| DELAWARE-LACKAWANNA |  |  |  |
| :---: | :---: | :---: | :---: |
| LOCATION | TYPE | NAME AND ADDRESS | PHONE |
| Scranton | Hospital | Moses Taylor Hospital 700 Quincy Avenue | (570) 770-5000 |
| Scranton | Hospital | Geisinger Community Medical Center 1800 Mulberry Street | (570) 703-8000 |
| Dunmore | Urgent Care | Medicus Urgent Care 1208 O'Neill Highway | (570) 207-2612 |
| E. Stroudsburg | Hospital | Pocono Medical Center 206 East Brown Street | (570) 421-4000 |
|  |  |  |  |
|  |  |  |  |
| FALLS ROAD/DEPEW LANCASTER \& WESTERN |  |  |  |
| LOCATION | TYPE | NAME AND ADDRESS | PHONE |
| Batavia | Hospital | United Memorial Hospital 127 North Street | (585) 603-6030 |
| Batavia | Urgent Care | Insource Urgent Care Center 35 Batavia City Center | (585) 250-4201 |
| Cheektowaga | Urgent Care | WNY Immediate Care 5014 Transit Road | (716) 684-2273 |
| Lockport | Hospital | Eastern Niagara Hospital 521 East Avenue (Rt. 31) | (716) 514-5700 |
| Brockport | Urgent Care | Strong West Emergency Care 156 West Avenue | (585) 758-1010 |
|  |  |  |  |
|  |  |  |  |
| MOHAWK ADIRONDACK \& NORTHERN |  |  |  |
| LOCATION | TYPE | NAME AND ADDRESS | PHONE |
| Utica | Hospital | St Elizabeth Medical Center 2209 Genesee Street | (315) 798-8100 |
| Utica | Urgent Care | Genesee Urgent Care 1901 Genesee Street | (315) 793-8856 |
| Carthage | Hospital | Carthage Area Hospital 1001 West Street | (315) 493-1000 |
| Rome | Urgent Care | Mohawk Glen Urgent Care 91 Perimeter Road, Suite 100 | (315) 337-2156 |
|  |  |  |  |
|  |  |  |  |

## SP-1 JOINTED RAIL

When freight trains handling one or more loaded cars are operated on jointed rail, the Engineer will avoid prolonged operation in speed range of 13 to 22 MPH . If speed cannot be maintained above 22 MPH , it must be reduced to 10 MPH .

## SP-2 LOCOMOTIVES WITHOUT RECORDING DEVICES

A train whose controlling locomotive is not equipped with a functioning recording device is restricted to a speed not exceeding 30 MPH.

SP-3 MAXIMUM AUTHORIZED SPEEDS - ENGINES
SL- Single Unit Light ML- Multiple Unit Light

| Number | Model | Builder | HP | MPH SL | MPH ML | MPH WT | Note |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 26 | 0-6-0 | Baldwin | Steam | 20 | 20 | 20 | 1,3 |
| 211 | RS-32 | ALCO | 2000 | 30 | 50 | 70 | 3 |
| 405, 414 | C-420 | ALCO | 2000 | 30 | 50 | 70 | 3 |
| 426 | SC | EMC | 600 | 30 | 30 | 30 | 3 |
| 514 | GP-9 | EMD | 1750 | 30 | 50 | 70 | 1,3 |
| 663, 664 | F3 | EMD | 1500 | 30 | 50 | 70 | 1,3 |
| 959 | GP-7 | EMD | 1500 | 30 | 50 | 70 | 3 |
| 1044 | S-6 | ALCO | 900 | 30 | 30 | 30 | 3 |
| 1554 | RS-3 | ALCO/GE | 1600 | 30 | 30 | 70 | 2,3 |
| 1670 | 80T | GE | 470 | 20 | 20 | 20 | 3 |
| 1901 | SW-1 | EMD | 600 | 30 | 30 | 30 | 1,3 |
| 1800-99 | RS-11, RS-18 | ALCO/MLW | 1800 | 30 | 50 | 70 | 3 |
| 1947-1951 | 44T | GE | 400 | 20 | 20 | 20 | 3 |
| 2000-2099 | RS-32, M-420 | ALCO/MLW | 2000 | 30 | 50 | 70 | 3 |
| 2400-2499 | C. 425 | ALCO | 2500 | 30 | 50 | 70 | 3 |
| 3000-3099 | C-630M | ALCO | 3000 | 30 | 50 | 75 | 3 |
| 3600-3699 | C-636, M-636 | ALCO | 3600 | 30 | 50 | 75 | 3 |
| 4000.4199 | RS-3 | ALCO/GE | 1600 | 30 | 50 | 70 | 2,3 |
| Steam, Other |  |  |  |  |  |  | 4 |
| Note 1- Locomotive owned by or leased to National Park Service - Steamtown NHS (SNCX) | Locomotive owned by or leased to National Park Service - Steamtown NHS (SNCX) |  |  |  |  |  |  |
| Note 2- | Unless instructed otherwise by the Trainmaster or the General Superintendent, |  |  |  |  |  |  |
|  | RS-3 type locomotives are not to be used as lead units on GVT freight trains. |  |  |  |  |  |  |
| Note 2- | Light engines must not exceed maximum speed for freight trains unless otherwise restricted. |  |  |  |  |  |  |
| Note 4 - | Maximum authorized forward speeds (up to track speed) of any NPS-operated steam locomotive larger than 0-6-0 type will be determined by the SNCX Trainmaster prior to operation. |  |  |  |  |  |  |
|  | - Steam locomotives operating tender in the lead with train will not exceed 25 MPH. |  |  |  |  |  |  |
|  | - Steam locomotives operating tender in the lead light will not exceed 20 MPH. |  |  |  |  |  |  |

SP-4 MAXIMUM AUTHORIZED SPEEDS - SPECIAL EQUIPMENT

| Equipment | MPH | Note |
| :---: | :---: | :---: |
| All Equipment Not Equipped With Roller Bearings | 30 |  |
| Hauling Dead Steam Locomotives | 15 |  |
| American Crane | - | 1 |
| Rotary/Swinging Type Equipment (Other Than American Crane) | - | 2 |
| Jordan Spreaders | - | 2 |
| Snow Plows/Flangers | 30 |  |
| Snow Plows/Flangers - Passing over grade crossings (public, private, pedestrian or temp.) | 5 |  |
| Note 1- Movement to by made under direction of Chief Mechanical Officer. |  |  |
| Note 2- Movement to by made under direction of General Superintendent or Trainmaster. |  |  |

# GENESEE VALLEY TRANSPORTATION SYSTEM SPECIAL INSTRUCTIONS 

## SA-1 REQUIRED BOOKS

The issue dates of current books and publications will be listed in the General Order of each new timetable. Employees will be notified of changes in these books via General Order, Bulletin Order or Division Notice.

## SA-2 ADDITIONAL REQUIRED BOOKS

GVT Employees must have in their possession while on duty a copy of the current DOT Emergency Response Guidebook.

## SA-3 REQUIRED BOOKS - FOREIGN CREWS

Foreign railroad crews operating on GVT lines are not required to carry GVT Air Brake, Haz-Mat or Safety Books providing they are carrying those books required by their home railroad.

## SB-1 HUMAN FACTOR REGULATIONS

The Federal Railroad Administration (FRA) has issued certain regulations that pertain to railroad Operating Rules and operating practices, intending to reduce and/or eliminate accidents and incidents caused by the mishandling of equipment, switches and fixed derails.

Any employee who violates any of the these rules or instructions, or who orders or causes an employee to violate any of these rules or instructions, will be considered to have violated these regulations and is subject to disciplinary action. In addition, such an employee may be subject to sanctions from the FRA. Only those employees qualified on the operating rules are permitted to engage in the movement of train, engines or track cars, including operation of switches and derails.

## SB-2 POLICY ON RIGHT TO CHALLENGE

A GVT employee has an absolute right to challenge in good faith whether procedures to be used to accomplish a specific task comply with the requirements of NORAC Operating Rules, GVT Special Instructions, Safety Rules or Federal Regulations regarding:

1. Operating trains from other than the leading end of the movement.
2. Handling cars, locomotives, and other on-track equipment; Fouling Points.
3. Position of Hand-operated Switches, Crossover switches and Fixed Derails.

The employee making such a good faith challenge shall not be required to comply with the directive in question until the challenge is resolved as provided herein and may refuse any directive to violate an operating rule.

The employee may be required to perform tasks unrelated to the challenge until the challenge is resolved.

Another employee may be directed to perform the challenged task prior to the challenge being resolved as long as the other employee is informed of the challenge and does not also make a good faith determination that the challenged task violates FRA regulations regarding the handling of equipment in shoving or pushing movements, leaving equipment in the clear, or operating hand-operated switches, crossover switches, or fixed derails. Detailed instructions and appropriate forms will be provided.

# GENESEE VALLEY TRANSPORTATION SYSTEM SPECIAL INSTRUCTIONS 

## SC-1 PHYSICALS, COMPANY MEDICAL OFFICERS, RETURN TO WORK

GVT employees are required to have physical examinations as governed by FRA 49 CFR. Medical Officers for use in the application of Rule C and Rule G will be selected under Company authority.

Return to work clearance procedures for employees absent account injury or illness are described in the Employee Handbook.

## SC-2 QUALIFICATIONS - PHYSICAL CHARACTERISTICS

Unless authorized by the General Superintendent, a Conductor, Engineer or Track Car Driver not making a trip within 12 months over a railroad to review physical characteristics of the territory on which they are to perform service must not be assigned until they are examined by the proper railroad official. Employee qualifications will be recorded on the "EMPLOYEE QUALIFICATIONS" page of the employee timetable.

Employees absent from duty for 30 days or more will not be permitted to return to duty unless they have qualified before their immediate supervisor on any changes that have occurred during their absence.

## SC-3 ENGINEERS - REPORTING REQUIREMENTS

Each certified engineer or person seeking initial certification must report to GVT within 48 hours any conviction or completed state action to cancel, revoke, suspend or deny a MV driver's license for operating a MV while under the influence of, or impaired by, alcohol or a controlled substance, or refusal to undergo testing as required by state law when a law enforcement officer seeks to determine whether a person is operating a vehicle while under the influence of alcohol or a controlled substance.

## SF-1 SEVERE WEATHER - DISPATCHER NOTIFICATION

Severe weather conditions and sudden changes in weather, such as high water, a sudden surge of water in river and streams under bridges, storms or fog must be immediately reported to the Train Dispatcher.

## SG-1 DRUGS AND ALCOHOL

Accepting employment with GVT is deemed each employee's willingness to obey GVT rules and policies with respect to drug and alcohol use, possession, and testing, and each employee's agreement to be subject to the requirements of those policies in addition to any and all federal or state laws, regulations or directives which may be applicable and may modify or supersede GVT rules or policies.

In accordance with 49CFR 219.102, no regulated employee may use a controlled substance at any time, whether on duty or off duty, except if such substance is prescribed or authorized by a medical practitioner, and that its use will not affect the employee's performance of safety related duties.

## SH-1 SMOKING/VAPING

Smoking and/or vaping inside any building owned, leased or rented by GVT is prohibited.
Smoking is defined as: The burning of a lighted cigar, cigarette, pipe or any other matter that contains tobacco.

# GENESEE VALLEY TRANSPORTATION SYSTEM SPECIAL INSTRUCTIONS 

## SL-1 PERSONS PERMITTED TO RIDE ENGINES

Only persons holding proper authorization from the General Superintendent are permitted in the cab of any GVT locomotive or on-track equipment. Federal and State transportation inspectors will be allowed in the cab of any locomotive or other on-track equipment provided they present proper identification and comply with Company rules and instructions. Where secured seating allows, no more than 4 persons are permitted to ride in the operating cab of a locomotive.

## SN-1 ON/OFF MOVING EQUIPMENT

Bulletin Order, Division Notice or Timetable Division Special Instruction shall establish where employees are prohibited from getting on/off moving equipment.

All employees performing switch duties on joint service trackage must comply with the specific on/off moving equipment requirements of that railroad.

## SQ-1 HOURS OF SERVICE

To perform service, employees who are subject to federal hours of service regulations must know and comply with the requirements contained therein.

## SS-1 POSITIVE PROTECTION

All employees working in train service positions or other positions working with a train crew on GVT or NPS property must use positive protection when going between, under or onto equipment which is coupled to an occupied operating locomotive. Employees must request positive protection either by hand or by radio. The manner of hand or radio signal to be used will be discussed at the job briefing.

To apply positive protection the engineer must apply the locomotive brakes fully, the train brakes if necessary AND place the reverse lever in the center (neutral) position. The engineer must confirm the application of positive protection by horn/whistle signal or by radio.

Brakes must remain applied and the reverser centered until the crewmember requesting the protection gives a hand or radio signal to move, or to release the protection.

All employees performing switching duties on joint service trackage must comply with the specific requirements of positive protection for that railroad.

## MAKE SAFETY A PART OF EVERYTHING YOU DO

# GENESEE VALLEY TRANSPORTATION SYSTEM SPECIAL INSTRUCTIONS 

## S1-1 REPORTING FOR DUTY

When reporting for duty, employees whose duties are governed by this timetable must report to the employee governing movements over the territory which they are assigned to work regarding General Orders, Bulletin Orders, Division Notices, and other special instructions.

## S1-2 GENERAL ORDERS, BULLETIN ORDERS AND DIVISION NOTICES

Locations of bulletin boards where general orders, bulletin orders and division notices are posted and available will be listed in the Timetable Special Instructions. Bulletin orders, division notices and other special instructions will be issued under separate heading for FRR/DLW, MA\&N and DL by the GVT Train Dispatcher.

Employees must ensure all bulletin orders pertaining to trackage upon which they are qualified are complete.

Roadway workers performing service as a lone worker or as an employee-in-charge must ensure they have in their possession current operating manuals, timetable/general orders and bulletin orders.

S1-3 LOCATION OF TRAIN BULLETIN ORDERS, DIVISION NOTICES, EMPLOYEE REGISTER SHEETS AND STANDARD CLOCKS
BB - Bulletin Board ER - Employee Register CLK - Standard Clock SAF - Safety Register

| LOCATION | BB |  | ER | CLK |
| :--- | :---: | :---: | :---: | :---: |
| Delaware-Lackawanna | X | X | X |  |
| GVT Train Dispatcher Office, Bridge 60 | X | X | X | X |
| D-L Administrative Office, Bridge 60 | X |  | X | X |
| D-L Locomotive Shop | X | X | X | X |
| D-L Crew Trailer |  |  | X |  |
| Falls Road/DL\&W | X | X | X | X |
| FRR Lockport Locomotive Shop | X | X | X | X |
| DL\&W Lancaster Locomotive Shop | X | X | X | X |
| DL\&W Batavia Roundhouse | X | X | X | X |
| GVT Batavia Administrative Office |  |  |  |  |
| Mohawk Adirondack \& Northern | X | X | X | X |
| MA\&N Carthage Office | X | X | X | X |
| MA\&N Utica Engine House |  |  |  |  |

## S2-1 EASTERN STANDARD/MILITARY TIME APPLIES

Standard Time of the Eastern Time Zone shall be advanced one hour commencing at 0201 hours on the second Sunday of March and set back one hour at 0201 hours on the first Sunday of November. The military 24-hour system is established as the Standard Time. When checking or setting a standard clock, the correct time must be obtained from the Train Dispatcher.

## S4-1 JOB BRIEFINGS

Train Crews holding Form D line 2 in Both Directions, or a Crew Member issued an Out of Service Form D for train movement authority, will hold a job briefing which will include the Train Dispatcher, to confirm the position of all switches as well as the requirements of any temporary restrictions that affect their movement prior to their final return to point of origin.

## S19-1 WHISTLE POST LOCATION

Engineers will adjust the onset of horn/whistle signals to comply with NORAC Rule 19(b) when whistle posts are located outside the start time required by the Rule.

## S21-1 COMMUNICATION SIGNALS - PASSENGER TRAINS

Passenger trains operating cars not equipped with operative communicating signals must rely on radio communication between the train and the controlling locomotive.

## S70-1 INSPECTION BEFORE DEPARTURE

At facilities where customers may have moved or repositioned railcars, train crews must inspect cars for defects and determine they are safe for movement prior to departure.

## S80-1 STOP/OBSTRUCTION FUSEES

Company Officers are authorized to use burning fusees when conducting operational checks for compliance with Restricted Speed. An unattended fusee burning on a track governed by Restricted Speed is considered an "Obstruction" or a fixed signal representing a "Stop Signal." Train movements required to observe Restricted Speed must stop short of the fusee to be in compliance with the operational test.

## S97-1 NORAC RULE 97 - MOVEMENT ON A RUNNING TRACK

Movement or Occupancy on any track governed by NORAC Rule 97 is authorized by the GVT Train dispatcher, and must be made at restricted speed, not to exceed the specific maximum authorized speed on each track. On-Track Safety (RWP) Non-Controlled Track Protocol applies in NORAC Rule 97 Territory.

## S100-1 COUPLING OR SWITCHING PASSENGER EQUIPMENT

When passenger cars are handled in mixed or local freight trains, such equipment must be handled on the rear of trains, except as otherwise authorized by the General Superintendent. Normal speed for freight trains must not be exceeded.

When coupling passenger cars, the steam, air, power cables, communicating signal, safety chains between coaches and all other appliances must not be connected until cars have been stretched to be sure coupling has been made.

Before uncoupling passenger cars all steam, air, power cables, communicating signal, safety chains between coaches and all other appliances must be disconnected.

Steel skates must be used when passenger cars are left unattended on a grade and not coupled to a locomotive. Cars must be coupled and brakes functioning properly before making movements with passenger cars. Passenger cars must not be uncoupled while cars are in motion.

Trains making back-up moves with occupied passenger cars must have a back-up hose, platform valves or communicating signal operating before movement is begun. Such movements must approach all public grade crossings prepared to stop.

When picking up coaches, employees must be certain all hand brakes have been released prior to movement.
Whenever practical and operating conditions permit, passenger trains requiring a helper engine will have the helper engine coupled to the head end of the movement.

## GENESEE VALLEY TRANSPORTATION SYSTEM SPECIAL INSTRUCTIONS

## S109-1 UNATTENDED TRAINS AND EQUIPMENT

Definition: Unattended - Unattended equipment is equipment left standing and unmanned in such a manner that the brake system of the equipment cannot be readily controlled by a qualified person.

For example, if the individual is eating lunch or in the bathroom, full attention is not being given to the equipment. If the individual is in a crew room or talking on the phone, full attention is not being given to the equipment. Employees must be focused on the task at all times.

After a credible report of the presence of first responders on, under or between an unattended train or equipment, a qualified railroad employee must inspect the train or equipment for proper securement before it is left unattended. Every effort must be made to ascertain from the first responder what actions were taken and to notify a representative to remain at the location until the employee arrives.

## S119-1 EQUIPMENT OF EXCESS DIMENSIONS OR WEIGHT

In Non-Electrified Territory

- Cars exceeding $286,000 \mathrm{lbs}$. ( 143 ton), or less than 42 ' on the DL, or $45^{\prime} 8$ " on the FRR/DLWR \& MHWA, may not be moved without permission of the Chief Railroad Engineer.
- Cars exceeding 18 '6" high, or $10^{\prime} 6$ " wide, may not be moved without permission of the Train Dispatcher. The GVT Dispatcher must be supplied with a copy of dimensional paperwork before movement is made.
- Caboose/Cabin Cars and Maintenance of Way Equipment are exempt from this restriction.


## S119-2 PROHIBITED EQUIPMENT

Self-powered rail bikes are prohibited unless authorized by a GVT corporate officer.

## S131-1 FLAG PROTECTED WORKSITES - EMPLOYEE DUTIES

Contractors must not engage in any activity on railroad property without specific permission from the railroad and a qualified employee on site.

Employees assigned to protect railroad property where contractors are authorized to work will take orders and instructions from proper railroad officials, not contractors or their representatives. Assigned employees will provide themselves with proper flagging equipment and radio. They will communicate to the employee governing train movements over track at their location upon arrival and following any changes in their location. Assigned employees will ascertain the work to be performed and the equipment to be used from the responsible representative of the contractor involved.

## S131-2 EMPLOYEE PROTECTED WORKSITES - TRAIN CREW RESPONSIBILITES

Bulletin Order shall establish locations where qualified employees have been assigned to protect private contractors whose work may effect the safe movement of trains. When specific work site locations cannot be provided by Bulletin Order, the Dispatcher will verbally communicate this information to train crews.

Approaching train crews must notify the flag person by radio, be alert for personnel or equipment near the tracks and sound required warning signals. If contact cannot be made to the flag person by radio, train crews must approach the work area at restricted speed until the area is observed to be clear before returning to governing speed.

## S138-1 PUBLIC CROSSINGS AT GRADE - OTHER THAN MAIN TRACK

On running tracks, sidings, yard and industrial tracks, trains must approach crossings protected by automatic warning devices prepared to stop and, if warning device fails to operate, on-ground protection must be provided before proceeding over the crossing.

When movement is required over a road crossing on an Industrial Track or Industry Track where snow, ice or mud conditions prevail, extra precaution must be taken to avoid derailment or accident. When necessary, the engine must be used to cut flangeways at road crossings (public or private) prior to servicing or switching the industry. If operating conditions are such that the engine cannot be used and car(s) must be shoved over the crossing, employees are prohibited from riding the car over the crossing. On-ground employee(s) must be alert and prepared for possible derailment.

## S138-2 RUSTY RAIL CONDITIONS

When rusty rail conditions exist, trains and engines must approach all crossings equipped with automatic warning device prepared to stop unless it is known that the automatic warning device has been operating properly for a minimum of 20 seconds prior to occupying the crossing.

## S138-3 APPROACHING HIGHWAY/RAIL CROSSINGS - NO DISPATCHER ON DUTY

When approaching a pathway grade crossing or highway/rail grade crossing when a dispatcher is not on duty, trains will operate at restricted speed not exceeding 20 mph , head end only, until it can be determined that there is no malfunction to the crossing warning system, no disabled vehicle or obstruction blocking the railroad track, or any other condition that may interfere with safe passage.

## S138-4 HIGHWAY CROSSING MALFUNCTION - AFTER HOURS REPORTING

Train crews will notify appropriate on-call maintainer and leave message on the GVT Dispatcher's voice mail, $\square$ when reporting signal malfunctions at highway-rail crossings during dispatcher off-duty hours

On-call maintainers will notify all trains operating before or after Dispatcher hours of coverage of any signal malfunctions. Maintainers will also text or email the Dispatcher, in addition to leaving a message on the Dispatcher's voice mail, of reported signal malfunctions to highway-rail crossings or if taken out of service.

Information regarding anticipated train movements before or after dispatcher hours of coverage may be obtained from the GVT Dispatcher daily during on-duty times. Additionally, Dispatchers will inform on-call maintainers by text regarding after hours \& weekend movements prior to closing office.

## S138-5 INDICATOR LIGHTS

At crossings equipped with electric light AC power indicators on or adjacent to crossing instrument cases, employees must report to the Dispatcher when the indicator light is not displayed.

## S138-6 AAR CROSSING NUMBERS

Will be used in any FRA/DOT/Police incident reports which occur at Public Highway-Rail crossings.

## S139-1 COMPROMISED STOPPING ABILITY

Where slippery conditions exist, when returning to or assisting standing equipment, train crews will test for braking effectiveness within 1 mile of equipment to determine safe coupling procedure and speed. When coupling to passenger equipment, occupied or unoccupied, crews are to make a safety stop at least 50 feet but not more than 250 feet short of equipment before proceeding with the coupling.

## S160-1 ISSUING FORM D'S

All Form D's issued by the GVT Train Dispatcher will be prefixed with the letter "L". Form D numbers will be numbered consecutively system wide and not broken into divisions or railroads.

## S165-1 DICTATION OF FORM D BY RADIO, TELEPHONE OR IN PERSON

After dictation of a Form D by radio, telephone or in person and the Dispatcher's name has been given, the total number of lines circled and the specific line numbers must be specified (e.g. "There are two lines circled. They are lines 2 and 3.") In cases where a Form D is issued and a meet between trains/track cars is to occur, the Dispatcher must verbally inform the trains/track cars that a meet will take place. The information will be transmitted before the receiving employee repeats the Form D to the Dispatcher.

Before dictating the Time Effective the Dispatcher must once again confirm the total number of lines circled on the Form $D$ and identify the individual line numbers in the same format as above.

## S165-2 BULLETIN ORDER NOTATION

During dictation of a Form D, employees will write current Bulletin Order Number(s) above the physical delivery box at the top of the Form or in the Bulletin Order Notation Box when provided. Employees must include this information during read back of the Form.

# GENESEE VALLEY TRANSPORTATION SYSTEM SPECIAL INSTRUCTIONS 

## S400-1 DCS STATIONS

- NORAC DCS signs are indicated in upper case bold letters: "SNOW", "LOCK", "GAP", etc.
- Non-DCS Stations are indicated in upper case non-bold letters: "SCRANTON", "WILNA", etc.


