



So, you want to learn how to Operate!

We will be touching on:

- **track planning for operations**
- **train make-up**
- **train handling**
- **sequence and scheduled running of trains**
- **waybills and routing of freight cars**
- **yard operations**
- **dispatcher control**
- **how to have fun at an operating session.**

Track planning for operations

What you will need:

- Yards
- Main Line
- Passing sidings
- Industries to serve
- Interchange
- Staging

Yards

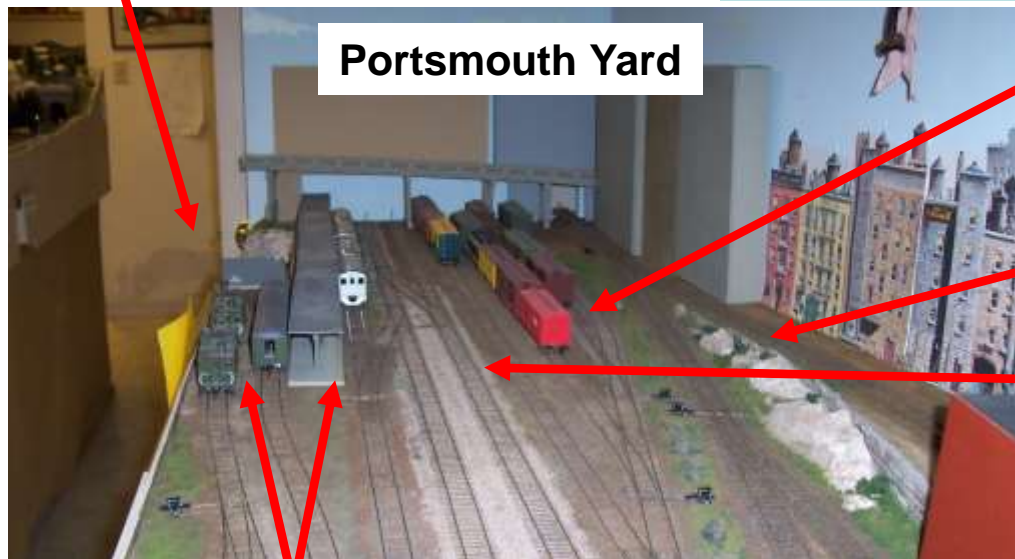
Elements included in yard design:

- Arrival/departure tracks
- Yard lead
- Classification tracks
- Engine service area- fuel, water, storage, engine/round house, turntable
- Caboose track



Caboose track

Yard operations



Portsmouth Yard

Classification tracks

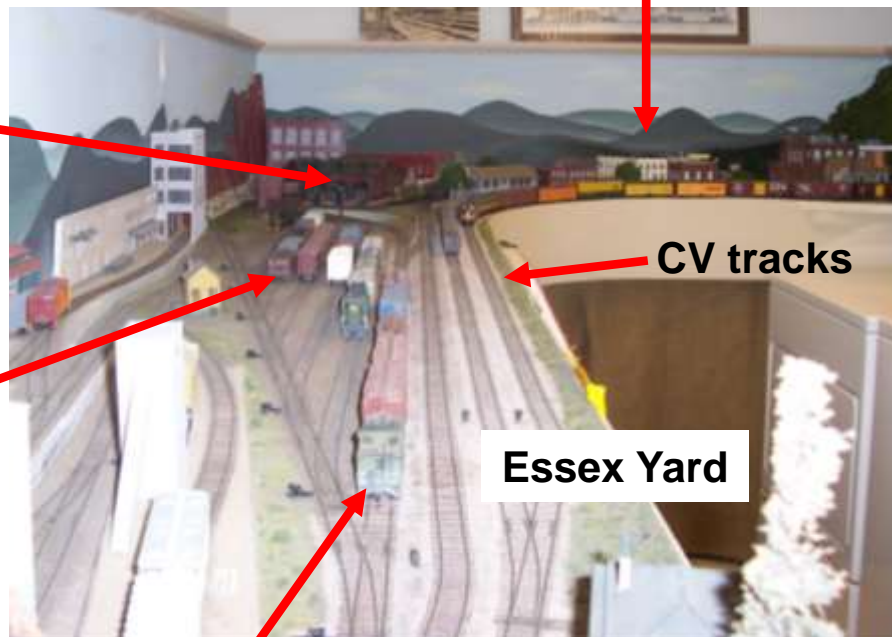
Industry tracks

Arrival/departure tracks

Passenger tracks

Classification tracks

Train 1 heading to Montreal



CV tracks

Essex Yard

**Engine servicing
and caboose tracks**

Local arriving on A/D track

Main Line

Elements included in main line design:

