

YOU THOUGHT PROTOTYPE RESEARCH MIGHT BE FUN?

By Paul Hobbs



SCOPE OF CLINIC

- **You have a favorite railroad**
- There are numerous sources of information
- Some of it is in published materials
- Some of it is in reports to various agencies
- Some of it is in corporate records
- Some of it is along the original right-of-way
- We will discuss these resources and their potential value to your research project.

ERAS IN RESEARCH

- If you are researching TODAY, take a camera and look at the operating railroad.
- Recent history is well recorded in Annuals and videos.
- Earlier times in slides, black and white images plus archived records and published reports.



Published Materials

- Official Railway Equipment Registers
- Official Guide of the Railways
- Interstate Commerce Commission Reports
- Corporate Annual Reports
- Public timetables and brochures
- Newspapers

Published Materials

Official Railway Equipment Register

Published quarterly by United Business Media

Published since 1885 you can find the equipment in service at selected date(s).

Corporate officers and basic details

Roster of Freight Cars

Often contained passenger and outfit rosters until the 1930s

SPOKANE, PORTLAND & SEATTLE RAILWAY CO. OREGON TRUNK RY.; OREGON ELECTRIC RY. CO.; UNITED RYS. CO.

GENERAL OFFICERS.
W. F. TURNER, President, Portland, Ore. J. H. COOKER, Gen. Pass. Agent, Portland, Ore. J. E. MANN, Treasurer, Portland, Ore.
W. H. MANN, Sec. & Asst. to Pres., Portland, Ore. R. W. PIERCE, Gen. Frt. Agent, Portland, Ore. AL. HARRIS, Supt. Dining Cars, Portland, Ore.
R. H. COOKER, Comptroller, Portland, Ore. J. THOMAS, Supt. of Motive Power, Portland, Ore. W. C. SMITH, General Tax Agent, Portland, Ore.
A. J. DAVIDSON, Gen. Manager, Portland, Ore. D. L. SNEY, Supt. Car Shop & Tools, Portland, Ore. W. H. SHERMAN, Gen. Claim Agent, Portland, Ore.
E. D. KAPLAN, Asst. to Gen. Manager, Portland, Ore. G. E. WILLIAMS, Purchasing Agent, Portland, Ore. C. J. DARRIN, Right of Way Agent, Portland, Ore.
CLAYTON HART, SPENCER & McCULLOUGH, General Counsel, Portland, Ore. A. J. FRYER, Chief Engineer, Portland, Ore. O. E. VORAW, Div. Supt., Portland, Ore.
C. W. FRYER, Supt. Maint. of Way, Portland, Ore.

GENERAL OFFICES, CHAMBER OF COMMERCE BLDG., PORTLAND, ORE. SPOKANE, PORTLAND & SEATTLE RAILWAY CO. OREGON TRUNK RAILWAY.

Miles of road operated, S. P. & S., 506; O. T., 121. Gauge, 4 ft. 8 1/2 in. Locomotives, S. P. & S., 8; O. T., 2. Railway Express Agency, Inc., operates over this line. Pullman Sleeping Car Co., operates over this line. Limit of load allowed to pass over this line is carrying capacity as stenciled on cars, except over Goldendale Branch between Lyle, Wash. and Goldendale, Wash., limit is 100,000 lbs., and solid loads in box cars or on open cars must not exceed height of 15 feet from top of rail.

FREIGHT EQUIPMENT.

Reporting Marks—S. P. & S. and —O. T.—

The freight cars of this Company are marked "S. P. & S." and "O. T. Ry." and numbered and classified as follows:

