



Tri State Model Railroaders

Member and Visitor Layout Guide



TSMRI LAYOUT GUIDE

The information presented herein has been developed for Tri-State Model Railroaders (TSMRI) members as a basic guide to the layout for their own general information or for use when talking to or answering questions from visitors during monthly open houses and the Ride the Rails functions.

TSMRI

- Tri-State Model Railroaders, Incorporated, is a domestic non-profit corporation registered with the Corporations Division of the Office of the Georgia Secretary of State.
- The TSMRI draws its membership from the western North Carolina, eastern Tennessee, and north Georgia area. There are currently 49 members of the TSMRI.

THE BUILDING

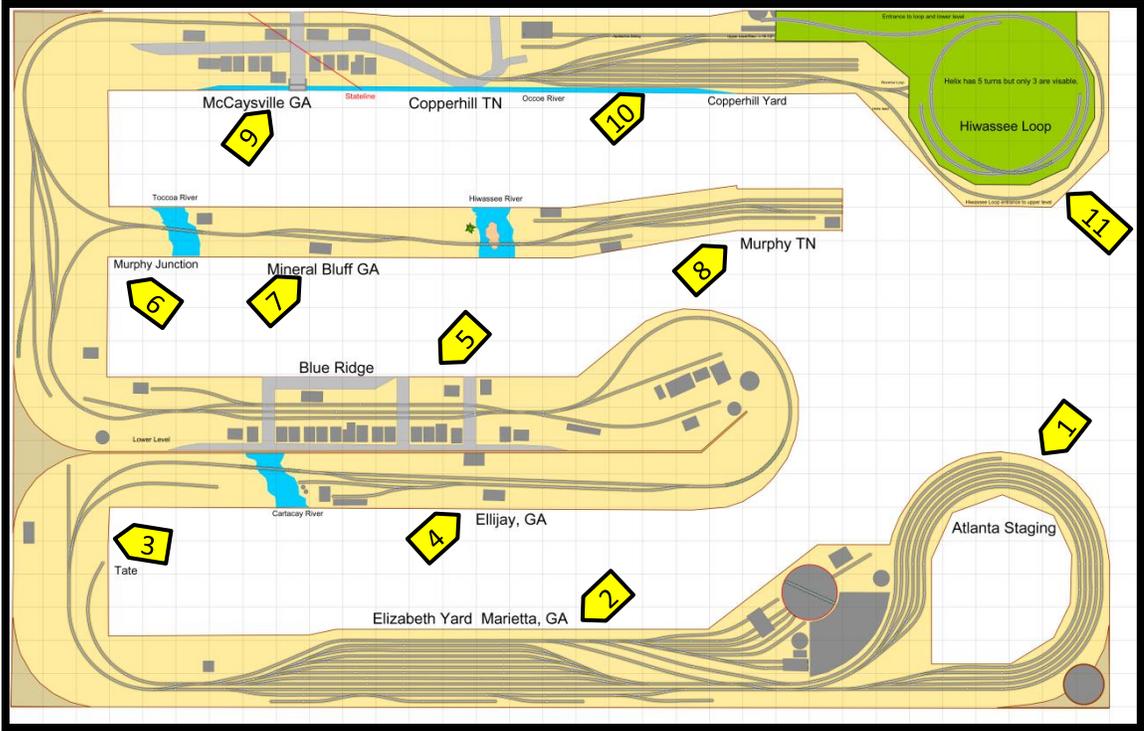
- The TSMRI layout is housed in the Mineral Bluff (GA) Depot.
- Built in 1887, the building has been entered into the National Register of Historic Places.
- Over 130 years old, the depot is the oldest public building, and one of the oldest structures in Fannin County.