- **Minimum radius to suit desired equipment to be run**
- **Long enough to be realistic**
- **Space between towns**
- **Looks like it is coming “from somewhere” and “going to somewhere”**
- **Minimum frog number of turnouts to suit desired equipment to be run**

Passing sidings

Elements included in passing siding design:

- **Used to move trains around one another- passes & meets**
- **Minimum turnout frog number (didn't we cover this before?)**
- **Long enough to accommodate longest train to be run**



Industries to serve

Elements included in industries to be served design:

- Use industries that generate traffic- inbound and outbound
- Small industries handle small loads and use less space
- Large industries generate more traffic but take up more space
- Allow enough track to work the industry without fouling the main line
- Avoid “switching puzzles”- they can become frustrating quickly
- Make waybills (routing) work so cars move in a sensible pattern



Interchange

Elements included in interchange design:

- Interchange is important to convey the “beyond the basement” theme. It makes the modeled portion appear bigger than it really is. Real railroads operate within the national rail network allowing freight and passenger cars to move freely anywhere.
- Staging yards (hidden or open) are used to represent interchange points
- A simple spur
- A junction with an interchange track
- Ship-to-shore interchange points



Staging

Elements included in staging design:

- Staging is used to extend the modeled railroad to “far away” places
- Staging can be hidden or open
- Staging tracks can be stub ended, double ended or balloon
- Allow enough track space for all the trains that will use the staging
- Add one more staging track than what you think you need



Train Make-up & Train Handling

- Locomotive goes on the front...caboose on the rear. All other cars go in between
- Block cars by destination
- Put set-outs on head pin and pick-ups on rear pin
- Think **BEFORE** every move and make as few moves as possible
- Don't foul the main- Leave path open for other trains
- Use the "offset" mode on Kadee couplers to push cars into sidings and leave them without handling
- Operate trains at prototypical speeds
- Listen to the dispatcher
- Locomotive goes on the front...caboose on the rear. All other cars go in between

VAFR Engine:RS-11 #227

max cars:10

Canterbury

Capitol Granite 2

Team Track 2

R.L.Clark Feed 2

Franklin

Team Track 2

Station Track 2

Thornton- VBL

Interchange 6

Leave Essex Yard and work all local industries at Canterbury and Franklin. Set and pick up interchange cars with Valley Branch Lines at Thornton.
Return to Essex Yard

