

Chngs in Rail Sw. Costs

History and Cost of Expansion of the Switching Area of Railroads Milwaukee County

History

There is little evidence available on switching area expansion to keep pace with urban sprawl.

Milwaukee Road (Mr. Wallace Lateman)

Switching area constant for last 10 to 15 years except
1953 Extended switching area by 4 miles for industry which located after 1953 but industry which was located within 4 mile area previously continues to pay line-haul rate to the next further station beyond switching area.

1961 Extended area north to above Mill Rd. for one industry (company).

1963 There is some talk now of the unions allowing the company to move the switching zone without restriction. There is some evidence that the unions have been holding up the expansion of the zone.

Chicago and North Western (Mr. Rinsko Retiree)

Constant for the last 10 years except
1960 Expanded western boundary
to 132nd St (Waukesha County) from 108th St
(highway 100)

General

There seems to be pressure and desire to extend the switching zone north and west because of expansion but little pressure for southern expansion.

Area Covered

See maps from Milwaukee Road and map
it filled in.

(2)

Cost of Expansion to Shippers

Milwaukee Road (Engineering Dept.)

If a firm were ~~to~~ relocate its operations from a central city area to the outer edge of the switching zone, there would be no increase in the charges for switching.

The only ~~the~~ cost increase to the firm would be the initial cost and maintenance of the track after the turnout from the main rails. For the Milwaukee road this runs \$10.50/foot

If a firm were to relocate beyond the switching zone then it would have to pay a line-haul charge to the next station away from Milwaukee. This charge depends on the type of product shipped and the next station. I could get this information for a specific product + station if you want it. The books of rates are quite thick and generalizations are difficult to make meaningfully.

(3)

Cost of Expansion to Railroad Milwaukee Road and I.C.C. Sources

Capital Costs

Engines

As area expands more engines are needed to handle the area since greater time per pickup or delivery is involved. Mr. Jim Shea Milwaukee Division Superintendent for the Milwaukee Road stated that he feels that there has been only slight movement to the outskirts of the city of those industries which use train facilities a great deal.

To support this he stated that $\frac{1}{2}$ of the 1946 engines were used in outlying areas ($\frac{1}{2}$ of 100), now, 1963 the same portion ($\frac{1}{2}$) are used in outlying areas ($\frac{1}{2}$ of 75). The decline in total engines from 100 in 1946 to 75 in 1963 is due to increased production and decrease in traffic.

Track

As traffic increases in outlying areas additional and heavier track may be needed. This would increase costs

Turnoff switch and track to a clearance of 15 ft. is usually payed for by the

railroad (average cost about \$5,000 - Engineering Dept)
mil. Road.
This cost may be paid for by the company locating there if the railroad feels that it will not get enough business to have the additional expense pay.

There are two factors which effect this "Break Even Point", that is, the number of loadings per month which would make a siding pay for itself.

✓ One is the number of cars per operation and the other is the distance of the siding from the yard. See table 30 Page 155 in "The Economics of Competition in the Transportation Industries" John R. Meyer, Beck, Stenson, + Zwick Harvard Economic Studies, Harv. Univ. Press Cambridge, Mass - 1959. Other factors which effect costs which were assumed constant were shipping weight and distance of haul and annual cost/mile of track.

Mr. Shea stated that there is little or no extra expenses for an engine to pick up 20 cars than to pick up one car from the same siding. Great many sidings now used don't pay.

Others

There may be other incidentals such as increased signal needs which would also increase but this depends on each case.

(4)

Cost to Railroad (Cont.)

Capital Costs

Those which wouldn't increase much or at all
Since travel time within switching zone is very small proportion of total time each car is used ~~it would~~ the increase in the switching zone would not be expected to increase the cost of capital invested in box cars by very much.

A great proportion of the time of the car is spent in loading and unloading the car. This is covered by a demurrage charge of \$4.00 per day for over 48 hours after the car is placed on the siding and \$8.00/day after 6 days on the siding. I.C.C. rules 300 I.C.C.

577, 579, 587-88 (1957). See table on page 266 of ~~the~~ "Railroad Transportation + Public Policy" by James C. Nelson (from Schenker) for breakdown of time of freight car.

Cost to Railroad (Cont.)

Terminal Costs (Variable)

There is a general opinion that terminal costs and switching costs in particular are increasing to rapidly and are too high. Part of this has been blamed on wage increases (Railway Age Oct 3, 1960 ^{\$38} #3 on list attached) and efficiency is not increasing with it. Terminal costs are \$40 to \$80 per carload (boxcars) and $\frac{1}{2}$ of this cost is from switching of which labor is one of the most important factors.

Railway Age June 1, 1959 \$38 gave terminal costs as \$64.38 per average gondola car with 47.5 tons load. Line-haul cost was 33 cents per mile or terminal cost equivalent to line-haul of 195 miles. At 50 mile line-haul there was no lessening in terminal costs and road would just break ~~even~~ even. Trucks have a great advantage in short hauls of light weight. It takes "a good long haul" to make up the excess terminal costs of rail transportation.

