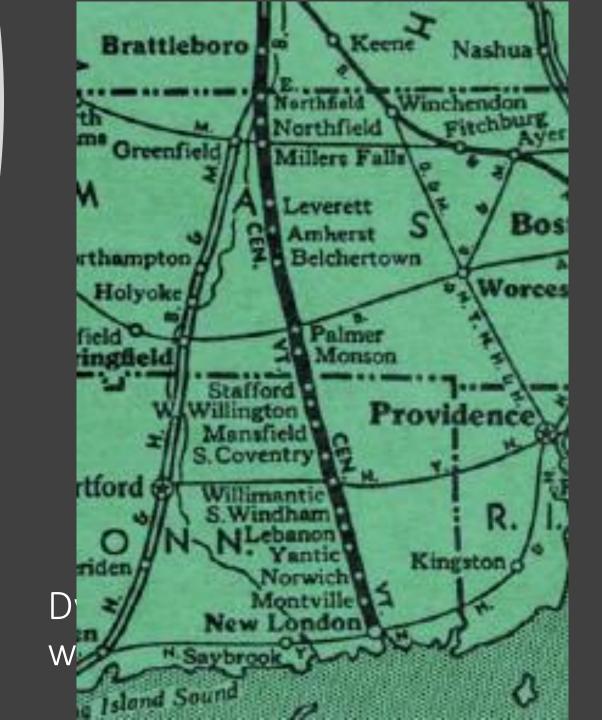# Car Movement on the Central Vermont Railway

## Using JMRI Operations

Jon Schmidt

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Area modelled

Dr...
w...

Goals:

Move cars per the prototype

Industry focus

Satisfy the team
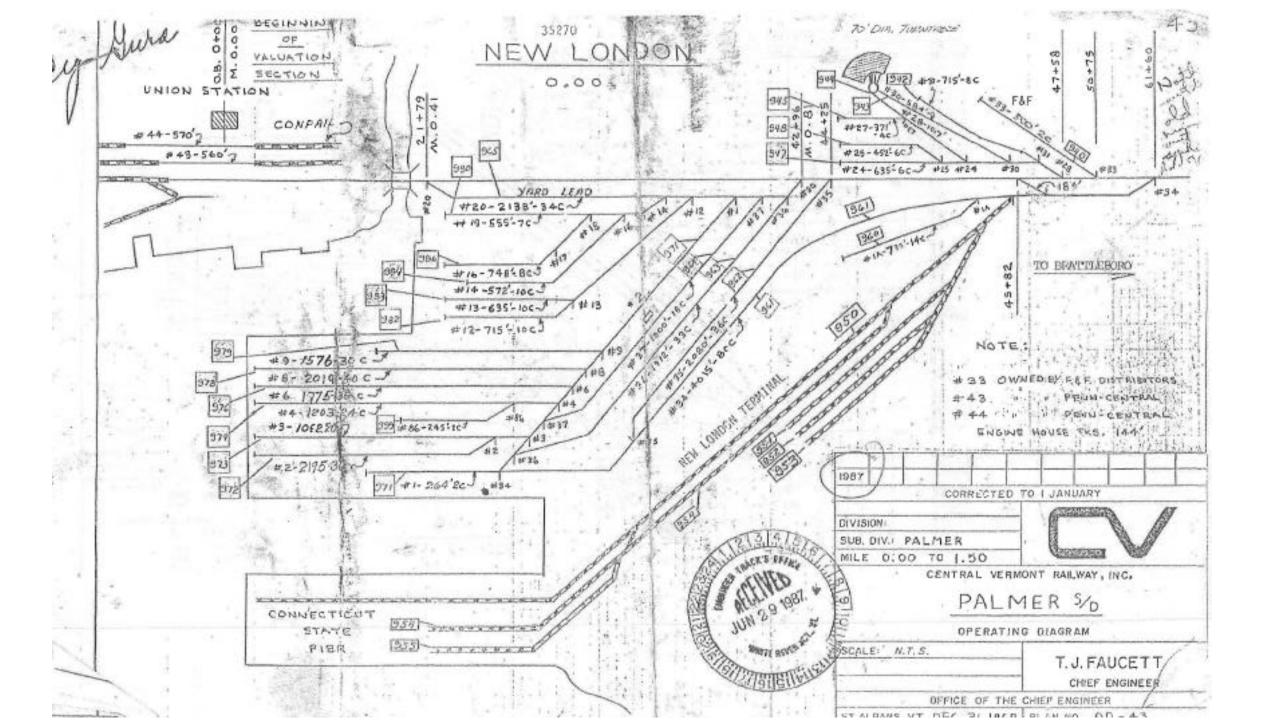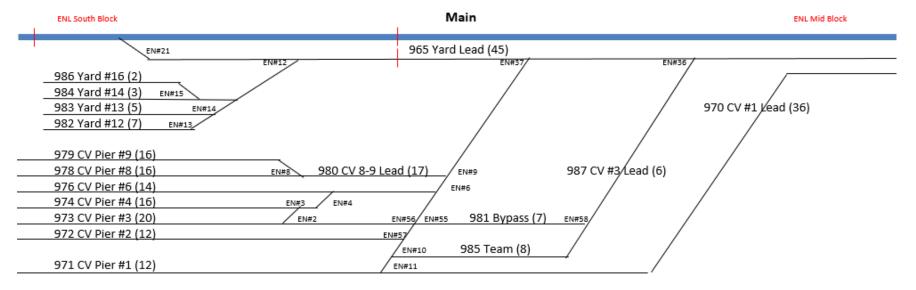
Keep crews engaged and challenged