THE LAYOUT

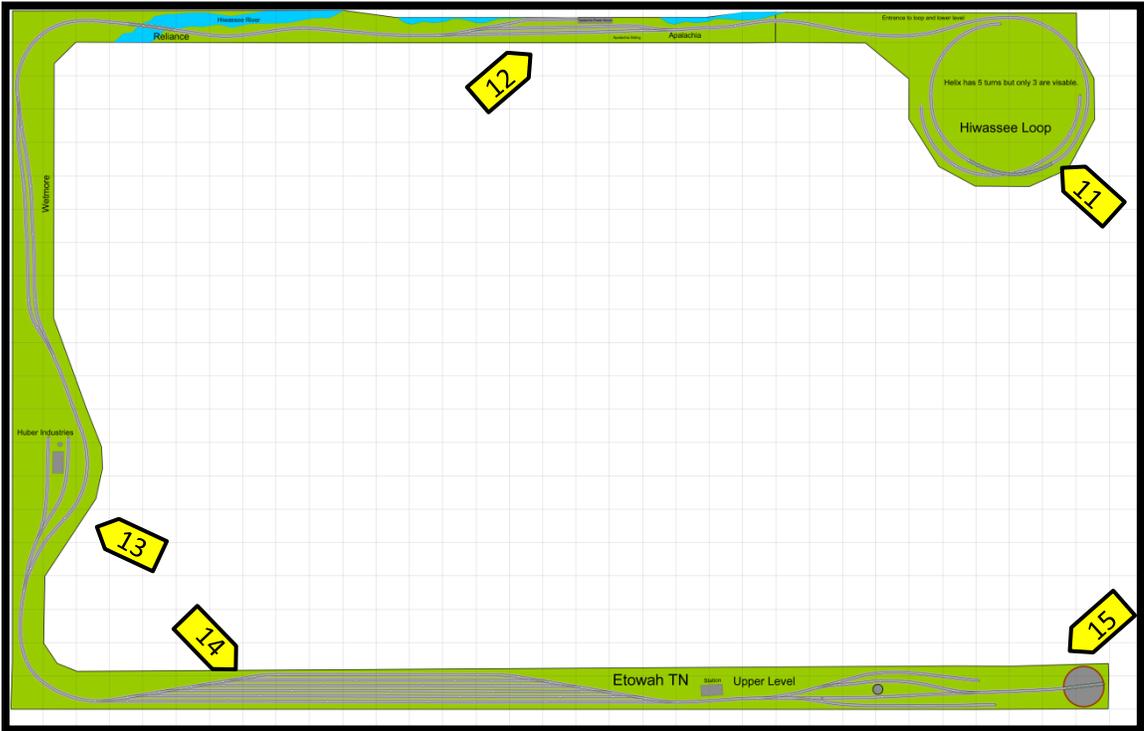
- The layout represents the Louisville & Nashville (L&N) Railroad “Old Line” that ran from Atlanta to Etowah, TN, with a branch line to Murphy, NC.
- The era represented is circa 1950.
- The layout is HO scale (1:87) and occupies a space of approximately 22' X 37'.
- The single track main line is approximately 200' in length.
- The height of the lower level of the layout ranges from 43” to 48” with a maximum grade of 2.15%.

FYI: Percent grade is determined by dividing the elevation change by the distance covered (also known as the rise divided by the run) and multiplying the result by 100.

- The height of the upper of the layout is 62”. Trains travel between the two levels via a unique helix with exposed and hidden loops that represent the Hiwassee Loop (described later).



TSMRI "Old Line" Lower Level



TSMRI "Old Line" Upper Level

POINTS OF INTEREST



ATLANTA

The Atlanta yard tracks and turntable on the layout are not intended to represent any particular geographic location in Atlanta. They serve as the storage and staging facilities for TSMRI trains entering or departing the “Old Line” tracks through Marietta.



MARIETTA, GA (ELIZABETH YARD)

For TSMRI, the Elizabeth Yard in Marietta provides the interchange point between the L&N main line that ran between Atlanta and Chattanooga and the L&N “Old Line” running to Etowah, TN.

The Elizabeth Yard still exists in Marietta and serves as the interchange point between the CSX Railroad main line from Atlanta to Chattanooga and the Georgia Northeastern Railroad (GNRR). The GNRR is a short line railroad with operating authority from Marietta to the GA/TN state line at McCaysville. GNRR provides freight services from Marietta to Whitestone (located between Ellijay and Jasper). Additionally, the track between Blue Ridge and McCaysville is used by the Blue Ridge Scenic Railway.



3 TATE, GA

Tate is an unincorporated area in Pickens County, GA, but is on the National Register of Historic Places for its marble heritage. The **Georgia Marble Company** and historic Tate House are both located in Tate.

The Georgia Marble Company was founded in 1884 by Samuel Tate. Tate leased out all the land in Pickens County, Georgia, United States, that contained rich Georgia marble. Pickens County has a vein of marble 5 to 7 miles (8.0 to 11.3 km) long, a half mile wide, and up to 2,000 feet deep.

Georgia marble has been mined for decades and has been used to create historic architecture around the world, including the Lincoln Memorial, twenty-four columns on the east front of the U.S. Capitol, The National Air and Space Museum, the East Wing of the National Gallery of Art, all in Washington, D.C., the Federal Reserve Bank in Cleveland, OH, and the Buckingham Fountain in Chicago, IL.



4 ELLIJAY, GA

Ellijay is the county seat of Gilmer County. Agriculture is important in Gilmer County, known as the "Apple Capital of Georgia." The city holds an annual Georgia Apple Festival in October.

This area was long ago settled by cultures of indigenous peoples. It was known as part of the homeland of the historic Cherokee people. They had a village here, at the merging of the Ellijay and Cartecay rivers, which together form the Coosawattee River.

