



**THE NICKEL CITY LINE
REMOTE OPERATIONS**



Remote Operations Covered Topics

- Software and Hardware Requirements
- Connecting to the Layout from the Internet
- Viewing the Layout
- Schedule Changes for Remote Operations
- Advanced Paperwork and Information
- Setting up the Remote Ops Session
- Running the Remote Ops Session



SOFTWARE AND HARDWARE REQUIRED

- A reliable high speed internet connection
- A PC or MAC computer with a good size monitor (2 monitors is preferred but not required)
- A microphone or headset for your PC
- A webcam (optional)
- Zoom Conference software (<https://zoom.us/>) for radio communications and layout viewing
- Teamviewer conferencing software (<https://www.teamviewer.com/en-us/>) to access the Dispatcher and Yardmaster consoles
- A separate iPhone, iPad, Android Phone, or tablet for use as a throttle:
 - Engine Driver Throttle for Android phones / tablets (<https://enginedriver.mstevetodd.com/>)
 - WiiThrottle for iPhone or iPad (<https://www.withrottle.com/html/home.html>)

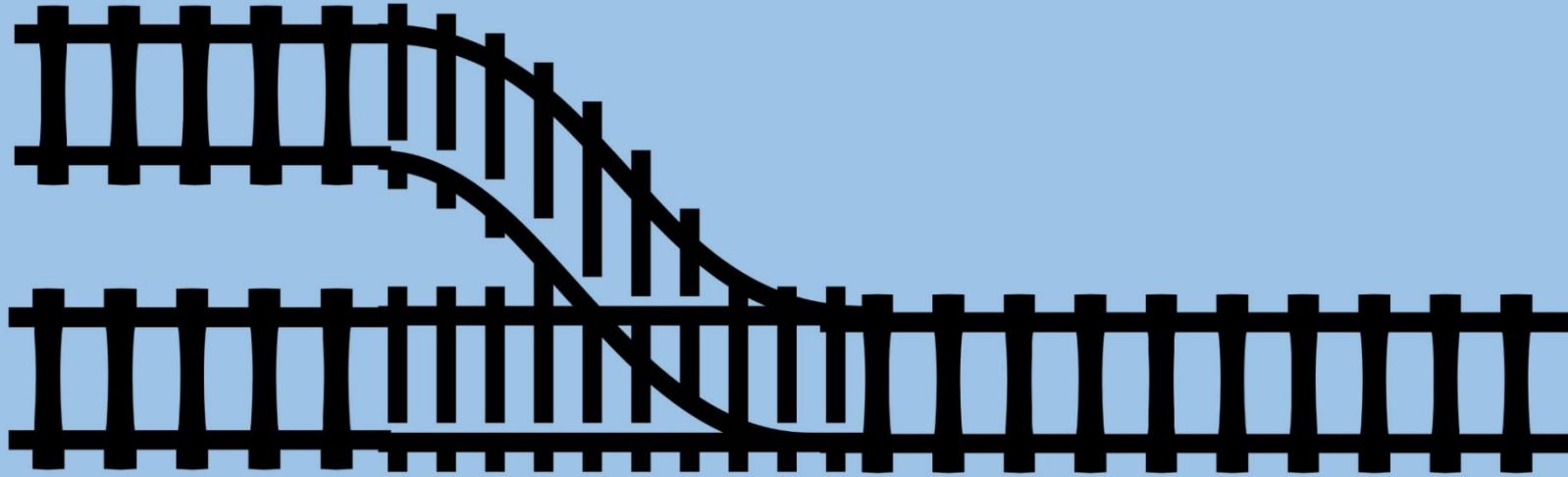


LAYOUT REQUIREMENTS

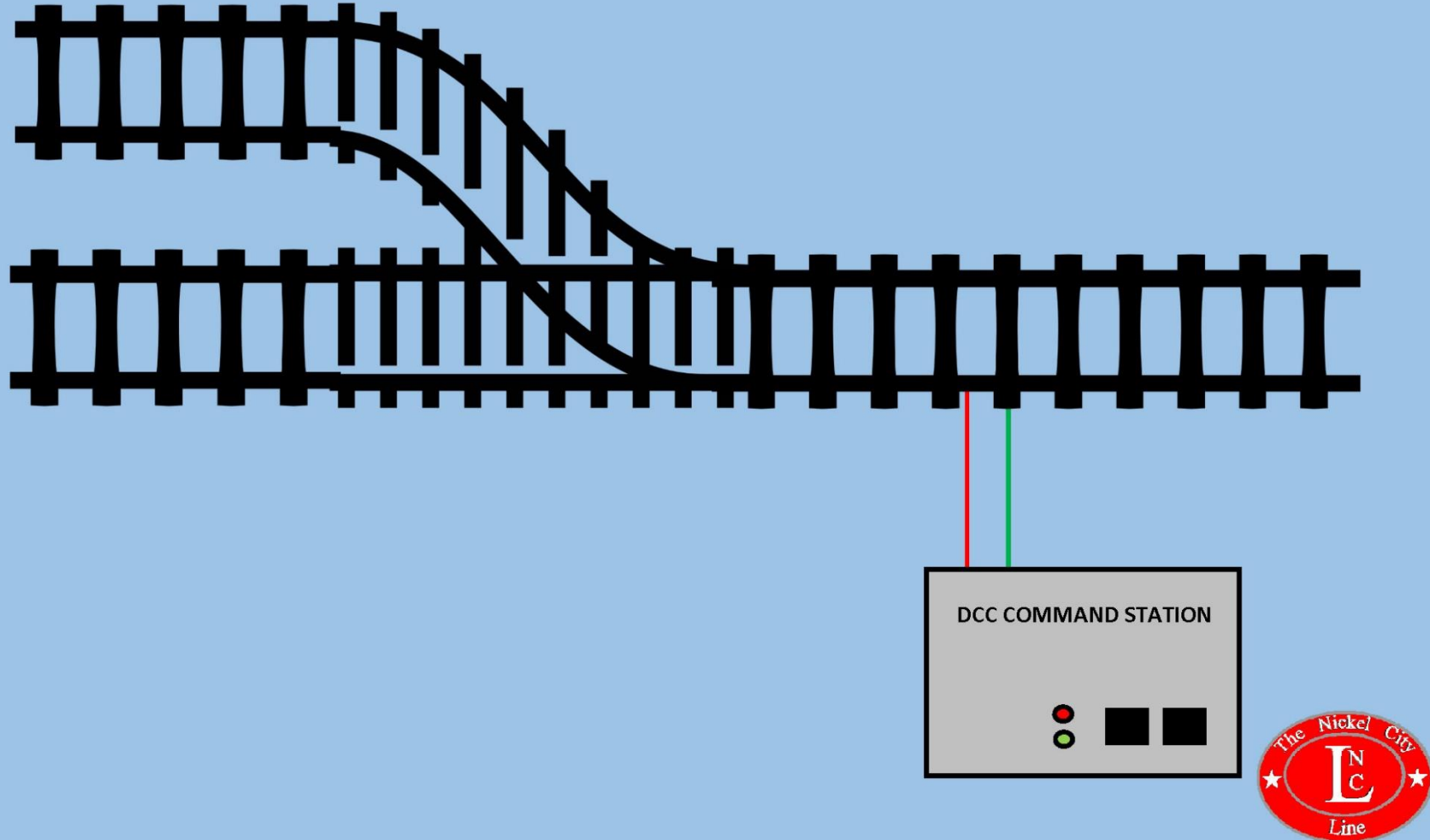
- Digital Command Control (DCC)
- DCC Control of Turnouts
- DCC Block Detection
- DCC Signal Control (Optional)
- Java Model Railroad Interface software (JMRI)
 - <https://www.jmri.org/>