# How We Built It

Follow prototype as much as possible – maps and ICC book
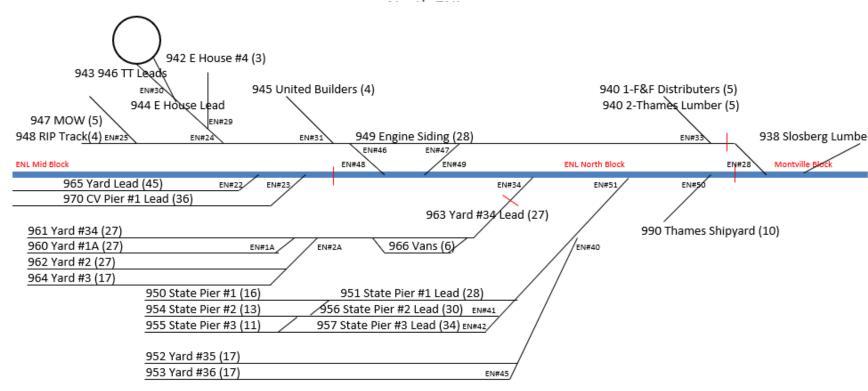
Research industries

Historical society, magazines, and online groups

Document everything as we build

Guy Gura



NEW LONDON

35270

0.00

70' Dia. Turntable

UNION STATION

BEGINNING OF VALUATION SECTION

CONRAIL

#44-570'

#43-560'

2+79  M.0.41

990

965

YARD LEAD
#20-2138'-34c
#19-555'-7c

#20

#16-748'-8c
#14-572'-10c
#13-635'-10c
#12-715'-10c

#9-1576-30c
#8-2019-50c
#6-1775-36c
#4-1203-24c
#3-1052-20c
#86-245'-1c
#2-2195-30c
#1-264'2c

CONNECTICUT STATE PIER

944
942
946
948
947  42+96  M.O.B.V  44+25
#27-371'+4c
#25-452'-6c
#24-635'-6c

#9-715'-8c
#30-584'-3c
#28-107
#33  F&F

#31  #28  #83

47+58  50+75  61+60

18°  #34

#15  #24  #30

#41

#40

#1A-711'-14c

TO BRATTLEBORO

45+82

NEW LONDON TERMINAL

950

NOTE:
#33 OWNED BY F&F DISTRIBUTORS
#43 " " PENN-CENTRAL
#44 " " PENN-CENTRAL
ENGINE HOUSE TKS. 144'

RECEIVED
JUN 29 1987
ENGINEER TRACK'S OFFICE

1987

CORRECTED TO 1 JANUARY

DIVISION:
SUB. DIV. PALMER
MILE 0:00 TO 1.50

CENTRAL VERMONT RAILWAY, INC.

PALMER S/D

OPERATING DIAGRAM

SCALE: N.T.S.