Switching costs ~~are~~ area expands

"Explanation of Rail Cost Findings Procedures ---"
by I.C.C. (supplied by Hultgren) of 130 table 26
states Engine-minutes per Car by size of city

Population 1940 Census	switching between road train + industry min. per loaded car one way	Intraterminal switching per car (loaded + empty)
0-5,000	5.95	4.00
5,001-25,000	14.63	21.08
25,001-100,000	19.65	36.91
100,001-500,000	22.14	41.04
over 500,000	27.14	49.11
All pop. groups	20.76	36.17

"The above figures indicate that the switching costs bear some substantial relation to the size of the city or town."

The cost per ~~car~~ engine minute as
calculated by data from I.C.C. for all cities
1960 Western zone is $\frac{\text{average cost/car } \$14.87}{\text{average minutes/car } 23.6 \text{ min}}$

= \$0.63 per engine min for all sizes of cities

Source: P 11 I.C.C. "Rail Carload Cost Scales by
Territories for the year 1960" Prepared by the Cost Finding
Section Statement NO. 3-61 Washington D.C. Dec. 1961

6

Mr. Shea stated the cost of an engine and crew in Milwaukee as \$150/hr or \$2.50/min^{engine}. This variance may be explained by the size of the city.

Pop.	COST OF SWITCHING by CITY SIZE			
	Switching between road train + Industry		Intraterminal switching per car loaded + empty	
	ICC average	MILWAUKEE ROAD	ICC average	MILWAUKEE ROAD
0-5,000	\$ 3.75	\$ 14.88	\$ 2.52	\$ 10.00
5,001 to 25,000	\$ 9.22	36.56	\$ 13.28	52.70
25,001 to 100,000	12.38	49.12	19.47	77.28
100,001 to 500,000	13.95	55.35	25.86	102.60
over 500,000	17.10	67.85	30.94	122.75
all pop. groups	13.09	51.90	22.79	90.42

↑ This is cost of switching by size of city in terms of cost per car one way.

The average cost/car as given in 1960 ICC Study is \$14.87. Thus, even with the low cost/engine minute the larger area cost more to switch each car than the average.

(7)

Rates charged for switching

Milwaukee Road

Switching rates when this is terminal of long-haul operation is part of total long-haul charge.

Rates within switching zone (see attached ^{book} ~~book~~)
 $5\frac{3}{4}$ ¢/100 lbs 60,000 min or \$34.50/car one way

Chicago & North Western Road

Rates within switching zone
 $4\frac{3}{4}$ ¢/100 lbs 60,000 min or \$28.50/car one way

It seems that the Milwaukee Road loses about \$35.00 per car on ~~intraterminal~~ intraterminal switching

This is not possible since I.C.C. will not allow Railroad to charge below out of pocket ~~other~~ costs for service.

The I. C. C. has calculated the 1957
terminal costs for Eastern R.R. as
\$64.38 for an average gondola car w. th
a 47.5 ton load. The line-haul cost
was 33 cents per mile

For detail see

Railway Age

June 1, 1957

P. 38 Eic

Should be in L. Brary

THE UNIVERSITY OF WISCONSIN

Mcnamara
12/10/57
To _____

Date _____ Time _____

WHILE YOU WERE OUT

Mr. _____

of _____

Phone _____

TELEPHONED	☐	PLEASE CALL HIM	☐
CALLED TO SEE YOU	☐	WILL CALL AGAIN	☐
WANTED TO SEE YOU	☐	RUSH	☐

Message _____

PARTY RECEIVING CALL

$$\begin{array}{r} 60,000 \\ .0675 \\ \hline 3600.00 \end{array}$$

Rates C+NW RY

ind to ind Dec 1960
 $4\frac{3}{4}$ ¢ west limit 60,000 min = 28.50
 East Lake - 132th st. (just changed)

North Mill Rd

Layton are south

since 1960

(expanded)

from 108th to 132nd

John Meyer
(ed)

P152 The Economics of Competition in the Transportation Industries
Costs of switching are much greater if industry is far away from sorting yard and traffic is light. In such a case piggyback is cheaper to deliver if under 40,000 lbs/truck

P154 Takes as typical for industrial land \$10,000/acre
MC of switching taken as \$17.83/hr. or \$1.78/mile

P155 No. of car origins to make private siding pay
says that a great deal of uneconomic siding is now in use

NW + Mil

$5\frac{3}{4} \times \$60,000 = \34.50 ind to ind.

$7\frac{3}{4} \times \$65,000 = 50.38$ term to ind

$7\frac{3}{4} \times \$60,000 = 46.50$ in Mil to NW road

$4\frac{1}{4}$ state $\neq$

$4\frac{1}{2}$ interstate $\neq$

Wallace or Mac

Wallace
CMSP

Sources of Info on Switching Zones & Costs

In "Railroad Transportation and Public Policy"

John W. Barriger "Super-Railroads for a Dynamic American Economy" (1956) pp 36-37

Railway Age (Mar 11, 1957) pp 54+72

" " (June 5, 1957) by J. Edward Jay

See Table p 266 of "Railroad Transportation" --- " for time breakdown averages.