## S400-2 PASSING DCS STATION SIGNS

Trains and Track Cars will announce via road channel, Identification, location, and direction of travel when passing DCS station signs. During periods of Temporal Separation, trolley cars are exempt from this procedure.

S706-1 FIXED BASE STATIONS/RADIO CHANNELS

| Railroad \& Location | Hours of Operation | AAR Channel TX/RX | Station Type \& Coverage |
| :---: | :---: | :---: | :---: |
| DL - Bridge 60 Tower | 0700-2300 | 90/90 | Fixed Base / System |
| DL - Scrub Oak Repeater |  | 14/90 | Remote / Scranton-MILL |
| DL - Camelback Repeater | Continuous | 71/71 | Remote / Gouldsboro-Portland |
| MHWA - Bowen Hill |  | 24/90 | Remote / LF main-Utica-Rome |
| FRR - Albion MP 31.30 |  | 24/90 | Wayside / Brockport-Lockport |

## S803-1 ANNOUNCING PRESENCE

All track cars will announce via proper radio channel: track, location, and direction when occupying any track for travel.

## S902-1 TRAIN DISPATCHING DISTRICTS

GVT Train Dispatcher:

-Carbondale Main Track
-Falls Road Main Track
-Lyons Falls Line
-Laurel Line Main Track
-Laurel Line Running Track
-Pocono Main Track
-Scranton Running Track
-Strawberry Hill Running Track

# SAFETY FIRST <br> because INJURIES LAST 

## GENESEE VALLEY TRANSPORTATION SYSTEM SPECIAL INSTRUCTIONS

## S903-1 GVT TRAIN DISPATCHER COVERAGE - PROCEDURE FOR LIMITED HOURS OF OPERATION

A. Crews and employees will report emergency situations immediately to the General Superintendent (or designated employee in charge) for instructions after dispatching hours of operation.
B. Reporting, clearing and canceling procedures after hours:

1. Outstanding Verbal Permission - The crew/employee will inform the dispatcher if they will be occupying track after hours of operation. The employee in charge will call the Dispatchers office ( $\square$ ) and leave a message on voice mail indicating time clear. Notation will also be made as to any cars left remaining on main and siding tracks. All switches will be left in normal position unless previously arranged.
2. One Direction Form D Written Authority - The crew/employee will inform the dispatcher if they will be occupying track after hours of operation. The employee in charge will call the Dispatchers office $\square$ ) and leave a message on voice mail indicating time Form D is fulfilled. Notation will also be made as to any cars left remaining on main and siding tracks. All switches will be left in normal position unless previously arranged.
3. Both Direction Form D - The crew/employee will inform the dispatcher if they will be occupying track after hours of operation. Both direction Form D's requiring cancellation are to be taken back to the crew/employee sign up location and made accessible for cancellation. Form D's are not to be left on locomotive or personally kept unless agreed to by the Dispatcher. Employee in charge will inform the Dispatcher of train status/tie down location via voice mail at
4. Out-Of-Service Authority Form D - The employee named on Line 4 will inform the Dispatcher if he/she will be occupying track after hours of operation. If the track needs to be retained for the following day, the Form D may remain in the addressed employee's possession.

If work is completed after Dispatcher hours of operation, the addressed employee must contact the Dispatcher immediately at the onset of Dispatcher coverage. If another employee is to assume continuous out of service track, arrangements must be made with the addressed employee and his/her relief for the transfer of authority during Dispatcher hours of operation. If it is known track is to be taken out of service prior to dispatcher coverage, arrangements must be made the previous day during hours of operation.

## S941-1 CONDUCTOR PAPERWORK

Conductors must sign and accurately and legibly complete all required data on industry work order and wheel report documents. They must send these to Batavia or Bridge 60, as applicable, at the completion of their tour of duty.

## S950-1 LOCOMOTIVE IDLING/SHUT DOWN

When weather permits, if a locomotive will not be used for the next 30 minutes, it will be shut down. If a locomotive is not needed for tonnage, it will be set to idle.

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## GENESEE VALLEY TRANSPORTATION

## DELAWARE-LACKAWANNA RAILROAD COMPANY



TIMETABLE AND SPECIAL INSTRUCTION PAGES FOR:

POCONO MAIN TRACK<br>CARBONDALE MAIN TRACK<br>STRAWBERRY HILL RUNNING TRACK<br>VINE STREET INDUSTRIAL TRACK<br>LAUREL LINE

## DELAWARE-LACKAWANNA RAILROAD



## NOTES:

1 - Rule 98 in effect on all sidings and other non-controlled tracks between NAY AUG and GAP.
2 - Running locomotives are not to be tied down in the vicinity of Moscow Station
3 - Dropping of cars towards the Runaround at Harvest States Mill is prohibited.
4 - Semaphore at Cresco Station is for display purposes only. Does not convey a signal aspect.
5 - Permission to Occupy NS trackage at SLATE must be obtained from the NS Lehigh Line Dispatcher via NS Road Channel 1. Trains leaving NS trackage must report clear.

## EQ-PC1 EQUIPMENT RESTRICTIONS

| Location: | Note: |
| :--- | :--- |
| NAY AUG and COBBS | 1 |
| NAY AUG and GAP | 2 |
| Moscow Freight House Siding | 3 |
| Cramer Lumber Siding | 3 |
| Pocono Summit Grain Mill | 3 |
| National Lead | 4 |

Note 1: Equipment with a height in excess of 19'0" must not move without prior authorization.
Note 2: $\quad$ Sidings and Main Tracks must not exceed 19 loaded Hazard Class 2.1 tank cars left unattended.
Note 3: Steam locomotives will not operate unless authorized.
Note 4: Due to conditions at National, crews must use a spacer when switching this customer.

## A-PC1 ADDITIONAL REQUIRED BOOKS/BULLETINS

Train crews must have in their possession the current foreign railroad rule books when operating on the respective properties:

- NS Timetable and NS Air Brake Rulebook while on NS property.

Additionally, train crews must have in their possession the applicable bulletin orders for each road while operating on the respective properties:

- NS Dispatcher Bulletin, Operations Bulletin and Superintendent's Bulletin while on NS property.


## B-PC1 CLOSE CLEARANCE AREAS

Crewmembers are not to ride on the side of cars or locomotives in the following locations. Keep hands, heads and arms inside the locomotive when operating in these close clearance areas:

1. Nay Aug Tunnel - Along rock wall both tracks; between tracks when cars are occupying adjacent track.
2. High Switch Stand at: Tobyhanna Runaround - East end and Keystone switch.
3. Horizon Milling - High switch stands and light poles tracks 1-4.
4. Royal Chemical - Both sides at unloading pit.
5. National - Both sides of track.
6. Rock-Tenn - North side at dock.

## N-PC1 PERSONAL PROTECTIVE EQUIPMENT

All DL employees must wear GVT-approved vision and hearing protection while operating on NS property.

## 19-PC1 ENGINE WHISTLE OR HORN SIGNALS

- All train movements must sound horn/whistle when entering and exiting Nay Aug Tunnel.


## SAFETY IS YOUR LIFE'S WORK

## 104-PC1 SWITCH/SIDING IDENTIFICATION

| Name: | Milepost: | Length: | Note: |
| :--- | :--- | :--- | :--- |
| Nay Aug | 131.45 | $9390^{\prime}$ |  |
| Winton | 127.75 | $4825^{\prime}$ |  |
| Cobbs | 126.60 | $"$ |  |
| Freight House | 120.90 | $200^{\prime}$ | M/W use only unless authorized. |
| Moscow | 120.80 | $1610^{\prime}$ |  |
| Dale | 120.37 | $"$ |  |
| Army | 109.85 | $100^{\prime}$ |  |
| Keystone West | 108.00 | $1681^{\prime}$ | West leg of wye north of sdg for M/W use only unless authorized. |
| Keystone East | 107.61 | $"$ |  |
| Monadnock | 103.45 | $600^{\prime}$ | $500 '$ located inside gate. |
| Cramer Siding | 102.71 | $500^{\prime}$ | M/W use only unless authorized. |
| West Ramp | 102.28 | $4775^{\prime}$ | Trains must notify Harvest States Mill when switching Trevdan. |
| Mill Crossover | 101.60 | $"$ |  |
| East Ramp | 101.30 | $"$ |  |
| Paradise Stub | 97.00 | $350^{\prime}$ | M/W use only unless authorized. |
| Bestway | 94.15 | $1400^{\prime}$ |  |
| Gravel West | 83.85 | $2900^{\prime}$ | Ensure staged cars are placed EAST of the "CUT" sign. |
| Gravel East | 83.30 | $"$ | " |
| Boiler | 82.44 | $5692^{\prime}$ | Switch is secured with a \#102 lock exclusively |
| Hughes | 81.85 | $280^{\prime}$ | M/W use only unless authorized. |
| WestRock | 78.65 | $300^{\prime}$ |  |
| Slateford West | 74.49 | $1300^{\prime}$ | Additional $520 '$ "Short Track" MP 74.39 to MP 74.29 |
| Slateford East | 74.19 | $"$ |  |

## 104-PC2 PERMANENT DERAILS

| Track: | Location: | Milepost: | Note: |
| :--- | :--- | :--- | :---: |
| Winton Siding | West End | 127.75 | 1 |
| Moscow Siding | West End | 120.80 | 1 |
| Army Lead | North Side of Crossing/Inside Gate | 109.85 |  |
| Monadnock | West End | 103.45 |  |
| Cramer Siding | West End | 102.71 |  |
| Trevdan | West End | 102.30 |  |
| Mill Siding | East End at East Ramp Switch | 101.30 |  |
| Bestway Lead | East End | 94.15 |  |
| Royal chemical | Prior to entering plant. | 84.00 |  |
| Boiler Siding | East End | 82.44 |  |
| Hughes Siding | West End | 81.85 |  |
| WestRock | West End | 78.65 |  |

Note 1: $\quad$ When track is clear of equipment fixed derails may be removed and locked in the off position when authorized by the GVT Train Dispatcher to allow for run through traffic.

## 109-PC1 SECURING CARS - NS INTERCHANGE

Train crews must apply sufficient hand brakes to cars left at NS interchange in accordance with NS requirements. The use of chocks or skates is prohibited.

## 124-PC1 MAXIMUM AUTHORIZED SPEEDS

Type.
NAY AUG and SUMMIT
SUMMIT and GAP
RIDGE and GAP
GAP and CHUCK
CHUCK and SLATE

| Type. | Prt. | Psgr. | Note: |
| :--- | :--- | :--- | :--- |
| Main Track | 25 | 30 | 1 |
| Main Track | 25 | 25 |  |
| Sidings | 10 | 10 |  |
| Single Track | 10 | 10 |  |
| Single Track | 10 | 10 |  |

Note 1: Movement must not be made if speed cannot be maintained when operating through Nay Aug Tunnel.

## 138-PC1 HIGHWAY-RAIL CROSSINGS AT GRADE

| MP | Crossing | Location | C | F | B | G | Note | DOT\# |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 131.35 | Myrtle Street | Scranton | X | X | X | X |  | 926 808B |
| 120.58 | Moscow Station (Ped) | Moscow |  |  |  |  |  | 968 379R |
| 114.92 | Lehigh Road | Lehigh | X | X | X | X | 1 | 931 182J |
| 112.87 | Route 507 (Main St.) | Gouldsboro | X | X | X | X |  | 264 061V |
| 109.84 | Tobyhanna Road | Tobyhanna | X |  |  |  | 2 | 930 993E |
| 107.61 | Route 423 (Church St.) | " | X | X | X | X | 3 | 264059 U |
| 102.54 | Summit Avenue | Pocono Summit | X | X | X |  |  | 264 055S |
| 97.37 | Devils Hole Road | Devil's Hole | X | X | X | X |  | 264 050H |
| 92.27 | Henry's Road | Henryville | X | X | X | X |  | 264 048G |
| 90.17 | Brown Hill Road |  | X | X | X | X |  | 264 047A |
| 83.21 | Mill Creek Road | Gravel Place | X | X | X | X | 4 | 264039 H |
| 82.32 | Courtland Street | East Stroudsburg | X | X | X | X |  | 264 038B |
| 82.15 | Burson Street |  | X | X | X | X |  | 264037 U |
| 81.93 | Broad Street | " | X | X | X | X |  | 264 036M |
| 81.66 | Analomink Street |  | X | X | X | X |  | 264 035F |
| 81.57 | Dansbury Depot (Ped) |  |  |  |  |  | 5 | 930 992X |
| 80.70 | Forge Road | , | X | X | X | X |  | 923 747C |
| 77.83 | River Road | Delaware Water Gap | X | X | X | X |  | 264 034Y |
| 74.06 | Private | Mount Bethel |  |  |  |  |  | 968 380K |
| 73.95 | Decker Ferry Rd | Mount Bethel | X |  |  |  |  | $266272 Y$ |
| Note 1: Note 2: | Advance Warning of crossing activation is provided by wayside target signal at MP 115.05 (Eastbound) and MP 114.74 (Westbound). When target is unlit, trains must approach crossing at Restricted Speed and protect in accordance with NORAC Rule 138 g 2. Crossing located on Army Depot Lead |  |  |  |  |  |  |  |
| Note 3: | Westbound switching moves performed at west end of siding are to be expedited. Cars left standing on Eastbound approach circuit will activate Rte 423 Grade Crossing after 10 minutes elapsed time. |  |  |  |  |  |  |  |
| Note 4: Note 5: | Crossing also located on Boiler Siding. Siding Activation via Island Circuit only. NORAC Rules 19 and 20 apply. |  |  |  |  |  |  |  |

## 242-PC1 SIGNAL ASPECTS NOT IN CONFORMITY



ASPECT: Green target

NAME: Crossing Protection Activation Signal
INDICATION: When lit, proceed. When unlit, approach next crossing at Restricted Speed and protect in accordance with Rule 138g. Locations of Crossing Protection Activation Signals are indicated in railroad special instructions.

## 706-PC1 SCRUB OAK REPEATER

All switching operations on the Pocono Main Track as far East as "MILL" will utilize DL Channel 1 (AAR Channel 090/090). This includes the Scranton Running Track.

To contact the GVT Dispatcher, radios with sub-audible tone capability shall be turned to DL Channel 2 (AAR Channel 014/090) in order to Activate the Scrub Oak Repeater.

Radios without sub-audible tone capability must be turned DL Channel 2 (AAR Channel 014/090) and "211" must be entered into the DTMF keypad to activate the Scrub Oak Repeater. Upon conclusion "211\#" must be entered to deactivate the Scrub Oak Repeater.

## 706-PC2 CAMELBACK REPEATER

All movements taking place east of "MILL" will operate on DL Channel 4 (AAR Channel 071/071)

To activate the Camelback Repeater press "111" on the DTMF keypad and speak.
After 15 seconds of no radio activity the Camelback Repeater will automatically deactivate.

## INSTRUCTIONS RELATING TO AIR BRAKE AND TRAIN HANDLING INSTRUCTIONS

## 16.1-PC1 RUNNING BRAKE TESTS

All freight and passenger trains will make a running air brake test before approaching the summit of the
following heavy descending grades: - Steam Shovel Curve (MP 106.40) -Eastbound

- Lehigh Summit (MP 114.60) -Westbound
- MP 120 and MP 121 -Westward (For trains originating west of Lehigh)


## DELAWARE-LACKAWANNA RAILROAD



## B-CD1 CLOSE CLEARANCE AREAS

Crewmembers are not to ride on the side of cars or locomotives in the following locations. Keep hands, heads and arms inside the locomotive when operating in these close clearance areas:

1. Diesel Shop - all tracks entering building from both North and South ends.
2. Lackawanna Recycling Warehouse - East side at loading dock.
3. Cogen Siding - coal loading piers, both sides.
4. Pine Street Underpass MP 16.10 - West side, no walkways west \& east side.
5. Walnut Street Underpass MP 16.25 - West side, no walkways west \& east side.
6. Chestnut Street Underpass MP 16.35 - West side, no walkways west \& east side.
7. MP 16.80 - east side at concrete barriers/loading dock.
8. Carbondale Runaround - West side at loading dock.

## 104-CD1 SWITCH/SIDING IDENTIFICATION

| Name: | Milepost: | Siding Length: | Note: |
| :--- | :--- | :---: | :--- |
| Linde | 19.93 |  |  |
| Carbondale R/A North | 17.90 | $1750^{\prime}$ |  |
| Carbondale R/A South | 17.55 | $"$ |  |
| Brojack | 12.70 | $500^{\prime}$ |  |
| Laminations Lead | 12.40 |  |  |
| Cogen North | 12.20 | $1000^{\prime}$ |  |
| Cogen South | 12.00 | $"$ |  |
| Brick City | 9.00 |  |  |
| Dickson Siding | 7.60 | $400^{\prime}$ |  |
| Recycle Lead | 6.90 | $720^{\prime}$ | Measured from switch to bridge. |
| Greenridge Siding North | 5.40 | $2900^{\prime}$ |  |
| Green Ridge Stub | 5.09 | $750^{\prime}$ | Switch located on Greenridge Siding. |
| Vine Industrial Track | 5.00 |  |  |
| Greenridge Siding South | 4.56 | $"$ |  |
| CJ | 4.10 |  | M/W use only unless authorized. |
| Maple Street Siding | 2.60 | $400^{\prime}$ |  |
| Cherry Street Siding | 2.10 | $1580^{\prime}$ |  |
| Engine House Lead | 2.05 | $"$ |  |
| North Runaround | 2.04 |  |  |
| South Runaround | 1.70 |  |  |

## 104-CD2 PERMANENT DERAILS

| Track: | Location: | Milepost: |
| :--- | :--- | :--- |
| Carbondale Main | Rule 98 North of Dundaff Street | 19.35 |
| Carbondale Main | Rule 98 North of Dundaff Street | 19.08 |
| Laminations | North End of lead and inside plant | 12.40 |
| Brojack Lumber | South End of lead | 12.70 |
| Cogen Siding | South End | 12.00 |
| Greenridge Siding | North End | 5.35 |
| Greenridge Siding | South End | 4.60 |
| Cherry St. Siding | South End | 2.10 |
| DiMare Sdg. | North End of lead | 2.05 |
| S. Scranton R/A | South End | 1.70 |
| Carbon | At NS | 0.00 |

## CARBONDALE MAIN TRACK SPECIAL INSTRUCTIONS

## 124-CD1 MAXIMUM AUTHORIZED SPEEDS

|  | Type. | Frt. | Psgr. | Note: |
| :--- | :--- | :--- | :--- | :--- |
| Carbon and CJ | Single Track | 10 | 10 |  |
| CJ and WC | Main Track | 10 | 15 | Steam locomotives restricted to 10 MPH. |
| WC and End of Track | Single Track | 10 | 10 |  |
| All other tracks | Single Track | 5 | 5 |  |

## 138-CD1 HIGHWAY-RAIL CROSSINGS AT GRADE

| MP | Crossing | Location | C | F | B | G | Note | DOT\# |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 19.95 | Linde (Private) | Carbondale |  |  |  |  |  | 968 375N |
| 18.85 | Dundaff Street | " | X | X | X |  |  | 250310 H |
| 18.50 | Seventh Avenue | " | X | X | X | X |  | 249 605D |
| 18.40 | $8^{\text {i }}$ Ave - Rt. 6 | " | X | X | X |  |  | 249 606K |
| 18.20 | Pike Street | Mayfield | X | X | X | X |  | 2496075 |
| 16.00 | Poplar Street | " | X | X | X | X |  | 249 614C |
| 13.30 | Hill Street | Archbald | X | X | X | X |  | 249 616R |
| 13.10 | Salem Street | " | X | X | X | X |  | 249 617X |
| 12.80 | Pike Street | " | X | X | X | X |  | 249 619L |
| 12.72 | Brojack Access (Private) | " |  |  |  |  | 1 | 968 371L |
| 11.70 | Breaker Street | Jessup | X |  |  |  |  | 249 623B |
| 10.90 | Hill Street |  | X | X | X | X |  | 249 622U |
| 10.70 | Church Street | " | X | X | X | X |  | 249 621M |
| 9.20 | N. Valley Avenue | Olyphant | X | X | X | X |  | 249 625P |
| 8.90 | E. Grant Street | " | X | X | X | X |  | 249 626W |
| 8.80 | S. Valley Avenue | " | X | X | X |  |  | 249 627D |
| 8.40 | DeNaples Crossing (Private) | " |  |  |  |  |  | 926 802K |
| 7.80 | Eagle Lane | Dickson City | X |  |  |  |  | 926803 S |
| 7.50 | Boulevard Avenue |  | X | X | X | X |  | 2496295 |
| 7.30 | Bowman Street | " | X | X | X | X |  | 249 630L |
| 6.05 | Parker Street | Scranton | X | X | X | X |  | 249 632A |
| 5.60 | Dean Street | " | X | X | X | X |  | 249 633G |
| 5.50 | Depot Street | " | X | X | X | X |  | 249 634N |
| 4.50 | Glen Street | " | X | X | X | X |  | 249 652L |
| 4.40 | Poplar Street | " | X | X | X | X |  | 249 653T |
| 4.10 | Olive Street | " | X | X | X | X |  | 249 655G |
| 3.20 | Bridge Street | " | X |  |  |  |  | 249 661K |
| 2.90 | Hickory Street | " | X | X | X | X |  | 249662 S |
| 2.70 | South Washington Avenue | " | X | X | X |  |  | 249 664F |
| 2.60 | Maple Street | " | X | X | X | X |  | 249 665M |
| 2.50 | Elm Street | " | X | X | X | X |  | 249 667B |
| 2.30 | Cherry Street | " | X | X | X | X |  | 249 668H |
| 1.95 | Shop Crossing (Private) | " |  |  |  |  |  | 968 370E |
| 1.10 | Sewer Authority (Private) |  | X |  |  |  |  | 249 669P |
| 0.02 | Cogen Road (Private) | Archbald |  |  |  |  | 2 | 968 374G |
| 0.03 | Greenhouse Road (Private) | " |  |  |  |  | 2 | 968 373A |
| 0.26 | Pumphouse Road (Private) | " |  |  |  |  | 2 | 968 372T |
| 0.72 | Glen Street | Scranton | X |  |  |  | 3,4 | 249 688U |
| 0.71 | Dickson Avenue |  | X |  |  |  | 3,4 | 249 687M |

Note 1: $\quad$ Crossing located on Brojack Lead
Note 2: $\quad$ Crossing located on Laminations (Archbald) Lead
Note 3: $\quad$ Crossing located on Laminations (Scranton) Lead
Note 4: Crossing Closed: Rail Isolated

## DELAWARE-LACKAWANNA RAILROAD

| STRAWBERRY HILL RUNNING TRACK (SH) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Direction | Station/Location | Milepost | Line Diagram | Rule in Effect |
| S | CJ (Carbondale Main) | 0.65 | J | 97 |
| 0 | Straw (Vine Industrial) | 0.30 |  |  |
| U | Lackawanna Avenue | 0.19 |  |  |
| T | State/Intermodal Lot | 0.07 |  |  |
| H ${ }^{\text {V }}$ | Diamond (N. Leg Bridge 60 Wye) | 0.00 |  | $\downarrow$ |
| NOTES: |  |  |  |  |
| 1 - Normal position of switch at CJ is as last used. |  |  |  |  |
| 2 - Idling locomotives are not to be left standing between crossings at the Intermodal Center parking lot. |  |  |  |  |

## 104-SH1 SWITCH/SIDING IDENTIFICATION

| Name: | Milepost: |
| :--- | :--- |
| CJ | 0.65 |
| Straw | 0.30 |
| Diamond | 0.00 |

## 124-SH1 MAXIMUM AUTHORIZED SPEEDS

|  | Type. | Frt. |
| :--- | :--- | :--- |
| Psgr. |  |  |
| Diamond Switch and CJ - Northbound Single Track | 5 | 5 |
| Diamond Switch and CJ - Southbound Main Track | 10 | 10 |

138-SH1 HIGHWAY-RAIL CROSSINGS AT GRADE

| MP | Crossing | Location | C | F | B | G | Note | DOT\# |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 0.19 | Lackawanna Avenue | Scranton | X |  |  |  | 1 | 264 084C |
| 0.17 | Mall Outbound | $"$ | X |  |  |  | 1 | 926804 Y |
| 0.16 | Mall Inbound | $"$ | $X$ |  |  |  | 1 | 926805 F |
| 0.15 | State Lot North | $"$ | $X$ |  |  |  | 1 | 926806 M |
| 0.07 | State Lot South | $"$ | X |  |  |  | 1 | 926807 U |

Note 1: $\quad$ Trains \& light engine movements must stop \& provide on ground flag protection for leading end of movement over crossing.