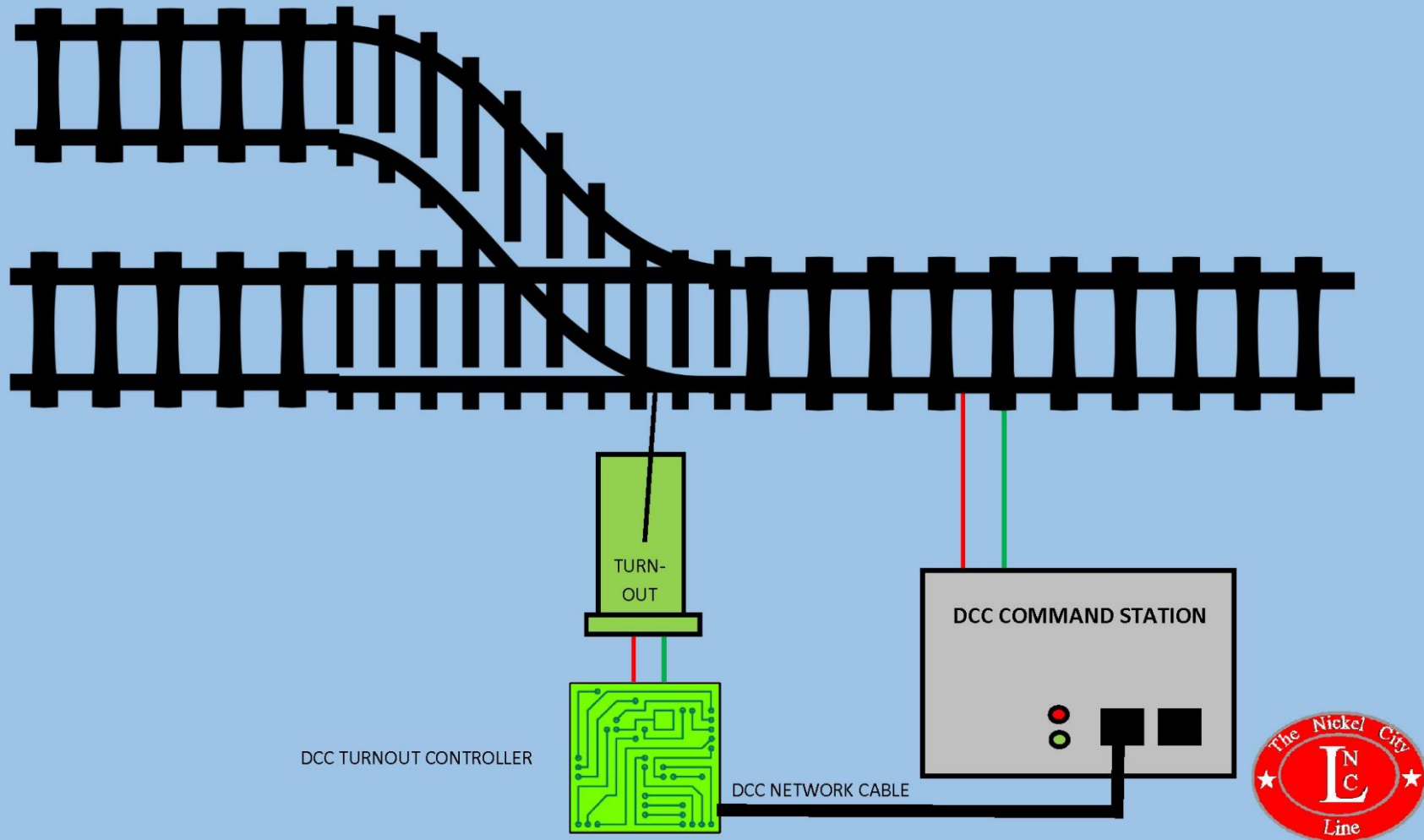
LAYOUT REQUIREMENTS



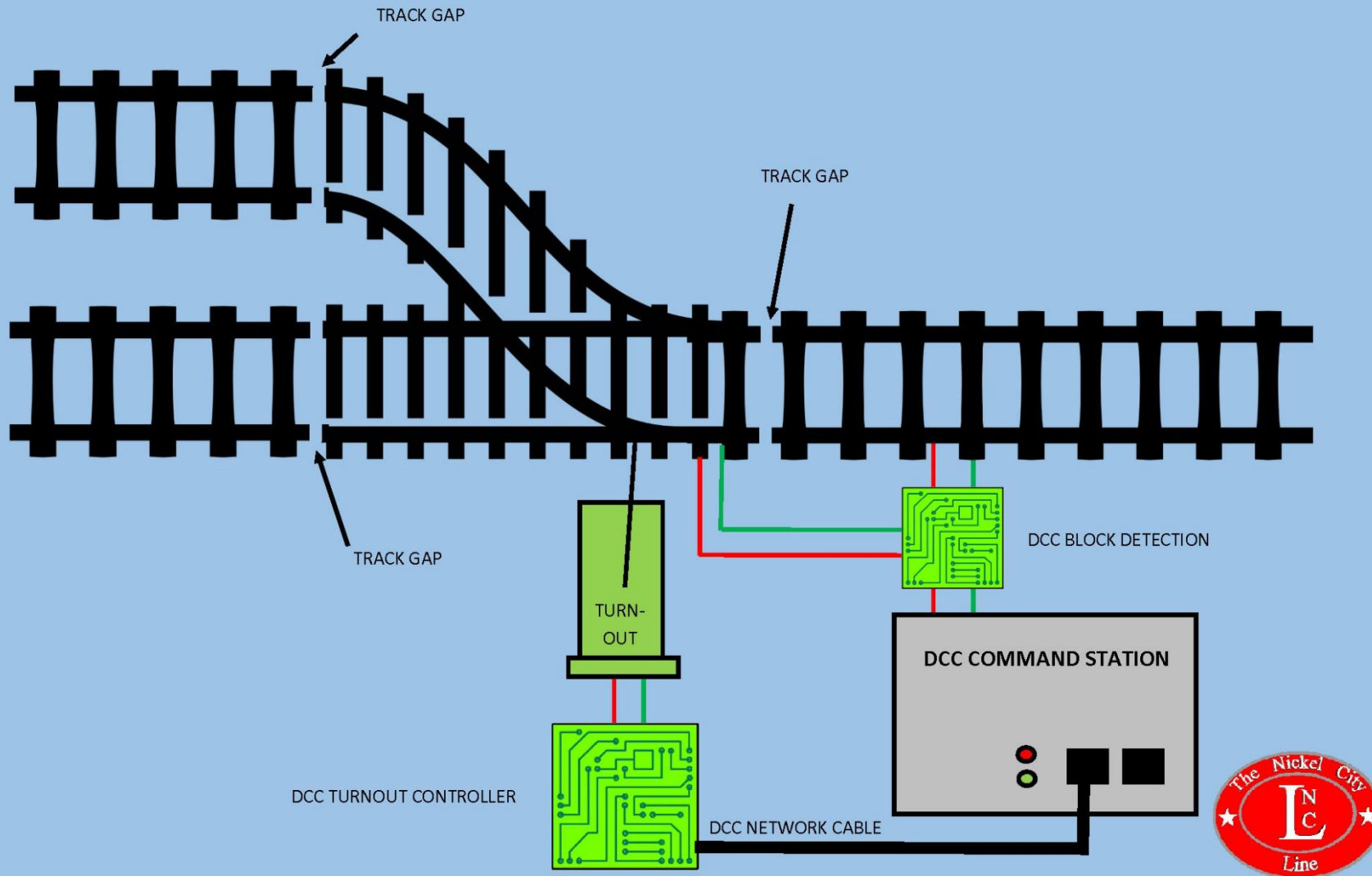
LAYOUT REQUIREMENTS



LAYOUT REQUIREMENTS



LAYOUT REQUIREMENTS

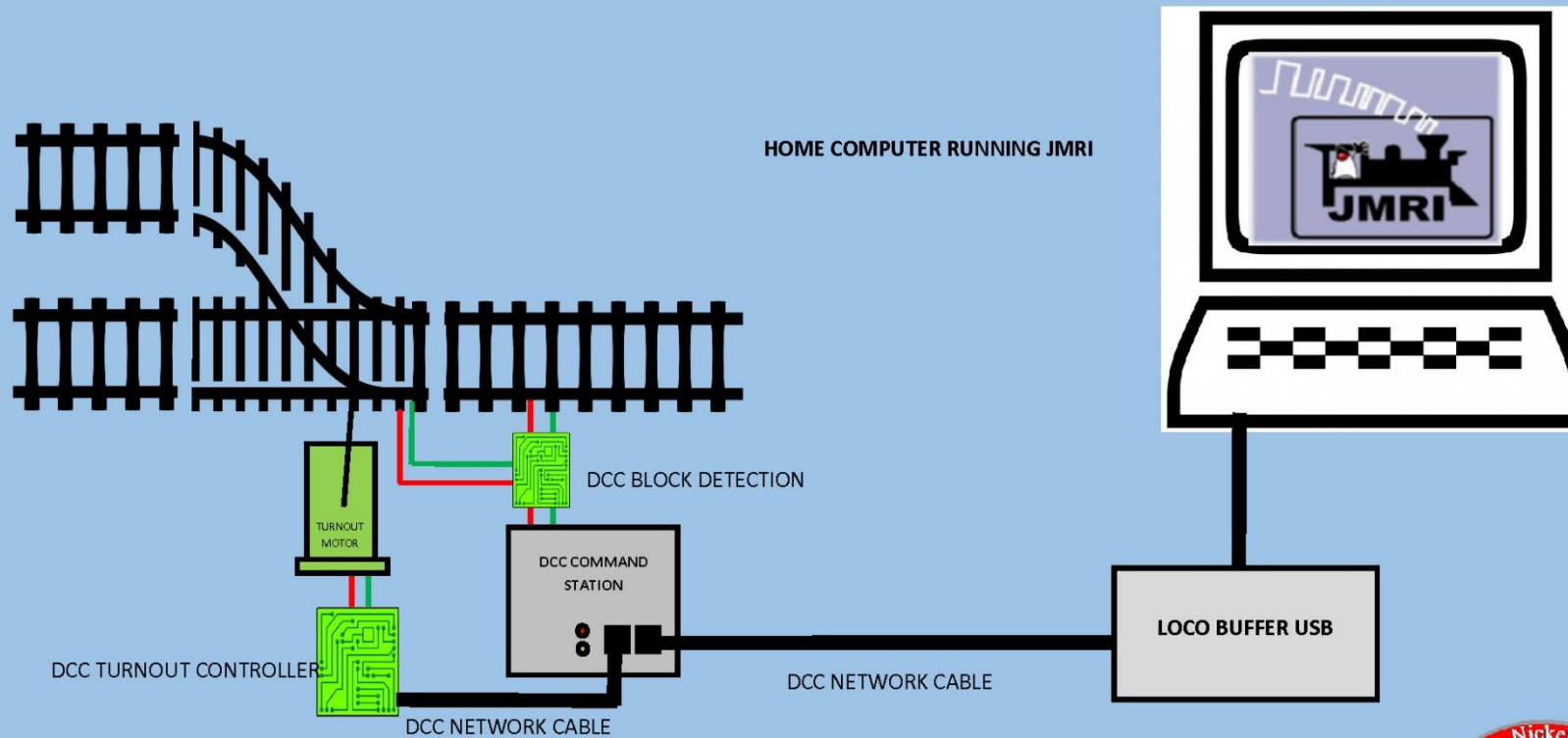


LAYOUT EQUIPMENT ON THE NICKEL CITY LINE