M. C. R. Designation.	MARKINGS AND KIND OF CARS.	NUMBERS.	DIMENSIONS.														CAPACITY.	Number of Cars.				
			INSIDE.			OUTSIDE.																
			Length	Width	Height	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.	At base or top of frame.			At base or top of frame.	At base or top of frame.		
			ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	ft.	in.	Pounds or Gallons.	
WVS	Box	1000 to 1137	38	4	8	6	3	40	9	9	9	9	9	9	9	9	9	9	9	9	8000	30
IN	Box	3000 to 3269	40	8	7	7	10	40	10	10	10	10	10	10	10	10	10	10	10	10	3000	175
IN	Box	10000 to 10399	40	8	7	7	10	40	10	10	10	10	10	10	10	10	10	10	10	10	3000	300
FE	Flat	31023 to 31094	40	8	6	9	41	8	4	3	9	10	9	10	9	10	9	10	9	10	8000	20
FE	Flat	31151 to 31188	41	8	6	9	41	8	6	9	41	8	6	9	41	8	6	9	41	8	8000	20
FE	Flat	31300 to 31315	40	8	6	9	41	8	6	9	41	8	6	9	41	8	6	9	41	8	8000	15
FE	Flat	31500 to 31539	40	8	6	9	41	8	6	9	41	8	6	9	41	8	6	9	41	8	8000	20
FE	Flat	32000 to 32009	40	8	6	9	41	8	6	9	41	8	6	9	41	8	6	9	41	8	8000	20
FE	Flat	32005 to 32008	41	8	6	9	41	8	6	9	41	8	6	9	41	8	6	9	41	8	8000	20
FE	Flat	33100	38	4	8	5	7	8	38	4	8	5	7	8	38	4	8	5	7	8	8000	1
FE	Flat	33200 to 33209	38	4	8	5	7	8	38	4	8	5	7	8	38	4	8	5	7	8	8000	1
FE	Flat	33205	38	4	8	5	7	8	38	4	8	5	7	8	38	4	8	5	7	8	8000	1
	Total																					605

MISCELLANEOUS.

K. C. R. Designation.	KIND.	SERIES OF NUMBERS.	SEATING CAPACITY.	LENGTH OF CAR.	No.	S. P. & S. Steam Wrecker—Xa.	S. P. & S. Claim Shell Outfit—X88
MD	Baggage & Mail.	35 to 44	70 ft.	11	1	X10	X88
CA	Baggage & Pass.	51, 52	50 ft.	2	2	Tool & Blasting—X4	Oil Spraying Outfit—X89
CS	Bagg. & Expre.	57, 58	50 ft.	2	3	X6 to X9, X10, X11, X12	Locomotive Crane—X88, X89
FE	Smokers	100 to 179	70 ft.	10	4	Lidgerwood Unloader—X1, X2	At Dump Cars—X90
FE	Coach, 1st Class.	200 to 279	70 to 98	19	5	Gravel Spreader—Xa	X91
FE	Coach, 2nd Class.	280 to 359	70 to 98	24	6	Steam Shovel—X10	Supply—X92 to X94
FE	Coach, 3rd Class.	360 to 439	70 to 98	24	7	Steam Tank—X11	Outfit—X95 to X97
FE	Coach, 4th Class.	440 to 519	70 to 98	24	8	Pile Driver—X12	X98, X99
FE	Coach, 5th Class.	520 to 599	70 to 98	24	9	Steam Tank—X13	Outfit—X99
FE	Coach, 6th Class.	600 to 679	70 to 98	24	10	Steam Tank—X14	Outfit—X100 to X102
FE	Coach, 7th Class.	680 to 759	70 to 98	24	11	Steam Tank—X15	Outfit—X103 to X105
FE	Coach, 8th Class.	760 to 839	70 to 98	24	12	Steam Tank—X16	Outfit—X106 to X108
FE	Coach, 9th Class.	840 to 919	70 to 98	24	13	Steam Tank—X17	Outfit—X109 to X111
FE	Coach, 10th Class.	920 to 999	70 to 98	24	14	Steam Tank—X18	Outfit—X112 to X114
	Total						

OREGON ELECTRIC RAILWAY CO.

Miles of road operated, 104. Gauge, 4 ft. 8 1/2 in. Locomotives, 1. Railway Express Agency, Inc., operates over this line. Limit of load allowed to pass over this line is carrying capacity as stenciled on cars.

FREIGHT EQUIPMENT.

The freight cars of this Company are marked "Oregon Electric," and numbered and classified as follows:

M. C. R. Designation.	MARKINGS AND KIND OF CARS.	NUMBERS.	DIMENSIONS.														CAPACITY.	Number of Cars.		
			INSIDE.			OUTSIDE.														
			Length.	Width.	Height.	LENGTH.			WIDTH.			HEIGHT.							Clearance Below Rail.	End.
						To Base or Top of Frame.	To Top of Rail.	To Top of Rail.	To Base or Top of Frame.	To Top of Rail.	To Top of Rail.	To Base or Top of Frame.	To Top of Rail.	To Top of Rail.						
IN.	Box.	260 to 269	39	4	8	6	3	40	9	9	9	9	9	9	9	8	8	8000	5	
FE.	Flat.	807, 215	40	8	6	9	41	8	6	9	41	8	6	9	41	8	6	8000	2	
FE.	Flat.	324, 327, 330	40	8	6	9	41	8	6	9	41	8	6	9	41	8	6	8000	3	
FE.	Flat.	800 to 809	40	8	6	9	41	8	6	9	41	8	6	9	41	8	6	8000	2	
Total.																		12		