## SAFE WORKING BEGINS WITH SAFE THINKING

## DELAWARE-LACKAWANNA RAILROAD

| VINE STREET INDUSTRIAL TRACK (VN) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Direction | Station/Location | Milepost | Line Diagram | Rule in Effect |
| S | Connection to Carbondale Main Track | 2.00 |  |  |
| 0 | Marion Siding | 1.95 |  |  |
| U | Cold Storage Lead | 1.10 |  |  |
| T | Wyoming Siding | 1.07 |  |  |
| ${ }_{\downarrow}^{\mathbf{H}}$ | Wyoming Avenue/SNO Management | 1.00 |  |  |
|  | Back Dock | 0.87 |  |  |
|  | Gordon Avenue Stub Sidings | 0.57, 0.60 |  |  |
|  | STRAW (Strawberry Hill Running Trk) | 0.30 |  |  |
| NOTES: |  |  |  |  |
| 1 - Vine Street Industrial Track between MP0.8 and MP2.0 is Excepted Track. <br> 2 - Track is severed North of Sanderson Avenue and South of New Street. |  |  |  |  |

## EQ-VN1 EQUIPMENT RESTRICTIONS/TRACK RESTRICTIONS

| Location: | Note: |
| :--- | :--- |
| Straw and MP 2.00 | $1,2,3$ |
| MP . 05 and MP 2.00 | 4 |

Note 1: $\quad$ 6-Axle Locomotives are prohibited.
Note 2: $\quad$ Propane Cars, loaded or empty are prohibited.
Note 3: Passenger Cars are prohibited.
Note 4: Equipment with height in excess of $17^{\prime} 0^{\prime \prime}$ is prohibited

## B-VN1 CLOSE CLEARANCE AREAS

Crewmembers are not to ride on the side of cars or locomotives in the following locations. Keep hands, heads and arms inside the locomotive when operating in these close clearance areas:

1. Cold Storage Siding - East side at loading dock.
2. SNO Management - Back Dock track and along west side of building.

## 104-VN1 SWITCH/SIDING IDENTIFICATION

| Name: | Milepost: | Siding Length: | Note: |
| :--- | :--- | :--- | :--- |
| Marion Siding | 1.95 |  | M/W use only unless authorized. |
| Cold Storage Lead | 1.10 |  | M/W use only unless authorized. |
| Wyoming Siding | 1.07 | $290^{\prime}$ |  |
| SNO North | 1.00 | $566^{\prime}$ |  |
| SNO South | 0.90 | $"$ |  |
| Back Dock | 0.87 | $70^{\prime}$ |  |
| West Gordon Stub | 0.60 | $600^{\prime}$ |  |
| East Gordon Stub | 0.57 | $120^{\prime}$ |  |
| Straw (Strawberry Hill) | 0.30 |  |  |

## 124-VN1 MAXIMUM AUTHORIZED SPEEDS

|  | Type. | Frt. | Psgr. |
| :--- | :--- | :--- | :--- |
| MP 2.00 and Straw | Single Track | 5 | 5 |

## 138-VN1 HIGHWAY-RAIL CROSSINGS AT GRADE

| MP | Crossing | Location | C | F | B | G | Note | DOT\# |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1.99 | Private Crossing | Scranton |  |  |  |  |  | 968 376V |
| 1.91 | Marion Street | " | X |  |  |  | 2 | 249 637] |
| 1.86 | Sanderson Avenue | " |  |  |  |  | 4 | 249 638R |
| 1.79 | New York Street | " |  |  |  |  | 4 | 249 639X |
| 1.75 | Monsey Avenue | " |  |  |  |  | 4 | 249 640S |
| 1.59 | Larch Street | " |  |  |  |  | 4 | 249641 Y |
| 1.59 | Capouse Avenue | " |  |  |  |  | 4 | 249 642F |
| 1.50 | Walnut Street | " |  |  |  |  | 4 | 249 644U |
| 1.38 | Poplar Street | " |  |  |  |  | 4 | 249 645B |
| 1.27 | Ash Street | " |  |  |  |  | 4 | 249 646H |
| 1.18 | Phelps Street | " |  |  |  |  | 4 | 249 647P |
| 1.11 | New Street | " |  |  |  |  | 4 | 249 648W |
| 1.10 | Wyoming Avenue | " | X |  |  |  | 1,3 | 249 649D |
| 1.04 | E. Gibson Street | " | X |  |  |  | 1 | 249 650X |
| 0.65 | Gordon Avenue | " | X |  |  |  | 1 | 249 657V |
| Note 1: | All train movements must Stop and provide Flag Protection. Rusty rail conditions prevail. NORAC Rule 138C applies. <br> Crossing located on Cold Storage Lead. <br> Crossing closed, rail isolated. |  |  |  |  |  |  |  |
| Note 2: |  |  |  |  |  |  |  |  |
| Note 3: |  |  |  |  |  |  |  |  |
| Note 4: |  |  |  |  |  |  |  |  |

## SAFETY ALWAYS

## DANGER NEVER TAKES A HOLIDAY

## DELAWARE-LACKAWANNA RAILROAD

| LAUREL LINE (LL) |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Direction | Station/Location | Milepost | Line Diagram | Rule in Effect |
| S | S. Washington Avenue (Brady Lead) | 0.00 |  | $\underbrace{97}$ |
| 0 | Trolley Barn | 0.10 |  |  |
| U | Iron Furnace Lead | 0.34 |  |  |
| T | Brady Yard North | 0.54 |  |  |
| H | Brady Yard South | 0.79 |  |  |
| B | BROOK | 0.83 |  | DCS |
| 0 | TUNNEL | 1.80 |  | $\downarrow$ |
| U | Stafford Avenue | 1.95 |  |  |
| N | Virginia Siding Noth | 3.3 |  |  |
| N | Virginia Siding South | 3.55 |  |  |
| D | VIRGINIA (Minodka Industrial Trk) | 3.62 |  |  |
|  | Trolley Shop Lead | 4.30 |  |  |
| $\downarrow$ | VC (End of Track) | 4.33 |  |  |
| NOTES: |  |  |  |  |
| 1-Overhead Electric Trolley Wire is to be considered energized at all times. <br> 2 - Cars must not be staged on the Virginia Runaround when Temporal Separation is in effect. <br> 3 - The Trolley Shop Lead Track in its entirety is designated for Trolley use only. <br> 4 - Trolley Shop Tracks 2 and 3 are designated as Trolley Car Servicing and Repair Track Area. |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

EQ-LL1 EQUIPMENT RESTRICTIONS/TRACK RESTRICTIONS

| Location: | Note: |
| :--- | :--- |
| MP 0.00 and VC | 1 |
| Cedar Ave. MP 0.15 and VC | 2 |
| Trolley Shop Lead | 1 |

Note 1: Equipment in excess of $17^{\prime} 0^{\prime \prime}$ is prohibited on all electrified tracks.
Note 2: 6 Axle locomotives are prohibited south of Cedar Avenue without proper authorization

## B-LL1 CLOSE CLEARANCE AREAS

Crewmembers are not to ride on the side of cars or locomotives in the following locations. Keep hands, heads and arms inside the locomotive when operating in these close clearance areas:

1. Brady Yard - All Tracks
2. Tunnel - Both sides
3. Stafford Avenue Overpass - Both sides
4. MP 2.0 - MP 2.1 Retaining Wall - East Side
5. Plastics Plant - Piping and Silos (Minooka Industrial Track)
6. Trolley Shop - All doors, both sides (Trolley Shop Lead)

## 19-LL1 ENGINE WHISTLE OR HORN SIGNALS

All trains and trolley cars must sound horn when entering and exiting the Laurel Line tunnel and the Stafford Avenue Overpass.

## 104-LL1 SWITCH/SIDING IDENTIFICATION

| Name: | Milepost: | Siding Length: | Note: |
| :--- | :--- | :--- | :--- |
| Trolley Barn | 0.10 |  | Trolley use only unless authorized. |
| Iron Furnace | 0.34 | $450^{\prime}$ |  |
| Brady Yard North | 0.54 | $800^{\prime}$ |  |
| Brady Yard South | 0.79 | $"$ |  |
| Virginia North | 3.35 | $800^{\prime}$ |  |
| Virginia South | 3.55 | $"$ |  |
| MIT Switch | 3.62 |  | Switchback Tail Track 490' |
| Erie Switch | 3.83 |  | Equipment must not enter this track. |
| Trolley Lead Switch | 4.30 |  | Trolley use only unless authorized. |

104-LL2 PERMANENT DERAILS

| Track: | Location: | Milepost: |
| :--- | :--- | :--- |
| Brady Yard | Track 4 North End | 0.56 |
| Brady Yard | Track 3 North End | 0.56 |
| End of Track | VC | 4.33 |

## 104-LL3 SWITCHING PROCEDURES - BRADY YARD

During periods when Temporal Separation is not in effect, train crews switching Brady Yard and retrieving cars from Scranton may have derails in the non derailing position for the purposes of switching and building a train. Sufficient hand brakes must be applied to Brady Yard Cars while retrieval is being made. Upon completion, derails must be restored and locked in the derailing position.

## 124-LL1 MAXIMUM AUTHORIZED SPEEDS

|  | Type. | Frt. | Psgr. Trolley |  |
| :--- | :--- | :--- | :--- | :--- |
| S. Washington Ave and BROOK | Single Track | 10 | 10 | 10 |
| Brady Yard Tracks | Yard Track | 5 |  |  |
| BROOK and VC | Main Track | 25 | 25 | 30 |
| Trolley Shop Lead | Single Track |  |  | 10 |
| Minooka Industrial | Single Track | 10 |  |  |

Note: TROLLEY CONTROL - When traversing frogs in overhead wire, trolleys are not to exceed 10 MPH. Controller must be in the off position (coasting) when traversing section insulators.
Note: Trolley Shop Tracks 1-3: Speed not to exceed 5 MPH.

## 138-LL1 HIGHWAY-RAIL CROSSINGS AT GRADE

| MP | Crossing | Location | C | F | B | G | Note | DOT\# |
| :--- | :--- | :--- | :---: | :---: | :---: | :---: | :---: | :--- |
| 0.00 | South Washington Avenue | Scranton | X |  |  |  | 1 | 264082 N |
| 0.15 | Cedar Avenue | $"$ | X |  |  |  | 1 | 264083 V |
| 4.39 | Glenmaura National Boulevard | Moosic | X | X | X | X | 2 | 926811 J |
| 4.57 | Trolley Works (Private) |  |  |  |  |  | 2 | 968378 J |
| 1.10 | Montage Mountain Road | $"$ | $X$ | X | X | X | 3 | 926810 C |
| 1.60 | Private (Two Crossings) | Scranton |  |  |  |  | 3 | 968377 C |

Note 1: All train movements must Stop and provide Flag Protection.
Note 2: $\quad$ Crossing located on Trolley Shop Lead.
Note 3: $\quad$ Crossing located on Minooka Industrial Track.

## TS-LL1 SAFETY IN ELECTRIFIED TERRITORY

Electrified portions of the Laurel Line have an overhead contact system of trolley wires transmitting 600 Volts DC of electricity. All personnel working in proximity to electrified territory must adhere to the following rules:

- Conduct a Job Briefing on the dangers of working in electrified territory before commencing work.
- Consider trolley wires Electrified At All Times.
- Do not touch any wires even if it is known that the power has been turned off.
- Do not go near or contact any dangling wire, or attempt to move them by any means.
- Report the location of any dangling wire or foreign items entangled in wire to the Train Dispatcher.
- Do not ride or climb on top of any equipment.


## TS-LL2 REQUIRED BOOKS AND PUBLICATIONS - TROLLEY OPERATORS

In addition to other required books and publications in effect, all Trolley operating personnel must have in their possession while on duty: Historic Trolley Excursion Emergency Response and Evacuation Plan dated April 1, 2005, Safety Rules for Trolley Operators-Delaware Lackawanna Railroad dated April 1, 2005, and Operating Rules Supplement for Historic Trolley dated August 1, 2005.

## TS-LL3 TEMPORAL SEPARATION

## A. Method of Operation

For the purposes of trolley operation by the Delaware-Lackawanna Railroad on Steamtown National Historic Site and Pennsylvania Northeast Regional Railroad Authority property, temporal separation is defined as the complete separation of conventional and light rail equipment at completely distinct periods of the day. During periods when temporal separation procedures are in effect, the D-L Dispatcher will not allow any conventional rail equipment to enter the limits of the temporal separation area.

## B. Hours of Operation

Hours of operation are posted by bulletin order and represent the period when temporal separation rules are in effect. Freight and other conventional rail movements on the excursion route are only permitted outside of posted hours of operation.

## C. Temporal Separation Prohibitions

During temporal separation freight service or other conventional rail movements are prohibited on the following tracks:

- The Brady Lead Track and Laurel Line Track from the West End Coal Yard Lead/Brady Lead switch to VC Station, including the electrified runaround at Little Virginia.
- The Depot Run-around Track between the east and west connection switches on the Scranton Running Track.
- The Chamberlain Siding.
- Brady Yard tracks 1 to 4 inclusive.
- Minooka Industrial Lead to the first switchback.


## D. Temporal Separation Procedures

After the scheduled start time for trolley operation, the GVT Dispatcher will confirm with the trolley crewperson that conventional equipment is clear of the Trolley Track. Once confirmation has occurred, the trolley will occupy the Trolley Track and proceed at Restricted Speed for the purpose of applying blocking devices and inspecting the route before initial loading of passengers for excursion service.

## SWITCH:

1. West End Depot Runaround
2. West End Depot Runaround Crossover
3. East End Depot Runaround Crossover
4. East End Depot Runaround
5. West End Coal Yard lead at Brady Lead
6. Coal Yard Lead at Coal Yard Track 5
7. East End Coal Yard Lead at Brady Lead
8. Chamberlain Siding
9. N E Brady Yard Track 3
10. N E Brady Yard Track 4
11. S E Brady Yard Track 4
12. S E Brady Yard Track 3
13. Minooka Industrial Track
14. Trolley Shop Lead

## DERAIL:

15. Milepost 4.33

## ROUTING:

Lined/Locked for Scranton Running Track: Straight Move Lined/Locked for the Depot Runaround Crossover Lined/Locked for the Depot Runaround Crossover Lined/Locked for Scranton Running Track: Straight Move Lined/Locked for Coal Yard Lead Lined/Locked for Coal Yard Track 5 Lined/Locked for Brady Lead: Straight Move Lined/Locked for Brady Lead Lined/Locked for Laurel Line Lined/Locked for Laurel Line Lined/Locked for Laurel Line Lined/Locked for Laurel Line Lined/Locked for Laurel Line Lined/Locked for Trolley Shop Lead

## POSITION:

Applied and Locked to protect Laurel Line

After completion of passenger excursion service and prior to conclusion of hours of operation, the trolley crew will commence procedures for the removal of blocking devices. The GVT Dispatcher will be notified when all blocking devices have been removed and the trolley is in the clear of the Trolley Track consistent with proper verbal clearing procedures.

## E. Annulment of Temporal Separation

The GVT Dispatcher may annul temporal separation when notified of an emergency condition such as electrical system failure, trolley failure or any other condition that would affect trolley operation or prevent its ability to safely clear the Trolley Track. When required, on-track rescue equipment will be utilized to assist a disabled trolley. Form D Lines 4 and 13, or 8,9 and 13 will be issued in accordance with DCS Rules. The disabled trolley will provide flag protection in the direction of the approaching rescue equipment. The flagman will physically escort the rescue equipment to the disabled trolley.

On scheduled days of operation when circumstances require cancellation of the trolley before it occupies the Trolley Track, the GVT Dispatcher may annul temporal separation. During the scheduled hours of operation window, and only during this period, conventional rail equipment requesting permission to enter or cross the Trolley Track will be issued Form D Line 13 notifying of the cancellation.

## DELAWARE-LACKAWANNA TELEPHONE DIRECTORY

EMERGENCY CONTACT NUMBERS - IN CASE OF EMERGENCY ALL AREAS DIAL 911


Note: Phone numbers and personal information redacted.

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# NATIONAL PARK SERVICE STEAMTOWN NATIONAL HISTORIC SITE 

## GENESEE VALLEY TRANSPORTATION

STEAMTOWN NATIONAL HISTORIC SITE - SNCX<br>DELAWARE-LACKAWANNA RR<br>JOINT TRACKAGE



TIMETABLE AND SPECIAL INSTRUCTION PAGES FOR: SCRANTON RUNNING TRACK

CHAMBERLAIN LEAD
BRADY LEAD

## DELAWARE-LACKAWANNA RR - STEAMTOWN NHS



## NOTES:

1 - Permission must be obtained to leave any switch connected to GVT Dispatcher controlled track in reverse position.
2 - Permission must be obtained from the Norfolk Southern Dispatcher before entering or fouling the NS Main Track at HYDE PARK (N. Leg Bridge 60 Wye) or BLOOM (S. Leg Bridge 60 Wye).
3 - Trains operating on the North Leg of the Bridge 60 Wye onto the Strawberry Hill Running Track will consist of no more than 40 loaded cars and 16 powered axles unless authorized by the Trainmaster or General Supt.
4 - All cars left for staging on the North Leg Bridge 60 Wye will be positioned between the Diamond Switch and the derail at HYDE PARK (NS Connection). Unless waived by the D-L Train Dispatcher, the Diamond Switch will remain clear at all times to allow access to and from the Strawberry Hill Running Track.
5 - Normal Position of Divider Switch is lined for the North Leg Bridge 60 Wye.
6 - Normal Position of the Bridge Switch is lined for the Divider.
7 - Normal Position of the Independent Switch is lined for the Independent Track.
8 - Running locomotives are not to be tied down in the vicinity of: Cedar Avenue, Jacobson Hat or Harrison Avenue.

## EQ-SR1 EQUIPMENT RESTRICTIONS

| Location: | Note: |
| :--- | :--- |
| Receiver Storage Track | 1 |
| South Scrap Dock Track | 2 |
| Chamberlain Lead | 3 |
| Scranton Running Track, Depot Runaround at depot platform and walkways. | 4 |
| Scranton Running Track to NAY AUG. | 5 |

Note 1: $\quad$ Steam locomotives will not operate unless authorized.
Note 2: $\quad$ Steam locomotives larger than the 0-6-0 type will not operate without authorization.
Note 3: Six-axle diesel locomotives prohibited East of the Shop Lead switch without authorization.
Note 4: Snow plow movement prohibited.
Note 5: Equipment with a height in excess of $19{ }^{\prime} 0$ " must not move without prior authorization.

## B-SR1 RULES IN EFFECT

| Between/At: | Rule: | Note: |
| :--- | :---: | :---: |
| Scranton Running Track to NAY AUG | 97 | 1 |
| Mall Siding | 97 | 1 |
| Receiver Track, Storage Track, Hat Track | 98 |  |
| Chamberlain Lead | 97 | 1,2 |
| Brady Lead | 97 | 1,3 |
| Brady to Depot Crossover | 97 | 1,3 |
| Depot Runaround | 97 | 1,3 |
| All Other Tracks | 98 | 4 |

Note 1: All train movements controlled by GVT Train Dispatcher
Note 2: $\quad$ SNCX movements must contact the GVT Dispatcher prior to crossing the Chamberlain Diamond.
Note 3: Electrified Trackage. Refer to Electrified Territory and Temporal Separation Protocols.
Note 4: All train movements controlled by SNCX Yardmaster.

## B-SR2 CLOSE CLEARANCE AREAS

Crewmembers are not to ride on the side of cars or locomotives in the following locations. Keep hands, heads and arms inside the locomotive when operating in these close clearance areas:

1. Doors 1 through 9 of the Locomotive Shop.
2. Locomotive Shop Track Lead (track 1 and 2) at the coal dock (south side).
3. Office Storage Building, tracks on north and south side.
4. Scrap dock, tracks on north and south side.
5. Chamberlain Lead, at the northeast corner of the Locomotive Shop and Inside General Dynamics Plant.
6. Old Cliff Street underpass, south side.
7. East End of Bridge 60, south side.
8. North Chutes Track, North Side at Mall Walkway, South Chutes Track when cars on adjacent tracks.
9. Coal Yard, all tracks, both sides when cars are present on adjacent tracks.
10. The entire Core Complex area including:

- The Gangway, North and South Turntable Leads from the Chamberlain Lead Switch to the Roundhouse including the turntable.
- Entering/leaving all Roundhouse and Exhibit Building tracks and core complex gates.
- South side of South Chutes Track and north side of North Chutes Track

11. Scranton Running Track and Receiver Track between Receiver Switch MP 133.19 and East Station Crossing MP 133.10 when cars are present on adjacent track.

## SCRANTON RUNNING TRACK (SR) SPECIAL INSTRUCTIONS

## 104-SR1 PERMANENT DERAILS

| Track: | Location: | Milepost: | Note: |
| :--- | :--- | :--- | :---: |
| Receiver Track | East of West Station Crossing | 133.18 | 1 |
| Receiver Track | East of the East Station Crossing | 133.10 | 1 |
| Receiver Track | East of W. Univ. of Scranton Crossing | 132.85 | 1 |
| Receiver Track | East of East Receiver Crossover | 132.55 | 1 |
| Hat Track | East of the West Hat Switch | 132.80 | 1 |

Note 1: Apply derails and lock secure at West end of all equipment left standing. When track is clear of equipment, fixed derails located on Receiver Track and Hat Track may be removed and locked in the off position when authorized by the GVT Train Dispatcher to allow for run through traffic.

## 124-SR1 MAXIMUM AUTHORIZED SPEEDS

| Between/At: | Type. | Frt. | Psgr. Note: |
| :--- | :--- | :--- | :--- |
| HYDE PARK to Cliff Street (Divider Switch) | Running Track | 10 | 10 |
| BLOOM and Cliff Street (Divider Switch) | Running Track | 10 | 10 |
| Divider Switch and NAY AUG | Running Track | 10 | 10 |
| Mall Siding | Siding | 10 | 10 |
| Receiver Track | Siding | 10 | 10 |
| Chamberlain Lead | Yard Track | 10 | 10 |
| Brady Lead | Yard Track | 10 | 10 |
| Depot Run-A-Round | Yard Track | 10 | 10 |
| All Other Tracks Cliff Street to RIDGE | Yard Tracks | 5 | 5 |

Note 1: For Trolley Operation, passenger speeds will apply.

138-SR1 HIGHWAY/PEDESTRIAN CROSSINGS AT GRADE - SCRANTON RUNNING TRACK

| MP | Crossing | Location | C | $F$ | $B$ | $G$ | Note | DOT\# |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 133.76 | Cliff Street (Private) | Scranton |  |  |  |  |  | 930998 N |
| 133.70 | Boardwalk (Ped) | $"$ | $X$ |  |  |  | 1,2 | 930944 H |
| 133.57 | 400 Block (Private) | $"$ |  |  |  |  |  | 971 131H |
| 133.35 | 500 Block (Private) | $"$ |  |  |  |  |  | 971130 B |
| 133.18 | West Station (Ped) | $"$ | $X$ |  |  |  | 1 | 930997 G |
| 133.10 | East Station (Ped) | $"$ | $X$ |  |  |  | 1 | 930996 A |
| 132.85 | West University (Ped) | $"$ | $X$ |  |  |  | 1 | $930995 T$ |
| 132.65 | East University (Private) | $"$ | $X$ |  |  |  | 1 | 926 809H |
| Note 1: | Sound horn/whistle warning as prescribed by NORAC Rule 19. |  |  |  |  |  |  |  |
| Note 2: |  |  |  |  |  |  |  |  |
| Stop and flag all head end movements with exception of Scranton Running Trk. and Mall Sdg. |  |  |  |  |  |  |  |  |

138-SR2 PRIVATE CROSSINGS LOCATED WITHIN STEAMTOWN YARD AREA

| Track | Location | C | F | B | G | Note | DOT\# |
| :--- | :--- | :--- | :---: | :---: | :---: | :---: | :---: |
| Trolley Museum Lead | Cliff Street/Bridge 60 Access Road | X |  |  |  | 1 | 930943 B |
| Brady Lead | At Mall Overhead | X |  |  |  |  | 930 345P |
| Chamberlain Lead | Sand House | X |  |  |  |  | 930943 B |
| Shop Lead | Park Access Road |  |  |  | 1 | 930943 B |  |

Note 1: All train/trolley movements must stop and provide Flag Protection, head end only.

## 138-SR3 PEDESTRIAN CROSSING CLEARANCE

All rail equipment left standing on the Receiver Track must be no nearer than twenty (20) feet in proximity
to the following crossings: - East Station Crossing MP 133.10

- West University of Scranton Crossing MP 132.85


## NATIONAL PARK SERVICE STEAMTOWN NATIONAL HISTORIC SITE



## MISSION STATEMENT

Steamtown National Historic Site was created to further public understanding and appreciation of the role steam railroading played in the development of the United States.

## GUIDING PRINCIPALS

1. We do it right - do it safely or don't do it!
2. Our most important resource is our employees and volunteers.
3. We provide high quality, professional service to our customers, partners and the community.
4. We abide by all NPS, local, state and federal regulations and policies including, but not limited to, FRA and OSHA regulations
5. We are accountable for our actions and ensure our actions represent Steamtown and the National Park Service Well.