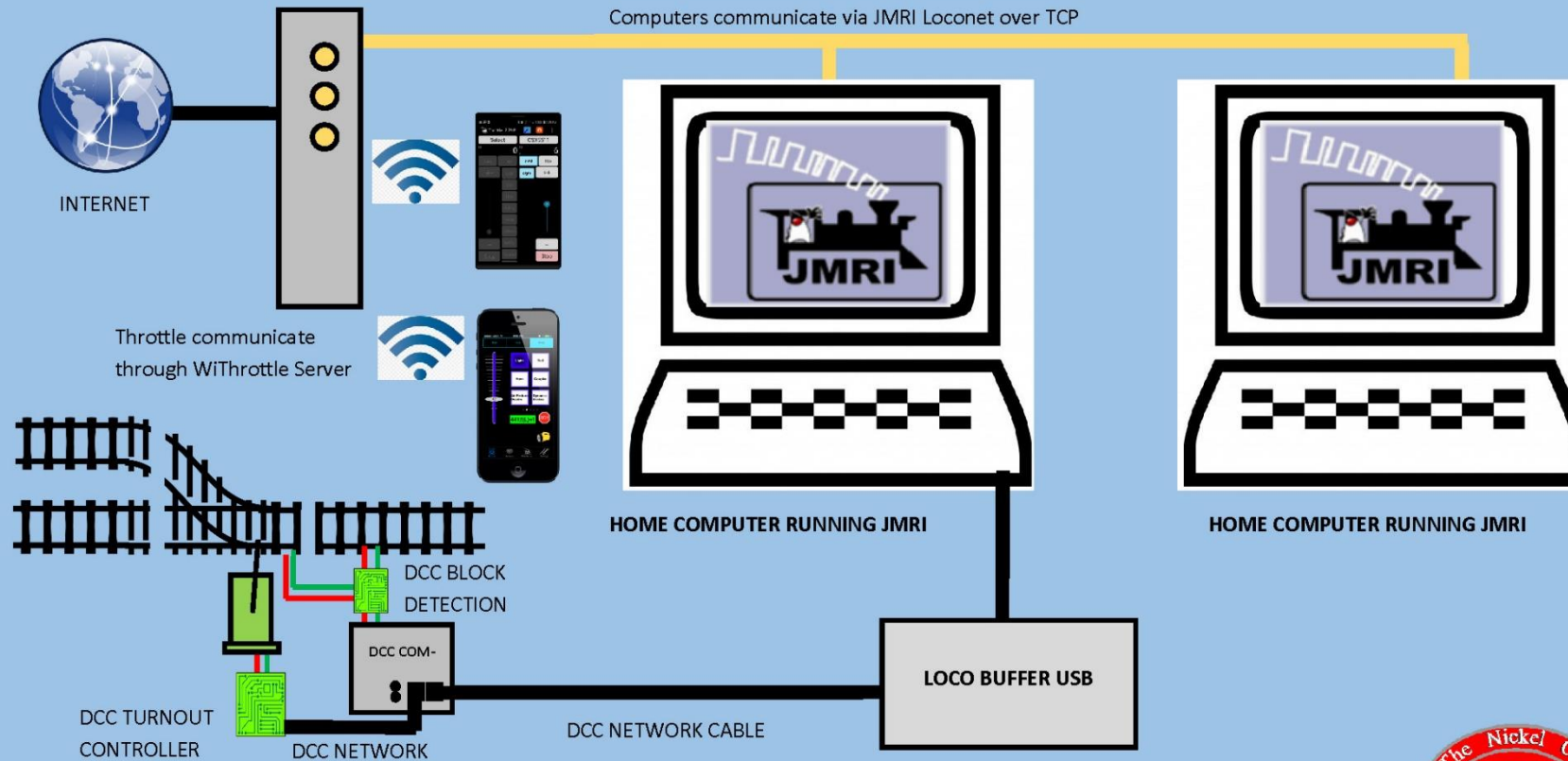
- Digitrax DCS100 Command Station
- Digitrax DB210 Boosters
- Digitrax SE8C Signal Decoder for turnout and signal control
- Digitrax BDL168 for block detection
- Digitrax PM4 for overcurrent protection



