansdale	Reading	Candem	Reading yard	Candem yard	Ship/burg yard
1	CD 1 coal drag	west	8:00 PM	1				3														2		start end		
2	PT 6 Pottstwn Trn	west	8:15 PM				1																	start end		
3	CD 7 coal drag	east	8:30 PM		1	2						3												start end		
4	LF 4 local freight	west	9:00 PM					2			1		3											start end		
5	WALL ST passenger	east	9:20 PM		1			2	5	4		3												start end		
6	TFT-9 transfer run	east	9:40 PM																						start end	
7	LF 12 local freight	west	10:00 PM								1	2												start end		
8	KING COAL passenger	west	10:20 PM				2				5		3	4	1									start end		
9	CD 14 coal drag	east	10:40 PM									2										1		start end		
10	LF 8 local freight	east	11:00 PM						1	3												2	4	start end		
11	CD 2 coal drag	west	11:20 PM		3			1			2													start end		
12	CRUSADER passenger	east	11:40 PM		3	2										4	5					1			end start	
13	LF 5 local freight	west	12:00 AM					1					2											start end		
14	TFT-3 transfer run	west	12:05 AM																						end start	



**READING LINES - CENTRAL DIVISION
DISPATCHER SCHEDULE SHEET**

BASIC MODEL RAILROAD OPERATION

TRAIN ORDERS

Types of orders-

- Through freights
- Local freights (switching)
- Passenger
- Dedicated trains- coal drags, unit trains

Actual Orders

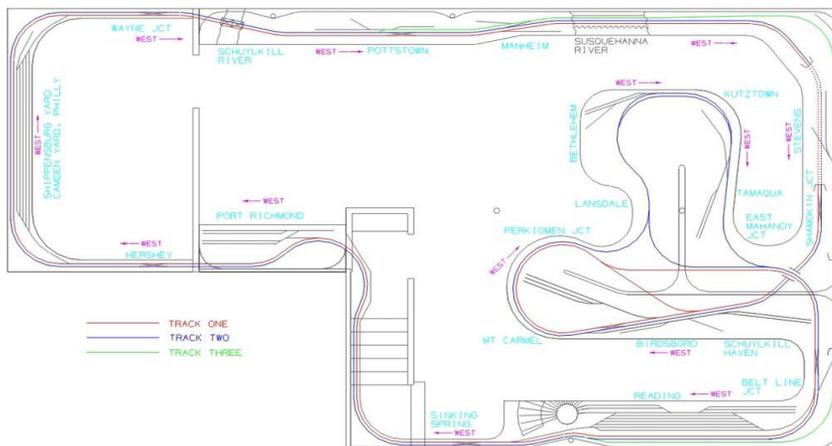
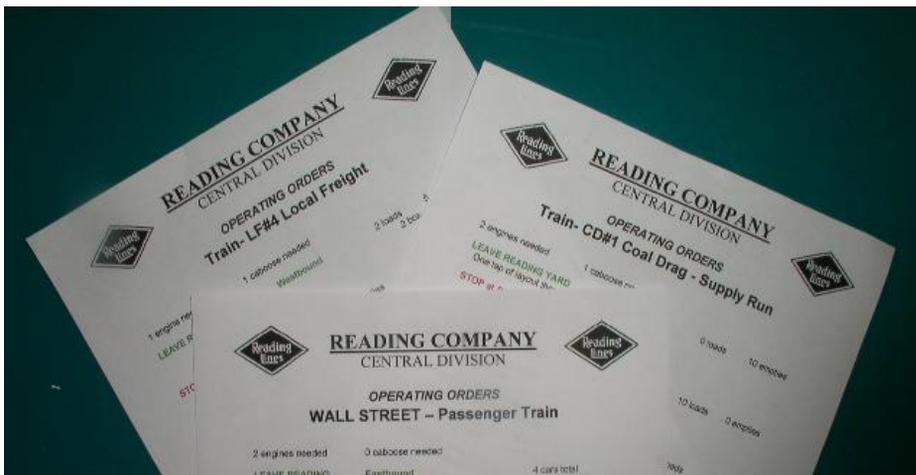
Now that they are printed, place them in protective slip covers.

Small map of layout with names/directions

On the back side of the train orders, place a map of your layout with the names of items labeled. This is for the operators to refer to while they are operating.

K.I.S.S.!!!