Yard Instructions

Operating Session on the Valley Junction Railroad

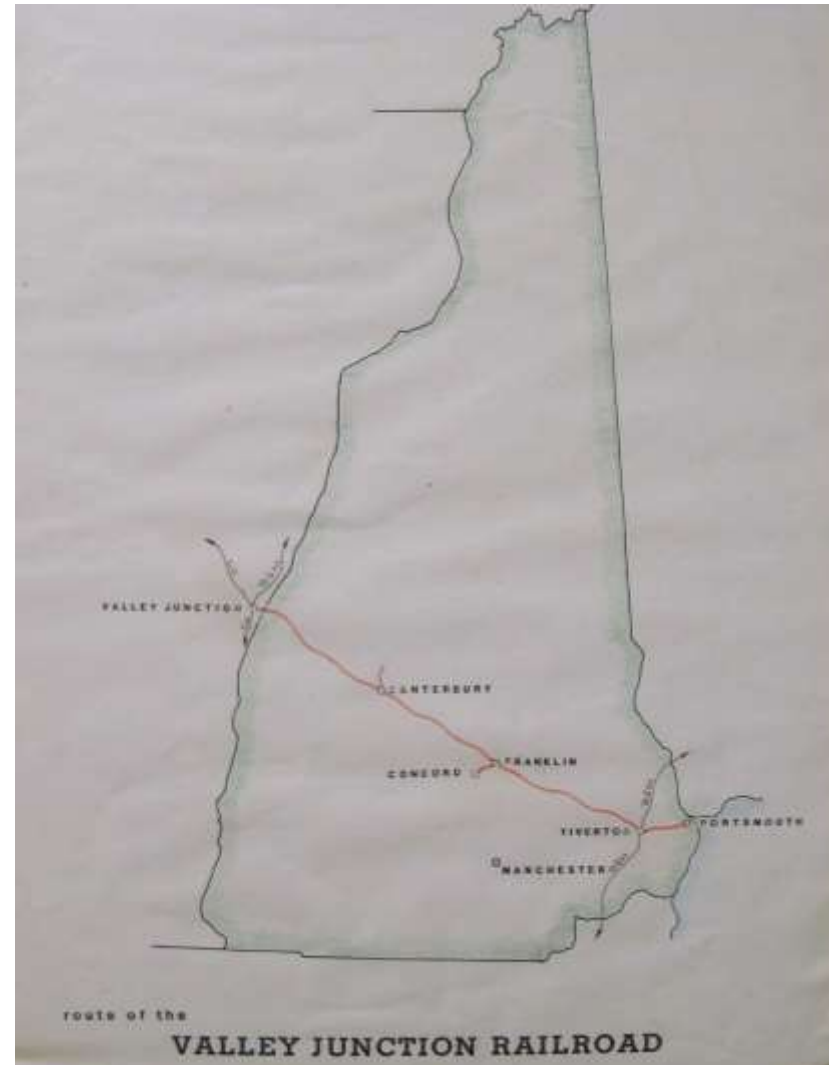


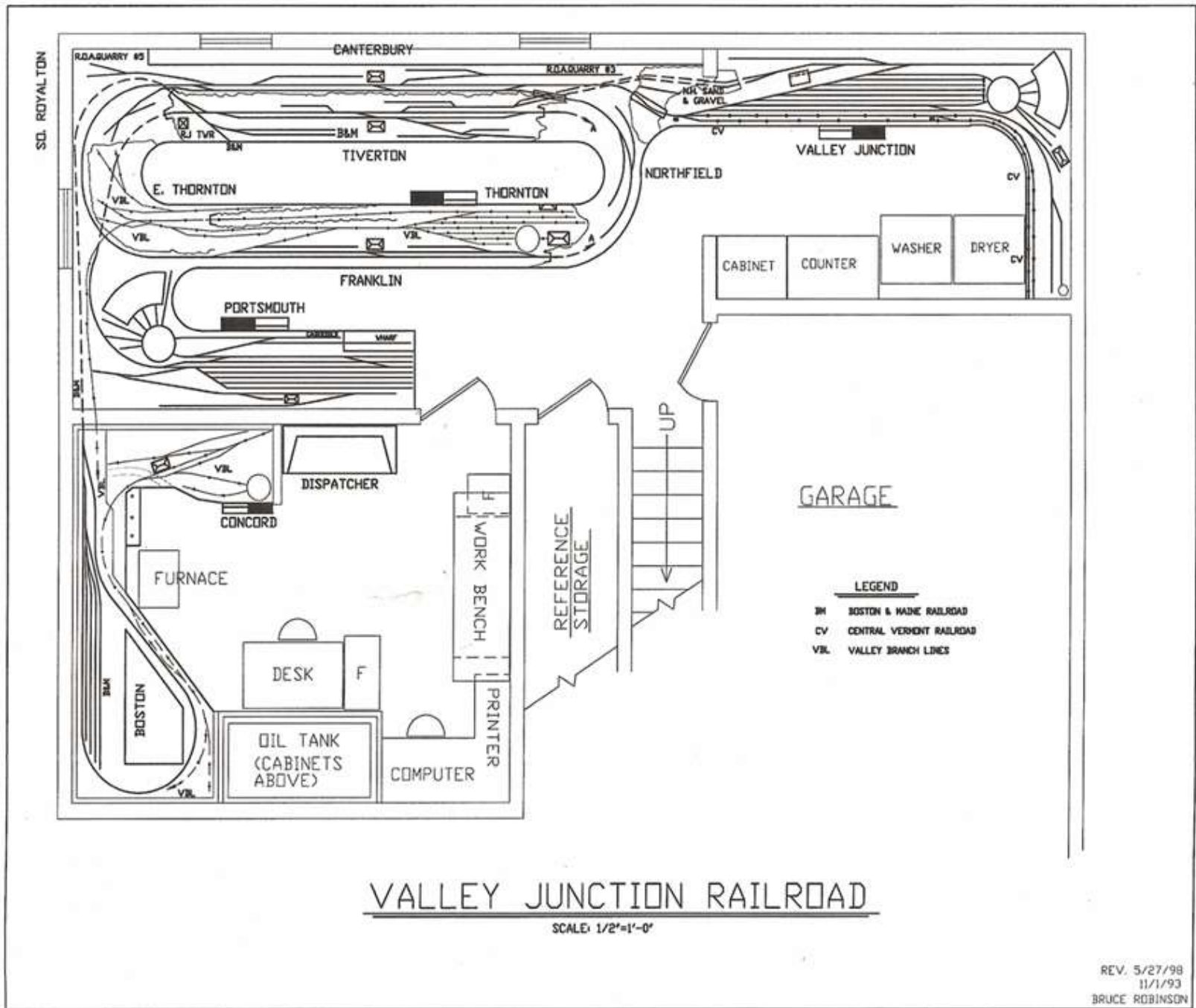
“Present the drama of model railroading in which the tracks are the stage, the buildings and scenery are the setting, the trains are the actors and the operating schedule the plot”