CONNECTING THE COMPUTER TO THE LAYOUT

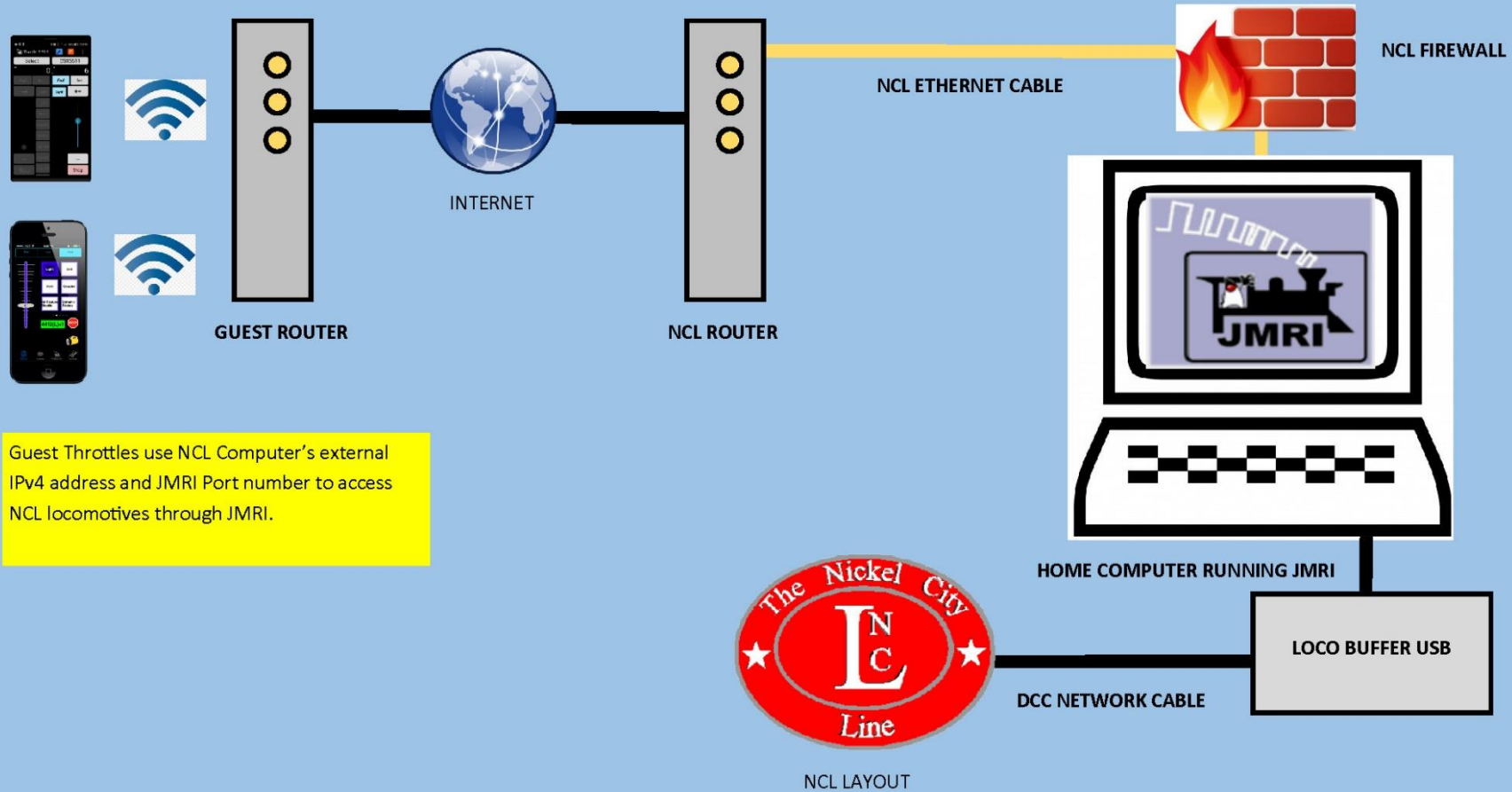


CONNECTING THE COMPUTER TO THE LAYOUT



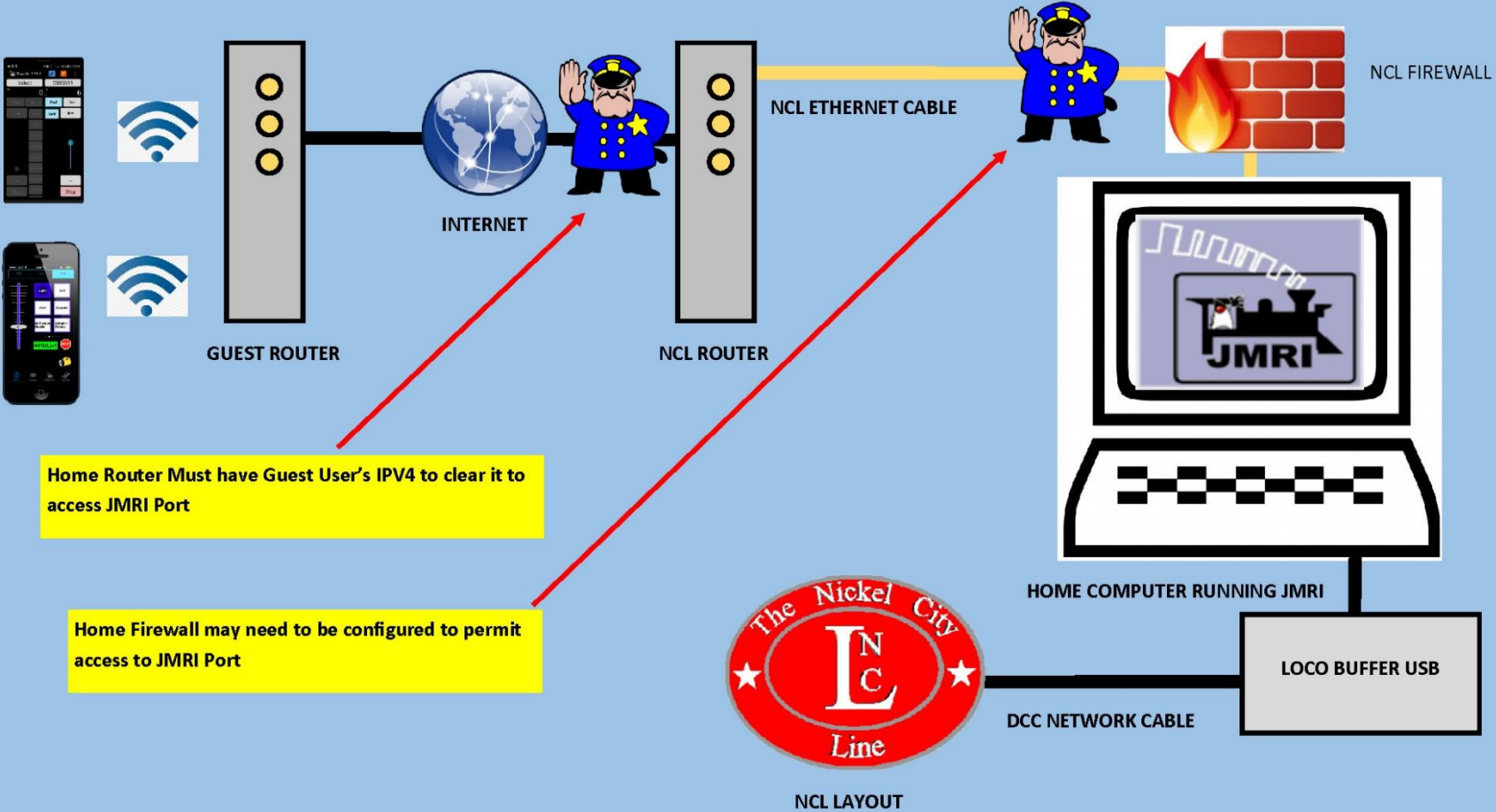
CONNECTING TO THE LAYOUT COMPUTER FROM THE INTERNET

FROM THE INTERNET

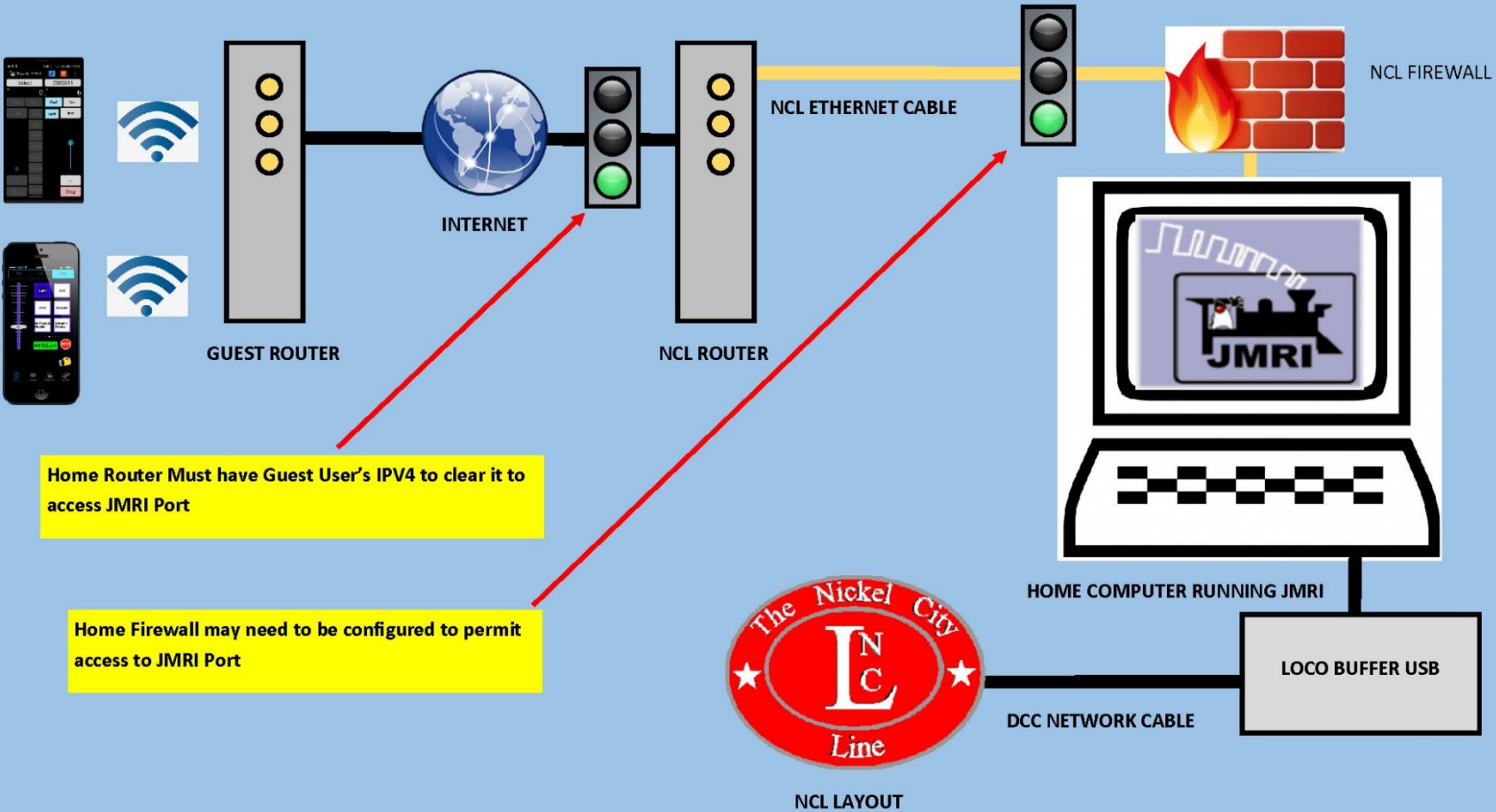


Guest Throttles use NCL Computer's external IPv4 address and JMRI Port number to access NCL locomotives through JMRI.