T. J. FAUCETT
CHIEF ENGINEER

OFFICE OF THE CHIEF ENGINEER

**Main**

EN#21

965 Yard Lead (45)

EN#12

EN#37

EN#36

986 Yard #16 (2)

984 Yard #14 (3)   EN#15

983 Yard #13 (5)       EN#14

982 Yard #12 (7)     EN#13

970 CV #1 Lead (36)

979 CV Pier #9 (16)

978 CV Pier #8 (16)              EN#8      980 CV 8-9 Lead (17)        EN#9

976 CV Pier #6 (14)                                                 EN#6

974 CV Pier #4 (16)                        EN#3      EN#4                              987 CV #3 Lead (6)

973 CV Pier #3 (20)              EN#2              EN#56  EN#55      981 Bypass (7)     EN#58

972 CV Pier #2 (12)                                   EN#57

                                           EN#10      985 Team (8)

971 CV Pier #1 (12)                       EN#11

<-South to NH RR

942 E House #4 (3)

943 946 TT Leads

EN#30

945 United Builders (4)

944 E House Lead

940 1-F&F Distributers (5)

940 2-Thames Lumber (5)

947 MOW (5)                               EN#29

948 RIP Track(4)  EN#25      EN#24      EN#31      949 Engine Siding (28)      EN#33      938 Slosberg Lumber

                                              EN#46      EN#47

EN#48                    EN#49           EN#28

965 Yard Lead (45)        EN#22    EN#23                EN#34      EN#51      EN#50

970 CV Pier #1 Lead (36)

963 Yard #34 Lead (27)

961 Yard #34 (27)                                                                 990 Thames Shipyard (10)

960 Yard #1A (27)              EN#1A      EN#2A      966 Vans (6)

962 Yard #2 (27)                                                EN#40

964 Yard #3 (17)

950 State Pier #1 (16)      951 State Pier #1 Lead (28)

954 State Pier #2 (13)      956 State Pier #2 Lead (30)  EN#41

955 State Pier #3 (11)      957 State Pier #3 Lead (34) EN#42

952 Yard #35 (17)

953 Yard #36 (17)                                    EN#45

Central Vermont RR Pier


Yard & Leads


Connecticut State Pier

# East New London

JMRI
Operations

Define locations, spurs, yards, staging

Define routes, trains

Add cars

Build trains: Cars will move

Least restrictive, greatest car movement
--Randomly

# JMRI: Power Tools

Control/constrain car movement

Tracks and Trains can limit by

-- Car type

-- Car load

Most powerful car routing tool:

-- Schedules!

# The Newsboy Challenge

Example: Newsboy/Rocket handles a solid block of cars of newsprint from Montreal to NHRR New London and return

-How to get a block through the yards without diverting it

-From north staging to south staging and back

-Yet allow the trains to drop/add non-newsprint cars

Tip: Build a small test RR in JMRI to see how scenarios would work
--Staging
--Towns
--Yards
Play with it

JMRI: Tip

Locations

Tools  Operations  Window  Help

| ID | Name | Track | Length | Used | |
|----|------|-------|--------|------|---|
| 8 | Centerville | Yards | 2000 | 44 | |
| 1 | North Stg | Staging | 1600 | 176 | |
| 6 | South Stg | Staging | 1600 | 0 | |
| 3 | Town1 | Spurs | 600 | 132 | |
| 7 | Town2 | Spurs Yards | 900 | 44 | |

# JMRI: Newsboy-How We Did It

Solution:
- Group cars as a "kernel", "np1" and "np2" with about 6 cars each
- Special load "Newsprint"
- Restrict "Newsprint" from all spurs/yards/staging except origin/destination and intermediary stop
- Put kernels on trains and run

# Industries

We have extensive research on industries on the CV
~~ 100 industries, CV RR pier and CT state pier in ENL
Want to be as accurate as possible (debate continues)
Examples:
-- Conn Power in Montville accepts empty hoppers, ships ash
-- CH Moore in Stafford is a coal & lumber retailer

JMRI schedules
-- Apply to a spur
-- Specify car type, frequency, dow in/out, incoming car load, shipped car load, destination, dwell

Conn Power: "ash"

# Solution: Schedules

| | Ash | | | | | | | ash out | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Type | Random | Delivery | Road | Receive | Ship | Destination | Track | Pickup | Hits | Wait |
| HM | | | | E | L(ash) | Norwich | 919 NHRR Junction | | 3 | 0 |

# CH Moore: "CoalBldg"

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Comment | | | | | Mode |
| | CoalBldg | | | | | | | | | |
| Type | Random | Delivery | Road | Receive | Ship | Destination | Track | Pickup | Hits | Wait |
| XM4 | | | | Stuff | Empty | Chicago | | | 3 | 0 |
| HM | | | | Coal | Empty | NHRR New London | | | 0 | 0 |
| GB | | | | Stuff | Empty | NHRR New London | | | 0 | 0 |