**Frank Ellison
The Delta Lines**

Description- Place and Time

- The Valley Junction Railroad lies in eastern New Hampshire beginning at the east end in Portsmouth and running westward through the towns of Tiverton, Franklin, South Royalton, Canterbury and Northfield and terminating in Valley Junction on the west end.
- The VJRR interchanges freight and passenger traffic at Tiverton (Boston & Maine RR), Franklin (Valley Branch Lines) and Valley Junction (Central Vermont Railway).
- The time frame that the VJRR occupies is the decade 1955-1965. All the locomotives and rolling stock is representative of the New England region during this time.
- Because the track plan is point-to-point there is no continuous running capability and all trains terminate in a yard where locomotives are turned on turntables for their return trips.
- All trains are run per the schedule that is governed by a 6:1 fast clock.
- Control is DCC using the North Coast Engineering (NCE) system.





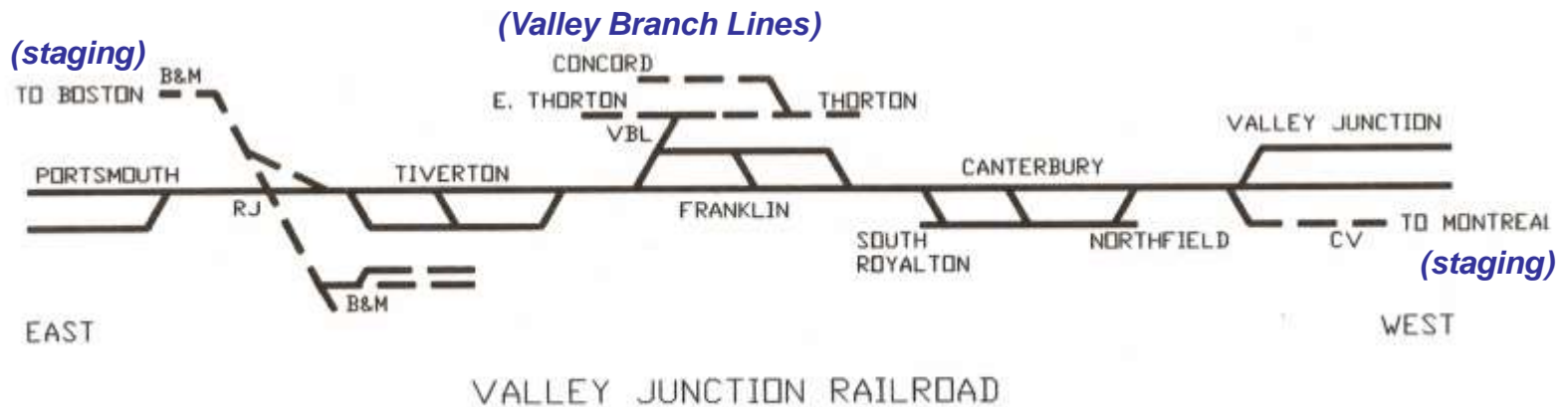
VALLEY JUNCTION RAILROAD

SCALE: 1/2"=1'-0"

- LEGEND**
- B&M BOSTON & MAINE RAILROAD
 - CV CENTRAL VERMONT RAILROAD
 - VBL VALLEY BRANCH LINES

If you stretch out the track plan the railroad looks like this.