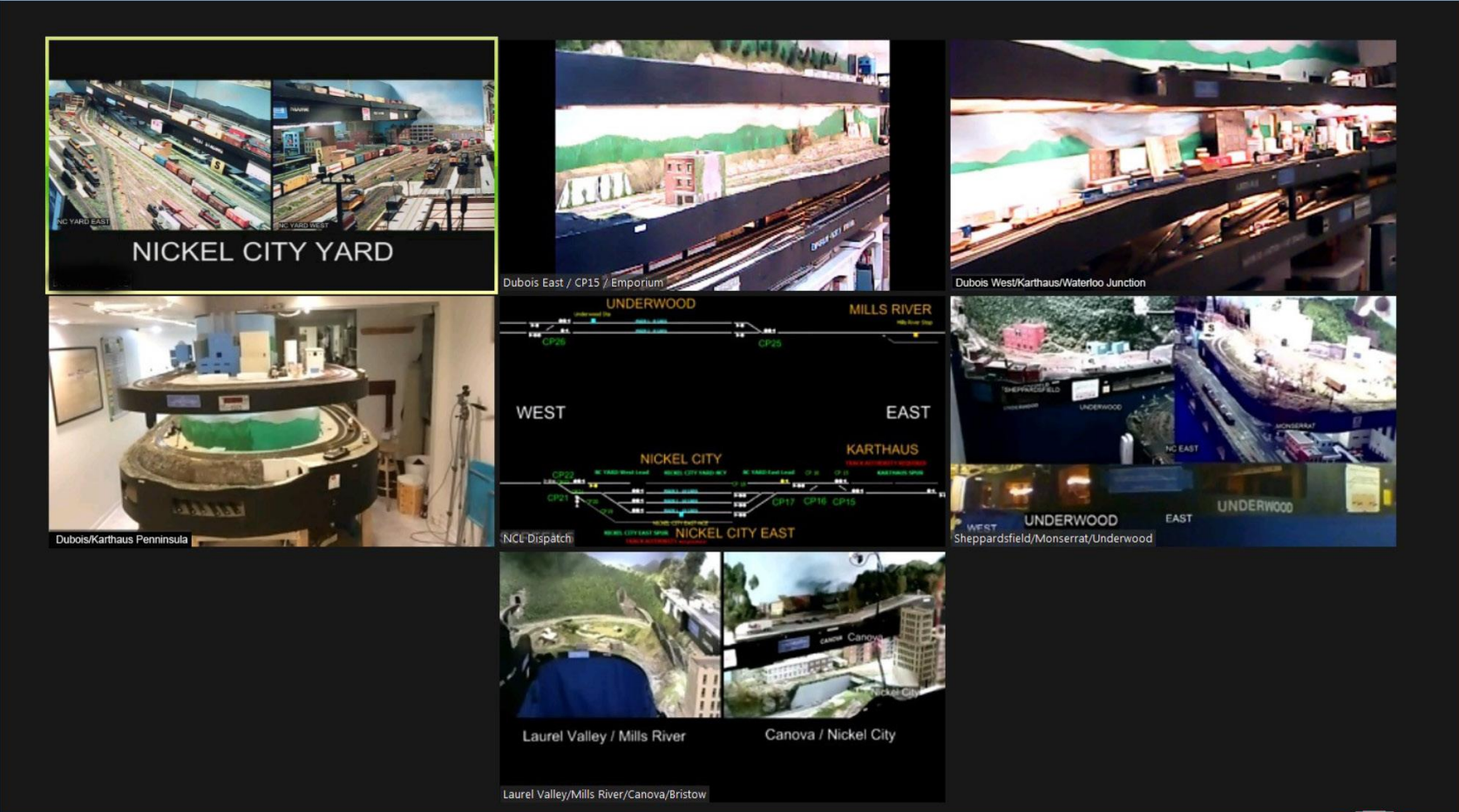
CONNECTING TO THE LAYOUT COMPUTER FROM THE INTERNET



CONNECTING TO THE LAYOUT COMPUTER FROM THE INTERNET



VIEWING THE LAYOUT FROM THE INTERNET



Zoom windows for the Nickel City Line Railroad



VIEWING THE LAYOUT FROM THE INTERNET

Web Cameras



VIEWING THE LAYOUT FROM THE INTERNET

iPad and iPhone

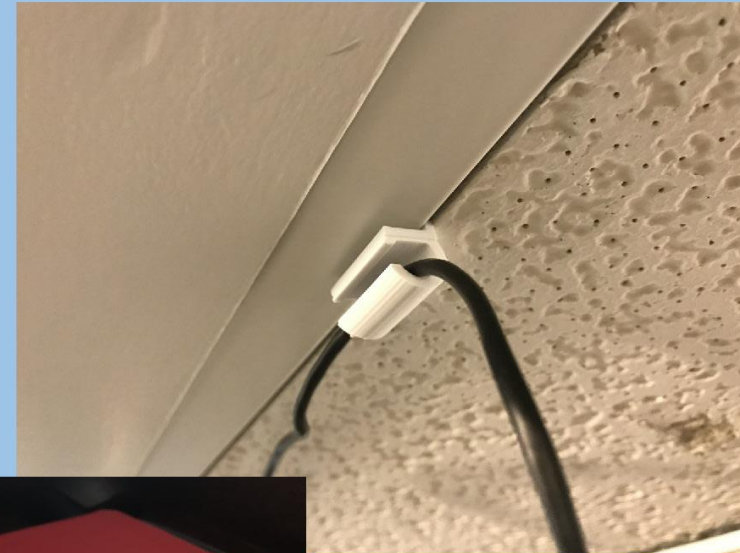


VIEWING THE LAYOUT FROM THE INTERNET

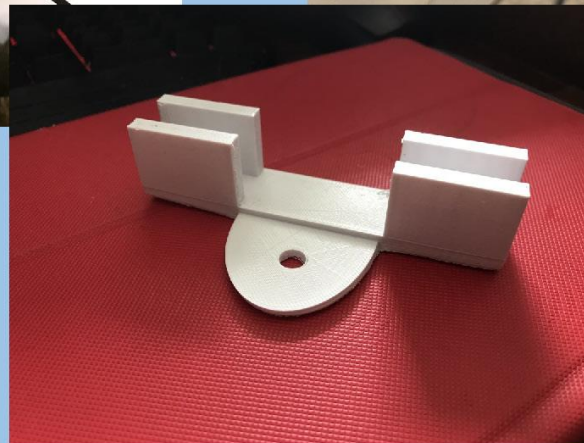
3D Printed Brackets and Wire Clips



3D Printed Ceiling Mount

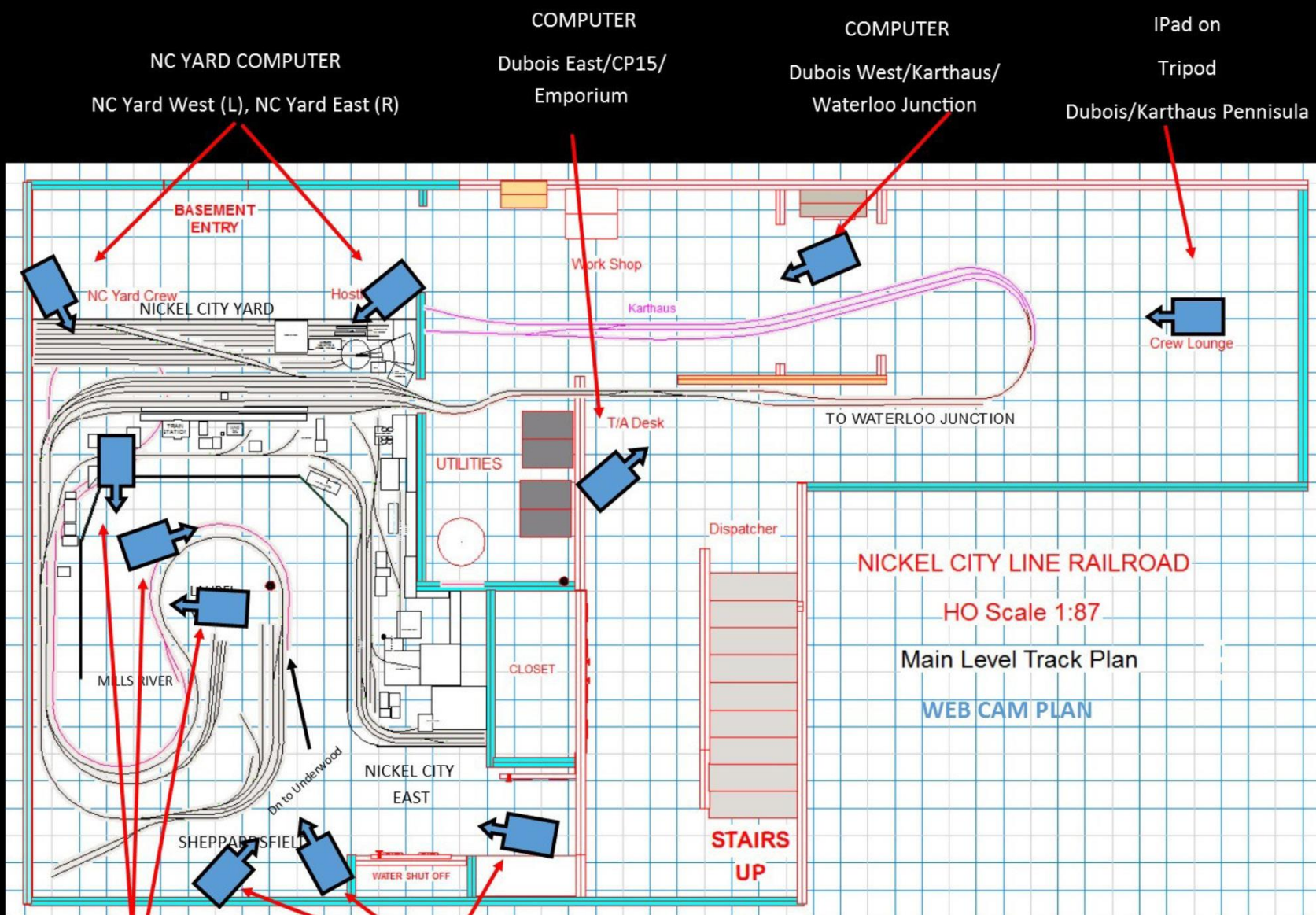


3D Printed Ceiling Wire Clip



3D Printed iPad Tripod Mount





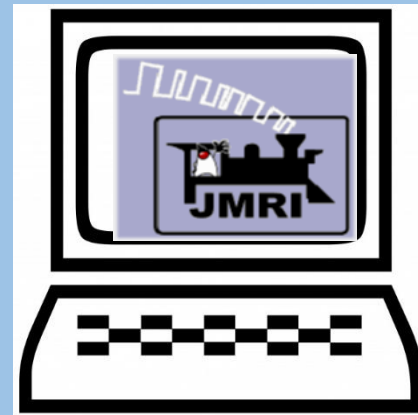
Computer- 3 Cameras:
 Laurel Valley/Mills River, Canova,
 Bristow.