## A-1S ADDITIONAL REQUIRED BOOKS

In addition to the required books outlined in NORAC Rule A, all Steamtown NHS personnel must maintain and have with them while on duty copies of the following documents:

Document:

- Air Brake \& Train Handling Manual \& Passenger Car Air Brake Systems Manual
- Steamtown NHS Passenger Car Manual
- Railroad Operations On Board Service \& Crew Resource Management Manual
- Steamtown NHS Emergency Evacuation Procedures
- Railroad Safety Rules \& Procedures
- Steamtown Excursion Emergency Operations Plan
- Steamtown Mechanical Instructions

Effective Date:
August 1, 2015
January 1, 2016
January 1, 2013
January 1, 2012
January 1, 2013
April 1, annually.
April 1, 2006

## C-1S PHYSICALS/COMPANY MEDICAL OFFICER

National Park Service policies will govern physical examinations for NPS employees and volunteers. Company medical officers for use in application of Rule C and Rule G will be selected by NPS Trainmaster.

## L-1S PERSONS PERMITTED TO RIDE ENGINES

Only persons holding proper authorization from the Steamtown NHS Superintendent are permitted in the cab of any STEA/SNCX locomotive or other track equipment.

With the exception of scheduled locomotive cab tours, no more than four (4) crew members are allowed in the cab of any operating STEA/SNHX locomotives.

FRA inspectors will be permitted in the cab of any locomotive or other track equipment upon presentation of proper identification

## N-1S GETTING ON/OFF MOVING EQUIPMENT

It is permissible to get on and off moving equipment provided the individual has been properly trained and the equipment is NOT moving faster than 3 MPH . This is strictly voluntary and will be left up to each individual.

## N-2S SETTING OUT CARS WITHIN STEAMTOWN YARD

D-L cars and engines, except for normal switching, will not be left on Steamtown National Historic Site Property without permission from the SNCX Yardmaster.

## SAFETY IS JOB \#1

## S-1S POSITIVE PROTECTION

All employees working in Hours of Service positions on GVT or NPS property must use Positive Protection when going between, under or onto equipment which is coupled to an occupied, operating locomotive.

To apply Positive Protection, the engineer must apply the locomotive brakes fully, the train brakes if necessary, AND place the reverse lever in the center (neutral) position. The engineer must confirm the application of positive protection by radio.

Brakes must remain applied and the reverser centered until the crewmember requesting Positive Protection instructs release of protection by radio.

The employee requesting Positive Protection must ensure that no other NPS/SNCX personnel will give a signal or instruction to the engineer to move the equipment.

Positive Protection applied to steam locomotives is as follows: Apply locomotive brakes and train if necessary, throttle closed and pinned, reverser in neutral position and cylinder cocks open.

Only the person requesting positive protection may be the one to give the instruction to release it.

## S-2S HAND FIRING LOCOMOTIVES

All Steam locomotives will be "hand fired" when operating on other than main track.
In order to reduce the need to "cut" coal during the high heat/humidity weather, all main line excursions will receive coal on a daily basis unless otherwise instructed by Operations Supervisor Willard Sturdevant. When "cutting" coal is necessary, dust masks will be worn at all times.

## S-3S VISITOR USE AREAS - PROCEDURES

All tracks between the West End of the Pedestrian Crossing to the East End of the Steamtown Depot platform and the Northeast corner of the Locomotive Shop building are designated visitor use areas.

ALL forward and reverse train movements in these areas will be physically preceded by a crewmember, two if available, one on each side of movement.

## EXCEPTIONS:

1. This protection is not required for movements on the Brady Lead or the Mall Siding.
2. This protection is not required when the park is closed, except during special events.

## S-4S OPERATIONAL STEAM LOCOMOTIVES IN VISITOR USE AREAS

All operating steam locomotives in visitor use areas will utilize extreme caution.

When on display, the Conductor and/or Engineer will ensure that a crewmember is positioned at the side of the engine cautioning visitors that many parts of the engine are hot.

Additionally, the use of injectors or other devices which have the potential to spray, burn, scald, or in any way injure a park visitor are prohibited until visitors are removed a safe distance from the locomotive.

## S-5S VISITOR PROTECTION

Steamtown Passenger Depot - When receiving or discharging passengers at the Steamtown NHS Passenger Depot, on either the North or South Side, the conductor will coordinate with the GVT Train Dispatcher to ensure that no trains pass the depot until all passengers are protected and clear of the passing train.

Outlying Locations - When a meet is planned with a freight train while a passenger train is standing or receiving/discharging passengers, the conductor will coordinate with the GVT Train Dispatcher and the engineer of the passing freight train to ensure that all passengers are protected and clear of the passing train.

## S-6S ROUNDHOUSE PROCEDURES

No locomotive will enter or exit the roundhouse until the conductor has ensured that the protective mezzanine chains/gates are in place so the mezzanine area above the track the locomotive is operating on is blocked off. A member of the crew, a member of the interpretive staff or a member of the roundhouse staff will physically provide visitor protection.

## S-7S CORE COMPLEX OPERATING PROCEDURES

All locomotives and trains entering and/or exiting the core complex using either the Gangway Track or the North/South Turntable Leads will be governed as follows:

Entering and leaving the Turntable via the Gangway Track:

1. ALL forward and reverse train movements south of the Chamberlain Lead diamond and off the Turntable will be physically preceded (on the ground) by a crew member, two if available, one on each side of movement.
2. ALL movements will stop short of the protective gates. The Conductor (and Trainman if available) will, when pedestrian traffic allows, open the gates and provide flag protection on both sides of the crossing.
3. When the movement is complete, the conductor will be responsible to ensure that all protective gates are closed.

Entering and leaving the Turntable via the North and South Turntable leads:

1. ALL movements between the Chamberlain Lead and the Visitors Center - North Exhibit Building and coming off the Turntable will be physically preceded (on the ground) by a crew member, two if available, one on each side of movement.
2. ALL movements will stop short of the protective gates, the Conductor (and Trainman if available) will, when pedestrian traffic allows, open the gates and provide flag protection on both sides of the crossing.
3. When the movement is complete, the conductor will be responsible to ensure that all protective gates are closed.

## S-8S TURNTABLE BARRIERS

Turntable barriers on the core complex tracks 10 through 26 separate visitor use areas from active operational roundhouse tracks and the turntable pit. When placing equipment in excess of 90 feet (coupler to coupler) on the turntable, it must be determined the equipment clears all barriers before moving the table.

If the equipment does not clear the barriers, the conductor will assign crew members to ensure park visitors remain clear of the turntable pit and assist in barrier removal and replacement.

## S-9S TURNTABLE ALIGNMENT AND OPERATION

When the turntable is aligned for track \#7 (North Exhibit Building) it will not align with track \#31 (South Exhibit Building). Track \#7 and Track \#31 will line up individually with the turntable.

Spot and align all movements using the " A " end of the turntable.

Getting on or off the turntable during operation is strictly prohibited.

## S-10S TROLLEY MUSEUM LEAD

All tracks between the east side of the Trolley Museum building and the connection with the South Turntable Lead are under the control of the SNCX Yardmaster. These tracks are designated (north to south) as Trolley 1, 2, 3 and 4.

All train crews (motorman and/or conductor) and mechanical personnel wishing to operate on these tracks for any reason will, prior to any movement outside the building, contact the NPS Yardmaster for permission.

The NPS Yardmaster in conjunction with the GVT Train Dispatcher will ensure that no conventional rail equipment is allowed in the immediate area during light non-revenue trolley car movements to and from the Trolley Museum and the Steamtown Depot until complete.

The normal position of the Trolley Lead switch, connecting to the South Turntable Lead, is lined for the South Turntable Lead.

## THERE ARE NO SHORTCUTS TO SAFETY

## S-11S TROLLEY SYSTEM ELECTRICFICATION

Trolley Museum tracks 1 and 2 to the South Turntable Lead and the Depot run-a-round track from the Steamtown Passenger Depot to South Washington Avenue are designated as "Electrified Territory".

Equipment with a height in excess of $17^{\prime} 0^{\prime \prime}$ is prohibited in electrified territory.

All employees and volunteers are strictly prohibited from climbing or riding on the top of any rail equipment in electrified territory.

All employees and volunteers will consider these areas as "Electrified" AT ALL TIMES.

## S-12S TEMPORAL SEPARATION PROCEDURES

All trolley movements on NPS and D-L trackage between the Steamtown NHS Passenger Depot and South Washington Avenue are under the control of the D-L Dispatcher in accordance with Temporal Separation Procedures. Procedures for the application and removal of Temporal Separation are located in the D-L Laurel Line section of the timetable.

## S-13S PERSONAL PROTECTIVE EQUIPMENT

All SNCX engine crews are required to wear safety glasses and hearing protection when in the cab of operating locomotives. Proper High-Cuff gloves are to be worn in the cabs of operating steam locomotives.

## S-14S CROSSING PROTECTION - OUTLYING AREAS

When freight cars are set on the Receiver Track and/or the West Crossover Receiver Runaround Track between South Washington Ave. and the SCRANTON station sign:

- The assigned conductor will advise the interpretive ranger in charge of the tour to advise passengers to keep their hands, arms and heads inside the coach at all times.
- The engineer will ensure that the engine bell is ringing and appropriate horn/whistle signals are used at all times.
- When the West Station, East Station and West University crossings are cut and visibility is in any way obstructed, all yard excursion train movements must stop and provide flag protection over these crossings. If close clearances will not allow a crewmember to safely get off the train to flag the crossings, the conductor will make a determination on how far the train should proceed.


## 1-1S BULLETIN ORDERS AND DIVISION NOTICES

Bulletin Orders, Division Notices and other Special Instructions concerning trackage controlled by the NPS Yardmaster will be issued by and over the signature of the Steamtown Trainmaster. Additions and deletions to Bulletin Orders will be made by the SNCX Yardmaster when instructed to do so by the Trainmaster.

A copy of all Bulletin Orders must be posted at each Bulletin Board location listed in the Timetable Special Instructions.

## 1-2S LOCATION OF TRAIN BULLETIN ORDERS, DIVISION NOTICES, EMPLOYEE REGISTER SHEETS AND STANDARD CLOCKS

BB - Bulletin Board
ER - Employee Register
CLK - Standard Clock
SAF - Safety Register (GVT)

| Location: | BB | ER | CLK | SAF |
| :--- | :--- | :--- | :--- | :--- |
| Bridge 60 Tower | X |  | X | X |
| DL Crew Trailer | X | X | X | X |
| SNCX Locomotive Shop | X | X | X | X |
| SNCX Yardmaster | X |  | X | X |

## 1-3S GVT RAIL SYSTEM SAFETY NOTICES

The SNCX Yardmaster will be responsible for insuring that when GVT Rail System Safety Notices are received the following actions are taken:

1. The GVT Rail System Safety Notice will be immediately posted on both the Steamtown Train and Engine Service Bulletin Board and the SNCX Yardmaster Bulletin Board.
2. The SNCX Yardmaster will, as part of their normal morning at the Crew Safety Briefing, read and discuss each GVT Rail System Safety Notice. The normal "Crew Safety Briefing" sign in sheet will be used to document that this procedure was complied with as well as other SNCX safety and operational related topics.

It is not required for crew members to have a copy of the GVT Rail System Safety Notice in their possession while on duty.

## 1-4S BLUE FLAGS - TAGGING REQUIREMENT

All Blue Flags/Signals placed on any location/equipment must have a blue tag affixed to the Blue Flag/Signal and the employee's name who is working under this signal clearly written on the blue tag.

All employees from the Locomotive Shop, Roundhouse, Rail Operations, Yardmasters, Buildings and Utilities, Custodial, and Track will be issued four tags; the tags will have the employee's name clearly written on the tag using indelible ink.

## 1-5S SNCX TRAIN MOVEMENTS

Engineers and conductors must be in the immediate vicinity of and directly oversee any and all directives to crew members who are in trainee status.

## 1-6S SPOTTING OF SNCX TRAINS

All SNCX trains are to be spotted per the conductor's signals. The use of pre placed markers other than foul point markers is strictly prohibited.

## 1-7S TURNTABLE OPERATION

All SNCX employees and volunteers are prohibited from stepping on or off the turntable while it is in motion.

## 20-1S ENGINE BELL/TROLLEY GONG

Engine bell/trolley gong must be sounded when passing through areas designed for Visitor Use.

## 101-1S FOUL POINT MARKERS

Yellow Cone Foul Point Markers are installed on NPS controlled tracks and indicate the location where equipment can be left in the clear. These markers also constitute a possible tripping hazard.

## 104-1S SAFETY BRIEFINGS/READING SWITCHES

Before any operating or switching moves, SNCX Crews will discuss all of the switches that will be encountered while mapping out tracks that will be utilized.

## 108-1S UNATTENDED ENGINES

Except when under the control of mechanical department personnel in the shop and roundhouse, operating steam and diesel locomotives will not be left unattended.

## 109-1S SECURING COACHES - HAND BRAKES

A minimum of $50 \%$ handbrakes will be applied to all SNCX and foreign excursion coaches being used that are left standing at any location when the locomotive is uncoupled.

## 119-1S HAZMAT OPERATING PRACTICES

Trains carrying Hazardous Material cars into or through NPS park property will be governed as follows:

1. Before entering NPS park property GVT personnel will provide the NPS Yardmaster with a copy of the waybill and any other special handling or emergency instructions via fax, radio, phone or in person.
2. Cars containing hazardous materials will not be set out or stored within NPS park boundaries.

## 706-1S FIXED BASE STATIONS

Designated fixed base stations are in service at the following locations:

- SNCX Yardmaster's Office
- MOW Building, fixed broadcast/recorder.


## 901-1S DISPATCHING DISTRICTS - STEAMTOWN NATIONAL HISTORIC SITE YARD

Steamtown National Historic Site Yard extends from the Cliff Street Underpass East to the NPS/PNRRA property border as well as all tracks south of the Mall Siding East to Washington Avenue, with the exception of those tracks owned by the PNRRA.

Permission must be obtained from the SNCX Yardmaster on GVT Channel 1 prior to entering any/all yard tracks governed by NORAC Rule 98 between Cliff Street and South Washington Avenue.

Permission to occupy the Scranton Running Track, Mall Siding, Chamberlain Lead, Brady Lead, Depot/Brady Crossover and the Depot Run-Around must be obtained from the GVT Train Dispatcher on GVT Channel 1.

## 940-1S COMPLETING REPORTS AND FORMS

All SNCX crews must complete all required FRA and Steamtown Forms. Such as, Conductors Reports, Air Brake Tests and Daily Locomotive Inspection Reports at the completion of their tour of duty and promptly forward those forms to the proper authority.

## STEAMTOWN NATIONAL HISTORIC SITE SPECIAL INSTRUCTIONS

## 941-1S CELL PHONE

Conductors issued a Steamtown supplied cell phone for excursion trains are governed by NORAC 716, b, 1 (a), (b), (c ) (1) (2), exclusively.

## 951-1S FIREMAN DUTIES AND RESPONSIBILITES

Firemen will comply with the proper method of firing and caring for the engine, and with the instructions of the Designated Supervisor of Locomotive Engineers, Locomotive Shop Supervisory Exhibits Specialist and the Roundhouse Foreman on mechanical methods. They will comply with the instructions of the engineman in the performance of their duties with rules and safety.

When placed in charge of an engine, in the absence of the engineman, they must not leave it or move it until his/her return, unless authorized by the Operations Supervisor Willard Sturdevant. If the engineman becomes disabled, the fireman will stop the engine and report to the conductor and not permit any movement or unauthorized person upon it.

When their duties permit, they must look out in the direction of movement and immediately warn the engineman of any obstructions or danger and while switching, must observe hand signals from the train crew, communicating them to the engineman. When practicable, they must see that the switches near the engine are properly lined.

## 981-1S VARDMASTER DUTIES AND RESPONSIBILITIES

The assigned SNCX Yardmaster is required to have the cell phone turned on and in their possession at all times while on duty.

STEAMTOWN NATIONAL HISTORIC SITE TELEPHONE DIRECTORY
NAME:


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# GENESEE VALLEY TRANSPORTATION <br> DELAWARE-LACKAWANNA RAILROAD CO., INC. <br> DEPEW, LANCASTER AND WESTERN RAILROAD CO., INC. <br> FALLS ROAD RAILROAD CO., INC. MOHAWK ADIRONDACK AND NORTHERN RAILROAD CORP. 

# NATIONAL PARK SERVICE STEAMTOWN NATIONAL HISTORIC SITE 

## GENERAL ORDER 5-1

EFFECTIVE 0001 Hours, January 14, 2019

## A. TIMETABLE IN EFFECT.

1) Employees must replace their Employee Timetable and Bulletin Order information with Employee Timetable No. 5, and associated Bulletin Orders.
2) Records of current qualifications or training contained in the employee's previous timetable editions must be transferred to the "Employee Qualifications" page of Timetable No.5.
3) Employees must review timetable pages to ensure completeness of information and knowledge of the changes. The review must include changes incorporated, or carried to Bulletin Orders.
4) The following pages are required for railroads governed by Timetable 5:

- Pages 1-32 as well as Page 77 (G.O. 5-1) - FRR/DLWR
- Pages 1-20, 33-44 as well as Page 77 (G.0. 5-1) - MHWA
- Pages 1-20, 45-76 as well as Page 77 (G.O. 5-1) - DL/SNCX


## B. REQUIRED BOOKS

NORAC Operating Rules, Eleventh Edition, effective February 1, 2018
GVT System Timetable Number 5, dated January 1, 2019
GVT Air Brake and Train Handling Rules, dated August 8, 2016
GVT On-Track Safety Program, amended July 1, 2013.
GVT Safety Rules, dated November 1, 2012
Eastern Code Hazardous Materials Rules - HM-1

## GENERAL ORDERS IN EFFECT:

- 5-1 Dated January 14, 2019


## 2

## Pocono Mainline Track

Assessment


# Scranton-New York City Intercity Passenger Rail Analysis Infrastructure Assessment TECHNICAL REPORT <br> Prepared for the Amtrak National Network Planning Department 

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# Scranton-New York City Intercity Passenger Rail Analysis Infrastructure Assessment 

TECHNICAL REPORT<br>Prepared for the Amtrak National Network Planning Department

## 2 <br> TRACK

Amtrak engaged Jacobs Engineering Group, Inc., to assess just over 60 route miles of rail line owned by Pennsylvania Northeast Regional Railroad Authority (PNRRA) , a joint authority of Monroe and Lackawanna Counties, between Scranton and the Delaware Water Gap for its suitability for intercity passenger train operations. The purpose of the assessment is to provide cost estimates for economically elevating the line up to a condition consistent with FRA Track Class 3 or 4 (where geometry permits) based upon an assessment of current conditions gathered from existing records supplemented with field sampling and investigation.

This technical report focuses primarily on track and associated infrastructure assets, consisting of an inventory of track assets accompanied by an evaluation as to their present suitability to support passenger train operations and the degree of work necessary to make them passenger train ready including estimated costs for design and construction.

This technical report is organized around discussion of four core topics:

1. Track and Roadbed Condition Assessment
2. Track Configuration and Special Trackwork Assessment
3. Analysis of Curve Speeds
4. Grade Crossing Road Surface Condition Assessments

## 1. TRACK AND ROADBED CONDITION ASSESSMENT

This portion of the technical memorandum presents a preliminary analysis of the condition of rails, ties, other track material, ballast, and roadbed on the Pocono Mainline and the need for upgrading and replacement of the track structure to support the reintroduction of passenger service.

### 1.1. BACKGROUND

The PNRRA Pocono Mainline was originally the historic Delaware Lackawanna and Western Railroad Company (DL\&W) Scranton Division Main Line, opened in 1856 and was also known as the "Route of Phoebe Snow" and the "Road of Anthracite" (see Figure 2-1). The former mainline stretches 60.25 miles from a connection to the Norfolk Southern (NS) Stroudsburg Secondary Track on the Delaware River at Slateford Junction (Milepost (MP) 73.75) to dual connections in Scranton with the NS Sunbury Line at BLOOM and HYDE PARK (MP 133.9 and MP 134.0, respectively). Train operations on the Pocono Mainline are currently conducted by the Delaware-Lackawanna Railroad Company, Inc. (D-L), a subsidiary of the Genesee Valley Transportation Company(GVT).

Figure 2-1. Pocono Mainline

.The majority of the Pocono Mainline is owned by the PNRRA except about a mile in Scranton owned by the United States National Park Service (NPS) as part of its Steamtown National Historic Site (NHS). The PNRRA owns from the SCRANTON block station marker (MP 132.75) east to the end of track at the SLATE block station marker (MP 73.75) and from the Cliff Street undergrade bridge (MP 133.76) west to the connections with NS at BLOOM and HYDE PARK

This section of the former DL\&W main line in Northeast Pennsylvania was originally a densely trafficked multiple track mainline, fully signaled on a very wide and generous roadbed, designed to simultaneously host long, slow coal drags and some of the higher-speed passenger trains for its day. It is a former mountain helper district with constant grades up to $1.5 \%$ in both direction to the plateau between Pocono Summit and Lehigh Summit supporting a rise in grade from 311 feet at Slateford Junction to 1,968 feet at Tobyhanna and back down to 736 feet in Scranton. DL\&W had two tracks from Slateford Junction to East Stroudsburg (with a short section of single track over Broadhead Creek), four tracks from East Stroudsburg to Analomink (numbered north to south (1) (2), three tracks from Analomink to West Henryville (numbered (3) (2), two tracks from West Henryville to Mount Pocono, three tracks from Mount Pocono to Pocono Summit (numbered (3) 2), three tracks from Pocono Summit to Scranton (numbered (1) 4). This arrangement provided for overtaking of slow manifest and mineral trains on the grades without delay to faster passenger trains and supported helper operations at the bottom and top of the grades. The slow main tracks were the outside tracks (Tracks (3) and (4). Downhill freight train operation on the mountain grades were limited to 25 mph for heavy manifest trains and 18 mph for mineral trains. Uphill operations were limited to 30 mph on the slow main tracks. Yards supporting mountain and helper operations existed just east of Gouldsboro and just west of Tobyhanna. The Gouldsboro Yard had four tracks on the eastbound side of the triple track main and two on
the westbound side. Tobyhanna Yard had one track on the eastbound side of the triple track main and two on the westbound side.

With the advent of dieselization with locomotives with dynamic brakes and the end of major coal mining and transportation activities in the anthracite region, DL\&W was able to rationalize the physical plant of the line by retiring Track 3 from Analomink to West Henryville and Track 4 from Pocono Summit to Scranton. The final section of Track 4 from Elmhurst to Tobyhanna was retired in 1964. In the process of rationalization and the repairs to damage caused by Hurricane Diane, the DL\&W also performed curve easements by using the abandoned track bed, including easing the third, fourth, and fifth curves west of High Bridge to $2^{\circ} 00$ and the Henryville Station Curve and first curve to the west of Henryville Station to $3^{\circ} 55^{\prime}$ and $3^{\circ} 4^{\prime} 6^{\prime}$. These easements are shown on the 1960 Valuation Maps but were never revised onto the Track Charts. Additional line swings were performed from Lehigh Summit to Nay Aug by throwing curves to use either Tracks 1 and 2 or 2 and 4, alternately removing sections of Track 1 or Track 4 and cutting and throwing the remaining tracks. The plant rationalizations performed by DL\&W included the complete removal of the former track structure, including the entire retired ballast section.

The Erie Lackawanna Railroad (EL) performed a heavy rebuild of the line in 1975. Relay 131 RE welded rail was installed in a number of areas, the ballast section was undercut and cleaned for the entire length of the line on both tracks, and a tie and surfacing project was performed.

By 1986, the Consolidated Rail Corporation (Conrail) performed additional plant rationalization and removed Track 2 from MP 120 at Moscow to MP 101 at Mount Pocono and Track 1 from Mount Pocono to MP 85 near Analomink. Subsequent further track rationalizations removed additional portions of Track 2 from Nay Aug to Moscow and of Track 1 from Analomink to MP 79. Generally, only the tie plates and rails were removed, with the ties and ballast left behind on the roadbed in the rationalizations performed by Conrail. Conrail also lowered operating speed to 10 mph to avoid line maintenance, so that only FRA Class I standards had to be followed. D-L currently operates freight service on the line at FRA Class 2 ( 25 mph speed limit).

### 1.2. DISCUSSION

Rails, tie plates, ties, and ballast and roadbed are each discussed separately below. The existing conditions are shown on the Existing Track Chart in Appendix 2A, which summarizes both record information and our inspection reports.

Total existing quantities of material in service on the line are approximately 123 miles of rail including passing sidings, and 193,000 ties.

### 1.2.1. Condition of Rail

The existing rail on the line is a mix of different types/sections of $6^{\prime \prime}$ base rail:

- 130RE bolted 39 feet rails from 1928 and 1929
- 131RE bolted 39 feet rails from 1935 to 1947
- 131RE CWR from 1975
- 132RE bolted 39 feet rails 1950 to 1955
- 136RE bolted 8o feet rails from 2020 and 2021
${ }_{131}$ RE rail is in service from Scranton to Pocono Summit and from East Stroudsburg to Slateford Junction 132 RE is installed from Pocono Summit to East Stroudsburg and also in select locations between Moscow and

Pocono Summit. Most of the 132 RE rail was installed as a result of emergency repairs after the floods caused by Hurricane Diane in 1956. Delaware Lackawanna is installing 136RE on the high rail of curves from Scranton to Moscow and intends to continue installing from Moscow to Gouldsboro. After completion of the high rails in the curves, Delaware Lackawanna intends to continue the rail program with renewal of the low rails.