Published Materials

Official Guide of the Railways

Published monthly since 1868 by National Railway Publication Company, now quarterly by United Business Media

Corporate officers and basic details

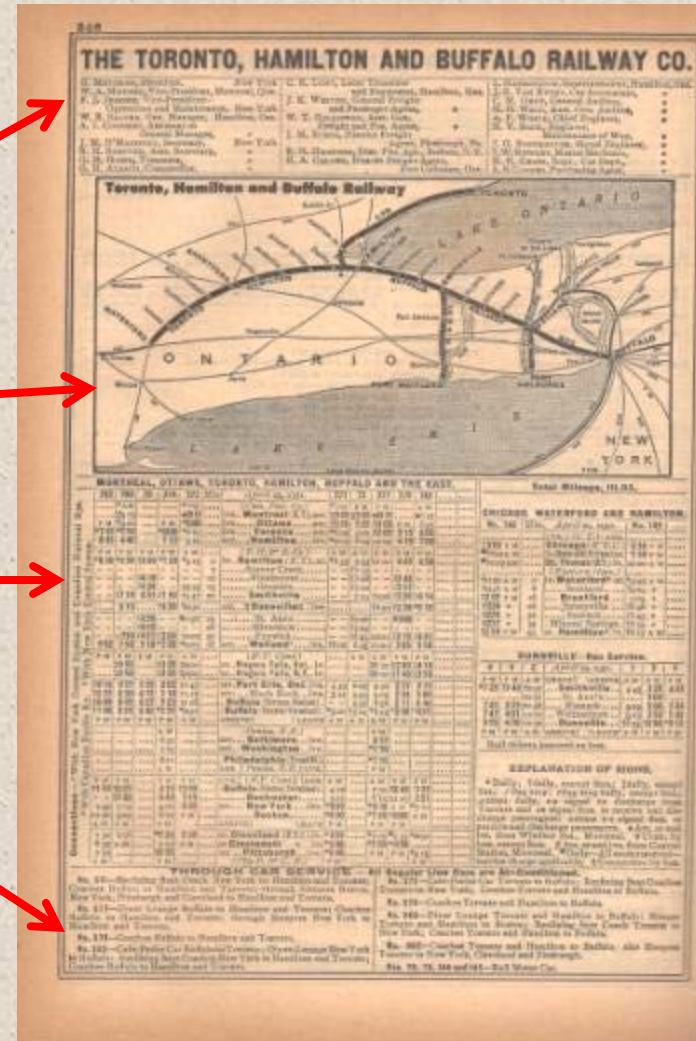
Map

Passenger Schedules

Train consists, including sleeping cars

Includes maps for many railroads

Index of railway stations noting railroads serving.



Reports to Agencies

- Interstate Commerce Commission Valuation Reports
- Interstate Commerce Commission Decisions
- Interstate Commerce Commission Accident Reports
- Reports to Association of American Railroads

Published Materials

Interstate Commerce Commission Reports

Established in 1887, functions taken over by Surface Transportation Board in 1995.

Periodically published decisions on various matters brought before the ICC.



Research Hint:
Get used to Legalese!



<https://upload.wikimedia.org/wikipedia/commons/d/d4/US-InterstateCommerceCommission-Seal.png>

<https://upload.wikimedia.org/wikipedia/commons/thumb/a/a8/US-SurfaceTransportationBoard-Seal.svg/1024px-US-SurfaceTransportationBoard-Seal.svg.png>