Keep it Simple..... Silly!!..... plan your train moves with trailing point switching, 1, 2 or 3 stops only, train is always in same direction, non-complicated orders- this is supposed to be fun, not a brain teaser!





READING COMPANY
CENTRAL DIVISION



OPERATING ORDERS
Train- PT#6 Pottstown Turn

1 engine needed

LEAVE READING YARD

1 caboose needed

Westbound

2 loads 6 empties
8 box cars

One lap of layout then to-

STOP at POTTSTOWN

AT Pottstown Machine Co.

drop 3 box empties

pick-up 3 box loads

AT Auchenbach & Sons

drop 2 box loads

pick-up 2 box empties

AT Varcraft Works, Inc.

drop 3 box empties

pick-up 3 box loads

PROCEED Westbound

6 loads 2 empties

One lap of layout then to-

STOP at READING YARD

drop 6 loads and 2 empties

caboose to storage track

engine to service facilities

END RUN



READING COMPANY
CENTRAL DIVISION



OPERATING ORDERS

Train- CD#2 Coal Drag - Supply Run

1 engine needed

LEAVE READING YARD

1 caboose needed

Westbound

5 loads 7 empties

12 open hopper

One lap of layout then to-

STOP at BETHLEHEM STEEL

drop 5 loads

pick-up 5 empties

PROCEED Westbound

0 loads 12 empties

One lap of layout then to-

STOP at STEVENS TRUCK DUMP

drop 2 empties

pick-up 2 loads

PROCEED Westbound

2 loads 10 empties

One lap of layout then to-

STOP at SCHUYLKILL HAVEN Mine #2

drop 10 empties

pick-up 10 loads

PROCEED Westbound

12 loads 0 empties

One lap of layout then to-

STOP at READING YARD

drop 6 loads and 2 empties

caboose to storage track

engine to service facilities

END RUN

BASIC MODEL RAILROAD OPERATION

OPERATORS

Friends, fellow model railroaders, whoever

I know you all know other model railroaders... so invite them over for some fun. How many to invite...

2 person crews- engineer & conductor/brakeman

Experience shows that a 2 person crew is better and more fun. This way you get to interact more and with a 2 person crew, one is the engineer and the other the conductor/brakeman, who handles the "paperwork" train orders. Sure one person can run a train and for through trains or passenger trains not requiring switching, a one person crew is OK.

How many trains X 2 people + one = total

So how many trains did you plan on running? On my layout I have 14 trains scheduled for an operating session, although we've never gotten through all 14. I think we've come as close as 11 or 12! Another quick question is how many trains should a person be allowed to run? Do you want visitors to run 1 or 2 trains on your schedule? So by example, on the Reading Lines, with 14 trains, I like to have about 20 people.

Extra person is dispatcher! Can also have yard master

Using the figure of 20 people to operate my railroad, that really leaves 18 people to run trains. One of those 20 is the Dispatcher and another, usually me, is the Reading Yard Master. In that role I can assign locomotives and get the scheduled trains going on time as much as possible. And it allows me to trouble shoot the layout, in case something happens. With 18 people to run 14 trains, some will get to run more than one, which is good if the first train they run is a passenger or through freight, that does not have much operation to it.



BASIC MODEL RAILROAD OPERATION

Radios are more fun

Headset type works great

Family radios will work too

While the norm seems to be to use headset type radios, many are finding that the personal radios work very well too, and they are actually more like the radio, hand held, that a real railroad crew would use. They can also be less expensive! Radios are important, in my opinion, as it eliminates shouting across the layout room for instructions! It also adds a little more bit of realism to the operations.



Food, munchies, beverages add to nights activities

I would guess this item almost goes without saying... food and refreshments will help make the evening nicer. And you really can't expect your guests to go without refreshments for 3-4 hours during an operating session!! This can be as little or as much as you want. I usually consider an operating session, especially when another group has been invited over, a special occasion and plan on a light dinner of pizza or maybe a party sub. This too depends on your family budget. Whatever you decide, make your guests as welcome as possible.



THANKS for listening to my operating methods. I hope you found something useful to use on your railroad. If you would like a copy of my layout matrix and a sample of the train orders, email me (barry76Lt@wowway.com) and I will email you the files, one at a time. You can then download these files and edit them to your railroad.

Thanks again... now time for questions.....

The End