The VJRR is a point-to-point system with three interchanges (B&M, VBL & CV)



- BM - Boston & Maine
- CV - Central Vermont
- VBL - Valley Branch Lines

Types of Trains

- Local (commuter) passenger trains.
- Local freight trains.
- Sweep trains (running from end to end).
- Overhead passenger and freight trains (running between “beyond the basement” destinations).
- Specialty trains (specific duties to serve specific industries).



Crew

The VJRR runs with a crew of eight operators as follows:

- **Yard Master at Portsmouth**
- **Yard Master at Valley Junction**
- **Valley Branch Lines Operator**
- **Four mainline train crews**
- **Dispatcher.**

What Each Crew Member Does

Yard Master:

- **Makes up outbound trains**
- **Breaks down inbound trains and classifies cars by destination.**
- **Pulls outbound cars from local industries.**
- **Sets out inbound cars at local industries.**
- **Moves locomotives to and from the servicing area.**



Yard Master working Portsmouth Yard

What Each Crew Member Does

Main Line Train Crew:

- **Picks up assigned train from departing yard. Receives waybills from Yard Master**
- **Calls the dispatcher for permission to leave yard limits**
- **Makes pickups and setouts as described by train instructions and dispatcher along route. Communications with dispatcher is via radio headset**
- **Terminates train at arrival yard. Turns waybills over to Yard Master.**

1 Montrealer

max cars: 9

Engine: PA-1 #170

FP-7 #180

Leave Boston and run to Tiverton. Back into Portsmouth. Pick up Pullman and express reefers. Change engines. Run to Tiverton and reassemble train. Run to Franklin and drop Concord Coach on VBL in Thornton. Run through Essex Yard and terminate at Montreal on the CV.

Crew Instructions



What Each Crew Member Does

Valley Branch Lines Operator:

- **Handles interchange traffic with VJRR.**
- **Classifies cars in Yard at Thornton.**
- **Works local industries at East Thornton.**
- **Runs to Concord to work local industries.**
- **Runs passenger traffic Thornton to Concord.**



| <u>TIME</u> | <u>TRAIN NO.</u> | <u>DESCRIPTION</u> |
|-------------|------------------|---|
| 0645 | 22 | Meets VJRR #100 & 101 at Franklin. Leaves Concord at 615. Set out milk car for VJ #110. |
| 0945 | POFR | Interchange with VJRR. Cars from Portsmouth. |
| 1030 | 32 | Local passenger (Gas electric) Leaves Concord at 1000. |
| 1045 | 1 | Drops the Concord coach at station. |
| 1145 | VAFR | Interchange with VJRR. Cars from Valley Junction. |
| 1900 | TC-20 | Returning with cars from Wells Village and Concord. |
| 2030 | 42 | Local passenger (Gas electric and combine) Leaves Concord at 2000 |

| <u>Thornton DEPARTURES</u> | | |
|----------------------------|------------------|---|
| <u>TIME</u> | <u>TRAIN NO.</u> | <u>DESCRIPTION</u> |
| 0715 | 21 | Local passenger (Gas electric) to Concord. |
| 1045 | POFR | Interchange with VJRR. Outbound: Portsmouth, Tiverton and B&M interchange cars. |
| 1145 | 31 | Local passenger (Gas electric and combine) to Concord. |
| 1245 | VAFR | Interchange with VJRR. Outbound: Valley Junction, South Royalton, Canterbury, Northfield and CV interchange cars. |
| 2130 | 2 | Add the Concord coach to VJRR Train #2. |
| 1330 | TC-20 | Turn job with cars for Wells Village and Concord. |
| 2145 | 41 | Local passenger (Gas electric) to Concord with milk car from VJ #111. |

What Each Crew Member Does

Dispatcher:

- Assigns main line train crews to scheduled trains
- Directs train movements according to the schedule
- Sets routes for train movements
- Maintains the train sheet.