Gilmer County was organized by territory cut from Cherokee County in 1832, and Ellijay was designated as its county seat in 1834. It was a fairly isolated and remote mountain community until the late nineteenth century. After the Marietta and Northern Georgia Railroad (later the Louisville and Nashville Railroad) was constructed through here in 1884, the railroad stimulated a boom in the timber industry by providing a profitable way to get lumber to markets. Many timber companies came into the area with their workers.

The bridge pictured here is over the Cartecay River, just North of the present-day Ellijay Post Office.



5 BLUE RIDGE, GA

Blue Ridge came to fruition after the Marietta & North Georgia Railroad traveled to Fannin County. The rail went through the state at the highest point, at 1,751 feet altitude.

In 1886, when Blue Ridge established itself in Fannin, the county declared itself the “Switzerland of the South” on all promotional brochures, leading guests and tourists to believe this was the must-see location. In 1895, Blue Ridge was declared the county government’s primary and most worthy location. The Senate and House approved a permanent change after a nearly eight-year war between Morganton and Blue Ridge. If the rail line had never come to Blue Ridge, the town might not be as inspiring and iconic as it is today. The Blue Ridge Depot remains one of the area’s most iconic artifacts that still operable today.



9 MCCAYSVILLE, GA

At the northern end of Fannin County bordering the state line of Georgia and Tennessee is the historic mountain town of McCaysville founded in 1904 and the second largest town in Fannin County. Now a tourist destination, McCaysville was once considered only a railroad and mining town along with its neighboring border town of Copperhill, Tennessee. Though separate towns themselves, together they form one community with two independent histories. Copperhill is the older of the two communities being founded after copper was discovered in the region in 1843.



9 COPPERHILL, TN

Copperhill, Tennessee is located in the southeast corner of the state. It gets its name from the copper deposits found in the copper basin in 1843.

The bridge in the center of town offers a unique event. The water going under the bridge is officially the Toccoa River, Georgia, and the water coming out the other side is the Ocoee River, Tennessee.



10 After the discovery of copper ore, the rush was on. More than 30 mining operations would spring up over the next few years. The mining companies used smelting to separate the copper from the rocks, and timber was cut to fuel the smelters. The resulting deforestation and sulfuric acid (acid rain) devastated the environment. The copper basin became a barren man made dessert of red clay that covered thousands of acres. Eventually, mining companies started collecting the sulfuric acid and restoration efforts began. Thousands of new trees were planted and water quality standards were put into place.

Work in Progress



The original TSMRI model of the Hiwassee Loop (shown below) was recently removed to allow for reconstruction with a more gradual grade and wider radius curves.



11 THE HIWASSEE LOOP

When the line was first finished in 1890, it consisted of multiple switchbacks in the tracks in order to gain elevation while crossing the high mountains. This was done to meet construction deadlines, but the switchbacks proved inefficient and before long the railroad was looking for an alternative. They soon decided to loop the tracks around Bald Mountain, creating one of only three points in the United States where railroad tracks loop over themselves to gain elevation in limited space.

This loop in the tracks, completed in 1898, coupled with a double "S" curve near Jasper, Georgia gave the old line its nickname of the Hook and Eye Line. The "S" curves made up the hook and the loop made the eye.

12 APALACHIA, NC

Built in 1890 and named for the old community of Apalachia, this station served as the maintenance headquarters for the Old Line Railroad between McFarland and Copperhill. Southbound trains used the railroad siding at Apalachia Station as a "doubling track." When a train was too heavy to climb the mountain, the crew would leave part of the train in the siding, take the rest of the train to Farner, and then return to Apalachia to pick up the remainder.



13 RELIANCE, TN

Reliance is an unincorporated community in Polk County, Tennessee, and is located on the Hiwassee River. It is the site of the Huber Manufacturing and Timber Company as well as logging operations in the area.



14 ETOWAH, TN

Northern terminus point for the “Old Line”. The “Old Line” connected to the L&N Railroad at that location.

Etowah remains a crew change point for the CSX Transportation.

The CSX Etowah Subdivision goes from Etowah, TN, to Cartersville, GA, and is part of the Atlanta Division, Southern Region of CSX Transportation.



15 TSMRI’s depiction of Etowah features a yard for terminating and originating trains, as well as a turntable to allow for reversing arriving locomotives for their return trips.

THE MURPHY BRANCH LINE



6 THE “WYE” AT MURPHY JUNCTION (Located just north of Blue Ridge)

A “wye” is a triangular joining arrangement of three rail lines. The configuration allows incoming trains to travel in either direction or to pass from one line to another. The “wye” also provides a means to turn equipment or an entire train around.

The “wye” at Murphy Junction provides access to the Murphy Branch line from either direction as well as a means to reverse a train or equipment.