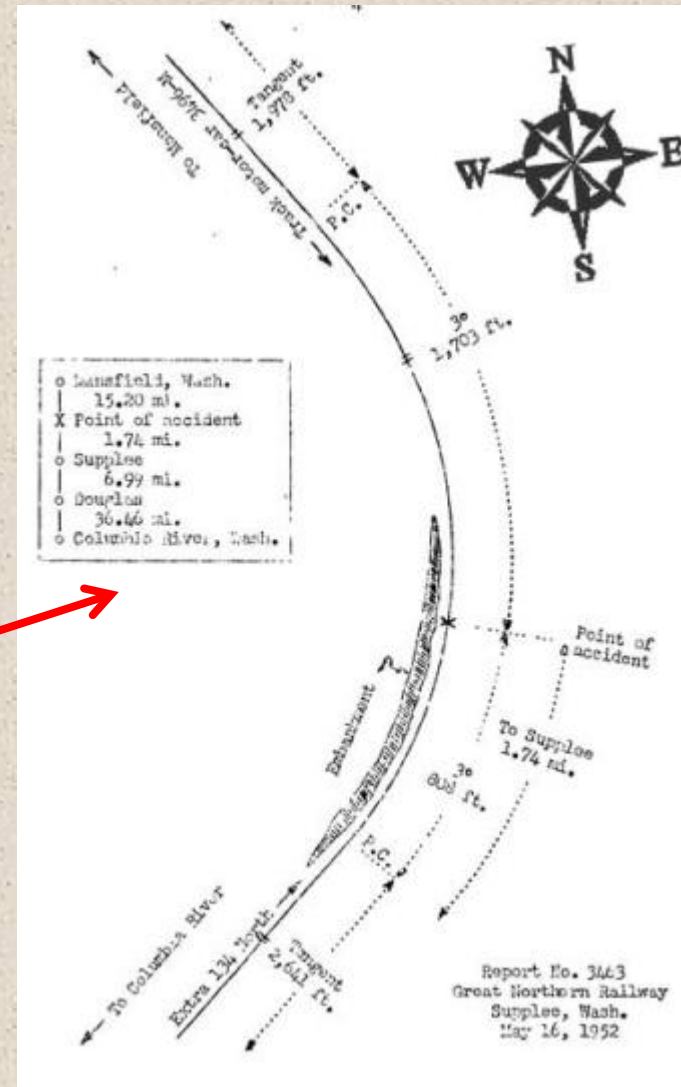
Published Materials

Interstate Commerce Commission Reports Accident Reports

Major accidents required an independent investigation by the ICC.

The resulting report usually includes a map of the accident site, details of the train(s) involved and determine the cause if possible.

This map is for Report 3463, an accident on May 16, 1952 at Supplee, Washington between a freight train and a track motor car, resulting in the death of an employee.



Published Materials

Interstate Commerce Commission Reports Valuation Reports

From 1916 the ICC required railroads to provide a valuation. In time all were submitted, accepted and published in Valuation Reports through the early 1930s.

The reports inventoried the railroad at a point in time.

This example for Bangor and Aroostook is 18 pages.



VALUATION DOCKET No. 189 BANGOR AND AROOSTOOK RAILROAD COMPANY ET AL.¹

Submitted July 7, 1922. Decided February 2, 1925

1. Protest of the Bangor and Aroostook Railroad Company against the tentative valuation of its property considered and determined.
2. Final value for rate-making purposes of the property of the Bangor and Aroostook Railroad Company owned and used for common-carrier purposes as of June 30, 1916, found to be \$21,800,000, and used but not owned, \$3,650,084. Final value of the property of the Van Buren Bridge Company, operated by the carrier as agent, found to be \$73,500.

Henry J. Hart for Bangor and Aroostook Railroad Company.

Donald R. Richberg for National Conference on Valuation of American Railroads.

REPORT OF THE COMMISSION

BY THE COMMISSION:

A tentative valuation as of June 30, 1916, of the property of the Bangor and Aroostook Railroad Company, hereinafter called the carrier, was completed and notice thereof was served upon the carrier and other interested parties on August 6, 1921. The carrier filed a protest within the statutory period. A hearing has been had on the issues presented by the protest, briefs have been filed, and arguments heard.

On date of valuation the carrier operated 630.624 miles of railroad in the United States, all of which was in the State of Maine, the continuous main-line length from Mack's Point at tide-water to Van Buren, near the Canadian boundary, being 269.303 miles. Of the operated road, the main line owned by the carrier extended from South Lagrange to Van Buren, a distance of 213.827 miles, and from Canadian Junction to Van Buren Bridge, 0.908 mile. In addition, the carrier owned branch lines aggregating 353.532 miles, a total of 572.867 miles of line.

The main line used but not owned, leased from the Northern Maine Seaport Railroad Company, extended from Mack's Point to South Lagrange, a distance of 55.566 miles, and from Cape Jellison

The report also includes the valuation of the properties of the Northern Maine Seaport Railroad Company and, in part, of the Van Buren Bridge Company.