Valley Junction Railroad Dispatcher's Train Descriptions Assigned Duties

| <u>Train No.</u> | <u>Departure</u> | <u>Assigned Duties</u> |
|------------------|------------------|--|
| 100 | Valley Jct. | All station stops to Portsmouth. Meet 101 at Franklin. |
| 101 | Portsmouth | All station stops to Valley Junction. Meet 100 at Franklin. |
| 1 | Boston | Station stop at Tiverton. Back to Portsmouth to pick up Pullman and express reefers. Swap motive power. Station stop at Franklin. Drop VBL combine in Thornton. Terminate on CV (Montreal) in Valley Junction. |
| 2 | Valley Jct. | Station stop at Franklin. Pick up VBL combine. Station stop at Tiverton. Drop express reefers and Pullman in Portsmouth. Terminate in Boston. |
| 110 | Valley Jct. | Pick up milk cars at Northfield, Canterbury, Franklin and Tiverton. Terminate in Boston. |
| 111 | Boston | Set out milk cars at Tiverton, Franklin, Canterbury and Northfield. Terminate at Valley Junction on CV. |
| 1319 | Boston | Runs Boston to Portsmouth with station stop at Rockingham Junction. Terminate in Portsmouth. |



Train Sequence Running

Passenger Trains

| <u>Train No.</u> | <u>Departure</u> | <u>Assigned Duties</u> |
|------------------|------------------|--|
| 100, 102 | Valley Jct. | All station stops to Portsmouth. Meet 101, 103 at Franklin. |
| 101, 103 | Portsmouth | All station stops to Valley Junction. Meet 100, 102 at Franklin. |
| 1 | Boston | Stop at Tiverton. Pick up Pullman and express reefer. Swap engines. Drop Concord coach at VBL. Terminate in Montreal. |
| 2 | Valley Jct. | Stop at Franklin. Pick up VBL combine. Stop at Tiverton. Drop express reefer and Pullman at Tiverton. Terminate in Boston. |
| 110 | Valley Jct. | Pick up milk cars at Northfield, Canterbury, Franklin and Tiverton. Terminate in Boston. |
| 111 | Boston | Set out milk cars at Tiverton, Franklin, Canterbury and Northfield. Terminate at Valley Junction on CV. |
| 1319 | Boston | Runs Boston to Portsmouth with station stop at Rockingham Junction. Terminate in Portsmouth. |

Schedule

| <u>TRAIN</u> | <u>DEPART</u> | <u>ARRIVE</u> | |
|--------------|----------------|---------------|----------------|
| BOME | RJT- 0030 | VJT- 0300 | Lv Boston 0020 |
| NHSGX | PORTS- 0200 | VJT- 0430 | |
| BMT-1 | PORTS- 0330 | PORTS- 0500 | |
| NHSGX | VJT- 0530 | PORTS- 0800 | |
| 101 | PORTS- 0600 | VJT- 0745 | |
| | FRANKLIN- 0645 | | |
| 100 | VJT- 0600 | PORTS- 0745 | |
| | FRANKLIN- 0645 | | |
| 110 | VJT- 0615 | RJT- 0915 | Lv CV 0600 |
| 1319 | RJT- 0750 | PORTS- 0800 | Lv Boston 0740 |
| 1320 | PORTS- 0815 | RJT- 0825 | |
| VASR | VJT- 0830 | VJT- 1030 | |
| POFR | PORTS- 0915 | PORTS- 1215 | |
| 1 | RJT- 0945 | VJT- 1145 | Lv Boston 0935 |
| VAFR | VJT- 1045 | VJT- 1330 | |
| GS-4 | PORTS-1345 | PORTS- 1700 | |
| 111 | RJT- 1345 | VJT- 1645 | Lv Boston 1335 |
| POVA | PORTS- 1615 | VJT- 1745 | |
| 102 | PORTS- 1800 | VJT- 1945 | |
| | FRANKLIN- 1845 | | |
| 103 | VJT- 1800 | PORTS- 1945 | |
| | FRANKLIN-1845 | | |
| VAPO | VJT- 1845 | PORTS- 2015 | |
| 2 | VJT- 2030 | RJT- 2230 | Lv CV 2020 |
| BMT-2 | PORTS- 2145 | PORTS- 2300 | |
| MEBO | VJT- 2200 | RJT- 2345 | Lv CV 2150 |