7 MINERAL BLUFF, GA

Build as part of the Marietta & North Georgia, the line originally extended through Mineral Bluff and reached Murphy, NC, in about 1886, as a connection with what became the Southern Railway. The L&N abandoned the section beyond Mineral Bluff to Murphy in the late 1970's.

Now home to the Tri-State model Railroaders, the Mineral Bluff Depot was built in 1887, and has been entered into the National Register of Historic Places. Over 130 years old, the depot is the oldest public building, and one of the oldest structures, in Fannin County.



8 MURPHY, NC

Built as part of the Marietta & North Georgia, the line reached Murphy, NC, in about 1886 and connected with what became the Southern Railway. This was originally supposed to be part of a line to Knoxville, but the M&NG pushed north from Murphy Junction. (NE of Blue Ridge) to reach a line being extended south from Knoxville via Etowah, TN. That line became the famous L&N Hook & Eye route. It would seem that the line via Murphy between Asheville and Atlanta would have formed a short cut versus trains taking the Southern Railway route via Saluda to the main line in Spartanburg, but this line was very curvy, had bad grades, and was not efficient to use at all. As a result, the L&N abandoned the section between Mineral Bluff and Murphy in the late 1970s, and the track was removed.

TSMRI POWER UNITS

- TSMRI currently has approximately 36 locomotives available for use.
- As was the case in the late 1940's and early 1950's, there is a mixture of steam and diesel locomotives.
- Diesel trains began to replace steam in the late 1930's; however, it took over ten years for diesels to be the standard motive power used by railroads.
- In the 1950s, diesels had pretty much completely taken over for steam power, as they were easier to maintain, and more efficient. Diesel locomotives required less maintenance and fewer crew members to run, although diesels often were assigned in pairs (MU'd / consisted together) to provide enough pulling power for a train, as a steam locomotive had more tractive power than a diesel.
- **Steam locomotives**

4-6-2 Pacific



2-8-2 Mikado



- Steam locomotives from the era are stored in the roundhouse at the Atlanta yards, and are occasionally used for TSMRI operations.
- Steam locomotives such as the two shown above were classified and identified by the number of wheels. Common were 4-6-2 and 2-8-2 locomotives.
- The first number refers to the number of leading or pilot wheels, which helped guide the locomotive into curves and also provided support to the front of the boiler. The second number refers to the number of driving or powered wheels. There were also differences in the diameter of the drivers depending on whether the locomotive was designed for passenger service (speed) or freight service (power). The third number refers to the number of trailing wheels, which provided support for the fire box and the locomotive cab.

- **Diesel locomotives**

EMD GP7



- The EMD GP7 is a four-axle diesel-electric locomotive built by General Motors Electro-Motive Division (EMD) and General Motors Diesel between October 1949 and May 1954. Power was provided by an EMD 567B 16-cylinder engine which generated 1,500 horsepower. The GP7 was the first EMD road locomotive to use a “hood unit” design instead of a car-body design. This proved to be more efficient than the car body design as the hood unit cost less to build, was cheaper and easier to maintain, and had much better front and rear visibility for switching.
 - A “hood unit”, in North American railroad terminology, is a body style for diesel and electric locomotives where the body is less than full-width for most of its length and walkways are on the outside. In contrast, a cab unit has a full-width car-body for the length of the locomotive and walkways inside.

ALCO RS-3



- The ALCO RS-3 is a 1,600 hp diesel-electric locomotive manufactured from May 1950 to August 1956 by American Locomotive Company (ALCO) and its subsidiary Montreal Locomotive Works (MLW). A total of 1,418 were produced: 1,265 for American railroads and the remainder for Canadian, Brazilian, and Mexican railroads. The successor to the RS-1 and RS-2, the RS-3 was built with a single 12-cylinder ALCO Model 244 engine. The RS-3 greatly resembled the design and appearance of its predecessor, but had 100 more hp (1,600 hp) and some changes to the fuel system and body shape. Much like the RS-1, many RS-3's served for decades; some were still in use as of 2021.

EMD F-7



- The F7 was the fourth model in EMD's successful line of F-unit locomotives, and by far the best-selling cab unit of all time. In fact, more F7s were built than all other F-units combined. The F7 succeeded the F3 model in EMD's F-unit series, and was replaced in turn by the F9. A total of 2,393 cab-equipped lead "A" units and 1,463 cabless-booster or "B" units were built. F7s remained in service for decades, as the railroads found them economical to operate and maintain. However, the locomotive was not popular with yard crews who operated them in switching service because they were difficult to mount and dismount, and it was also nearly impossible for the engineer to see hand signals from a ground crew without leaning way outside the window. In later years, with the advent of the "road switchers" such as the EMD GP7, F-units were primarily used in "through freight" and "unit train" service where there was little or no switching to be done.