The CV Pier is a central point for LCL shipments
- Track 4 receive LCL in
- Track 3 ship LCL out
Schedules CVPierIn, CVPierOut

LCL

LCL comes into 4 CVPierIn

When empty, they go to 3 to be loaded

CVPierIn

Comment: LCL load in

Mode

| Type | Random | Delivery | Road | Receive | Ship | Destination | Track | Pickup | Hits | Wait |
|------|--------|----------|------|---------|------|-------------|-------|--------|------|------|
| XM4 | | | | LCL | LCL | ENL CV Pier | CV Pier3 | | 30 | 0 |
| XME | | | | LCL | LCL | ENL CV Pier | CV Pier3 | | 0 | 0 |
| XME5 | | | | LCL | LCL | ENL CV Pier | CV Pier3 | | 0 | 0 |

CVPierOut

| Type | Random | Delivery | Road | Receive | Ship | Destination | Track | |
|------|--------|----------|------|---------|------|-------------|-------|---|
| XM | | | | E | L(LCL) | Montville | 924 House | |
| XM | | | | E | L(LCL) | Norwich | 905 House | |
| XME | | | | E | L(LCL) | Willimantic | 847 Freight Shed | |
| XM | | | | E | L(LCL) | NH New London | | |
| XME | | | | E | L(LCL) | Brattleboro | | |
| XME | | | | E | L(LCL) | NH New London | | |
| XME | | | | E | L(LCL) | S Coventry | 846 Freight Shed | |
| XM | | | | E | L(LCL) | Stafford Springs | 824 Freight Shed | |
| XM | | | | E | L(LCL) | Palmer | 782 B&A Inter 3 | |
| XME | | | | E | L(LCL) | Brattleboro | | |
| XM | | | | E | L(LCL) | Palmer | 770 Freight House | |
| XME | | | | E | L(LCL) | Palmer | 780 B&A Inter 1 | |
| XM | | | | E | L(LCL) | Willimantic | 847 Freight Shed | |
| XM | | | | E | L(LCL) | Palmer | 781 B&A Inter 2 | |
| XM | | | | E | L(LCL) | Brattleboro | | |
| XM | | | | E | L(LCL) | Brattleboro | | |
| XM | | | | E | L(LCL) | NH New London | | |
| XM | | | | E | L(LCL) | Palmer | 770 Freight House | |
| XME | | | | E | L(LCL) | NH New London | | |
| XME | | | | E | L(LCL) | Palmer | 780 B&A Inter 1 | |
| XME | | | | E | L(LCL) | Palmer | 782 B&A Inter 3 | |
| XME | | | | E | L(LCL) | Palmer | 782 B&A Inter 3 | |
| XME | | | | E | L(LCL) | NH New London | | |
| XME | | | | E | L(LCL) | Brattleboro | | |
| XM | | | | E | L(LCL) | Palmer | 782 B&A Inter 3 | |
| XM | | | | E | L(LCL) | NH New London | | |
| XM | | | | E | L(LCL) | Brattleboro | | |

Loaded LCL cars are sent across the RR

# And sent back

FreightHouse3

| Type | Random | Delivery | Road | Receive | Ship | Destination | Track |
|---|---|---|---|---|---|---|---|
| XM | | | | L(LCL) | L(LCL) | ENL South | 974 CV Pier4 |
| XA | | | | | | | |
| XME | | | | L(LCL) | L(LCL) | ENL South | 974 CV Pier4 |
| FM | | | | | | | |
| GB | | | | | | | |
| TM | | | | | | | |
| XI | | | | | | | |

Every spur gets a schedule

Schedules

| Name |
| --- |
| all2 |
| all3 |
| Ash |
| box0 |
| box2 |
| BoxesE-Cardbd |
| Builder |
| CementMix |
| ChemIn |
| ChemInOut |
| Coal |
| CoalBldg |
| CoalGrain |
| CV1 |
| CVPierIn |
| CVPierOut |

| |
| --- |
| FarmDist |
| FlourLoad |
| Food |
| FreightHouse |
| FreightHouse3 |
| GrainIn |
| Inter |
| KraftIn |
| Lumber |
| OilGas |
| OilGas0 |
| PhonePoles |
| Reef |
| RoadDept |
| ScrapYard |
| SteelYard |