Published Materials

Interstate Commerce Commission Reports Valuation Reports

From 1916 the ICC required railroads to provide a valuation. In time all were submitted, accepted and published in Valuation Reports through the early 1930s.

The reports inventoried the railroad at a point in time.

This example for Spokane, Portland & Seattle Railway et al is 88 pages.

VALUATION REPORTS INTERSTATE COMMERCE COMMISSION

VALUATION DOCKET No. 896

SPOKANE, PORTLAND AND SEATTLE RAILWAY COMPANY
ET AL.¹

Submitted October 27, 1927. Decided July 8, 1932

Final value for rate-making purposes of the property of the Spokane, Portland and Seattle Railway Company, owned and used for common-carrier purposes as of June 30, 1916, found to be \$58,300,000, of the property owned but not used \$113,698, and of that used but not owned \$1,483,033. Final value of the property of the Oregon Trunk Railway, owned and used, found to be \$14,824,086 as of June 30, 1916.

Charles A. Hart for Spokane, Portland and Seattle Railway Company and Oregon Trunk Railway.

Paul E. Lesh and *Arthur G. Nichols, jr.*, for Western Union Telegraph Company.

REPORT OF THE COMMISSION

DIVISION 1, COMMISSIONERS MEYER, AITCHISON, AND LEWIS

BY DIVISION 1:

Tentative valuations as of June 30, 1916, of the properties of the Spokane, Portland and Seattle Railway Company, hereinafter called the carrier, and of the Oregon Trunk Railway, hereinafter called the Oregon Trunk, were completed and notices thereof sent to these carriers and other interested parties. The carriers filed protests within the respective statutory periods, and the Western Union Telegraph Company intervened. Hearings have been had on the issues presented by the protests, briefs submitted, and argument heard.

The carrier was incorporated August 23, 1905. It owns and uses 493.95 miles of road in Washington and Oregon and uses but does not own 35.29 miles in Oregon. It controls the Oregon Trunk, which was incorporated November 3, 1909, through ownership of all outstanding capital stock. The Oregon Trunk connects with the carrier at Fall-bridge, Wash., and extends to Bend, Oreg., a distance of 156.88 miles. Further details as to the locations and descriptions of the above properties are found in the order and appendixes to this report.

The carriers protest generally against the rules, methods, and principles employed in the preparation of the tentative valuations and also

¹ This report also embraces Valuation Docket No. 246, Oregon Trunk Railway.
41 Val. Rep.