EMD NW2 Switcher



- The EMD NW2 is a 1,000 hp switcher locomotive manufactured by General Motors Electro-Motive Division of La Grange, Illinois. The NW2 was manufactured from February 1939 to December 1949. 1145 were produced, with 1,121 for U.S. railroads, and 24 for Canadian railroads. Starting in late 1948 the NW2s were manufactured in EMD's Plant #3 in Cleveland, Ohio.

ROLLING STOCK

- TSMRI currently has approximately 200 rail cars on the layout.
- Keep in mind that many railcars you may be more familiar with did not exist during the era represented by TSMRI. Those include such specialized cars as autoracks (automobile carriers), Trailer On Flatcar (TOFC or Piggyback), Container On Flatcar (COFC), or the deep well, double-stack container cars frequently seen on contemporary trains that came along much later than the 1950's.
- Freight cars

Boxcar



- A boxcar is the North American term for a railroad car that is enclosed and generally used to carry freight. The boxcar, while not the simplest freight car design, is probably the most versatile since it can carry most loads. Boxcars have side doors of varying size and operation, and some include end doors and adjustable bulkheads to load very large items. Boxcars can carry most kinds of freight. Originally they were hand-loaded, but more recently mechanical assistance such as forklifts have been used to load and empty them faster. Their generalized design is still slower to load and unload than specialized designs of car which have been introduced, and this partially explains the decline in boxcar numbers since the 1950's.

Refrigerated car



- A refrigerator car (or "reefer") is a refrigerated boxcar, a piece of railroad rolling stock designed to carry perishable freight at specific temperatures. Early reefers were ice-cooled, but now come equipped with any one of a variety of mechanical refrigeration systems.

Tank car



- A tank car is a type of railroad car or rolling stock designed to transport liquid and gaseous commodities. One of the most prolific car types you will find moving within a freight train today is the tank car. This versatile piece of rolling stock has long been used to handle liquid or liquefied products, usually some type of chemical or petroleum-based commodity. Its use has increased over the years, diversified to also include food-based products and ethanol.

Sulfur Tank Car



- A sulfur tank car is a specialized type of tank car designed to transport molten sulfur. The tank is insulated and also has lines running through the tank to allow steam to be circulated to make unloading the liquefied sulfur possible after transport.

Open hopper car



- An open hopper car is a type of railroad freight car used to transport loose bulk commodities such as coal, ore, rock, and track ballast. This type of car is distinguished from a gondola car in that it has opening doors on the underside or on the sides to discharge its cargo. The development of the hopper car went along with the development of automated handling of such commodities, with automated loading and unloading facilities.

Covered hopper car



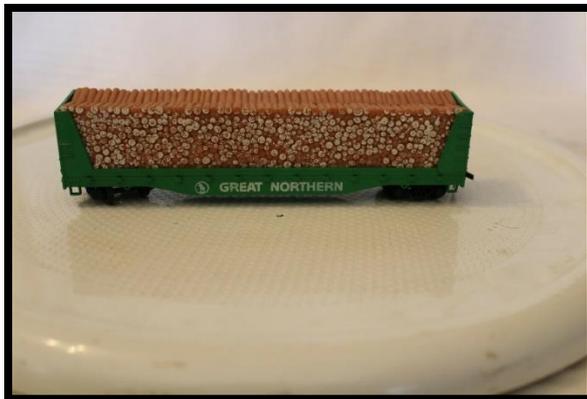
- A covered hopper is a self-clearing enclosed railroad freight car with fixed roof, sides, and ends with openings for loading through the roof and bottom openings for unloading. Covered hopper cars are designed for carrying dry bulk loads, varying from grain to products such as sand and clay. The cover protects the loads from the weather. Dry cement would be very hard to unload if mixed with water in transit, while grain would be likely to rot if exposed to rain.

Flatcar



- A flatcar is a piece of rolling stock that consists of an open, flat deck mounted on a pair of trucks, one at each end containing four wheels. During the era represented by TSMRI, flatcars were usually 40 to 50 feet long and 10 feet wide. The deck of the car can be wood or steel, and the sides of the deck can include pockets for stakes or tie-down points to secure loads. Flatcars designed for carrying machinery have sliding chain assemblies recessed in the deck. Flatcars are used for loads that are too large or cumbersome to load in enclosed cars such as boxcars (such as slabs of marble from the Georgia Marble Company).

Bulkhead (pulpwood) flatcar



- A type of specialized flatcar, bulkhead flatcars are designed with sturdy end-walls (bulkheads) to prevent loads from shifting past the ends of the car. Loads typically carried are pipe, steel slabs, utility poles and lumber, such as “pulpwood” (short logs, as shown in the picture) which was a significant product shipped from here. Bulkheads are typically lightweight when empty.