Rails rolled before 1937 are not control cooled and are subject to sudden fracture. The older rail from the 1920 s to 1930 also is exhibiting joint bending, chipping of the rail head at joints and excessive wear in curves. The ride quality provided by this rail was noted to be poor during the inspection. It appears that a great deal of rail marked as 1939 on the Conrail Track Charts of the line refers to the year the rail was laid by the DL\&W. When compared to the DL\&W and EL track charts, these ages are noted as laying dates and the rail heat date is earlier, often by a few years.

The newer jointed rail from the 1950's exhibited less distress and is acceptable for continued service at this time. Similarly, the relay welded rail installed in 1975 was mostly found to be in acceptable condition for continued service.

### 1.2.2. Condition of Tie Plates

Three different style of tie plates was noted on the line. These are standard $13^{\prime \prime}$ double shoulder AREMA tie plates from the 1930 and onwards, standard 16" double shoulder AREMA tie plates from recent rehabilitation, and a custom style double shoulder tie plate with 4 round holes in the corner unable to accept cut spikes. Some of the older custom double shoulder plates showed signs of bending under the rail as they were not spiked in the outside round holes.

These tie plates also complicate maintenance, as they can only be normally spiked with rail holding cut spikes, while the installation of plate holding spikes requires screw spikes, which can only be installed by pre-drilling the tie and using air-or electric powered machinery.

### 1.2.3. Condition of Ties

Counts of ties were taken during periodic stops during the hi-rail tour. Generally, ties were spaced at 19-1/2" resulting in 24 ties per 39 feet and 3249 ties per mile. 8 to 12 ties per 39 feet were found to be in sound condition, sufficient to maintain the track in service to FRA Class 2. The overall average of good ties for the entire line is 3 ties of every 7 , or $43 \%$, which is equivalent to 10 ties per 39 ft The ties not in sound condition exhibited splitting, plate cutting, and general decay. Because of the relatively low number of good ties, visual inspection of line and gauge showed a need for significant corrective work by surfacing and tightening gauge through replacement of bad ties additional sound crossties.

Especially bad tie condition was noted from Analomink to the east. From Cresco to Henryville, the track was noted for having cross-level in tangents and being in generally poor condition.

On average, only every fourth tie is box anchored. The standard is to box anchor every other wood tie and box anchor all ties near turnouts and grade crossings to prevent rail creep.

The minimum safety limit in order to upgrade to Class 4 track is 12 to 14 ties per 39 feet must be sound, with no more than one bad tie in track in a row. This limit must be exceeded in construction so that the track does not immediately lose class as remaining existing ties continue to decay. In track with jointed rails and at insulated joints all ties under the joint bars should be sound ties to prevent the development of low joints and surface bending in the rail.

### 1.2.4. Condition of Ballast and Roadbed

The ballast was inspected continuously from the hi-rail vehicle and on the ground at periodic stops. The ballast section was generally made of a high-quality granite or trap rock like material, situated high above the subballast of the roadbed, well drained, and clean. The cleanliness of the ballast section was confirmed by occasionally removing the top surface of stone to look for signs of fouling, which were not found. In addition to the ballast of the existing track mostly being clean, the ballast of the abandoned track is also clean and could be considered for reuse as a source of new material for surfacing.

The ballast shoulders between Nay Aug and Tobyhanna were damaged by constant trespassing by ATV riders on right of way. The ATV's often ride on the ballast shoulder and the effect of this is to erode away the shoulder and destroy it so that only a small triangle of ballast remains. The Delaware Lackawanna lacks a crib and shoulder compactor to maintain a hard-packed ballast shoulder. To deter the ATV's from riding on the shoulder would require removing of obstacles along the right of way such as the abandoned adjacent track, fallen timber and old wood ties to create access roads. Further deterrence would require fencing the right of way. The use of continuous welded rail requires maintenance of sound ballast shoulders extending a foot off the end of the tie.

A continuous access road is possible on the right of way but is currently blocked by the abandoned track bed, fallen timber and other debris.

Trees and vegetation encroach towards the track to such a degree that timber frequently falls across the track and leaves fall on the track and cause slippery rail conditions. One fallen tree had to be manually removed from across the tracks during the hi-rail inspection. The only areas of the line not requiring brush cutting are in Scranton, Gouldsboro, and East Stroudsburg.

Abandoned signal/railroad telephone cables and poles are present along parts of the line. The condition of these is such that they can be expected to eventually fall over onto the tracks or elsewhere on the right of way, and the loose copper wires are a potential source of shunting the track or encouragement of theft. They should all be removed from the right of way.

The right of way is partially drained by many dozens of buried culverts crossing under the track. A handful of washouts of the side of the roadbed were noted at some of these culverts. These appeared to be caused by either blocked or insufficiently sized culverts at normally dry creek beds on the mountainsides.

### 1.3. RECOMMENDED ACTIONS

The work proposed to rehabilitate the track and roadbed for passenger service is summarized below. This program is based on Amtrak standards in its MW 1000 manual and Amtrak Standard Plans.

### 1.3.1. Recommended Actions - Rail

- Replace all pre-1939 130RE and 131RE bolted rail during initial rehabilitation with new CWR
- Complete replacement of curve worn rail, including existing CWR. This could either be done by continuing to install 80 -foot sticks of jointed 135 RE rail or using welded rail.
- Crop and weld 1940-era 131RE and 1950-era 132RE rail after further inspection of rail condition by Sperry car and remaining useful life based on wear. This action could also be deferred to later maintenance work if head bonds are installed to support the signal system. Alternately, the rail could be programmed for future earlier renewal.
- Crop and weld 136RE bolted rail recently installed by Delaware Lackawanna.
- Retain in service 1975-era 131SRE relay continuous welded rail where rail is free of defects and excessive head and gauge wear
- The extent of rail replacement will be governed by the project budget. The minimum work required is replacement of the pre-1941 rail with new CWR to eliminate non-control cooled rail, and eliminate rail with surface bending and head defects. However, if sufficient funds are available, cropping and welding all bolted rail not being initially replace would be highly desirable.


### 1.3.2. Recommended Actions - Tie Plates

" Replace $13^{\prime \prime}$ double shoulder AREMA tie plates with new 14-3/4" or longer tie plates as ties are changed out.

- Replace all round hole double shoulder tie plates due to the plates being of inadequate size and their non-ability to accept the spiking pattern on Amtrak Standard Plan 72051 (3 cut spikes per plate on tangents and gentle curves, 4 cut spikes per plate on curves over 1 degree). Where these are installed on existing sound ties, the ties should be plugged and respiked. Note that the total number of these tieplates in service is not known and remains to be quantified.
- Add cut spikes as required in remaining tie plates to conform to Amtrak Standards. This appeared to be an average of one spike per tie plate.
- It could be desirable to use Pandrol plates with e-clips where welded rail is installed. We defer to Amtrak guidance on this on track that is not fully reconstructed or built $100 \%$ new. Pandrol plates should only be used if entire sections of line are built new or are changed over to them with the installation of welded rail, they should not be interspersed with the standard AREMA tie plates.


### 1.3.3. Recommended Actions- Ties

- Install an average of at least 8 new ties per 39 feet ( 1083 ties per mile, $33 \%$ tie renewal) for most of the line. Additional ties may also be required after surfacing if downed ties result from raising the track. The target would be a minimum of 18 sound ties per 39 feet, consisting of 6 to 10 new ties, 8 to 12 existing good ties, leaving no more than 6 older unsound ties for a future tie replacement program. Remaining unsound ties cannot be located under remaining bolted joints or be a tie that requires box anchoring.
- New ties to have new AREMA tie-plates for cut spikes at least $14-3 / 4^{\prime \prime}$ long.

TRACK

- Track to be fully box anchored at every other tie per Amtrak Standards. Rail anchors are not required if Pandrol e-clips are used.
- Program future replacement of remaining bad ties. A possibility over a 10 year planning horizon is a triannual program to renew a further 7 to $10 \%$ of the ties, which would put the line in a state of good repair.
- It may be advisable to make two passes of tie replacement of no more than 4 or 5 ties per 39 feet to avoid triggering maintenance of way rules governing out of face renewal and surfacing. The performance of such a program could also focus on first eliminating all locations with more than one bad tie in a row, which might allow for a more economical rehabilitation with a slightly lower need for immediate tie replacements.


### 1.3.4. Recommended Actions - Ballast and Roadbed

- Remove ballast and ties of the abandoned track. The upper section of the existing abandoned ballast could be permitted to be reused on the existing track or new track elsewhere on the project. Spreading the abandoned ballast on the right of way is only possible on fill sections where excess material can be pushed off the side of the fill. It should not be considered in cut sections, where this material would obstruct drainage to the ditches. In cut sections the existing ballast should be fully graded down and removed to facilitate drainage.
- Rebuild ballast shoulders of in-service track and compact the final ballast section continuously with a crib and shoulder compactor. Ballast shoulders should be built up now to the required width to accommodate future placement of welded rail.
- Remove all fallen timber on the right of way.
- Cut down and cut back all vegetation and trees from the active part of the roadbed. The removal should extend to the far side of any ditch or to at least 25 feet from the centerline of the existing or any former track. The clear-cut line should extend at 110 degrees outward to the sky angling away from the track, which is a slope of roughly 1 feet back for every 3 feet in height.
- Grub tree roots and stumps left from the tree cutback and removals.
- Remove abandoned timber signal poles and cables and abandoned signal cases.
- Repair washouts with backfill, rip-rap, clearing and cleaning of all pipes and culverts, or installation of new larger pipes as required to accommodate peak water flows.
- Consider fencing high-trespassing areas and through the Borough of East Stroudsburg.


### 1.4. EXHIBITS

Photographs of the PNRRA Pocono Mainline taken under the supervision of D-L personnel in April 2022.
Figure 2-3.
Example of Line Swing by DL\&W
Former Tracks 2 and (4) are in service at this location (MP 127)
Track 1 has been removed and is an access road


Figure 2-4.
1936 Jointed Rail Found in Track
Track Chart Notes Rail Age for Segment as 1939.


Figure 2-4A
Examples of Custom DL\&W Tie Plates.


Figure 25 .
Washout at MP 89.50 near Henryville.


Figure 2-5A.
Roadbed with degraded ballast shoulders, abandoned old ties and abandoned ballast section,
with abandoned track bed and ballast removed near MP 119


SCRANTON-NEW YORK CITY INTERCITY PASSENGER RAIL ANALYSIS
TRACK

## 2. TRACK CONFIGURATION \& SPECIAL WORK

This portion of the technical report presents a preliminary analysis of the condition of special trackwork on the Pocono Mainline and describes the operating configuration changes needed to support the reintroduction of passenger service.

### 2.1. BACKGROUND

D-L currently operates freight service on the Pocono Mainline in accordance with the strictures of FRA Class 2 and its 25 mph speed limit for freight trains. D L operations are inclusive of the Pocono Mainline, the Laurel Line, the Diamond Branch, Carbondale Line, and several industrial tracks.

D-L moves 10,000 carloads per year on the Pocono Mainline and as many as 1,100 carloads per month. This is equivalent to as many as 52 carloads per day in a peak month and an average of 32 carloads per day. Each car moves loaded inbound and empty outbound, so total daily and annual car movements are twice these numbers.

D-L currently conducts freight operations 6 days per week, including local shifting, with a train start around 8 am at Scranton. D-L operations typically extend over the Mainline to Mount Pocono and Cresco at least 3 days per week. Two days per week typically continue further to East Stroudsburg. There is no regular service on the final 6 miles of the line beyond the siding for RockTenn as there are no customers there and no regular interchange with Norfolk Southern at Slateford Junction.

Customers at Tobyhanna, Mount Pocono, and Cresco are presently shifted directly off the Mainline. The customers in East Stroudsburg are shifted off of the Gravel Siding and the Mainline. These freight operation will remain with the Amtrak operations.

Amtrak plans to initially operate six daily trains (three trains in each direction), presumably with scheduled meets occurring in multi-track NJ Transit territory east of Dover, so there should only be one Amtrak on the Pocono Mainline at a time. Nonetheless, there may not be sufficient time between Amtrak movement to reliably continue the present practice of shifting freight customers directly off the Pocono Mainline track.

The new operational configuration must support the existing volumes of freight interchange operations, car classification, and daytime customer freight shifting requirement without impact on Amtrak operations.

Revisions to the Pocono Mainline operational configuration are discussed in length in Technical Report \#1 (Corridor Overview). It concluded that it would be necessary designate and upgrade one track between Scranton and Slateford Junction as the Pocono Main Track for priority use by Amtrak with limited availability to D-L and NPS when Amtrak is not present. The main track will be improved to condition consistent with FRA Class 3 or 4 standards for higher speed operation and signalized with Positive Train Control (PTC) and Automatic Block Signals (ABS). Two signal-controlled sidings supplemented (in addition to a signal controlled terminal at Scranton) with three independent freight hostling zones (IFHZs) were assumed to facilitate the safe and reliable comingling of the three carriers' operations (see Figure 2-6).


### 2.2. DISCUSSION

### 2.2.1. Existing Trackwork

Almost all existing turnouts in track were hand thrown No. 10 turnouts with rail-bound manganese (RBM) frogs and timber ties. Most sidings these turnouts lead to were only protected with flip head derails. This is not a PTC compliant arrangement, and the No. 10 turnouts make the sidings useless for rolling meets. The derails were located on the downhill side of the siding to prevent cars from rolling away if they lose their brakes.

Table 2-1 lists the turnouts and derails are currently in track.

### 2.2.2. Assumed Track Configuration

The new line configuration is summarized in Figure 2-6 and outlined in greater detail in appendix 2B on the Assumed Track Chart. The basis of the configuration is to end the storage of freight cars on passing sidings and to consolidate freight activity at Scranton, Mount Pocono, and East Stroudsburg.

The mainline sidings used for car storage at Winton, Moscow, and Tobyhanna would be replaced by additional storage at Scranton between the Intermodal Station and Ridge and a new yard in Tobyhanna.

Freight operations at Mount Pocono and Scranton would be separated onto their own track by building a new passenger main track around the primary areas of freight operation. At Mount Pocono, the freight track would extend to at least MP 104 to encompass most of the freight customers, and, if sufficient funds are available, up to the new Tobyhanna Yard. In East Stroudsburg, as part of configuring the track for the new station and realigning curves west of town, the main near Gravel Siding would become its own track and a new main built on top of the existing Boiler Siding.

The existing MOW spurs would be removed and replaced with short spurs at key passing sidings or interlockings that could double function as a derail protecting the main line and a short spur track to hold MOW equipment.

At Scranton, the Hat Track would be extended west to the old station, and a new siding provided west of Cedar Avenue to replace freight storage and interchange capabilities in Scranton that would need to be modified to keep the main track clear for Amtrak. The Receiver Yard would function as the primary switching yard at Scranton to allow trains to be broken up between traffic for the Laurel Line and Carbondale Line and the

Pocono Mainline. Nay Aug Siding would be used to provide switching headroom of this yard to breakdown and build up interchange trains daily apart from the main line used by Amtrak.

Table 2-1. Existing Turnouts and Derails

| LOCATION | MILEPOST | SIZE | DERAIL | USE |
| :---: | :---: | :---: | :---: | :---: |
| Depot | 133.52 | \#10 LH |  | East End of Depot Siding |
| Mall Siding Switch | 133.21 | \#15 RH |  | East end of Mall siding |
| West Receiver | 133.13 | \#15 LH | X | West end Receiver Track (1) |
| West Receiver 2 | 132.97 | \#10 RH | X | West end Receiver Track 2 |
| West Hat Switch | 132.75 | \#10 RH | X | West end Hat Track |
| East Receiver 2 | 132.65 | \#10 LH |  | East end Receiver Track (2) |
| East Hat Switch | 132.62 | \#15 RH |  | East end Hat Track |
| East Receiver Xover | 132.55 | \#15 RH |  | Main Track to Receiver Track |
| East Receiver Xover | 132.51 | \#15 RH |  | Main Track to Receiver Track |
| Nay Aug | 131.35 | \#10 LH |  | End Receiver Track/Nay Aug siding |
| Winton | 127.75 | \#10 RH | X | West end 4825 feet Winton siding |
| Cobbs | 126.60 | \#10 LH |  | East end 4825 feet Winton siding |
| Freight House Sw. | 120.88 | \#10 LH |  | MOW siding |
| Moscow | 120.71 | \#10 RH | X | West end 1610 feet Moscow siding |
| Dale | 120.32 | \#10 LH |  | East end 1610 feet Moscow siding |
| Army | 109.85 | \#10 LH | X | US Army Depot Lead (Out of Service) |
| Toby Siding | 108.00 | \#10 LH |  | West end 1681 feet Toby siding |
| Toby West Wye |  | \#10 LH |  | Out of Service |
| Toby East Wye |  | \#10 RH |  | Customer Siding (Keystone Propane) |
| Toby Siding | 107.61 | \#10 LH |  | East end 1681 feet Toby siding |
| Monadnock Switch | 103.45 | \#10 LH | X | Customer Siding (Monadnock) |
| Cramer Switch | 102.71 | \#10 LH | X | Customer Siding (Out of Service) |
| West Ramp Switch | 102.28 | \#10 LH | X | West end 4775 feet Mill siding |
| Trevdan Switch |  | \#10 LH | X | Customer Siding (Trevdan Supply) |
| Mill Crossover | 101.60 | \#10 LH |  | Crossover |
| East Ramp Switch | 101.30 | \#10 RH | X | East end 4775 feet Mill siding |
| Paradise Stub | 97.00 | \#10 LH |  | MOW siding |
| Bestway Switch | 94.15 | \#16 LH | X | Customer Siding (Bestway Lumber) |
| Gravel West End | 83.85 | \#10RH |  | West end 2900 feet Gravel siding |
| Royal Switch |  | \#8 LH | X | Customer Siding (Royal Chemical) |
| USP Switch |  | \#10 RH |  | Customer Siding (Out of Service) |
| National Switch |  | \#8 RH |  | Customer Siding (Morgan Materials) |
| Gravel East End | 83.30 | \#10LH |  | West end 2900 feet Gravel siding |
| Boiler Siding | 82.44 | \#10 RH |  | East end 5692 feet Boiler siding (stub) |
| Hughes Switch | 81.85 | \#10 RH |  | Customer Siding (Out of Service) |
| WestRock Switch | 78.75 | \#10 LH |  | Customer Siding (RockTenn) |
| Chuck | 74.49 | \#10 LH |  | West end 1300 feet Slateford siding |
| Slateford East | 74.19 | \#10 LH |  | East end 1300 feet Slateforiding |

Controlled sidings would be provided in East Stroudsburg and Moscow. These would allow meets of Amtrak trains, meets with Steamtown trains, and meets with the freight operator. The freight tracks at Tobyhanna,

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Mount Pocono, and Gravel Place would be on semi-controlled running tracks equipped with electric lock switches and interconnected derails.

The station in Scranton would be on its own controlled siding separate from the main and capable of having two tracks. Maintenance of equipment areas would be provided either at the station or just to the west along the main line.

### 2.3. RECOMMENDED ACTIONS

The assumed changes to turnouts and derails for the final track configuration are listed in Table 2-2. Green Type refers to new work while red type refers to turnouts assumed to be removed. It is recommended to consider Amtrak standard No. 20 and No. 24 turnouts for the controlled passing sidings to achieve the most favorable operating conditions. The freight tracks would use No. 10 switches or possibly No. 15 switches.

Table 2-2. Proposed Turnouts and Derails

| LOCATION | MILEPOST | SIZE | D | E | CHANGES |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Intermodal West | 133.76 | \#10 LH |  |  | New interlocked switch |
| Intermodal East | 133.52 | \#15 RH |  |  | New interlocked switch |
| Depot East End | 133.52 | \#10 LH |  |  | Retire and remove, relocate 1500 feet east |
| Scranton West Crossover | 133.25 | \#10 RH |  |  | New interlocked crossover |
| Depot East End | 133.23 | \#10 LH |  |  | Salvaged and relocated from 1500 feet west |
| Mall Siding Switch | 133.21 | \#15 RH |  |  | Retire and remove existing |
| Scranton West Crossover | 133.21 | \#10 RH |  |  | New interlocked crossover |
| Scranton East Crossover | 133.19 | \#10 LH |  |  | New interlocked crossover |
| Scranton East Crossover | 133.14 | \#15 RH |  |  | New interlocked crossover |
| West Receiver | 133.13 | \#15 LH |  |  | Retire and remove existing |
| West Receiver 2 | 132.97 | \#10 RH | X |  | No change |
| Depot MOW | 132.90 | \#10 RH | X |  | New handthrown switch |
| West Hat Switch | 132.75 | \#10 RH |  |  | Retire and remove existing |
| East Receiver 2 | 132.65 | \#10 LH |  |  | No change |
| East Hat Switch | 132.62 | \#15 RH |  |  | No change |
| East Receiver Crossover | 132.55 | \#15 RH |  |  | Interlock crossover |
| East Receiver Crossover | 132.51 | \#15 RH |  |  | Interlock crossover |
| Ridge | 132.49 | \#15 RH |  |  | New interlocked crossover |
| Ridge | 132.44 | \#15 RH |  |  | New interlocked crossover |
| Nay Aug | 131.35 | \#20 LH |  |  | New interlocked switch |
| Nay Aug | 131.35 | \#10 LH |  |  | Retire and remove existing |
| Winton | 127.75 | \#10 RH | X |  | Retire and remove existing |
| Cobbs | 126.60 | \#10 LH |  |  | Retire and remove existing |
| CP MOSCOW | 120.90 | \#24 RH |  |  | Relocate and upgrade to signalized \#24 right hand turnout; protect downhill end of siding with interlocked \#10 lefthand |
| Moscow MOW | 120.84 | \#10 LH |  |  | Interlocked \#10 lefthand protecting downhill end of Moscow Siding |
| Freight House Switch | 120.88 | \#10 LH |  |  | Retire and remove existing |
| Moscow | 120.71 | \#10 RH | X |  | Retire and remove existing |
| Dale | 120.37 | \#10 LH |  |  | Retire and salvage existing, use as stub turnout at end of siding at new |
| CP DALE | 119.90 | \# 24 LH |  |  | Relocate 2500 feet east and upgrade to signalized \#24 lefthand |


| LOCATION | MILEPOST | SIZE | D | E | CHANGES |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Tobyhanna West |  | \#20 RH | X |  | New signalized Yard Lead with interlocked split switch derail |
| West Ladder 1 |  | \#10 RH |  |  | New Yard turnout |
| West Ladder 2 |  | \#10 LH |  |  | New Yard turnout |
| West Ladder 3 |  | \#10 LH |  |  | New Yard turnout |
| East Ladder 3 |  | \#10 RH |  |  | New Yard turnout |
| East Ladder 2 |  | \#10 RH |  |  | New Yard turnout |
| East Ladder 1 |  | \#10 LH |  |  | New Yard turnout |
| Tobyhanna East |  | \#10 LH | X | 2 | New hand throw Yard Lead with electric lock and electric lock split switch derail |
| Army | 109.85 | \#10 LH | X | 1 | Protect with electric lock |
| Toby Siding | 108.00 | \#10 LH |  | 1 | Protect with electric lock |
| Toby West Wye |  | \#10 LH |  |  | No change |
| Toby East Wye |  | \#10 RH |  |  | No change |
| Toby Siding | 107.61 | \#10 LH |  | 1 | Protect with electric lock |
| West Summit | 103.95 | \# 24 LH |  |  | New signalized passing siding switch |
| Monadnock Switch | 103.45 | \#10 LH | X | 1 | Protect with electric lock |
| Monadnock East Switch | 103.36 | \#10 RH | X | 1 | New switch to facilitate serving customer clear of the main, protect with electric lock and sliding derail |
| Cramer Switch | 102.71 | \#10 LH | X | 1 | Protect with electric lock |
| West Ramp Switch | 102.28 | \#10 LH | X | 1 | Protect with electric lock |
| Trevdan Switch |  | \#10 LH | X |  | No change |
| Mill Crossover | 101.60 | \#10 LH |  | 1 | Protect with electric lock |
| East Ramp Switch | 101.30 | \#10 RH | X | 1 | Protect with electric lock |
| East Summit | 101.05 | \#10 LH | X |  | Interlocked \#10 lefthand protecting downhill end of Summit Siding |
| East Summit | 101.00 | \# 24 RH | X |  | New signalized passing siding turnout; protect downhill end of siding with interlocked \#10 lefthand |
| Paradise Stub | 97.00 | \#10 LH |  |  | Retire and remove existing |
| Bestway Switch | 94.15 | \#10 LH | X | 2 | Replace existing customer switch as part of track realignment, protect with electric lock and electric lock split switch derail |
| CP HENWOOD | 84.00 | \#24 RH |  |  | New signalized passing siding switch |
| Gravel West End | 83.85 | \#10RH |  | 1 | Protect with electric lock |
| Royal Switch |  | \#8 LH | X |  | No change |
| USP Switch |  | \#10 RH |  |  | No change |
| National Switch |  | \#8 RH |  |  | No change |
| Gravel East End | 83.30 | \#10LH |  | 1 | Protect with electric lock |
| Boiler Siding | 82.44 | \#10 RH |  |  | Retire and remove existing |
| Hughes Switch | 81.85 | \#10 RH | X | 1 | Relocate to new track and protect with electric lock and sliding derail |
| CP WARRIOR | 81.30 | \# 24 LH |  |  | New signalized passing siding switch |
| WestRock Switch | 78.75 | \#10 LH | X | 1 | Protect with electric lock and sliding derail |
| Slateford Junction | 74.55 | \#10 LH | X | 2 | New branchline switch, protect with electric lock and interlocked split, switch derail |
| Chuck | 74.49 | \#10 LH |  |  | West end 1300 feet Slateford siding |
| Slateford East | 74.19 | \#10 LH |  |  | East end 1300 feet Slateford siding |
| D - Derail E- Electric Locks |  |  |  |  |  |

Total new switches needed by type is as follows:

- \#24 Turnouts-6
- \#20 Turnouts - 2
- \#15 Turnouts-4
- \#10 Turnouts-18
- Split Switch Derails - 4
- Sliding Derails - 4

Existing switches available for salvage, relocation, and reuse due to reconfiguration (provide with new ties).