Published Materials

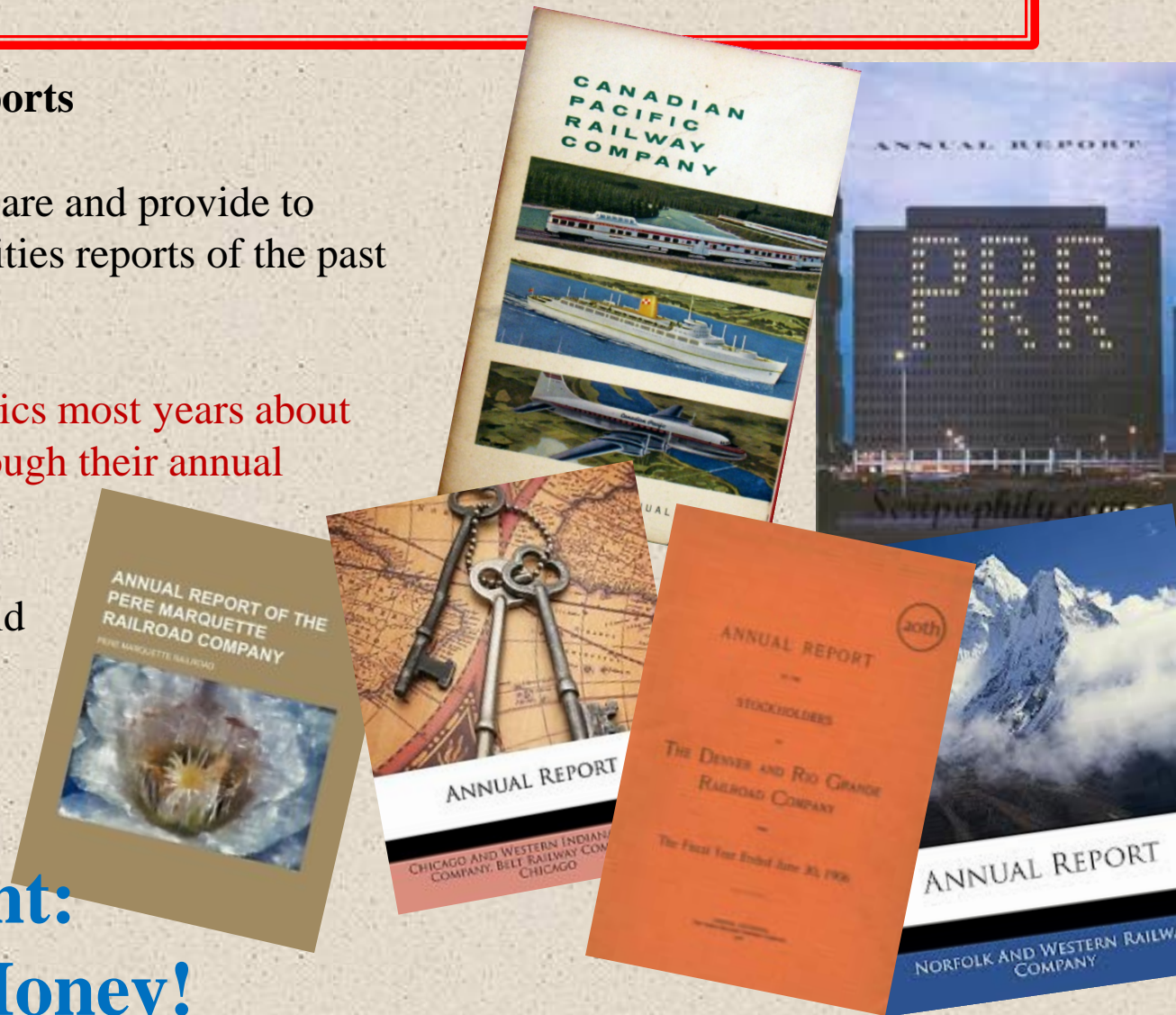
Corporate Annual Reports

Each year railroads prepare and provide to stockholders and authorities reports of the past 12-months business.

See Kevin Feeney's clinics most years about local large railroads through their annual reports.

Reports for privately held and wholly owned subsidiaries are hard to find.

Research Hint:
Follow the Money!



Published Materials

Newspaper Archives

Local libraries usually hold microfilm archives of newspapers of the area.

I have used the facilities at Multnomah County Library, Portland, Oregon, Clark County Library, Vancouver, Washington and Spokane Public Library, Spokane, Washington.

I found:

- Reports on the opening up of the railroad
- News of disruptions by snow and water
- News of important events and accidents
- Advertisements by the railroad

Increasingly these archives are appearing online.
Some libraries have computer driven readers.



Corporate Records

- President's Subject Files
- Authority for Expenditure (AFE)
- Engineering Department
- Locomotive and Car Departments
- Traffic
- Operating departments



S920915p Paul Hobbs image GNRHS Excursion at Everett, Washington, July 1992

Let us follow several documents showing the history of this passenger car.

This is the Authority for Expenditure dated September 16, 1946, for purchase of streamlined passenger cars.

Item E is two Sleeper-Lounge cars at \$97,000.00 per each, the same price as the NP sleeper in Item B.

Only the GN sleeper in Item A and diner in Item D are more expensive.

The AFE is ordering 13 streamlined passenger cars to 8 different floor plans from Pullman.

5 x coaches for local service

1 x baggage-dormitory

1 x diner-lounge

2 x sleeper-lounge

1 x coach, 1 x sleeper

for through service on Empire Builder

1 x coach, 1 x sleeper

for through service on North Coast Limited

Motive Power Department files, Pacific Northwest Chapter, NRHS Collection

Form 1207-B
234-4-40

7878

Exhibit A
6-2149

SPOKANE PORTLAND & SEATTLE RAILWAY COMPANY
(Insert Name of Company)

AUTHORITY FOR EXPENDITURE

Authority for an expenditure of \$ 1,167,212.05 is requested for the purpose of addition
(Character of)
to the property of S. P. & S. Ry. Co.
(Name of Owner)
that is now operated by S. P. & S. Ry. Co.
(Name of Operating Company)
Portland, Ore., Sept. 16, 1946 Requested by E. H. Showalter, Superintendent
(Place and Date) (Name) (Title)
Location of proposed project: State _____ Valuation Section _____
Station or M. P. System Equipment Division _____

Description of Project: Purchase the following light weight passenger equipment.