# Special Loads

Ash
Cardboard
Cement
Coal
Empty
Feed
Flour
Grain
Gravel
Hides
Kraft
LCL
MTY
Newsprint
Poles
Propane
Salt
Scrap
Stuff

Central Vermont Railway

# Real trains

| | |
|---|---|
| 1st Montville | Local Turn 3 towns |
| 2nd Montville | Local Turn 3 towns |
| NH NM-4 | NH "Rocket" |
| NH MN-1 | NH "Newsboy" |
| No. 429 | "Rocket" N |
| No. 430 | "Newsboy" S |
| No. 490 | "Dairy" S |
| No. 491 | Through freight N |
| No. 738 | Wayfreight TTS S |
| No. 740 | Wayfreight TTS S |
| No. 739 | Wayfreight MWF N |
| No. 741 | Wayfreight MWF N |

# Made up trains

| | |
|---|---|
| Broom | Afternoon transfer to NH |
| Goose | Morning transfer from NH |
| Northside Job a.m. | Morning work north industries |
| Northside Job p.m. | Afternoon work north industries |
| Southside Job a.m. | Morning work CV pier and south |
| Southside Job p.m. | Afternoon work CV pier and south |
| No 1 | Timetable passenger 1st class |
| No 2 | Timetable passenger 1st class. |
| No 3 | Timetable passenger 1st class. |
| No 4 | Timetable passenger 1st class. |

# Routes

Route tips
-- Control max train length within routes
-- Control workload within routes

Wayfreight Palmer-ENL

| Location | Train Direction | Moves | Random | Pick ups? | Set outs? | Wait | Max Length |
|----------|-----------------|-------|--------|-----------|-----------|------|------------|
| Palmer | South | 15 | Off | yes | no | 0 | 650 |
| Monson | South | 4 | Off | yes | yes | 0 | 650 |
| State Line | South | 0 | Off | yes | yes | 0 | 650 |
| Stafford | South | 10 | Off | yes | yes | 0 | 650 |
| W Willington | South | 6 | Off | yes | yes | 0 | 650 |
| Mansfield | South | 6 | Off | yes | yes | 0 | 650 |
| S Coventry | South | 8 | Off | yes | yes | 0 | 650 |
| Willimantic | South | 30 | Off | yes | yes | 0 | 650 |
| Lebanon | South | 6 | Off | yes | yes | 0 | 650 |
| Yantic | South | 0 | Off | no | no | 0 | 650 |
| Norwich | South | 0 | Off | no | no | 0 | 650 |
| Montville | South | 0 | Off | no | no | 0 | 650 |
| East New London | South | 15 | Off | no | yes | 0 | 650 |

# Trains

Train tips

-- Backup frequently (Settings)

-- Do trial builds, if don't like, restore, adjust, backup, and try again

-- Keep a diary of what you did and when you backed up

-- Build 2-3-4 complete sessions, and check if the cars end up where you want

# Trains

Train Notes:
-- A *build* doesn't move cars
-- A *move* or *terminate* moves cars
-- Pay attention to the order in which you build trains

Yesterday's Drops are Today's Picks
-- A good rule to follow
-- Late trains within an op session are the norm: cars may not arrive

# Train tools

Tools:
- operations/buildstatus reports tell what happened and why a build did what it did (or not)

- Turn on logging! You will get a record of every train built and every car moved during a session (after *terminates*). Great for after-session forensics.

# CV Builds

My build sequence:
- Build all trains except 429, Broom, 2nd Montville, Northside/Southside afternoon jobs
- Terminate Goose, Northside/Southside morning jobs so cars become available
- Build 429, 2nd Montville, Northside/Southside afternoon jobs, Broom
- Terminate all

Car management

Print cars
-- By number
-- By location
Reconcile JMRI with what's on the railroad
-- We 0-5-0 cars into their proper place
--- after we've finished jobs that didn't complete during the op session

Don't let errors propagate; operators get frustrated

# Paperwork

JMRI provides "manifests" in print, .txt. And .csv formats

Some people like, some don't

Non-JMRI switchlist creators and associated paper generators are available free from Dan Foltz

We've created a custom paper flow based on the .csv files merged to Excel sheets

# Summary

JMRI is a great free tool for car movement and train management

It's simple to use when starting

It's a powerful tool for creating prototypical car movement

Thank you to Dan Boudreau and the other JMRI developers!

# Car Movement on the CV with JMRI Operations

# Questions?

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