Logging car



- A logging car was basically a specialized flat car designed to haul large timbers from a lumbering site to a mill. Many of the cars consisted only of two trucks fitted with cross supports over truck bolsters with the trucks connected by a skeleton or flexible frame and logs loaded lengthwise on cross supports. In many cases, these would be owned and operated by private railroads to support a particular customer or group of customers.

Gondola (railcar)



- A **gōn'**-dō-la (first syllable emphasized) is an open-topped railcar used for transporting loose bulk materials. Because of their low side walls, gondolas are also suitable for the carriage of such high-density cargos as scrap metal, steel plates or coils, or bulky items such as prefabricated sections of rail track. The standard gondola resembling a flatcar with low sides generally measures somewhere in the range of 50 feet with a capacity of nearly 100 tons. Gondolas are distinct from hopper cars in that they do not have doors on their floor to empty cargo.

Gondola (boat)



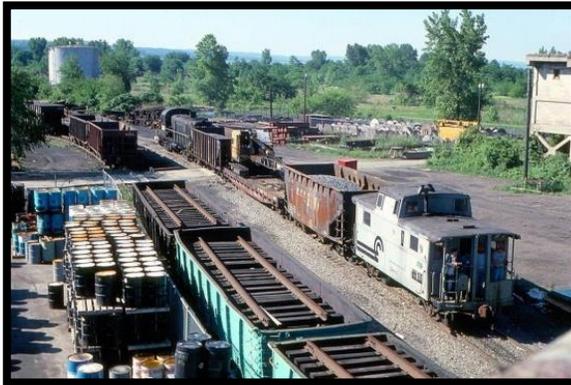
- A gōn-**dō**'-la (second syllable emphasized) is a traditional, flat-bottom Venetian rowing boat, well suited to the conditions of the Venetian lagoon. It is typically propelled by a gondolier, who uses a rowing oar, which is not fastened to the hull, in a sculling manner and also acts as the rudder.

Caboose



- A caboose is a crewed North American railroad car coupled to the end of a freight train. Caboose provided shelter at the end of a train for crew, who were formerly required in switching and shunting, keeping a lookout for load shifting, damage to equipment and cargo, and overheating axles. The caboose also served as the conductor's office, and on long routes included sleeping accommodations and cooking facilities. Caboose were used on every freight train in the United States until the 1980s, when safety laws requiring the presence of cabooses and full crews were relaxed.

Work Train



- In addition to standard freight cars, railroads have special cars such as cranes that could be combined with flatcars, gondolas, hopper cars, and a caboose to make up work trains. Work trains are tasked with maintenance jobs such as replacing of track, replacing crossties, putting down new ballast, even or replacing or installing a turnout (switch).

Passenger Coach



- For regional/local passenger service, the 64-passenger Pullman-Standard coach was commonly in use on U.S. railroads, to include the L&N. Variations included Pullman sleeper cars, dining cars, and baggage cars. Passenger service on the L&N Old Line ended in 1951.

CONTROL UNITS

- TSMRI trains are operated by means of DCC (Digital Command Control). Each locomotive has a digital decoder with a number address that allows operators to control individual locomotives independently of other equipment.
- DCC is a system where digital commands (speed, direction, locomotive sound, lights, horn, bell, etc.) are sent to the locomotives through the rails by the use of on board decoders and handheld control units.
- TSMRI digital controls are by Digitrax such as the model UT4 below.



HOW TSMRI OPERATES

- Operations on a layout in a general sense imply purposeful moving of cars on that layout. At TSMRI, we have Operating Sessions twice a month to allow members and invited guests an opportunity to move trains and switch cars with a purpose.
- We utilize JMRI (Java model railroad interface) "Operations Pro" to generate Train Manifests for each Road Crew, and Yard Switch Lists for each of the two yards (Elizabeth Yard in Marietta, and the Copperhill Yard).
- The layout is based on the Old Line L&N Railroad as it existed in the years 1948-1952. This was entirely "dark territory", meaning there are no trackside signals, nor were there radios in use on the line.
- All operations were based on a Timetable and Train Orders; therefore, on the layout we do the same for all operating sessions.
- The Timetables that are used list each train that will operate beyond Yard Limits, and specifies the departure time from each station along its route. A train can depart late, but can never depart early! A sample Timetable is shown in Figure A-1 in Appendix A.
- Typically, a Road Crew is assigned to each train that will operate, and a Yard Master is assigned to each of the two main yards (Marietta and Copperhill). When possible, each train is assigned both an engineer and a conductor/trainman.
- As is the case with a prototype railroad, operations depend on compliance with a standard set of rules. An extract of the operation rules used by TSMRI is shown in Figure A-2 of Appendix A. In addition, crews are expected to follow additional

behavior guidelines particular to operating on a scaled layout. These guidelines are shown in Figure A-3 of Appendix A.