Railway Age (June 23, 1958) p 34-35+38 ✓
(Mar 3, 1958) p 42-43
(June 9, 1958) p 9-10

Demurrage Charges if ~~car~~ retained by shipper or receiver over 48 hrs. Charge \$4/day for next 4 days then \$8/day Sat, Sun, & Holidays not counted. 300 I.C.C. 577, 579, 587-88 (1957)

from Traffic World Indexes

1962 July 28-p. 76, Sept 29-p. 86 Oct 20-p. 122, Dec 15-p. 71

1961 July 1-p. 14 Sept 30-p. 93

1960 Dec 3-p. 53, July 2 pp 14, 74, 89, Aug 6, pp 15, 84, Aug 20 p. 93
Sept 10-p. 152, Sept 24-p. 102, Dec 10-p. 171, June 25-p. 30

Mil. Road Engineering Dept.

Expense to road
put in turnout
installation of track

10.50/ft or
15,000 turnout

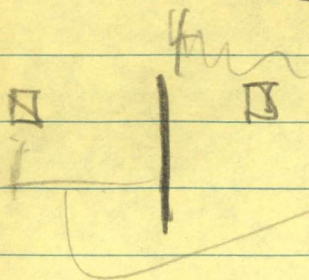
Operating expenses
Supt at Muskego Yard

Switching costs

Will get Cost per switching area

Operating Cost - Locomotive
minutes required

Return on investment of Box Cars
(wouldn't vary much)



rate from Mil to next station
beyond depends on
product +
next station

Railway Age June 1, 1959 D38 Vol 146, No. 22

Get those Terminal Costs Down

Wage increases 1938-1958

road freight enginemen + trainmen Up 177%

Revenue (ton-miles) ~~rose~~ Up 89%

Yard men + Switch men Up 304%

Cost too much to ship 1 or 2 at a time to origin + destination

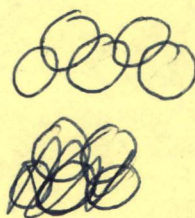
Terminal cost equal to cost of hauling 195 miles on line

Truck picks up 15 to 20 tons with one man

Railroad picks up 30 to 40 tons with 5 men

It takes "a good long haul" to ^{make up} cover the excess terminal costs

Railway Age



1. 24 Hours Faster to California

Railway Age June 23, 1958 P 34-35, 38

Chicago to Cal. in 5 instead of 6 or 7 days

Minimized switching en route

2. R.R. Warned: Improve Service Now

Railway Age June 9, 1958 P 9-10 Vol 144 No 23

1947 to 1957 compared gross ton miles GTM

GTM/employee & decreased 26%

GTM/employee hour increased 42.6%

AR/ton mile up 34%

3. High Switching Costs Reduce Jobs

(July 4th issue)

Railway Age Oct 3, 1960 P 38 Vol 149 No 14

Terminal costs range between \$40 + \$80/carload (boxcars)

50% of terminal costs are from switching & labor is important factor

	Avg Earnings/hour		% Change
	1939	1959	
Yard men	91.5	279.4	+ 205
Passenger men	99.4	281.3	+ 183
Freightmen	89.7	256.4	+ 186
	Car Miles/hour worked		
Y	127.6	128.6	+ 1
P	26.3	29.4	+ 12
F	80.1	109.8	+ 37

	Bar-Mile/\$ of wages		
	1939	1959	% change
Y	139.4	46.1	-67
P	26.5	10.5	-61
F	89.4	42.8	-52

Aug 15

4. Terminal Costs Rising Too Fast

July 4, 1960 P 38 Vol 149 No. 1
from 1950 to 1958

Terminal costs increased 9%/yr.

Line ball costs " 4%/yr.

5. Switching Costs Too Much

Aug 15, 1960

Vol 149 No. 7

Compared two crews

one twice as efficient as the other

1.C.C. "Explanation of Rail Cost Finding Procedures and Principles Relating to the Use of Costs"

Prepared by the Cost Finding Section Statement No 4-54
Washington, D.C. Nov. 1954

P 63 Table 13 extract

(3) Adjusted freight service yard transportation expenses
related to number of equated cars handled (excludes engine house)

	overall average unit cost		Index of 46 1939=100	unit cost of handling total ^{incremental traffic} expenses	
	1939	1946		Unit Costs	Index 1946=100 average over increment ⁺¹⁰⁰
U.S.	\$ 3.529	\$ 3.789	107	\$ 4.366	115
East	3.600	3.982	111	5.002	126
South	2.992	2.983	100	2.966	99
West	3.751	4.033	108	4.611	114

See table 22 P 124 for no of minutes for switching
See table 26 P 130 for minutes / car by city size

Account

Sept.

Milwa Road

Sept

J. M. P. ^{Sheo} ~~John~~

214

Mil Road

\$150/day

Engines

1946 - 100

1963 - 75

Sept.

N. W. M. I. Long

M. R.

Eng Office

Bruce Daniel

Maps

20 ^{day} downtown
half outlying
half there too

14 \$1.00

fire charges

makes 24 \$1.00

profit

~~Matthews~~

~~190 A. Jefferson~~

161 3/4 W. is

{ Rinsko
Singer