- \#15 Turnouts-2
- \#10 Turnouts-10

Total signal equipment for switches including switch machines, electric lock circuit controllers, electric lock signal cases, and switch heater cases needed:

- M3 Switch Machines - 20
- T-20 Switch Mechanisms-19
- Electric Lock Circuit Controllers - 19
- Electric Lock Signal Cases-16
- Switch Heater Cases and Transformers - 10
- Switch Heaters on Turnouts - 26


### 2.4. EXHIBITS

Photographs of the PNRRA Pocono Mainline taken under the supervision of D-L personnel in April 2022.
Figure 2-7. East end of former Tobyhanna Yard Looking West - Note Wide Roadbed.


Figure 2-8. East End of former Gouldsboro Yard Looking East - Note Wide Roadbed.


## 3. ANALYSIS OF CURVE SPEEDS

This portion of the track technical memorandum presents a preliminary analysis of the feasibility of improving curve speeds and curve geometry on the Pocono Mainline.

### 3.1. BACKGROUND

Amtrak wishes to restore operations on the Pocono Mainline with the highest possible speeds for the entire length of the line. Amtrak has defined this as achieving Class 4 speeds of 80 mph in the tangents and gentle curves from Moscow to Pocono Summit (MP 120.1 to MP 102.4) and West Henryville to East Stroudsburg (MP 91.4 to MP 82.5). Outside these areas in curvy portions of the line Amtrak has defined the operating goal as speeds as close to 60 mph as possible.

The DL\&W and EL operated trains over the present alignment at much higher speeds than today. An excerpt of the 1951 Employee Timetable for the

Figure 2-9. Amtrak Desired Maximum Speeds
 New York and Scranton Divisions is included for reference in Appendix 2C.

In the intervening years, the speed potential of the line has been degraded by four different factors:

1. Maintaining the track structure (specifically the number of good ties) by Conrail and Delaware Lackawanna to FRA Class 2 or less.
2. Installation of low-speed cut and throws by Conrail during removal of the second main track.
3. Removal of superelevation by Delaware Lackawanna to minimize rail wear.
4. Modern curve design criteria being more conservative than the standards of the DL\&W and EL.

In-service line geometry works against maximizing speed with (1) short reverse tangents preventing installation of longer spirals for higher curve speeds, (2) short, shallow angle curves where the length of circular curve becomes negative between spirals when desired spiral length is imposed, and (3) short sections of sharp compound curvature limiting curve speed, especially at the ends of the curve.

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### 3.2. DISCUSSION

### 3.2.1. Strategies to Increase Track Speeds

To maximize the speed potential of the line, the four factors above must be reversed or countered.
FACTOR 1: CROSS TIES. The survey of the line found that approximately $43 \%$ of the existing ties can be considered sound, while the remaining ties should be planned to be replaced. FRA Class 2 track requires 8 or 9 good ties per 39 feet (out of 24 ties per 39 feet at 19-1/2" spacing) and Amtrak requires no more than 2 defective ties in a row. The existing track can therefore be considered as being maintained with $10 \%$ more ties good than required as an absolute minimum. The requirements for Class 3 track are similar to Class 2 except for needing 10 good ties per 39 feet in curves. For Class 4 and 5 track, the number of good ties increases to 12 on tangents and 14 on curves for Class 4 and 5 . Additionally, not more than 1 defective tie can be permitted in a row and the ties must be sufficient to support the track geometry and hold gauge.

In order for track to not constantly lose class between maintenance activity, the track at a minimum should be upgraded so that generally 3 of 4 ties are sound/three good ties in a row are present between any one defective tie. Additional ties should be installed in Class 4 areas to ensure achievement of gauge, line and surface tolerances and eliminate all areas where there are not at least 3 good ties between every defective tie. Because the areas with a lower class of track are curvy, we think a similar number of ties will require replacement as in the straighter, faster stretches in order to hold and support geometry. This is summarized in the table below.

Table 2-3. Cross Tie Criteria

| FRA Track Class | Zones | FRA Safety Limit (Ties/39 feet) | Current Condition (Ties/39 feet) | Target Condition (Ties/39 feet) | Net Tie Renewal (Ties/39 feet) | Defective Ties Permitted In a Row |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | Entire Line | $\begin{gathered} 8(33 \%)^{*} \\ 9(37.5 \%)^{\dagger} \end{gathered}$ | $\sim 10$ (42.5\%) | N/A | N/A | 2 |
| 3 | $\begin{array}{\|c\|} \hline \text { MP 75.3-82.5 } \\ \text { MP 91.4-102.3 } \\ \text { MP 120.1-133.7 } \end{array}$ | $\begin{gathered} 8(33 \%)^{*} \\ 10(42.5 \%)^{\dagger} \end{gathered}$ | 10 (42.7\%) | 18 (75\%) | 8 (33\%) | 2 |
| 4 \& 5 | $\begin{gathered} \hline \text { MP 74.3-75.3 } \\ \text { MP 82.5-91.4 } \\ \text { MP 102.3- } \\ 120.1 \end{gathered}$ | $\begin{aligned} & 12(50 \%)^{*} \\ & 14(58 \%)^{\dagger} \end{aligned}$ | 10 (42.2\%) | 18 (75\%) | 8. (33\%) | 1 |

The total number of ties to be initially replaced is estimated to be about 78,000. When completed, roughly 159,000 of 191,000 ties would be good ( $83 \%$ ).

FACTOR 2: LOW SPEED CUT AND THROWS. These cut and throws are present at Mount Pocono, at Bestway Lumber in Cresco, at East Stroudsburg Station, and at Bells Bridge. These areas of low-speed curvature must be removed by reworking the track geometry in these areas. The one at Mount Pocono would be removed by restoring Track (2) as the track for Amtrak operations. The one at Cresco by rebuilding the Bestway Lumber siding with a smaller switch and new lead and adjusting the adjacent curve geometry back into the Track 2 roadbed. The ones at East Stroudsburg Station by a general realignment of the track east and west of the station to the roadbed of former Tracks (3) and $\mathbf{1}$ in East Stroudsburg instead of Track (2).

The one at Bells Bridge by realigning the track to enter Bells Bridge curve to the west via the roadbed of Track (1) instead of Track 2 .

FACTOR 3: RESTORATION OF SUPERELEVATION. The average superelevation currently is around $\mathbf{2}^{\prime \prime}$ per curve. It is assumed to increase this to an average of $4.5^{\prime \prime}$ per curve to support higher operating speeds. This requires extensive resurfacing of the grade and elevation of the track in every single curve on the line, especially in the areas noted above as intended to be FRA Class 2 which are mostly curved alignment. It is assumed an average of $3^{\prime \prime}$ of ballast is required to restore proper profile and increase the superelevation of the track to the required values.

FACTOR 4: CURVE DESIGN CRITERIA. Amtrak's curve design criteria in Specification 63 are more conservative than the practice of the DL\&W and EL. Practically, this means that DL\&W and EL could assign a higher timetable speed to a curve of given geometry than Amtrak can, because they permitted higher superelevation runoff rates, used higher maximum superelevation, did not consider spiral comfort criteria which did not yet exist, and allowed almost direct reverse curvature and elevation with only the most minimal of tangency in between, as illustrated in Figures 2-13 and 2-14. DL\&W Superelevation Criteria is provided in Figure 2-15 and EL Superelevation Criteria is provided in Figure 2-16.

Table 2-4 Comparitive Criteria

| CRITERIA | DL\&W / EL PRACTICE | AMTRAK PRACTICE |
| :---: | :---: | :---: |
| Max. Superelevation (Ea) | $6.5^{\prime \prime}\left[\right.$ DL\&W $/ 6^{\prime \prime}[E L]$ | $5 \cdot 5^{\prime \prime}[$ Specification 63] <br> $6^{\prime \prime}[M W-1000 ~ \$ 57.2(C)]$ |
| Superelevation Runoff | $<55 \mathrm{mph}: 3 / 4^{\prime \prime} / 39^{\prime}\left(0.6^{\prime \prime} / 31^{\prime}\right)$ <br> $56-70 \mathrm{mph}: 1 / 2^{\prime \prime} / 39^{\prime}\left(0.4^{\prime \prime} / 31^{\prime}\right)$ <br> $>71 \mathrm{mph}: 3 / 8^{\prime \prime} / 39^{\prime}\left(0.3^{\prime \prime} / 31^{\prime}\right)$ | $<60 \mathrm{mph}: 1 / 2^{\prime \prime} / 31^{\prime}$ <br> $61-125 \mathrm{mph}: 3 / 8^{\prime \prime} / 31^{\prime}$ |
| Runoff in Tangent | Up to $1 / 2^{\prime \prime}$ in 39 feet | Not permitted in new design by <br> Specification 63, but permitted <br> by MW-1000 $\$ 59.0(\mathrm{C})(\mathrm{c})$. |
| Minimum Reversing Tangent | None | 100 feet |

Three design variances from Amtrak criteria that would be helpful to avoid having curves rated for low speeds than otherwise possible:

1. The first would be to adopt a runoff practice used by Norfolk Southern that is similar to the EL practice noted above. Norfolk Southern on their Standard Plan 7-2 "SUPERELEVATION OF CURVES FOR MAXIMUM SPEED" and in their document MWS-ogo "CURVES: DESIGN, CONSTRUCTION, MAINTENANCE, AND INSPECTION" allows $5 / 8^{\prime \prime}$ runoff in 31 feet in curves up to 40 mph (see Figure 2-17). For this line, it would be helpful to extend this criteria to 45 mph .
2. The second would be to permit reversing tangents to be as short as 79 feet This is the distance between curves in a No. 20 crossover and is sufficient to allow a carbody to come level before beginning to reverse its twist in the superelevation of the following curve.

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3. The third would be to permit up to $1 / 2^{\prime \prime}$ superelevation run off on tangents, with a limitation that this can only be used for reverse curvature where the reversing tangent is at least 125 feet long to provide a section of track 62 feet long with zero cross level.

Table 2-5. Suggested Design Criteria Variances

| CRITERIA | SUGGESTED PRACTICE FOR POCONO MAINLINE |
| :---: | :---: |
| Max. Superelevation (Ea) | $5 \cdot 5^{\prime \prime}$ |
| Superelevation Runoff | $<45 \mathrm{mph}: 5 / 8^{\prime \prime} / 31^{\prime}(\mathrm{maximum}), 1 / 2^{\prime \prime} / 31^{\prime}(\mathrm{desired}) 46-60 \mathrm{mph}:$ |
| $1 / 2^{\prime \prime} / 31^{\prime} 61-110 \mathrm{mph}: 3 / 8^{\prime \prime} / 31^{\prime}$ |  |

### 3.2.2. Existing Line Geometry.

While only a single track today, the Pocono Mainline was formerly $\mathbf{3}$ or $\mathbf{4}$ tracks wide for most of its distance with tracks numbered 3124 from north to south. From Analomink Street in East Stroudsburg to DL\&W station West Henryville (MP 81.7 to MP 91.1) the roadbed is 4 tracks wide (Tracks 3124) and the operating track is in the roadbed of Track (2. From West Henryville to Mount Pocono (MP 91.1 to MP 100.4) the roadbed is 2 tracks wide and the operating track is in the roadbed of Track (2. From Mount Pocono to Scranton (MP 100.4 to MP 131.4) the roadbed is 3 tracks wide (Track (124) and the operating track is in the roadbed of Track (1) or occasionally in the roadbed of Track (2. Examples of the roadways described can be found in Figures 2-18 to 2-21 and 2-23 to 2-25.

With this additional roadbed width, the space is available to throw track between roadbeds at short reverse tangents, which can increase the length of reversing tangents by over 100 feet allowing significant increases in spiral length. The space is also available to ease short low angle curves to a lower degree of curvature, which permits both higher speeds and lengthens the circular curve while allowing longer spirals. Lastly, space is available to eliminate sections of compound curvature by transitioning gentler curvature between roadbeds.

The areas below list areas of concern for these types of geometry problems, using the DL\&W Curve Name and Amtrak Curve Number. Resolutions of each area are noted where a solution was determined using CAD by bringing in the Valuation Maps as PDF underlays and drawing existing and assumed curve geometry in the file. Examples of this work are shown in Appendix 2 E .

Perform cut and throws to lengthen reversing tangents at the following locations

- Between Point of Gap Curve and second and third Curves west of Point of Gap
- Increases speed from 35 to 50 mph from MP 75.7 to MP 76.2
- Between Bells Bridge Curve and first Curve west of Bells Bridge (restore track to straight alignment in former turnout, then cut and throw back to Track (2) and between first Curve west of Power Dam Curve and Forge Cut Curve (move alignment to Track 1 roadbed in Forge Cut Curve)
- Increases speed from 40 to 45 mph from Bells Bridge (MP 78.8) to MP 81

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- Between fourth and fifth Curves west of High Bridge Curve and Henryville Station Curve (move alignment to Track (1) roadbed in fifth Curve west of High Bridge Curve)
- Increases speed from 50 to 80 mph in fourth Curve west of High Bridge
- Between fourth and fifth Curves west of Henryville (move alignment to Track 1 roadbed from reverse tangent to midway through second curve
- Increases speed from 35 to 45 mph from MP 92.5 to MP 93.5
- Between sixth Curve west of Henryville and Cresco Station Curve (move alignment to Track 1 roadbed between curves, realign Bestway Lumber lead)
- Between first and fifth Curves west of Paradise Cut (move alignment to Track 1 roadbed for first, third, and fifth Curves)
- Between sixth and seventh Curves west of Gardners Cut Curve (move alignment to Track 2 roadbed)
- Increases speed from 40 to 45 mph from MP 125.6 to 126.8
- Between ninth and tenth Curves west of Gardners Cut Curve (move alignment to Track 2 roadbed and swing back in tenth Curve)
- Increases speed from 40 to 45 mph from MP 126.8 to 127.7
- Between first, second, and third Curves west of Nay Aug (DL\&W Nay Aug) (extend alignment from Winton Siding on Track (2) roadbed, swing into Track (4)roadbed in first Curve, then return to Track $\mathbf{1}$ roadbed in second Curve then return to Track (4 roadbed in third Curve)
- Increases speed from 30 to 45 mph from MP 127.7 to 128.5
- Between fifth and sixth Curves west of Nay Aug (DL\&W Nay Aug) (continuing alignment in Track 4 roadbed and return to Track (1) roadbed in sixth Curve)
- Increases speed from 30 to 45 mph from MP 128.5 to 129.2
- Between Nay Aug Breaker Curve and first Curve west of Nay Aug Breaker
- Increases speed from 30 to 45 mph from MP 129.2 to 130.3

Perform curve easements to maximize speeds from MP 74.3 to MP 100.4 while limiting overall superelevation at curves:

- Curve 4 / second Curve west of Slateford Junction -from $3^{0} 00^{\prime}$ to $2^{0} 00^{\prime}$ (increase speed 65 to 75 mph , also increases curve length $>100$ feet)
- sixth Curve west of Point of Gap - ease from $2^{0} 03^{\prime}$ to $1^{0} 00^{\prime}$ (increases curve length > 100 feet)
- Curve 19 / first Curve west of East Stroudsburg - from $3^{0} 07^{\prime}$ to $2^{0} 45^{\prime}$ (increase speed 55 to 60 mph , also increases curve length $>100$ feet)
- Curve 20 / second Curve west of East Stroudsburg - from $4^{0} 12^{\prime}$ to $2^{0} 45^{\prime}$ (increase speed 55 to 60 mph )
- Curve 22 / Analomink Curve - from $4^{\circ} 00^{\prime}$ to $3^{\circ} 3^{\prime} 0^{\prime}$ (increase speed 55 to 60 mph )
- Curve 24 / High Bridge Curve - from $3^{0}$ oo' to $2^{0} 30^{\prime}$ (increase speed 65 to 75 mph )
- Curve 25 / second Curve west of High Bridge - from $2^{0} 00^{\prime}$ to $1^{0} 15^{\prime}$ (increase speed 75 to 80 mph )
- Curve 28 / fifth Curve west of High Bridge - from $2^{0} 00^{\prime}$ to $1^{\circ} 30^{\prime}$ (increase speed 50 to 80 mph also with lengthening of reverse tangent)
- Curve 31 / second Curve west of Henryville Sta. - from $4^{0} 36^{\prime}$ to $1^{0} 30^{\prime}$ (increase speed 75 to 80 mph and makes length of curve > 100 feet)
- Curve 37 / sixth Curve west of West Henryville - from $6^{0} 18^{\prime}$ to $5^{0} 13^{\prime}$ (increase speed 40 to 45 mph and eliminate sharper compound curve)
- Curve 38 / Cresco Station Curve-from $6^{0} 09^{\prime}$ to $5^{0} 13^{\prime}$ (increase speed from 40 mph to 45 mph ) (note this change may have already been made by DL\&W)
- Curve 39 / first Curve west of Cresco Station - from $3^{0} 05^{\prime}$ to $2^{0} 15^{\prime}$ (increase speed 65 to 75 mph )

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- Curve 48 / fourth Curve west of Paradise Cut - from $6^{6} 30^{\prime}$ to $5^{\circ} 30^{\prime}$ (increase speed from 40 mph to 45 mph and eliminate sharper compound curve)
- Curve 49 / fifth Curve west of Paradise Cut - from $5^{\circ} 06^{\prime}$ to $4^{0} 57^{\prime}$ (increase speed from 40 mph to 50 mph with lengthening of reverse tangent)
- Perform curve easements to increase speed to 80 mph from MP 114.7 to MP 120.6 at curves:
- Curve 59 / fourth Curve west of Lehigh Cut - from $2^{0} 00^{\prime}$ to $1^{0} 15^{\prime}$ (increase speed 70 to 80 mph )
- Curve 60 / fifth Curve west of Lehigh Cut - from $2^{\circ} \mathrm{OO} 0^{\prime}$ to $1^{0} 15^{\prime}$ (increase speed 70 to 80 mph )

Perform curve easements to increase speed from 50 to 60 mph from MP 120.6 to MP 125.6 at curves:

- Curve 63 / first Curve west of Moscow - from $5^{\circ} \mathrm{OO}$ ' to $3^{\circ} 30^{\prime}$
- Curve 64 / second Curve west of Moscow - from $4^{\circ} \mathrm{oo}{ }^{\prime}$ to $3^{\circ} \mathrm{oo}{ }^{\prime}$
- Curve 66 / Gardners Cut Curve- from $4^{0} 37^{\prime}$ to $3^{\circ} 30^{\prime}$
- Curve 68 / second Curve west of Gardners Cut - from $5^{\circ} 00^{\prime}$ to $3^{0} 10^{\prime}$
- Curve 69 / third Curve west of Gardners Cut - from $4^{\circ} 45^{\prime}$ to $3^{0} 10^{\prime}$
- Curve 71/ fifth Curve west of Gardners Cut - from $3^{\circ} 5^{\circ}$ to $3^{\circ} 10^{\prime}$

Perform curve easements to increase speed to 45 or 50 mph from MP 125.6 to MP 132.5 at curves:

- Curve 74 / eighth Curve west of Gardners Cut - from $5^{\circ} 25^{\prime}$ to $5^{\circ} \mathrm{OO} 0^{\prime}$
- Curve 78 / first Curve west of Nay Aug - from $5^{\circ} \mathrm{OO}$ ' to $5^{\circ} 00^{\prime}$
- Curve 81/ fifth Curve west of Nay Aug - from $5^{\circ} 20^{\prime}$ to $5^{\circ} 00^{\prime}$
- Curve 87 / No 6 Junction Curve - from $5^{\circ} 32^{\prime}$ to $5^{\circ} 00^{\prime}$

Investigate in future design work modification of compound curves with segments over 5 degrees for easement of curvature in these sections to alleviate speed restrictions.

- Curve 12 / Tinkertown Curve - 751 feet at $6^{0}{ }^{10}$ ' in 1677 feet of curve
- Curve 15 / Slide Curve west of Bells Bridge - 977 feet at $6^{\circ}$ oo' in 1907 feet of curve
- Curve 44 / Paradise Cut Curve (see Figures 2-9A \& 2-22 and Sheet 2E-09 in Appendix 2E)-restoring the curve through the Paradise Cut reduces curvature from $8^{0} 45^{\prime}$ to original $5^{\circ} 45^{\prime}$ (increases speed from 35 mph to 45 mph ). Would require removing vegetation and scarifying the rock face in the cut and installing rock netting and/or slide fencing and signals.

Figure 2-9A. Paradise Cut Curve (Cv 44)


### 3.3. RECOMMENDED ACTIONS

Given the above criteria and assumed changes, an evaluation table of the curve design can be finalized. This is shown in Appendix 2D. From this table, an assumed Timetable Special Instruction can be generated for the line providing the intended line speeds which would guide finalizing the simulation.

Besides the geometry changes listed above, it is also recommended to smooth timetable speeds by judicious use of the $V+5$ speed, especially to minimize braking on uphill grades. Comparing the Curve Analysis to TPC results and the grade of the line suggests doing this in Amtrak Curves 1, 5, 9, 10, 22, 24, 27, 29, 30, 33, 52, 53, $62,76,83$, and 88 .

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### 3.4. EXHIBITS

Photographs of the PNRRA Pocono Mainline taken under the supervision of D-L personnel in April 2022 and other supportive images.