- Before an operating session, each Road Crew is provided with the day's Timetable and the Manifest for their assigned train(s). The Manifest lists all operations (drop offs and pickups) at each location along the route of travel.

TSMRI EVENTS

- Open Houses are conducted on a monthly basis, normally on the fourth Saturday of each month from 10:00am to 1:00pm. There is no admission charge for an open house; however, donations to TSMRI are welcome.
- Layout workdays are held each Wednesday from 9:00am to noon, with visitors welcome between 9:30am and 11:30am.
- Operating sessions are normally held twice monthly; however, these are open only to members, prospective members, or by invitation.
- Ride the Rails activities are currently conducted three times each year scheduled around Fourth of July, Columbus Day, and Thanksgiving. Activities include an open house, riding on a railroad motorcar, operating a hand pump car, and operating a mini hand car.

LAYOUT BULLETIN BOARD

- In addition to regular membership in the TSMRI, many members also have personal layouts in their homes. You are encouraged to view a sample of these layouts on the large bulletin board to the right of the main entrance door where you came in. Feel free to find the owner during your visit and ask them about their layout and how it came into being. Our members are more than happy to talk to you about their hobby.

APPENDIX A

| LOUISVILLE & NASHVILLE RAILROAD | | | | | | | | | | | |
|--|---------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|---------------|---------------|
| ATLANTA DIVISION TSMRI CLUB | | | | | | | | | | | |
| EMPLOYEE TIMETABLE | | | | | | | | | | | |
| Effective Wednesday, Nov 6, 1949 | | | | | | | | | | | |
| 12:01 AM | | | | | | | | | | | |
| SOUTHWARD: READ DOWN | | | | | | NORTHWARD: READ UP | | | | | |
| 1st CLS | 2nd CLS | 2nd CLS | 2nd CLS | 2nd CLS | 2nd CLS | 1st CLS | 2nd CLS | 2nd CLS | 2nd CLS | 2nd CLS | 2nd CLS |
| 119 | 121 | 23 | 33 | 47 | 45 | 120 | 122 | 32 | 44 | 24 | 48 |
| Freight | Freight | Freight | Local | Freight | Local | Freight | Freight | Local | Freight | Freight | Freight |
| Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen | Daily Ex. Sen |
| 1:06 | 1:53 | 1:09 | | | | 2:06(26) | 2:49 | | | 1:25 | 2:54 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| 1:09 | 2:02(120) | 1:13 | | | | 2:02(121) | 2:45 | | | 1:17 | 2:48 |
| 1:24 | 2:09 | | | | | 1:56(44) | 2:39 | | | | 2:42 |
| | | | | | | | | | | | |
| 1:25(48) | 2:10 | | | | | 1:46 | 2:33 | (TO MU BR) | 1:40 | | 2:37 |
| | | | | | | 1:45 | 2:32(45) | 2:05 | 1:27(119) | | 2:36(122) |
| 1:26(44) | 2:11 | | | | | | (26) | | | | (45) |
| | | | | | | | | | | | |
| 1:28 | 2:13 | | | | | 1:43 | 2:30 | | 1:10 | | |
| 1:30 | 2:15 | | | | | 1:41 | 2:27 | | 1:02 | | |
| | | | | | | | | | | | |
| SOUTHWARD: READ DOWN | | | | | | NORTHWARD: READ UP | | | | | |
| | | | | | | | | | | | |
| STATIONS | | | | | | STATIONS | | | | | |
| Murphy Branch | | | | | | Murphy Branch | | | | | |
| STATIONS | | | | | | STATIONS | | | | | |
| Murphy | | | | | | Murphy | | | | | |
| MineralBluff | | | | | | MineralBluff | | | | | |
| Murphy Jct. | | | | | | Murphy Jct. | | | | | |
| yards / wye | | | | | | yards / wye | | | | | |
| 9 | | | | | | 9 | | | | | |
| 9 | | | | | | 9 | | | | | |
| 13 | | | | | | 13 | | | | | |
| yard / wye | | | | | | yard / wye | | | | | |
| 9 | | | | | | 9 | | | | | |
| 9 | | | | | | 9 | | | | | |
| yard | | | | | | yard | | | | | |
| 48 | | | | | | 48 | | | | | |
| Freight | | | | | | Freight | | | | | |
| 2:42 | | | | | | 2:42 | | | | | |
| 2:44 | | | | | | 2:44 | | | | | |
| 2:45 | | | | | | 2:45 | | | | | |
| 1:25 | | | | | | 1:25 | | | | | |
| 1:29 | | | | | | 1:29 | | | | | |
| 1:34(119) | | | | | | 1:34(119) | | | | | |
| 2:11 | | | | | | 2:11 | | | | | |
| 2:06 | | | | | | 2:06 | | | | | |
| 2:05 | | | | | | 2:05 | | | | | |
| 47 | | | | | | 47 | | | | | |
| Freight | | | | | | Freight | | | | | |
| 1:08 | | | | | | 1:08 | | | | | |
| 1:06 | | | | | | 1:06 | | | | | |
| 1:04 | | | | | | 1:04 | | | | | |