Laptop - 3 Cameras
 Sheppardsfield, Monserrat,
 Underwood

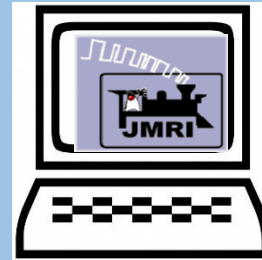
Nickel City Line Railroad
 Remote Operations Camera Layout
 Revised July 2020



Zoom Meeting Layout Setup



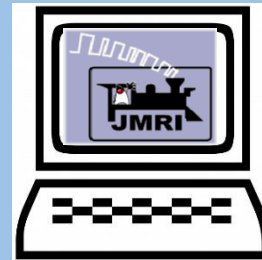
Zoom Host
Computer



Joins Zoom Meeting



Joins Zoom Meeting



Joins Zoom Meeting

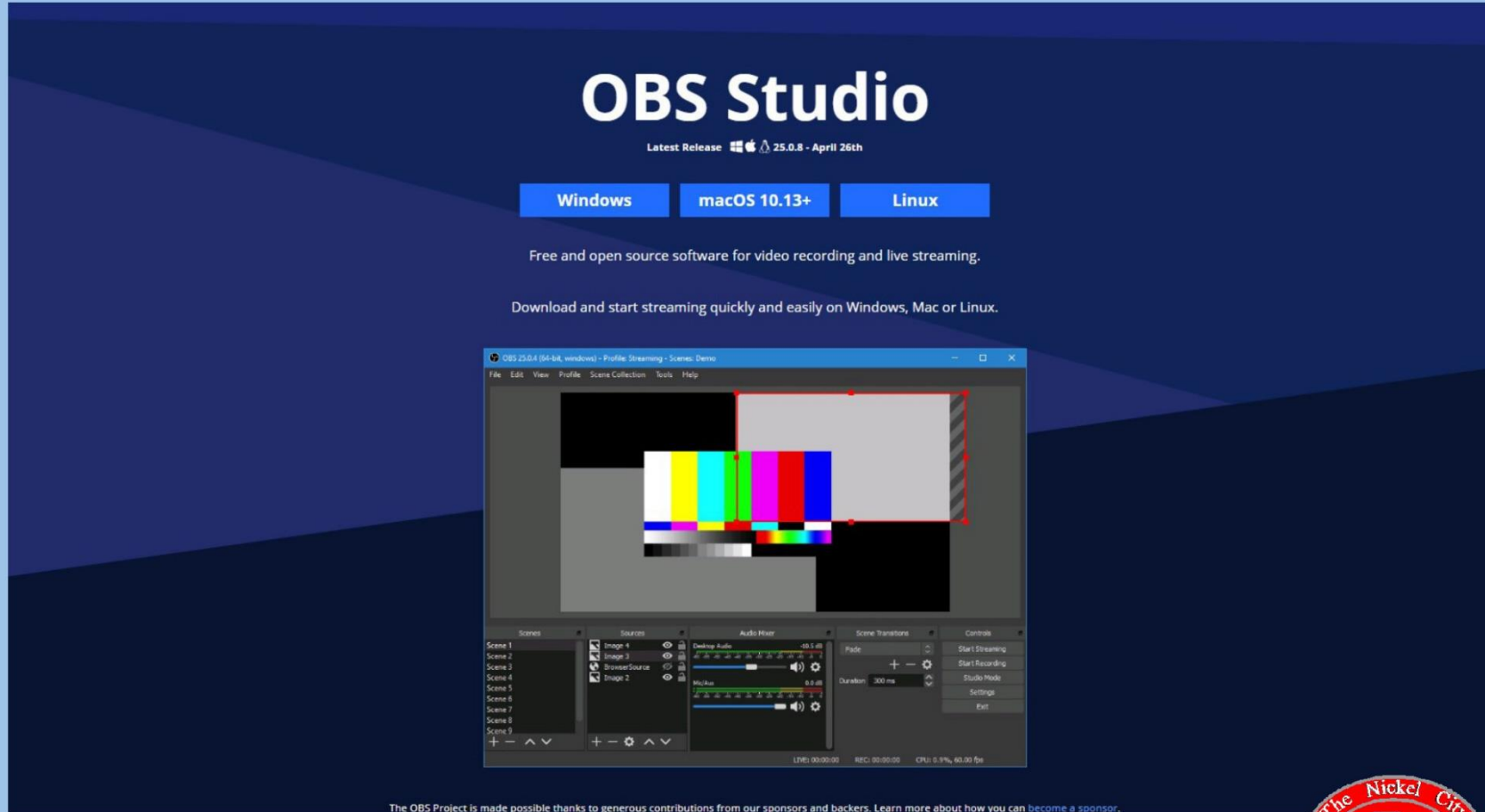


Joins Zoom Meeting



VIEWING THE LAYOUT FROM THE INTERNET

Multi-camera Feed to a Computer for Zoom



The image shows the OBS Studio website and a screenshot of the software interface. The website features the title "OBS Studio" in large white letters, with "Latest Release" and "25.0.8 - April 26th" below it. Three buttons for "Windows", "macOS 10.13+", and "Linux" are displayed. Below these are two lines of text: "Free and open source software for video recording and live streaming." and "Download and start streaming quickly and easily on Windows, Mac or Linux." The screenshot of the OBS Studio interface shows a main preview window with a test pattern, a "Sources" panel on the left, an "Audio Mixer" in the center, and a "Scene Transitions" and "Controls" panel on the right. The status bar at the bottom of the interface shows "LTM: 00:00:00", "RVC: 00:00:00", and "CPU: 0.9%, 60.00 fps".

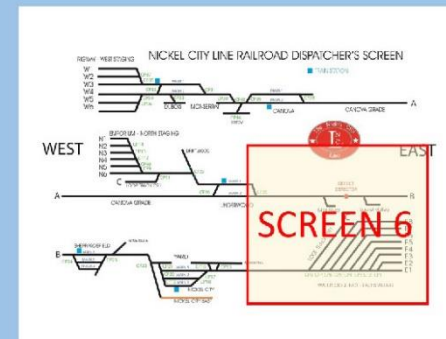
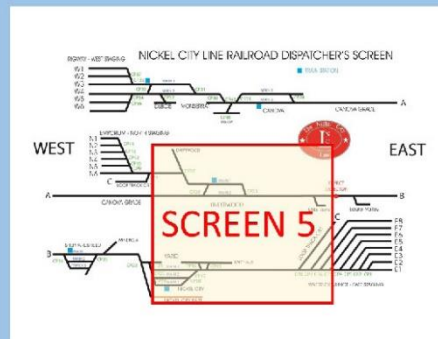
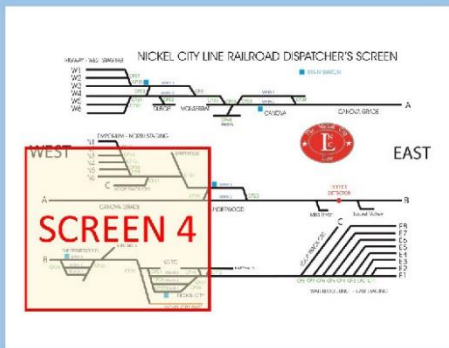
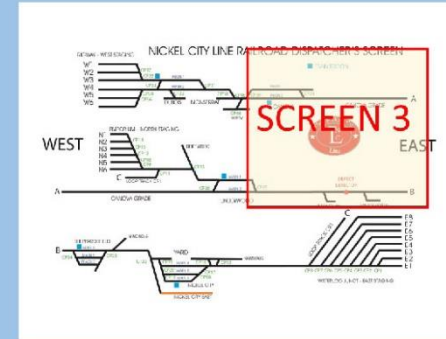
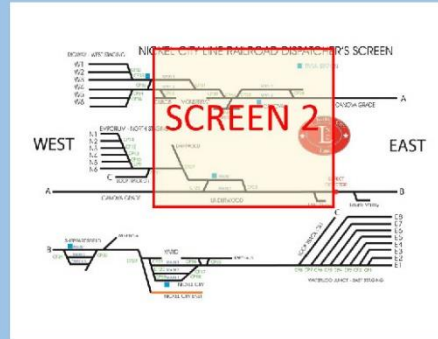
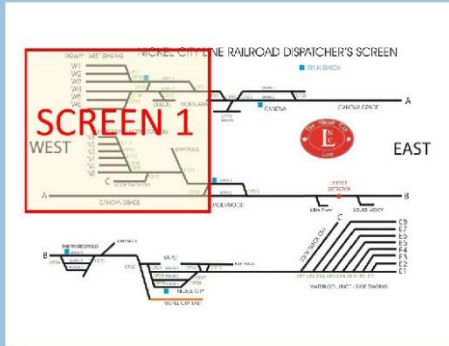
The OBS Project is made possible thanks to generous contributions from our sponsors and backers. Learn more about how you can become a sponsor.