Figure 2-9B. Existing Cut and Throw at Former Mount Pocono Station


Figure 2-10. Bestway Lumber Siding Occupying Track 2 Roadbed


Figure 2-11. Low Speed Cut and Throw at East Stroudsburg


Figure 2-12. RockTenn Switch in Spiral of Curve Directly Off Bridge


Figure 2-13. Short Reverse Curve Near Paradise Cut


Figure 2-14. Short Reverse Curve at Devils Hole Road


Figure 2-15. DL\&W Superelevation Table

| D. L. \&W. STANDARD |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| TABLE OF ELEVATIONS |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\begin{aligned} & \text { DEGREE } \\ & \text { CURVE } \end{aligned}$ | SUPER-ELEVATION IN INCHES |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  | $2 \frac{1}{2}^{\circ}$ | 3'\| | $3 \frac{1}{2} 1$ | 4* | $4 \frac{1}{1+4}^{\frac{1}{4}}$ | $5^{\prime \prime}$ | $5 \frac{1}{\prime}^{\prime}$ | $6^{\circ}$ | $6 \frac{1}{2}$ |
|  | PEED IH MILES PER HOUR |  |  |  |  |  |  |  |  |  |  |  |  |
| $0^{\circ}-30^{\prime}$ | 65 | 76 |  |  |  |  |  |  |  |  |  |  |  |
| $1^{\circ}-00^{\prime}$ | 50 | 58 | 63 | 69 | 74 | 78 |  |  |  |  |  |  |  |
| $1^{\circ}-30^{\prime}$ | 46 | 52 | 56 | 61 | 65 | 69 | 72 | 75 |  |  |  |  |  |
| $2^{\circ} 00^{\prime}$ | 42 | 46 | 50 | 54 | 57 | 60 | 63 | 65 | 68 | 70 | 73 | 75 |  |
| $2{ }^{-30}$ | 39 | 42 | 45 | 49 | 51 | 54 | 57 | 60 | 62 | 63 | 65 | 68 | 70 |
| 3:00 | 36 | 39 | 41 | 44 | 46 | 49 | 52 | 54 | 56 | 58 | 60 | 62 | 64 |
| $3^{\circ} 30^{\prime}$ | 33 | 36 | 39 | 41 | 43 | 46 | 49 | 51 | 52 | 53 | 55 | 57 | 59 |
| $44^{\circ} 00^{\circ}$ | 30 | 33 | 35 | 38 | 40 | 42 | 44 | 46 | 48 | 49 | 51 | 53 | 55 |
| $4^{\circ} 30^{\prime}$ | 28 | 31 | 33 | 35 | 37 | 40 | 4] | 43 | 45 | 47 | 49 | 51 | 52 |
| $5.00^{\circ}$ | 26 | 29 | 31 | 33 | 35. | 37 | 39 | 41 | 43 | 45 | 46 | 47 | 49 |
| $5^{\circ} 30^{\prime}$ | 21 | 25 | 27 | 29 | 32 | 34 | 36 | 38 | 40 | 42 | 43 | 45 | 46 |
| $6^{\circ}-00^{\prime}$ |  | 23 | 25 | 28 | 30 | 32 | 34 | 36 | 38 | 40 | 41 | 42 | 44 |
| $6^{\circ} 30^{\circ}$ |  | 22 | 24 | 27 | 29 | 31 | 34 | 35 | 37 | 38 | 39 | 41 | 42 |
| $7 \times 0{ }^{\circ}$ |  | 21 | 23 | 26 | 28 | 30 | 32 | 34 | 35 | 36 | 38 | 39 | 40 |
| $8^{\circ} 00^{\prime}$ |  | 20 | 22 | 25 | 27 | 29 | 30 | 31 | 33 | 34 | 35 | 36 | 37 |
| $9^{\circ} 00^{\circ}$ |  | 18 | 21 | 23 | 25 | 27 | 28 | 29 | 31 | 32 | 33 | 34 | 35 |
| '10'00' |  | 17 | 19 | 22 | 23 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Figure 2-16. Erie Lackawanna Superelevation Table ER-525


Figure 2-17. Norfolk Southern Superelevation Table Plan 7-2
PLAN 7-2


Figure 2-18. Former Three Track Roadbed at MP 130


Figure 2-19. Former Three Track Roadbed at MP 125


Figure 2-20. Former Three Track Roadbed at MP 122.5


Figure 2-21. Former Three Track Roadbed at MP 118


Figure 2-22. Former Alignment through Paradise Cut


Figure-2-23. Former Four Track Roadbed at MP 90.17 Browns Hill Road


Figure 2.24. Former Four Track Roadbed at MP 85


Figure 2-25. Former Four Track Roadbed at MP 81.93 Broad Street Crossing


## 4. AT-GRADE CROSSING SURFACE CONDITION ASSESSMENT

This portion of the technical memorandum presents a preliminary analysis of the surface condition of at-grade crossings on the Pocono Mainline and the need for upgrading and replacement to support the reintroduction of passenger service. There are 23 at-grade crossings on the Pocono Mainline, six of which are for pedestrians only (see Figure 2-26). Most of the crossings ( $81 \%$ ) are clustered in close proximity to one another in Scranton or East Stroudsburg.

Note that this analysis neither considers the sufficiency of existing crossing protective devices nor which crossings, if any, should be eliminated. Those discussions can be found separately in Technical Reports 3 and 1, respectively.

Figure 2-26. Pocono Mainline At-Grade Crossing Inventory


### 4.1. BACKGROUND

The Pocono Mainline is wholly in the Commonwealth of Pennsylvania, placing its highway crossings are under the jurisdiction of the Commonwealth's Public Utility Commission and Department of Transportation (PennDOT). Local jurisdiction divided between PennDOT Districts 4-0 and 5-0 (Lackawanna and Monroe Counties, respectively. The Railroad is responsible for maintaining highway crossing surfaces within two feet of its outermost rails. PennDOT requirements and procedures regarding crossings are detailed in the PennDOT Grade Crossing Manual (Publication 371) ${ }^{1}$

[^0]Table 2-6. Pocono Mainline At-Grade Crossing Roadway Surface Condition Inventory


The existing physical condition of highway crossing surfaces were inventoried and assessed to determine the degree of work required to support the introduction of intercity passenger rail. The highway surfaces at eight crossings-over a third-were rated "poor" and in need of immediate reconstruction. Another five were rated "fair", in need of reconstruction within five to ten years.

Details of existing grade crossings are provided in Table 2-6, based on railroad and FRA records, confirmed through direct field observations. Pictures depicting the surface conditions at each crossing follow in the Exhibits section. The speeds shown in the table reflect the assumed upgraded speeds desired by Amtrak.

### 4.2. DISCUSSION

The recommended degree of work is discussed below by crossing. Improvements reflect Amtrak standards using precast concrete panels for wood ties. The location of some crossings will cause work to be performed despite being in sound conditions.

### 4.2.1. At-Grade Crossing Surface Improvements

E West University. Pedestrian crossing is located in the middle of what is assumed will become D-L's Hat Yard, bracketed on either side by the Pocono Main Track and Scranton Running Track. This is a difficult crossing and it is assumed that it will be replaced by a pedestrian bridge.
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© Myrtle Street. Crossing is located in No. 6 Junction Curve. This curve requires an additional $1.5^{\prime \prime}$ of superelevation, necessitating the reconstruction of the crossing. Track speed in this curve would need to be 35 mph until the superelevation can be increased, or Amtrak accepts a $\mathrm{V}+5 \mathrm{mph}$ unbalanced elevation of 5.84 " and a jerk rate of 1.43.
(1) Lehigh Road. Crossing is located in Lehigh Cut Curve. This curve requires an additional $1.5^{\prime \prime}$ of superelevation, necessitating the reconstruction of the crossing. Track speed in this curve would need to be 70 mph until the superelevation can be increased if the crossing is not improved during reconstruction. Note that the road is on an upgrade that runs counter to the slope caused by the superelevation of the tracks, causing reverse profile on the road.
(1) Henry's Crossing Road. Crossing is located at the end of the third Curve west of West Henryville. The road is downhill against the slope of the superelevation. The crossing surface should be monitored for needing earlier renewal if curve modifications are required.

P Mill Creek Road. Crossing is already arranged for the two tracks of the assumed alignment
(0) Cortland Street. Crossing requires the restoration of a second track. The warning devices are already placed to permit restoration of this track.
(B) Burson Street. Crossing requires heavy realignment for curve throws and reconstruction with $4^{\prime \prime}$ of superelevation to achieve design speed of 60 mph . It is assumed that this crossing will be closed.
(S) Broad Street. Crossing requires the addition of a second track. The warning devices are already placed to permit restoration of this track.
(T) Analomink Street. Crossing requires the addition of a second track. The warning devices are already placed to permit restoration of this track.
(V) Forge Road. Crossing is in the Forge Cut Curve and requires reconstruction of the abandoned track with $5.5^{\prime \prime}$ of superelevation. The superelevation is counter to the profile of the road. This level of superelevation was previously in the road but iwas removed and the profile of the road changed. If the road profile cannot be modified immediately to accommodate the old superelevation, the speed in the curve would need to be 30 mph instead of 45 mph .

### 4.3. RECOMMENDED ACTIONS

Six crossings warrant removal and replacement of the existing surface material. They are: East University, PA Route 507, Browns Hill Road, Mill Creek Road, Broad Street, Analomink Street, and Forge Road

Lehigh Road crossing would be removed and rebuilt with existing crossing material after increasing the superelevation of the curve.

Additional tracks are assumed at Church Road and Summit Avenue without reconstructing the existing crossing surface. This will require repositioning of the warning devices.

West Station, West University, and Burson Street crossings are assumed to be removed and closed.

### 4.4. EXHIBITS

Figure 2-27. East University Av (MP132.61)


Figure 2-29. Lehigh Road (MP114.92)


Figure 2-28. Myrtle Av (MP131.29)


Figure 2-30. PA Route 507 (MP112.87)


Figure 2-31. Church Road (MP107.67)


Figure 2-33. Devil's Hole Road (MP97.37)


Figure 2-32. Summit Avenue (MP102.54)


Figure 2-34. Henrys Crossing Road (MP92.27)


Figure 2-35. Browns Hill Road (MP90.17)


Figure 2-37. Cortland Street (MP82.31)


Figure 2-36. Mill Creek Road (MP83.21)


Figure 2-38. Burson Street (MP82.15)


Figure 2-39. Broad Street (MP81.93)


Figure 2-41. Forge Road (MP80.70)


Figure 2-40. Analomink Street (MP81.66)


Figure 2-42. River Road (MP77.83)


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## 5. CONCLUSIONS

This technical report has presented changes and upgrades to track and associated infrastructure assets deemed necessary adapt the existing PNRRA Pocono Mainline to safely and reliably accommodate shared operations by Amtrak intercity passenger trains, D-L freights train, and NPS Steamtown excursions. It specifically addresses the degree of work required to economically bring the line up to a standard consistent with FRA Track Class 3 or 4 condition where geometry permits for higher-speed operation.

The degree of work set out in the technical report and accompanying cost estimate represents the Suggested Program, designed to achieve Amtrak's operating goals along with reducing life-cycle maintenance costs for the physical plant. The geographic extent of Suggested Program trackwork is illustrated in Figure 2-43, which encompasses:

- Crop \& Weld Existing Rail into Continuous Welded Rail (CWR);
- New CWR Installation;
- New Track Installation (on Main Track sidings and key running tracks) with new 136RE rail;
- Relocate Track;
- New Tie Installation (to 75\% acceptability);
- Restoration of Superelevation and Spirals; and
- Restoration of Right-of-Way Conditions.

This technical report also considers a Minimum Program that would defer some non-safety-critical improvements of the Suggested Program for up to ten years in order to reduce the initial amount of capital outlay prior to the start of revenue service by nearly half. Suggested deferments include:

- Defer Crop \& Weld of Existing Rail;
- Defer 66\% of New CWR Installation;
- Construct all new tracks with 136RE relay rail;
- Reduce Initial New Tie Installation to $65 \%$ acceptability; and
- Defer Restoration of Right-of-Way Conditions.

While reducing initial capital investment, it is expected the deferred work elements will need to be completed during the first decade of operations and, until that is done, will result in increased maintenance of way expense.

Figure 2-43
Geographic Distrbution of MP Suggested Program Trackwork


### 5.1. COST ESTIMATES

Cost estimates including soft costs (contingency, design, mobilization) were prepared for track and associated infrastructure assets and documented in the Pocono Mainline Track Cost Estimates (Appendix 2F). Cost estimates for the Suggested and Minimum Programs are presented in eight broad categories, as summarized in Table 2-7.

Table 2-7. Track Cost Estimate Summary

|  | $\begin{gathered} \text { SUGGESTED } \\ \text { PROGRAM } \\ \hline \end{gathered}$ |  |  | INIMUM ROGRAM |
| :---: | :---: | :---: | :---: | :---: |
| CROP \& WELD CONTINUOUS WELDED RAIL | \$ | 8,498,518 |  | Deferred |
| NEW CONTINUOUS WELDED RAIL | \$ | 8,695,247 | \$ | 2,817,682 |
| NEW TRACK (136RE CWR) | \$ | 14,165,534 | \$ | 9,521,856 |
| RELOCATE TRACK | \$ | 2,368,941 | \$ | 2,368,941 |
| NEW TIES | \$ | 7,912,793 | \$ | 7,714,589 |
| RESTORE SUPERELEVATION AND SPIRALS | \$ | 2,695,861 | \$ | 2,695,861 |
| RESTORE RIGHT-OF-WAY CONDITION | \$ | 12,466,365 |  | Deferred |
| SPECIAL WORK | \$ | 3,100,000 | \$ | 3,100,000 |
| CROSSSING SURFACE IMPROVEMENTS | \$ | 218,800 | \$ | 218,800 |
| TOTAL (Materials \& Set-Up) | \$ | 60,122,059 | \$ | 28,437,729 |
| ROM Estimate with Labor | \$ | 120,244,119 | \$ | 56,875,458 |

Pocono Mainline
Track Chart
EXISTING CONDITIONS

APPENDIX





EXISTING TRACK CHART


|  |  |
| :---: | :---: |
|  |  |

Amtrak National Network
Planning Department
National Railroad Passenger Corporation

 | Eeph Black, JEG OA/OC |
| :--- |
| Hicker, JEG Project Manage |


(2) Jacobs

| OK | ок | ок | ок | OK | OK | OK | POOR | POOR | OK | OK | OK | POOR | POOR | POOR | ок |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $6 "$ | $4 "$ | $6{ }^{\prime \prime}$ | 6" | 8" | 0" | 1" |  | 0" | 0" | $0{ }^{\prime}$ | 10" | 10" | 12" | $6 "$ | 10" | 0 " |
| 60\% | 60\% | 30\% | 40\% | 60\% | 40\% | 50\% |  | 40\% | 40\% | 50\% | 50\% | 10\% | 20\% | 20\% | 30\% | 60\% |
| REPLACE Low Rail |  |  |  |  | REPLACE Low Rail |  | SURFACE BENT AT JOINTS | SURFACE BENT AT JOINTS |  | SURFACE BENT AT JOINTS | $\begin{gathered} \text { REPLACE } \\ \text { RAIL } \end{gathered}$ | $\begin{aligned} & \text { REPLACE } \\ & \text { RAIL } \end{aligned}$ | SURFACE BENT AT JOINTS | SURFACE BENT at Joints |  |  |
| $\begin{array}{r} 132 \text { RE } 1, \\ \quad \begin{array}{c} \text { MP } 100 \\ \hline \end{array} \\ \hline \end{array}$ |  |  |  | E CWR | $\left.{ }^{A Y}\right)-$ |  |  | $\begin{array}{r} 1322 \\ \hline \end{array}$ |  |  |  | $-{ }^{131 \mathrm{RE}}$ | 1945 (RELAY 1955) 85.7-83.0 | $\square^{130}$ | $\begin{aligned} & \left({ }_{8}^{\text {RREAA }} \mathbf{4}\right) \end{aligned}$ |  |




| $\underset{\text { Noi }}{\substack{\text { Noi }}}$ |  |  |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |



Pocono Mainline Track Chart

ASSUMED IMPROVEMENTS

APPENDIX



APPENDIX 2B

AMTRAKM


PROPOSED TRACK CHART
MP 116.5 TO MP 98.5




EXCERPTS FROM
1951 DL\&WRR
Employee Timetable

APPENDIX


Stritch at mines leading from empty track to loaded track musp he left locked for loaded track.

Spur rrack switch leading from loaded track to spur track at south end must be left open and locked to serve as derail.

Engine bell must be rung continuously while passing throush uperatine territorv at the mines.

## Operation of Three or More Tracks

137. Tracks are assigned for operation as follows and are signalled accordingly: (Sce Rules D251-D254-D26I-D264.)

## Between Hoboken and Grove Street Tower-

Track 3-Reversible.
Track 1-Reversible.
Track 2-Reversible.
Track 4-Reversible.
Track 6-Reversible.

## Between Grove Street Tower and East End Hacken.

 sack Bridge-Track 3-Reversible.
Track 1-Reversible.
Track 2—Reversible.
Track 4-Reversible.

## Hetween East End of Hackensack Bridge and Newark Interiocking-

Track 3-Reversible between east end of Hackensack Bridge and Harrison Tower.
Track 1-Reversible between east end of Hackensack bridge and Newark Interlocking.
Track 2-Eastward, reversible between Harrison Station and Newark Interlocking.
Between Newark and Millburn-
Track 3-Westward.
Track 1-Reversible.
Track 2-Eastward.
Between Lyndhurst Draw Bridge and Paterson Junction-
Track 3-Westward.
Track 1-Reversible.
Track 2-Eastward.

## Between Pompton River Bridge and Denville Inter-locking-

Track 3-Westward.
Track 1-Reversible.
Track 2-Eastward.
Between Denville Interlocking and Dover-
Track 3-Westward.
Track 1-Reversible.
Track 2-Reversible.
Between Mt. Arlington and Port Morris Junction Interlocking-
J'rack 3-Westward.
Track 1-Westward.
Track 2-Eastward.
Track 4-Easeriard.
When conditions require, and tracks are with the current of traffic, passenger trains may run over tracks other than those scheduled for, and enginemen will accept signal indications provided the route will take them to destination and permit them to make their scheduled station stops.
138. Speed Restrictions-Local
(See General Instructions \#61)
ianncr trains:
Miles
(A) Betrreen Dover and Slateford Junction:

When handled by engines numbered as followsNos. 801 to 805 , incl.; 810 to 820 , incl.; 1151 to 1155 incl.; are permitted maximum speed of..
When handled by engines numbered as followsNos. 1115 to 1130 incl.; 1137 to 1140 , incl.; are permitted maximum speed of.
(B) Between Stroudsburg and Slateford Junction and East of Dover maximuin speed of passenger trains.
alyard general freight Port Morris to Towaco with more dhan 25 Coal.

40
MORRISTOWN LINE (HOBOKEN-DENVILLE)

| Location | Mile | Pos | Speed Restricted To Miles Per Hour |
| :---: | :---: | :---: | :---: |
| Wokn |  |  |  |
| ietween station and West End of M. U. Shed. |  |  | 15 |
| Between West End M. U. Shed and West end Bergen Tunnel. |  |  | 50 |
| fore Strect- <br> Interlocking switches (on "Clear-Medium" signal). |  |  | 15 |
| सugen Tunnel. . . . . . . . . . . . . . . . . . . . . . . . . . |  |  | 50 |
| 还en Tunnel to Sub-station (straight route)... |  |  | 30 |
| itsation to and including Hackensack River dide (straight route) |  |  |  |
|  |  |  | 45 |
| sigaal . . . . . |  |  |  |
| crossover track 1 to 3 |  |  | 25 |
| Ciossover track 3 to 1. |  |  | 30 |
| imisoa- <br> It curve east of Harrison Station. | 6.6 | 0.9 |  |
| West end Harrison Station to west end Newark |  |  | (35 Electric |
| Passenger Station (3 curves and draw bridge) | 7.2 | 7.8 | 30 Steam |
| On "Clear Medium" signal east of Newark Toper: Track 1 to Track 3. |  |  | 30 |
| perark- |  |  |  |
| Ist curve west of | 8.1 | 8.2 | 60 |
| lod curve west of | 8.4 | 8.5 | 55 |
| 3rd curve west of weville Ave.- | 8.6 | 8.7 | 55 |
| Between east end of junctionswitches and west end of Ruacville Station platforms.......... | 8.9 | 9.1 | 30 |
| Norre: |  |  |  |
| On "Clear-Medium" signal east of Roseville Ave. 'Tracks 2 and 3 to Track 1. |  |  | 30 |
| On "Clear-Mcdium" signal east of Roseville |  |  |  |
| Ave. Track 3 to Montelair Branch |  |  | 15 |
| mve Street- |  |  |  |
| 34 Orange- |  |  |  |
| Curves at east end of Station. | 9.9 | 10.0 |  |
| Curves at west end of Station sich Church- | 10.1 | 10.2 | 60Tracks 1-3 |
| Curves (4) east and west of Station. . . . . . . . . | 10.4 | 10.8 | 60 Tracks 1-3 |
| Orange Interlocking. |  |  | 50 |
| xith Orange- |  |  |  |
| Curves at east end of Station (2 curves).... | 13.7 | 13.8 | 40 Track 3 |
| Carves at west end of Station (2 curves)... uplewood- | 13.9 |  | 40 Track 3 |
| Carve at station. | 15.0 | 15.2 | 65 Track 2 |
| $\left\{\begin{array}{l} \text { Cerve at station........... } \left.\begin{array}{l} 6 \text { AM to } 8 \text { AM } \\ 8 \text { AM to } 6 \text { Aivi } \end{array}\right\} \end{array}\right.$ | 15.0 | 15.2 | 10 Track 3 150 Track 3 |
| Corve west of station . ....................... | 15.3 | 15.4 | 40 Track 3 |
| \$x curve east o |  | 16.4 |  |



BOONTON LINE—BERGEN JCT. TO STROUDSBURG (Via Cut-Oif)

| Location | Mile Post |  | Speed <br> Restricted To Miles Per Hour |
| :---: | :---: | :---: | :---: |
|  | 退 | $\bigcirc$ |  |
|  |  |  | 45 |
| Ist curve west of. stide curve west | 78.2 |  | 45 |
| poire Dam curve. |  |  | 45 Track 1 |
|  |  | $580.6$ | S0 Track 2 |
|  |  |  | 30 Track 2 |
| forge Cut carve |  |  |  |

PORT MORRIS JCT. TO SLATEFORD JCT.
(Via Washington Line)

| Location | Mile Post |  | Speed Restricter To Miles Per Hour |
| :---: | :---: | :---: | :---: |
|  | 宏 | $\stackrel{1}{\circ}$ |  |
| Port Morris to Washing |  |  | 50 |
| Washington to Slateford Jct...................... |  |  | 40 |
| Port Morris Jct. - <br> Interlocking junction ewitches. $\qquad$ |  |  | 20 |
| Part Morrios |  |  |  |
| Sower Branch Jct.- |  |  |  |
| Westward trains, Track 1, west end of crossover Track 1 to Track 2 |  |  | 25 |
| Westward trains, Track i to aingle track...... |  |  | 25 |
| Westward trains, Track 1 to Sussex Branch.. |  |  | 15 |
| Eastward trains, Sussex Branch to Track 2... Eastward trains, Washington Line, from single |  |  | 15 |
| track to eastward Track 2................... |  |  | 15 |
| Netcong- <br> Between "End of Highway Cireuit" sign and |  |  |  |
|  |  |  | 25 |
| Hackettatown- |  |  |  |
| EASTWARD trains between Main and High Streets. |  |  | 35 |
| Spring switch at west end of siding-Trains |  |  |  |
| Wabioighton-- |  |  | 15 |
| Spring awitch at weat end of aiding-Trajan moviog from aiding to main track. |  |  | 15 |
| Carve through Waahington Station. | 66.5 | 66.7 | 30 |
| Orford Tunnel- |  |  |  |
| Carve east end of Oxford Tunnel. | 69.5 | 69.6 | 20 |
| Through Oxford Tunncl-All train |  |  | 20 |
| 1 st curve weat | 70.2 | 70.3 | 20 |
| 2nd curve west of | 70.3 | 70.4 | 20 |
| 3 nd curve weat of | 70.4 | 70.5 | 30 |
| Ordond Fursace- |  |  |  |
| Spring awitch at east end of siding-Trains moving from aiding to main track.......... |  |  | 15 |
| Pqueat River- | 74.0 |  |  |
| Bridgeville- |  |  |  |
| Manunka Chank- |  |  |  |
| Curve at east end Manunka Chunk Tunnel. . . | 77.1 | 77.2 | 20 |
| Through Manunka Chunk Tunnel-All traina. |  |  | 20 |
| Carve at weat end of Manurka Chunk Tumeel | 77.3 | 77.4 | 20 |
| 2 d curve west of Portland- |  | 77.5 | 20 |
| Portand- <br> Between "End of Highway Circuit Sign" and Columbia Bridge highway crossing......... . . |  |  | 10 |

RETAINERS-STEAM POWER AND 801, 810 AND 901 DIESEL POWER OR OTHER DIESEL POWER WITHOUT DYNAMIC BRAKE OPERATING ON ANY OR ALL UNITS.

## Eastward Trains

332. (a) CLARKS SUMMIT TO SCRANTON: On trains con. sisting of more than 2,500 tons, turn up retainers on 25 consecutive cars after first car, and 10 retainers alternately on next 20 cars.

Freight trains with $30 \mathrm{M} . \mathrm{P} . \mathrm{H}$. speed limit, turn up retainers on the head half of the train except the first car, and alternate retainers on the balance of train.

Heavy commodity trains with 18 M. P. H. speed limit, turn up one retainer for each car, except head car and rear 4 cars.

On trains consisting of 75 or more empty cars, turn up 20 retainers, beginning with second head car.
(b) CAYUGA TOWER TO HAMPTON (via K. V. Bch.): On trains of more than 60 loaded cars, retainers required on 20 head cars, starting with second car.
(c) LEHIGH OR GOULDSBORO TO POCONO SUMMIT: On trains consisting of more than 4,500 tons, turn up 15 retainers.
(d) POCONO SUMMIT TO ANALOMINK: Manifest trains consisting of more than 2,500 tons, with 35 M.P.H. speed limit, turn up retainers 25 head cars except first, alternately on next 20 cars ( 10 retainers).

Freight trains with 25 M.P.H. speed limit, turn up retainer for each car in head half of train, and alternate retainers on balance.

Trains with 18 M.P.H. speed limit, turn up retainer for each car, except head car and rear four cars.

On trains consisting of more than 75 empties, turn up 20 retainers on head end starting at second car.

## Westward and Northward Trains

(e) LEHIGH TO SCRANTON: Manifest trains consisting of more than 2,500 tons will stop at Throops Tank and turn up retainers on second to sixteenth head cars, and five alternate on next ten.

Other than manifest trains may turn up retainers at Gouldsboro ve Lehigh-25 and ten altemate.

On trains consisting of more than 75 empties or mixed trailss of loads and empties when less than 10 loaded cars, turn up 20 retainers.

On trains consisting of loads and empties when more than 10 loads, turn up one retainer for each 125 tons

Ore trains should have all retainers turned up. (Except first car.)
(f) APULIA-SYRACUSE: Freight trains, or crains of loads and empties mixed, up to 2,000 tons, when train consists of less than 15 cars of coal, may be handled on grades between Apulia and Syracuse without retainers.

