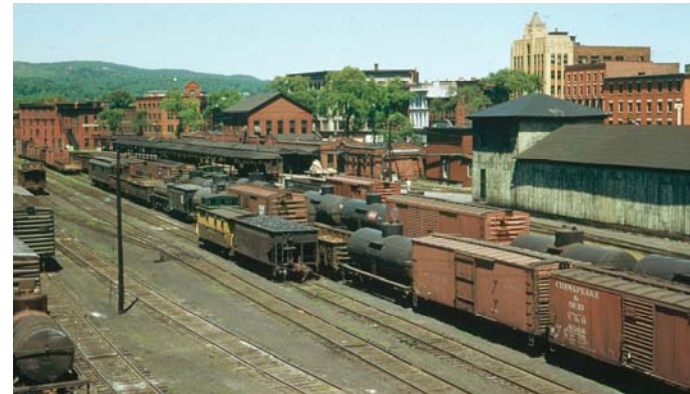


MODELING CANADIAN FREIGHT IN A U.S. SETTING: DATA AND IMPLEMENTATION

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Data Sources

Location Specific Data

- Waybill/Freight Bill Collections
- Passing Reports
- Switchlist Collections

National Data

- ICC Freight Commodity and 1% Waybill Statistics
- Army Corps of Engineers Waterborne Commerce
- Bureau of Mines Mineral Yearbooks
- U.S. Census Bureau Census of Industries



Location Specific Car Counts

Canadian reporting marks make up between 1 in 16 and 1 in 160 of all freight cars as observed in location specific tallies.

Canadian reporting marks make up between 1 in 22 and 1 in 86 of all freely interchanging box cars as observed in location specific studies.

Clearly, the frequency of Canadian reporting marks depends in part on the local setting.

Location	Year(s)	Records	1/n (All)	1/n (XM)
Newberry Jct Pa	1956	1098	137	69
Toledo O	1960-61	668	25	22
A&W Wis	1962	326	16	42
NKP Ind	1948-50	298	50	36
Dallas Center Ia	1953-55	359	72	64
Watertown Minn	1954	579	116	86
UP Laramie Wyo	1951	2390	114	64
M&STL Minn	1952-53	4192	44	32

General Observations

- Overall, CN and CP were equally represented and made up the majority of Canadian reporting marks observed in the U.S.; AC, CASO, ONT, PGE, and THB also observed.
- About half of the Canadian reporting marks were on Canada-U.S. routes; the other half were on U.S.-U.S. routes.
- About 75% of traffic originating in Canada was in cars with Canadian reporting marks.
- Box cars and flat cars were in the majority; refrigerator cars, gondolas, and covered hoppers also observed.
- Major commodities from Canada were lumber and newsprint.

My Modeling Goals

- I'm modeling the Milwaukee Harbor area in Sept/Oct of 1957
 - Setting emphasizes the rail/maritime interface
 - A railroad car ferry is a focal point
 - Operational scheme is based on intrastation staging, interyard transfer runs, and local switching
- I view the layout as a setting for modeling freight commodity flows
 - I enjoy using data-driven and analytical methodologies
 - I find the information on the waybills I use interesting to develop and watch play out during operations

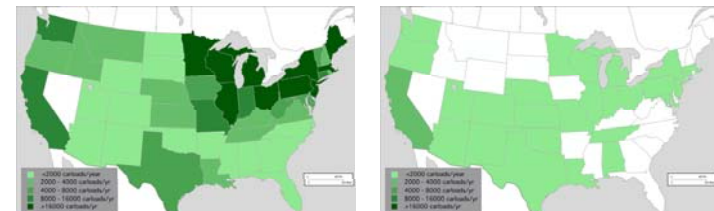


Problem Statement

In the absence of location-specific tallies, is it possible to start from national statistics, identify controlling factors through analytical methods, and develop a Canadian freight traffic profile that is in comity with the layout setting?



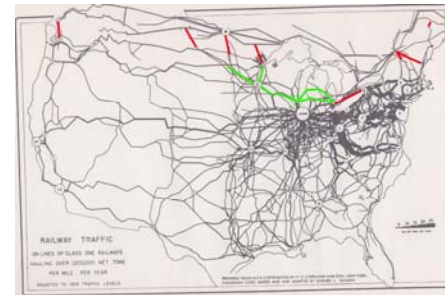
Factor 1: Layout Location



Factor 2: Layout Commodity Mix

CC	ratio	CC	<CL/yr>
Berries fresh not frozen	6	Newsprint paper	109,267
Newsprint paper	3	Lumber shingle lath	70,233
Sea food NOS	2	Pulpwood	53,067
Rope cordage and binder twine NOS	0.47	Woodpulp	30,000
Woodpulp	0.38	Products of Mines NOS	23,200
Tomatoes	0.24	Fertilizers NOS	17,000
Metals and alloys NOS	0.22	Mill products NOS	9,733
Aluminum bar ingot pig slab	0.16	Agricultural implements NOS	8,000
Automobiles autotrucks KD	0.13	Ores and concentrates NOS	5,767
Agricultural implements NOS	0.10	Oats	5,733

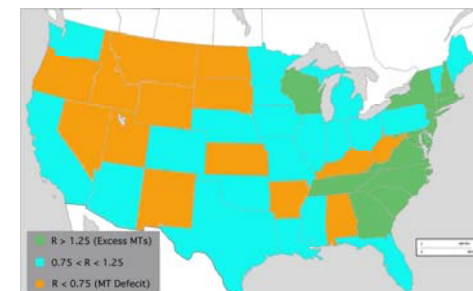
Factor 3: Layout Routes



Freight Commodity Statistics - Newsprint

Carrier	Tons Originated		Tons Received		Tons
	Terminating	Connecting	Terminating	Connecting	Total
DH	0	2,277	25,519	671,422	699,218
BM	0	1,042	169,150	501,453	671,645
GTW	125	351	86,382	347,311	434,169
MEC	10,491	114,363	7,858	326,289	459,001
DWP	0	0	6,053	309,645	315,698
SOO	132	949	62,758	309,161	373,000
CV	0	0	3,584	231,483	235,067
NYC	4,684	7,315	586,426	216,361	814,786
NH	182	314	281,255	213,325	495,076
CNJ	45	0	75,518	197,970	273,533

Factor 4: Availability of Empties



Typical Car – 1937 AAR Boxcar

- CN 474000 – 477849 (3728 cars in 1957)
- CP 226000 – 228799 (2649 cars in 1957)
- Various manufacturers, doors, ends, and appliances
- True Line Trains has made a variety of these cars in HO



Typical Car – Postwar AAR Box Car

- CN 522500 – 528199 (5571 cars in 1957)
- CP 252500 – 528199 (14771 cars in 1957)
- Various manufacturers, doors, ends, and appliances
- Accurail, Intermountain, and Branchline (now Atlas) made these cars in HO



Typical Car – PS-1 Box Car

- CP 268800 – 269999 (1186 cars in 1957)
- Various doors and appliances
- Intermountain and Kadee make these cars in HO



Typical Car – 52' 6" Gondola

- CN
- CP
- Drop ends
- Lever handbrakes
- Z- shaped side posts
- Rapido made this car in HO



Other Possibilities Available and Interesting

- CP "Minibox" (True Line Trains)
- CN 1924 ARA Boxcar (F&C)
- CN 36' Fowler Boxcar (Westerfield)
- CN & CP "Slab Side" Covered Hoppers (True Line Trains, F&C)
- CN Long Gondola (Westerfield)
- CN & CP RAMH Heated Refrigerator Car (True Line Trains)