<https://obsproject.com/>



VIEWING THE LAYOUT FROM THE INTERNET

Dispatcher Screen Feed to a Computer for Zoom



TeamViewer to OBS w/ Advanced Scene Switcher to Zoom



VIEWING THE LAYOUT FROM THE INTERNET

Remote Operation of the Dispatcher Screen

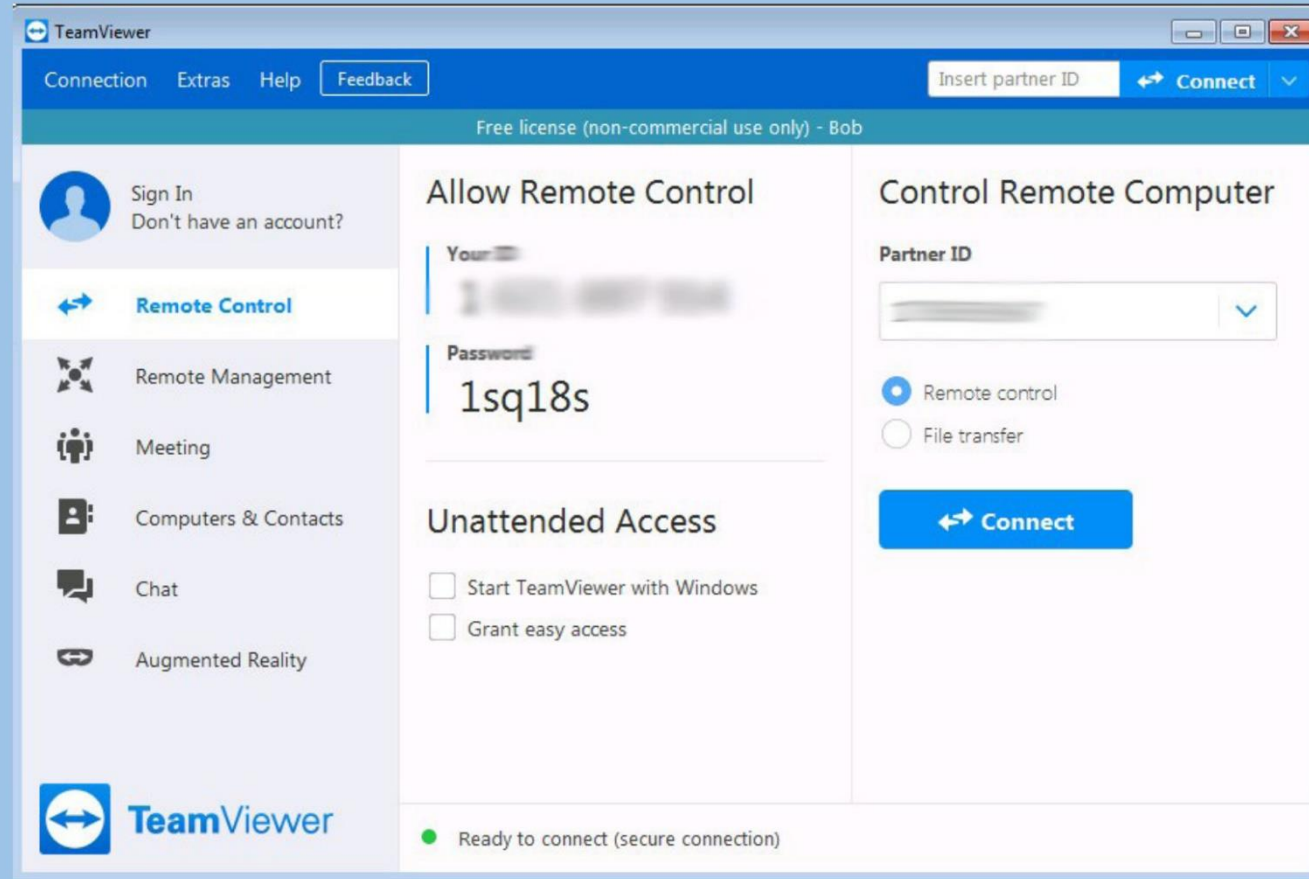
The screenshot shows the TeamViewer website homepage. At the top, there is a navigation bar with the TeamViewer logo, links for Products, Solutions, Resources, Integrations, Partner, and Company, and buttons for Download and Buy Now. On the right side of the navigation bar, there is a search icon, a user profile icon, and a phone number: +1 800 638 0253. The main content area features a dark blue background with a network diagram. On the left, the TeamViewer logo is displayed above the text "Your Reliable Partner For Remote Access and Support". Below this, there is a paragraph describing the service: "Control, manage, monitor and repair computers, mobile devices, network machines and more – from anywhere, anytime." There are three buttons: "Download for Free", "See Pricing", and "Request Commercial Trial". A small note below the "Download for Free" button states "Free for private, non-commercial use". On the right, the Ubimax logo is displayed above the text "Welcome Ubimax to the TeamViewer Family!". Below this, there is a paragraph: "TeamViewer teams up with Ubimax to digitalize industrial workplaces by creating intelligent AR and IoT solutions. Our joint vision: forging a global tech leader from Europe." and a "Learn More" button. In the top right corner, there is a red "BREAKING NEWS" banner. At the bottom, there are four buttons: "Home Office Solutions", "Videoconferencing & Meeting Solutions", "Privacy Policy", and "Learn more about TeamViewer".

TeamViewer: <https://www.teamviewer.com/en-us/>



VIEWING THE LAYOUT FROM THE INTERNET

Remote Operation of the Dispatcher Screen

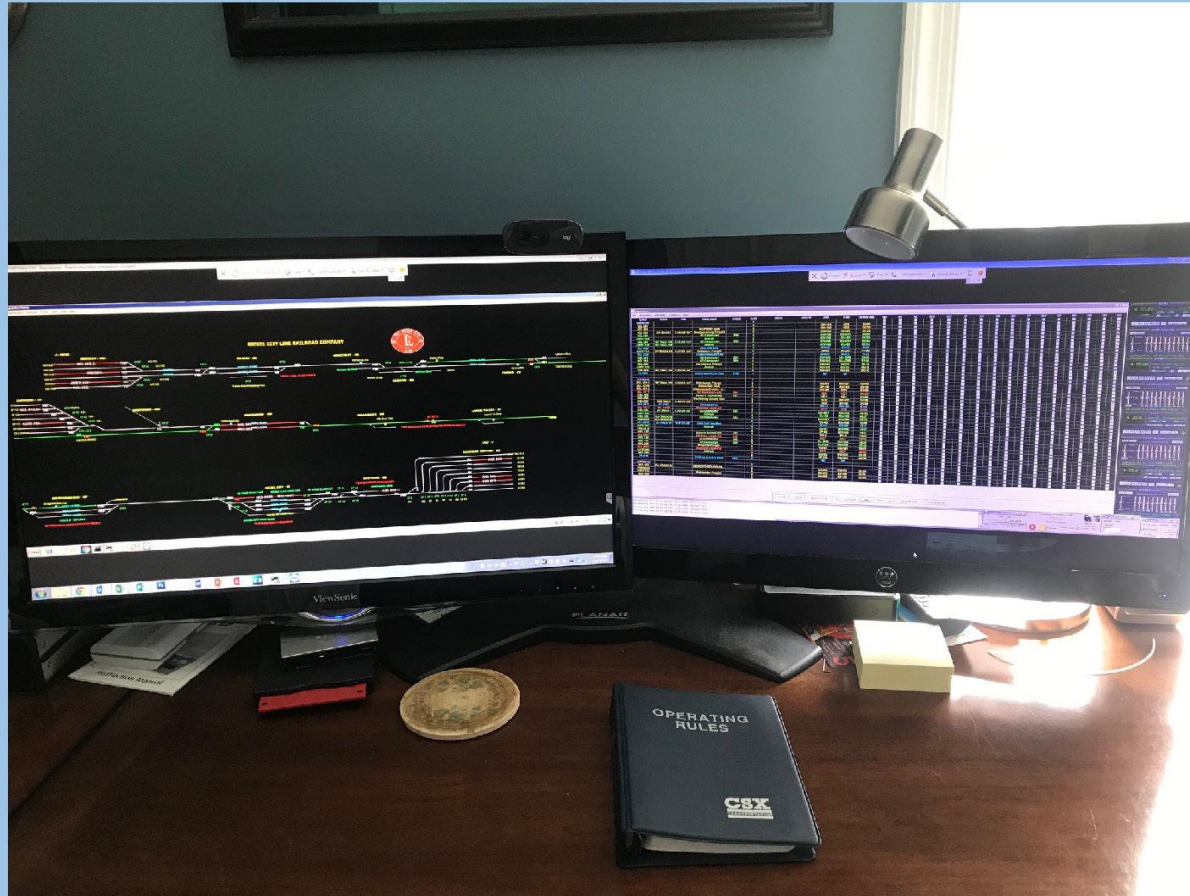


TeamViewer: <https://www.teamviewer.com/en-us/>



VIEWING THE LAYOUT FROM THE INTERNET

Remote Operation of the Dispatcher Screen

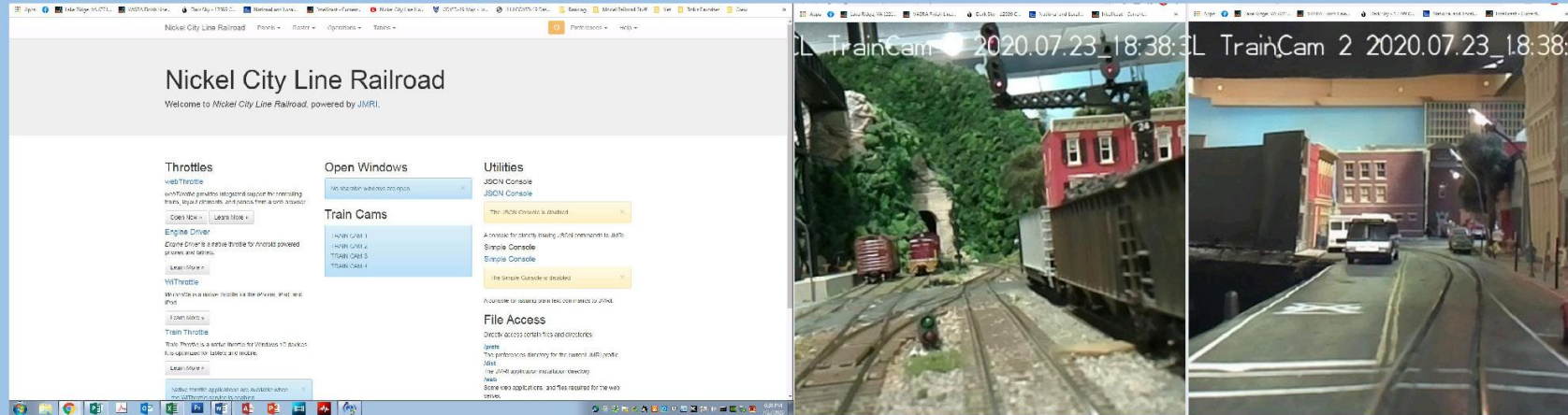


TeamViewer: <https://www.teamviewer.com/en-us/>



VIEWING THE LAYOUT FROM THE INTERNET

Cab View Cameras



Train Cam Prototype

- Deep Well Container Car
- Raspberry Pi Zero W and Camera
- Power Bank: 5V 2600mAh Capacity
- RPi_Web_Cam_Interface Software
- 3D printed brackets for RPi and Power Bank.