VJT: Valley Junction (Essex Yard)
 PORTS: Portsmouth
 RJT: RJ Tower (B&M Interchange)

Employee Timetable

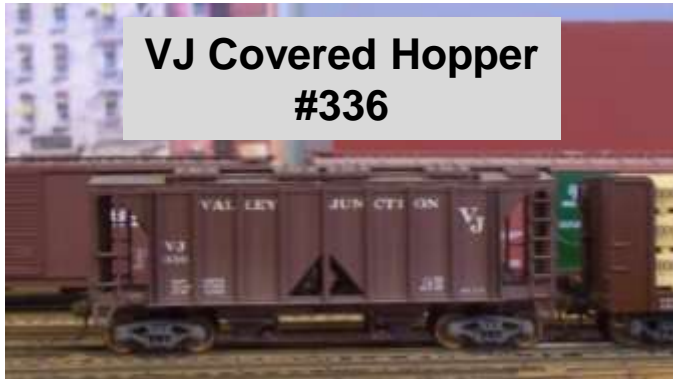
VALLEY JUNCTION RAILROAD

TIMETABLE #1
Effective June 26, 1956

WEST
(read down v)

| number | NHSGX | BOME | BMT | 101 | 1320 | POFR | VASR | 1 | VAFR | 111 | GS4 | POVA | 103 |
|------------------------|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| type | unit sand | freight | transf | pass | pass | freight | freight | pass | freight | pass | freight | freight | pass |
| Class | 3 frt | 1 frt | 3 frt | 2 pass | 2 pass | 3 frt | 3 frt | 1 pass | 3 frt | 3 pass | 4 frt | 2 frt | 2 pass |
| Portsmouth | dp:0015 | from | dp:0330 | dp:0600 | de:0830 | dp:0915 | ** | from | ** | from | dp:1345 | dp:1615 | dp:1800 |
| | | Boston | | | | | | Boston | | Boston | | | |
| RJ Tower | ar:0040 | dp:0145 | ar:0400 | ** | ar:0850 | ** | ** | dp:0945 | ** | dp:1245 | ** | ** | ** |
| | | | | | dp:0910 | | | | | | | | |
| Tiverton | ar:0045 | ar:0215 | ar:0410 | ar:0615 | to | ar:0930 | ** | ar:0950 | ** | ar:1300 | ar:1400 | ar:1630 | ar:1815 |
| | dp:0145 | dp:0330 | ** | dp:0630 | Boston | dp:0935 | ** | dp:1030 | ** | dp:1330 | dp:1430 | dp:1635 | dp:1830 |
| Franklin | ar:0215 | ar:0350 | ** | ar:0645 | ** | ar:0945 | ** | ar:1045 | ** | ar:1345 | ar:1415 | ar:1645 | ar:1845 |
| | dp:0220 | dp:0355 | ** | dp:0700 | ** | ** | ** | dp:1115 | dp:1245 | dp:1415 | dp:1420 | dp:1715 | dp:1900 |
| Canterbury | ar:0245 | ar:0420 | ** | ar:0715 | ** | ** | ** | ar:1130 | ar:1300 | ar:1430 | ar:1500 | ar:1730 | ar:1915 |
| | dp:0250 | dp:0425 | ** | dp:0730 | ** | ** | dp:1000 | dp:1135 | dp:1305 | dp:1530 | ** | dp:1735 | dp:1930 |
| Valley Junction | ar:0315 | ar:0445 | ** | ar:0745 | ** | ** | ar:1015 | ar:1145 | ar:1315 | ar:1545 | ** | ar:1745 | ar:1945 |

Waybills - Make cars move



Waybill operation:

- Waybill is always with car
- Waybill gives car destination
- Waybill is flipped at delivery
- New destination is now showing
- Two types of moves-inbound car & outbound car
- This system is self-healing



waybill pocket



Routing Slip
To Portsmouth (town)
Portsmouth Feed and
Grain (industry)



routing slip
To B&M Interchange
(off the VJRR system)



Complete waybill
Follows the car



Let the trains roll and the fun begin !



Remember to always watch your signals !

(that is because the dispatcher gave you clearance only to the next signal)