NOTES:
 All trains passing through Murphy Junction in any direction must register in log book. Phone is provided if needed to call Station Operator in BR.
 Yard jobs are not shown on the table. They are 222, 271, 272, 273, 274, 441 and 442 which are within yard limits.
Scheduled meets are in bold with other train number in red
 Departure times are shown. Call times for trains are not shown to avoid clutter.
 <Dec 2022 Op Session>

Figure A-1. TSMRI Timetable

APPENDIX A

Condensed Operating Rules for TSMRI, revised 7/22/2022

1. **Rule 70**
 - a. A train is superior to another train by right, class or direction.
 - b. Right is conferred by train order, class and direction by timetable.
 - c. Right is superior to class and direction.
2. **Rule S-71**
 - a. First class trains are superior to second class trains, third class trains and extras.
 - b. Second class trains are superior to opposing third class trains and opposing extra trains. Third class trains are superior to opposing extra trains.
 - c. Trains in the direction specified in the timetable are superior to trains of the same class in the opposite direction. (Northbound is superior for TSMRI)
3. **Rule D-71**
 - a. First class trains are superior to second class trains, third class trains and extra trains in the same direction.
4. **Rule 83(B)**
 - a. ...a train must not leave its initial station without a clearance, which must include the O.K., the time, and the (Dispatcher's) initials.
5. **Rule 86**
 - a. ...an inferior train must be clear at the time a first class train in the same direction is due to leave the next station in the rear where time is shown.
 - b. Third class trains may run ahead of second class trains running in the same direction.
 - c. Extra trains may run ahead of second class trains and third class trains running in the same direction.
6. **Rule S-87**
 - a. ...an inferior train must clear the time of opposing superior trains not less than ~~five~~ **two** minutes.
7. **Rule S-89**
 - a. Unless otherwise provided, the inferior train must take siding at meeting points.
8. **Rule 91**
 - a. ...trains in the same direction must keep not less than ~~ten~~ **three** minutes apart...
9. **Rule 93**
 - a. Yard limits will be indicated by yard limit signs and in the timetable or by train order.
 - b. Within yard limits, the main track may be used, clearing first class trains when due to leave the last station where time is shown.
 - c. Protection against second and third class trains, extra trains and engines is not required.
 - d. Second and third class trains, extra trains and engines must move within yard limits at restricted speed.
10. **Rule 99**
 - a. When a train is moving under circumstances in which it may be overtaken by another train, a member of the crew must drop lighted fuses at proper intervals and take such other action as may be necessary to insure full protection.
 - b. When a train stops under circumstances in which it may be overtaken by another train, or when other conditions require flag protection, a member of the crew must go out immediately a sufficient distance to insure full protection.
 - c. The front of the train must be protected in the same way when necessary.
11. **Rule 104**
 - a. ...the normal position of a main track switch is for the main track and it must be lined and locked in that position except for immediate movement.
12. **Rule 220**
 - a. A train must receive a clearance before leaving a station where train orders are delivered to it.

Figure A-2. TSMRI Operating Rules

APPENDIX A

Expected Behaviors for Train Crews on TSMRI Layout

As of August 13, 2022, all Road Crews operating on the Tri-State Model Railroaders layout shall be expected (but not required) to exhibit the following behaviors.

- Crossing cadence (long-long-short-long) for all road crossings.
- Bell sounding for travel through Yard Limits when other Crew/Train within.
- Speed limit is 25, except within Yard Limits where it is 20.
- Manual turnouts require stop before to throw, and stop after passing through to reset. As noted in the Rules, all Mainline turnouts shall be lined for Main except when immediately being used.
- If a Team is running a train:
 - Hand signals (typically finger wagging) required for communication from Conductor/Switchman (on the ground) to Engineer (in cab):
 - Stop (low hanging back and forth)
 - Backup (circular motion)
 - Proceed (up and down motion)
 - Slow (horizontal but still)
 - Engineer shall signal “Stopped, Centered and Set” with one long horn blast as signal for ground Crew to uncouple, couple, or go between cars.
- Except during continuous switching activity, before moving locomotive, engineer shall sound:
 - Bell and either two long horn blasts to indicate forward, or three short horn blasts to indicate reverse.

These are generally considered prototypical for the era (1948-1952) and railroad (L&N “Old Line”) that we model.

Figure A-3. TSMRI Crew Behaviors