Schedule Changes for Remote Operations

Regular vs Remote Operations Table

COVID-19 Status		Normal	Phase I	Phase II	Phase III
Operators	In Person	12	1	1	2-3
	Remote	0	3-4	3-4	4-7
Session Length		4 hrs	1.5-2 hrs	1.5-2 hrs	2 hrs
Schedule Type		Time	Sequence	Sequence	Sequence
Fast Clock		Yes	No	No	No
Trains per Session		10-14	4	4	6
Scheduled Freight		Yes	Yes	Yes	Yes
Scheduled Pass		Yes	Yes	Yes	Yes
Local Freight		Yes	Yes	Yes	Yes
Extra Freight		Yes	No	No	No
Extra Passenger		Yes	No	No	No
Track Warrants		Yes	No	No	No
Dispatcher		Present	Remote	Remote	Remote
YardMaster		Present	No	No	Remote
Track Defect Det		Active	No	No	No
Track Warrants		Yes	No	No	No

- Run Train Order based on what you can handle in a session versus what the regular schedule says
- Pre-stage pickups for easier switching
- Pre-stage yard for easier switching
- Block Trains for easier switching
- Only run one local per session and fill other trains as passengers and through freights.

Remember: The host is the Train Master, Yardmaster, Brakeman, Conductor, and Chief Gandy dancer all rolled into one.



Advanced Paperwork and Information

Provide as much information in advance as possible to ensure a smooth running session.




The Nickel City Line Railroad

Short Line of the Alleghenies



- HOME
- INTRODUCTION
- HISTORY
- SYSTEM MAP
- TRAIN SCHEDULES
- RULE BOOK
- OPERATIONS
- LINKS


An Officially Registered Railroad

REMOTE OPERATIONS READ AHEADS

This page contains read aheads and supplement information to assist train crews prior to the upcoming ops session.

Session 51 Remote

Everyone
[Remote Operations Instructions](#)
[Remote Camera Viewing Order](#)
[NCL Camera Location Diagram](#)
[NCL Dispatcher Screen Rotation Diagram](#)
[Remote Operations Schedule](#)
[Advanced Consist List](#)

Dispatcher
[Dispatcher Operations Manual Excerpt](#)
[Train Line Up Sheet](#)

Road Crews
Sessions A1-A3
[Train Routes - Sessions A1-A3](#)
[Train Switchlists - Sessions A1-A3](#)
Sessions B1-B3
[Train Routes - Sessions B1-B3](#)
[Train Switchlists - Sessions B1-B3](#)
Sessions C1-C4
[Train Routes - Sessions C1-C4](#)
[Train Switchlists - Sessions C1-C4](#)

Yard Crew
[Blocking Chart for Trains 502T & 504T](#)
[Yard Operations Manual Excerpt](#)
[Yardmaster Tracking Sheet](#)
[Yard Arrival List](#)
[Yard Departure List](#)
[NC Yard Car Routing Matrix](#)

Dubois Coal Plant
[Dubois Coal Plant Map and Instructions](#)

Important Supplemental Documents

[Engine Yard Panel Diagram](#)
[NCL Track Plan](#)
[NCL Track Schematic](#)
[Staging Yard Town Locations on the Layout](#)
[Radio Quick Sheet](#)

TRAIN CAMERAS

[Train Cam 1](#)

LATEST NEWS

Download the Latest NCL Employee Bulletin Below.




NCL Employee Bulletin


[58A](#)

[58B](#)

[58C](#)



Latest News
Click Here to Get the Latest News on the Nickel City Line.



Meet the Management

This web site and all its contents, are Copyright (C) 2011-2021 by the Nickel City Line, Potosi, William County, Virginia



Setting up the Remote Ops Session

Make sure you have trained and tested all operators and their connections in advance



Nickel City Yard Pre Remote Ops Session



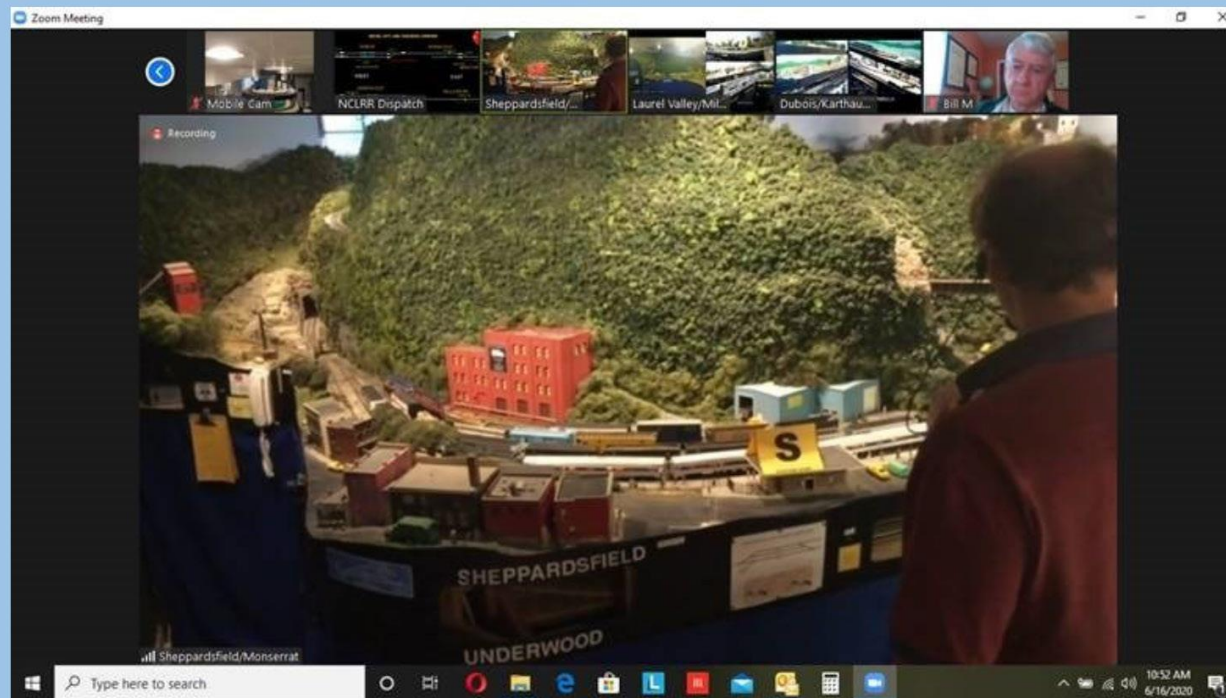
Setting up the Remote Ops Session

- *Send out Read Ahead Documents, Crew Assignments, and Login Info several days in advance*
- *Do a Complete Layout Check and Cleaning*
- *Run Each Train At Least Once or Twice Prior to the Session*
- *Test All Computers and Hardware Fully a Day or so Before the Session*
- *Keep Copies of Key Documents Handy for Reference During the Session*
- *Power Up Layout and all Systems 2 Hours Prior to the Session*
- *Start Zoom Meeting 1 Hour Prior to the Session to Set Up Layout Cameras and Train Cams*
- *Have All Remote Systems Running 30 Minutes Prior to the Session*
- *Have Operators and the Dispatcher Log in 15 Minutes Prior to the Start of the Session*
- *Have All Operators Connect their Throttles to the Layout*
- *If All Goes Well and There is Still Time Remaining Prior to the Session Have Everyone Socialize.*



Running the Remote Ops Session

- *When the Session Starts the Train Master or Traffic Supervisor (Host) Calls Crews On Duty and Hands Them Off to the Dispatcher.*
- *The Host Monitors the Progress and makes Suggestions When Needed That Improve the Efficiency of the Session.*
- *The Host Assists With Switching Operations Where Needed.*
- *At the Conclusion of the Session, Hold a Short Wrap Up.*



Final Thoughts

- . Hold As Many Sessions As You Can So Crews Become Comfortable.*
- . Keep the Sessions Fun.*
- . Keep the Sessions to No More Than 2 Hours*
- . Seek Out Advice on Remote Ops.*
- . Don't Be Afraid to Take a Risk.*



The Nickel City Line Railroad



<https://nclrr.potomac-nmra.org/index.htm>