On trains of loads and empties mixed, over 2,000 tons, with more than 15 and less than 30 cars of heavy commodities, turs up 15 consecutive retainers.

On trains consisting of all coal or more than 30 cars of coal in mixed trains, turn up 30 consecutive retainers on head end. (Except head car.)
(g) PARIS-CHADWICKS: Freight trains consisting of loads and empties mixed, turn up retainers on forward half of train except the first car. On trains of all loads, turn up retainers on all cars except the first car and the rear 4 cars.

## Heavy Commodities-

Coal, oil, ore, pig iron, grain, etc.
(Note)-Manifest trains include BH-2, BH-4, BH-8, BH-12, NE-4, NE-6, BS-2, SB-3, HB-1, HB-3, HB-5, HB-7, HB-9. When sach trains have less than 15 cars of heavy commodity, and include arra trains of loads handling primarily freight (with less than 15 cars of heavy commodity) and with tonnage not more than 3,400 tons.

## OPERATION OF THREE OR MORE TRACKS

333. (a) No. 1 track, westward

No. 3 track, westward
Stroudsburg to West Henryville.
Mount Pocono to Pocono Summit.
Cayuga to Clarks Summit (adjacent to eastward main track)
(b) No. 2 track, eastward

No. 4 track, eastward
Dalton to Clarks Summit
Scranton to Pocono Summit.
Analomink to Stroudsburg.
(c) No. 4 track, reversible

Cayuga to Scranton.
Rules D-261 to D-264, inclusive, govern

## 334. Speed Restrictions-Local

(See General Instruction 61)
Enginemen will check speedometer on engine at first opportunity and if speedometer is found to be inaccurate, will operate to comply with speed restrictions, taking into consideration the speedometer variation. Speedometer inaccuracy, as found, will be reported on mpletion of trip.

MAIN LINE, STROUDSBURG-JOHNSON CITY


Exception (1) Between Pocono Summit and Lehigh when budled by engines numbered as follows-

No. 801 to 820 incl.; No. 1151 to 1155 incl.......... . 79
When handled by engines numbered as follows-
No. 1115 to 1130 incl.; No. 1137 to 1140, incl. . . . 75
Exseption (2) (See Notes Page 113).
Lehigh to Moscow. ..... . . . . . . . . . . . . . . . . . . . . . . . . . 60
Moscorp to Nay Aug. . . . . . . . . . . . . . . . . . . . . . . . . . . . 50
Nay Aug to Scranton. . . . . . . . . . . . . . . . . . . . . . . . . . . 40

$$
\begin{gathered}
\text { Mileas } \\
\operatorname{Per} \mathrm{H}_{\text {our }}
\end{gathered}
$$

## Freight trains:

## Pocono Summit to Anałomink:

Manifest freight urains when handled by 601, 611, 621, $631,651,801,810,901,1100,1600$ or 2100 class engines.
Manifest trains handling 15 or more cars of heavy commodities.
Other freight trains, solid heavy commodity trains, or trains with 35 cars of heavy commodities or over.
Mixed freight trains consisting of loads and empties or mixed heavy commodities and other freight when number of heavy commodity cars is less than 35 , or all other freight exclusive of heavy commodities.
Freight trains consisting of empty cars.
Steam power, light
Lehigh to Nay Aug:
Manifest freight trains or trains of empties when handled by $601,611,621,631,651,801,810,901,1100,1600$ or 2100 class engines

40
Other freight trains.
25

Nay Aug to Scranton:
Manifest freight trains or trains of empties when handled by $601,611,621,631,651,801,810,901,1100,1600$ or 2100 class engines.
Heavy Cornmodity Trains.20
Other freight trains ..... 30

Steam power, lighe30

Clarks Summit to Scranton:
Manifest freight trains when handled by 601, 611, 621, $631,651,801,810,901,1100,1600$ or 2100 class engines.
Trains consisting of 50 cars of heavy commodities........ 18
Other freight trains.
30
Mine Branch Main Tracks (except as otherwise specified).
25
Grade restriction schedule showing distance and minimum running time between stations for authorized speed, in mile: per hour, permitted on the following grades:

|  | MILES PER HOUR |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 18 | 20 | 25 | 30 | 35 |
|  | Miles | Mins. | Mins. | Mins. | Mins. | Mins. |
| Pocono Summit Remote Colltrol to Mount Pocono..... | 2.2 | 7 | 7 | 5 | 4 | ${ }_{10}^{4}$ |
| Mount Pocono to Cresco.... | 5.8 | 19 | 17 | 1488 | 1 | 6 |
| Cresco to West Henryville | 3.5 | 12 | 11 | 8 | 1 |  |
| West Henrsville to Analomink | 5.9 | 20 | 18 | 14 | 12 | 10 |
| Nay Aug to East End Tower. | 5.3 | 18 | 16 | 13 | 118 | 7 |
| Clarks Summit to Cayuga... | 4.1 | 14 | 12 | 10 | 8 | 5 |
| Cayuga to Scranton......... | 3.2 13.1 | 11 | 10 39 | 31 | 26 | 22 |
| Lehigh to Nay Aug......... | 13.1 |  | 39 | 31 |  |  |



MAIN LINE, STROUDSBURG-JOHNSON CITY
curve west of.
Cresco-
Curve at station
lat curve west of.
2nd curve west of.
Devils Hole curve.
lst curve west of.
2ad curve west of
tradise Cut curve.

3rd curve west of.
4th curve west of
Sth curve west of.
He. Pocono-
lst curve west of
Mammy Heaters curve.

| Location | Mile Post |  | Speed Restricted to Miles Per Hour |
| :---: | :---: | :---: | :---: |
|  | 見 | $\stackrel{\square}{\circ}$ |  |
| dsburg- |  |  |  |
| Westward traine entering Track 3 east of station. |  |  | 20 |
| Passenger station. |  |  | 30 |
| 1st curve west of | 82.0 | 82.1 | 40 Tracks 1-2 |
| 2nd curve west of | 82.2 | 82.3 | $\left\{\begin{array}{\|l\|} 40 \text { Track } 1 \\ 45 \\ \hline \end{array}\right.$ |
| Milford Crossing curve. | 82.4 | 82.5 | $\begin{cases}45 & \text { Track } \\ 60 & \text { Track }\end{cases}$ |
| Analomink- 85. |  |  |  |
| Analomink curve. | 85.8 | 86.1 | 55 Tracke 1-2 |
| 3nd curve peat of. | 86.3 | 86.9 | \{55 Track 1 |
| ligh Bridge-Curve | 87.2 | 87.5 | ${ }_{55} 60$ Track 2 |
|  |  |  | 60 Track 2 |
| 2nd curve west of. | 87.5 | 87.6 | 55 Track 1 |
| 3rd curve west of | 87.9 | 88.0 | 55 Track 1 |
| 4th curve west of | 88.5 | 88.7 | ${ }_{50}^{60}$ Track 2 |
|  |  |  | 60 Track 2 |
| 5th curve west of. | 88.9 | 89.0 | 50 Track 1 55 Track 2 |
| Henryville- ${ }^{\text {a }}$ (5S Track 2 |  |  |  |
| Curve at station. | 89.0 | 89.3 | (50 Track 1 |
|  |  |  | 55 Track 2 |
| lst curve west of. | 89.3 | 89.5 | 50 Track 1 |
| 2nd curve west of | 89.7 | 89.8 | ${ }_{50} 55$ Track 2 |
| 3rd curve west of | 90.3 | 90.4 | \{50 Track 1 |
| from Track 3 to Track 1 (Clear Medium). |  |  | 30 |
| 1st curve west of | 91.4 | 91.6 | 50 |
| 2nd curve west of | 91.7 | 91.9 |  |
| 3 rd curve west of | 92.0 | 92.3 | (45 Track 1 |
| 4th curve west of | 92.5 | 93.0 | 50 Track 2 |
| curve west of. | 92.5 | 93.0 | $\left\{\begin{array}{l}40 \text { Track } 2\end{array}\right.$ |
| 5 th curve west of | 93.1 | 93.6 | 45 |
| ${ }^{\text {6th }}$ curve west of | 93.9 | 94.1 | 45 |
| Cresco- |  |  |  |
|  |  |  | $\left\{\begin{array}{l}\text { d0 Track } 2\end{array}\right.$ |
| lat curve west of | 96.8 | 96.9 | \{45 Track 1 |
| 2nd curve west of | 97.2 | 97.4 | 35 Track 2 |
| Devils Hole curve. |  |  | 450 Track 2 |
|  | 97.4 | 97.6 | 45 Track 1 |
| lst curve west of. . . . . . . . . . . . . . . . . . . . | 97.8 | 98.2 | 50 Track 2 |
|  |  |  | [50 Track 2 |
| 2ad curve west o | 98. 2 | 98.5 | 45 |
| haradise Cut curve lst curve west of 2ad curve west of | 98.7 | 99.1 | 35 |
|  | 99.1 | 90.2 | 40 |
|  | 99.2 | 99.3 | (40 Track 1 |
| 3rd curve west of <br> 4th curve west of <br> Sth curve west of |  |  | 245 Track 2 |
|  | 99.8 | 100.7 |  |
|  | 100.0 | 100.2 | 45 Track 1 |
| He. Pocono- $\int^{\text {a }}$ ( 50 Track 2 |  |  |  |
| lot Curve west of <br> Mammy Heaters curve | 100.4 | 100.6 | /45 Track 1 |
|  |  |  | 50 Track 2 |
|  | 101.8 | 102.2 | $\left\{\begin{array}{l}45 \text { Track } 1 \\ 50\end{array}\right.$ |


| Location | Mile Post |  | Speed Reatricted to Miles Per Hour | Location | Mile Post |  | Speed Restricted to Miles Per Hour |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |
|  | 边 | $\stackrel{\circ}{-1}$ |  |  | E | $\stackrel{-1}{6}$ |  |
| Pocono Summit - <br> From Track 4 to Track 2 (Clear Medium). <br> From Track 3 to Track 1 (Clear Miedium). <br> Steam Shovel curve. $\qquad$ |  |  |  |  |  |  |  |
|  |  |  | 30 | Nay Aug Tunnel- |  |  |  |
|  |  |  | 30 | Firt class trains and passenger extras. |  |  | 30 |
|  | 106.4 | 106.7 | $160 \text { Track } 1$ | Other trains . . . . . . . . . . . . . . . . . . |  |  | 20 |
|  |  |  | 65 Track 2 | Curve west of. | 131.7 | 131.8 | 30 Track 2 |
| Tobyhanna-- |  |  |  | 1 lat curve west of. | 131.9 | 132.0 | 35 Track 2 |
| Wamertown Branch |  |  | 10 | 2nd curve weat of | 132.0 | 132.4 | 35 Track 2 |
| Cross Keys curve.. | 108.8 | 109.1 | 60 | 3rd curve west of. | 132.6 | 132.7 | 35 Track 2 |
| Gouldsboro- <br> lst curve weat of . . . . . . . . . . . . . . . . . . . . . . |  |  |  | 4th curve west of. | 133.0 | 133.2 | 25 Tracks 1-2 |
|  | 114.0 | 114.2 | 70 Track 2 |  |  |  |  |
| Lehigh Summit- <br> Lehlgh Summit Interlocking-Eastward trains crossing from No. 2 track to No. 4 track. |  |  |  | Suraton- |  |  |  |
|  |  |  |  | Movement over No. 5 crossover 400 feet east of passengers tation |  |  |  |
|  |  |  |  | of passengers tation Westbound trains using No. 1 track under |  |  | 10 |
|  |  |  | 20 | train-shed.. . . . . . . . . . . . . . . . . . . . . . . . . |  |  | 10 |
| Lehigh Cut curve | 114.7 | 115.3 | 55 Track 2 | lot curve west of station | 133.2 | 133.4 | 25 Tracks \-2 |
| 2nd curve west of | 115.9 | 116.3 | 50 Track 2 | Bridge 60, main tracks. |  |  | 25 Tracks 1-2 |
| 3 rd curve west of. | 116.8 | 117.2 | 50 Track 2 | 2ad curve weat of.... | 134.3 | 134.4 | (40 Track I |
| 4th curve west of. | 118.6 | 118.7 | 50 Track 2 |  |  |  | 50 Track 2 |
| 5 th curve weat of. | 119.3 | 119.4 | 50 Track 2 | 3rd curve west of. | 134.5 | 134.8 | 45 Track 1 |
| 6th curve west of. | 119.6 | 119.9 | 50 Track 2 |  | . | 134.8 | 50 Track 2 |
| 7th curve weat of. | 120.1 | 120.3 | (55 Track 1 | Ith curve west of. | 134.8 | 135.3 | 45 Track 1 |
| Mos00w- |  |  | (50 Track 2 |  |  |  | 50 Track 2 |
| Curve at station | 120.4 | 120.6 | 50 Track 2 |  | 5 | 135.9 | 45 Track 1 |
| lat curve west of | 121.0 | 121.1 | 50 Track 2 | Cayuga- |  |  | drack 2 |
| 2nd curve weat of | 121.6 | 121.7 | 50 Track 2 | Through switch at Keyser Valley Branch |  |  |  |
| 3rd curve west 0 | 121.9 | 122.1 | 50 Track 2 |  |  |  | 15 Track 4 |
| Gardners Cut curve | 122.2 | 122.3 | 50 Track 2 | Curve at Tower. | 136.1 | 136.5 | /45 Track 1 |
| lat curve west of | 122.5 | 122.7 | 50 Track 2 |  |  |  | 40 Track 2 |
| 2nd curve west of | 123.2 | 123.3 | 50 Track 2 | let curve west of | 136.6 | 136.7 | ${ }_{45}$ Track 1 |
| 3rd curve west of | 123.8 | 123.9 | 50 Track 2 |  |  |  | 50 Track 2 |
| 4th curve west of | 124.2 | 1124.4 | 50 Track 2 | 20d curve west of | 136.8 | 137.0 | (45 Track 1 |
| 5 th curve west of | 125.0 | 125.4 | 50 Track 2 |  | 136.8 | 137.0 | $\left\{\begin{array}{l}\text { 3 } \\ 50\end{array}\right.$ |
| 6th curve west of | 125.7 | 125.9 | 50 Track 2 | Lasme Cut curve. | 137.0 | 137.4 | 45 Tracks 1-2 |
| 7th curve west of | 125.9 | 126.5 | 45 Tracks 1-2 | 4 th curve west of | 137.4 | 137.5 | 45 Tracks 1-2 |
| 8th curve west of | 126.7 | 126.9 | 45 Tracks 1-2 | Sth curve weat of. | 137.7 | 137.8 | 45 Track 1 |
| 9 th curve weat of | 120.9 | 127.0 | 45 Tracks 1.2 | Sth curve weat of. | 137. | 137.8 | $\left\{\begin{array}{l}\text { Track } 1 \\ 50\end{array}\right.$ |
| 10th curve west of | 127.1 | 127.5 | 40 Track 1 | 6th curve west of. | 137.9 | 138.3 | 45 Track 1 |
|  |  |  | 45 Track 2 | \%h curve met of . . . . . . . . . . . . . . . . . . . . . . | 137.9 | 138.3 | $\left\{\begin{array}{l}50 \text { Track } 2\end{array}\right.$ |
| 11 th curve west of. | 127.5 | 127.6 | 45 Tracks 1-2 | 7th curve west of | 138.4 | 138.5 | $\left\{\begin{array}{l} 45 \\ \text { Track } \end{array}\right.$ |
| Nay Aug-lat curve |  |  |  | 8th curve west of. | 138.S | 138.6 | 50 Track 2 45 Track 1 |
|  | 127.8 | 127.9 | 45 Track 2 | 8th curve west of. | 138.5 | 138.6 | $\left\{\begin{array}{l}45 \\ 50\end{array}\right.$ |
| 2nd curve west of. |  |  |  | Oth curve west o | 38.8 | 138.9 | 45 Track 1 |
|  | 128.0 | 128 | 40 Track 2 |  |  |  | 50 Track 2 |
| 3rd curve west of . . . . . . . . . . . . . . . . . . . . | 128.2 | 128.3 | 40 Track 2 | loth curve west | 39.1 | 139.3 | $\begin{cases}45 & \text { Track } \\ 55 & \text { Track }\end{cases}$ |
| 3ra curve west ot. . . . . . . . . . . . . . . . . . . . . | 128.2 | 128.3 |  |  | 140.3 | 140.4 | (50 Track 2 |
| 4th curve west of. . . . . . . . . . . . . . . . . . . . . | 128.5 | 5128.6 | 40 Track 2 | From Extension Track to Track 3 through spring switch. |  |  |  |
| Sth curve west of. . . . . . . . . . . . . . . . . . . . . | 128.6 | 6)128.8 | 40 Track 2 |  |  |  | 30 |
|  |  |  |  | Onriss Summit- |  |  |  |
| 6th curve west of. . . . . . . . . . . . . . . . . . . . | 128.9 | 129.0 | 40 Track 2 | lat curve west of |  |  | $70 \text { Tracke 1-2 }$ |
| Nay Aug Breaker curve. | 129.0 | 0129.7 | 40 Track 2 | 2ad curve west of | 142.2 | 142.5 | 65 Track 2 |
| Nay Aug Breaker curve. |  |  |  | juenburn |  |  |  |
| 1st curve west of | 129.9 | 130.2 | 40 Track 2 | lst curve west of. | 143.3 | 143.6 | 65 Track 2 |
| 2nd curve west of | 130.4 | 130.5 | 40 Track 2 | idtor |  |  |  |
| Bunker Hill curve. . . . . . . . . . . . . . . . . . . . . |  |  |  | th curve weat of. . . . . . . . . | 144.7 | 145.2 | 65 Track 2 |
|  | 130.5 | 5130.7 | 40 Track 2 |  |  |  | 65 Track 2 |
| No. 6 Juaction curve. <br> lat curve weat of . |  |  | 40 Track 2 | curve west | 146.7 | 147.0 | 65 Track 2 |
|  |  |  |  |  |  |  |  |
|  | 131.5 | 5131.6 | 40 Track 3 | lat curve weat of. | 148.3 | 148.5 | 95 Track 1 |
|  |  |  |  |  |  |  | 60 Track 2 |

## Assumed Track Speed Improvements through Curves

WITH SUGGESTED<br>SPECIAL INSTRUCTIONS FOR AMTRAK NORTHEAST CORRIDOR EMPLOYEE TIMETABLES

APPENDIX




# SCRANTON-NEW YORK INTERCITY PASSENGER RAIL ANALYSIS INFRASTRUCTURE ASSESSMENT <br> POCONO MAINLINE TRACK UPGRADES AND IMPROVEMENTS <br> AMTRAK EMPLOYEE TIMETABLE SPECIAL INSTRUCTION INSERT <br> POCONO MAIN TRACK 

## 37-S1. PASSENGER TRAIN AND FREIGHT TRAIN MAXIMUM SPEEDS

## AND RESTRICTIONS, UNLESS OTHERWISE RESTRICTED

Locations and speeds shown in normal type are maximum authorized speeds. Locations and speeds shown in bold type are speed restrictions.

Where speeds change at an interlocking and the specific point where the speed change occurs is not specified, the lower speed will apply through the entire interlocking.

| PASSENGER \& FREIGHT TRAIN TYPE "A", "B", "D" \& "E" SPEEDS |  |  |  |  |  |  | DL\&W <br> Employee <br> Timetable <br> Curve Names <br> (for reference) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Train Type A refers to High Speed Trainsets (HST) with tilt system active . |  |  |  |  |  |  |  |
| Train Type $B^{*}$ refers to (1) HST's with tilt system disabled; and (2) trains consisting exclusively of HHP-8 or AEM-7 engines, and Amfleet, Horizon, Capitoliner Control Cars, MARC III control/coach cars, or US DOT test car T16. |  |  |  |  |  |  |  |
| Train Type C $\dagger$ refers to passenger trains that do not meet the criteria for train types A, B, or D. |  |  |  |  |  |  |  |
| Train Type D refers to passenger trains with mail,baggage or express cars in consist, that meet the Train Type D criteria defined elsewhere in the Special Instruction. |  |  |  |  |  |  |  |
| Train Type E $\ddagger$ refers to freight trains. |  |  |  |  |  |  |  |
| Between/At |  |  |  |  |  |  |  |
| Between/At | Track | Nos. | Track | Nos. | Track | Nos. |  |
|  | 2 | 1 | 2 | 1 | 2 | 1 |  |
| CP Phoebe (MP 133.8) \& Ridge (MP 132.5) | 40 | 40 | 30 | 30 | 25 | 25 |  |
| All moves thru MP Phoebe (MP 133.8) | ... | 25 | ... | 25 | ... | 25 |  |
| Diverging moves thru CP Snow (MP 133.5) | ... | 25 | ... | 10 | ... | 10 |  |
| All moves to/from Running Tracks | ... | 25 | ... | 25 | ... | 25 |  |
| Ridge (MP 132.5) \& MP 129 |  | 50 |  | 45 |  | 45 | 83-91 |
| MP129 \& MP 125.6 |  | 60 |  | 55 |  | 25 | 68-82 |
| MP125.6 \& MP 120 |  | 60 | .. | 55 |  | 40 |  |
| 1 st Cv west of Gardners Cut (2nd Cv west of MP 123) |  | 55 |  | 45 |  |  |  |
| Diverging moves thru CP Moscow (MP 120.9) | 45 | 45 | 45 | 45 | 25 | 25 | 67 |
| Moscow Curve (MP 120.5) 2nd Cv west of MP 120 | 55 | 55 | 45 | 45 | 25 | 25 | 61 |
| Diverging moves thru CP Dale (MP 120.4) | 45 | 45 | 45 | 45 | 25 | 25 |  |
| MP 120 \& Summit (MP 102.5) |  | 80 |  | 75 |  | 40 |  |
| Cross Keys Curve (Cv at MP 109) | ... | 70 | ... | 60 | ... | ... | 55 |
| Steam Shovel Cut Curve (1st Cv west of MP 106) | ... | 70 | ... | 60 | ... | ... | 54 |
| Summit (MP 102.5) \& MP 100 |  | 50 |  | 45 |  | 25 |  |
| MP 100 \& MP 97 |  | 45 |  | 40 |  | 25 | 40-41, 45-48 |
| Paradise Cut Curve (Cv at MP 99) | $\ldots$ | 35 | ... | 30 | ... | ... | 4 |
| MP 97 \& MP 91.5 | .. | 60 | ... | 55 |  | 25 |  |
| Cresco Curve (MP 95) \& 4th Cv west of Henryville (MP 94) | ... | 45 | ... | 40 | ... | 25 | 35-38 |
| 2nd \& 3rd Cvs west of Henryville (MP 93) | ... | 55 | ... | 50 | ... | 25 | 33, 35 |
| MP 91.5 \& MP 82.5 | .. | 75 |  | 70 |  | 40 |  |
| Freight Trains MP 91.5 \& MP 86 | ... | ... | ... | ... | ... | 25 |  |
| 1st Cv west of Henryville (MP 89) | ... | 65 | ... | 55 | ... | 25 | 32 |
| Henryville Curve (MP 89) \& 1st Cv west of Henryville | ... | 60 | ... | 50 | $\ldots$ | 25 | 29,30 |
| Analomink Curve (Cv at MP 86) | ... | 65 | ... | 55 | ... | 25 | 22 |
| MP 82.5 \& MP 75.4 | 60 | 60 | 55 | 55 | 40 | 40 |  |
| Diverging moves thru CP Henwood (MP 81.9) | 45 | 45 | 45 | 45 | 25 | 25 |  |
| Diverging moves thru CP Warrior (MP 81.0) | 45 | 45 | 45 | 45 | 25 | 25 |  |
| Forge Cut Curve (MP 80.9) \& Bells Bridge Curve (MP 78.3) | ... | 45 | ... | 40 | $\ldots$ | 40 | 14-18 |
| Bells Bridge Curve (MP 78.3) | ... | 40 | ... | 35 | ... | 30 | 13 |
| Tinkertown Curve (MP 78.8 to MP 78.3) | ... | 40 | ... | 35 | ... | 30 | 12 |
| 2nd Cv west of Point of Gap (MP 76) \& 3rd Cv west of MP 75) | ... | 50 | ... | 45 | ... | ... | 718 |
| Point of Gap Curve (2nd Cv west of MP 75) | ... | 40 | ... | 35 | ... | 30 | 6 |
| MP 75.4 \& Delaware River Bridge | $\ldots$ | 70 | $\ldots$ | 65 | $\ldots$ | 40 |  |

[^1]
# Assumed Track Speed Improvements through Curves <br> APPLIEDTO <br> 1914 DL\&W RJGHT-OF-WAY AND TRACK MAPS 

APPENDIX





















[^0]:    ${ }^{1}$ Available at https://www.dot.state.pa.us/public/pubsforms/Publications/PUB\%20371.pdf

[^1]:    *     - The new Amtrak Airo intercity trainsets are assumed will be included in this category.
    $\dagger$ - NPS historic locomotives equipped with Postiive Train Control are asssumed will be included in this category.
    キ - D-L locomotives equipped with Postiive Train Control are asssumed will be included in this category.