A. 1 -- 48-seat day-night coach (G.N. type) Sketch 7496 G	95,000.00
1 -- Sleeper (GN type) 8 duplex roomettes, 4 rooms, 4 sections. Sketch 4107 J	105,000.00
B. 1 -- 56-seat day-night coach (N.P. type) Sketch F-428	80,000.00
1 -- Sleeper (N.P. type) 6 roomettes, 3 bedrooms, 1 compartment, 8 duplex roomettes Plan F 446 A	97,000.00
C. 1 -- Head end baggage dormitory car (Dormitory section air conditioned) Plan F 449	70,000.00
D. 1 -- Diner-parlor car, per N.P. plan F 451 A Revised. 4 tables each side dining section, seating 32, and 10 pivoted parlor car seats	109,000.00
E. 2 -- Sleeper-lounge cars - 6 roomettes, 3 rooms, buffet & lounge section seating 25, Sketch F 450 A Revised (For oper. bet. Portland & Spokane)	194,000.00
F. 5 -- Coaches - 56 seats in body of car, 8 seats in smoking room Sketch F 411 H @ 82,000	410,000.00
Two of these coaches available for new train Portland- Spokane service.	1,160,000.00
Two coaches for service Trains 3 and 4 on other service, and one coach for extra service.	

Reasons and necessity for the extension, improvement, or other change: _____

REASON: Purchase of above light weight passenger equipment is to provide new fast train to connect with fast passenger train service to be inaugurated by Great Northern and Northern Pacific Railways.

SUMMARY OF ESTIMATE

Estimate gross cost of project _____ \$ 1167212.05

Amount chargeable to operating expenses for property retired _____ \$ _____

Value of Salvage recovered _____

Cost of property retired _____ \$ _____

Incidental costs chargeable to operating expenses _____

To other accounts _____

Net charge to property investment account _____ \$ 1167212.05

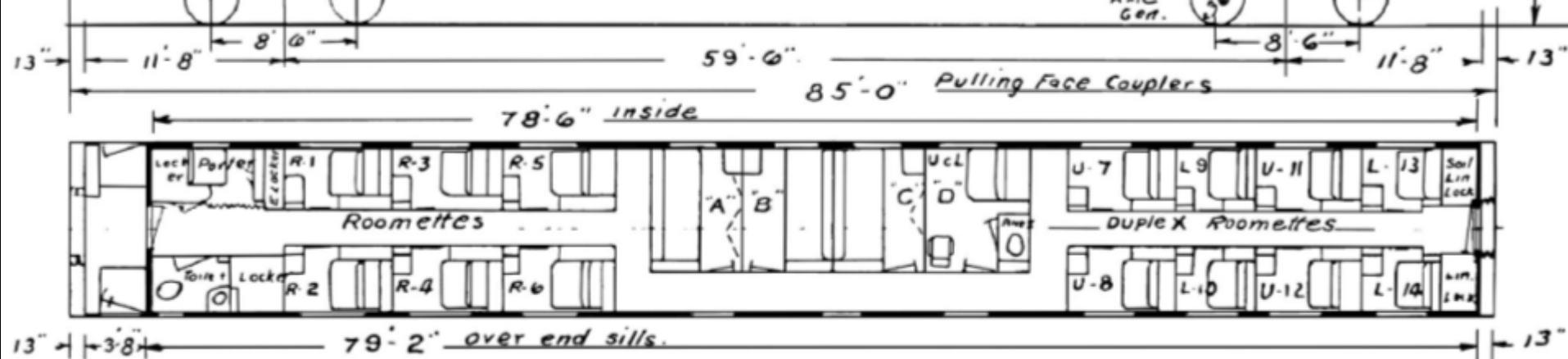
Total Cost to be borne by S. P. & S. Ry. Co.
(Name of Company)

Or participated in by _____
(Name all participants and amount borne by each)

Approved (Signed) F. C. Jager, Mech. Supr. Approved (Signed) E. H. Showalter
Superintendent

Recommended (Signed) A. J. Mitchell Recommended (Signed) T. F. Dixon
Chief Engineer Vice President and General Manager

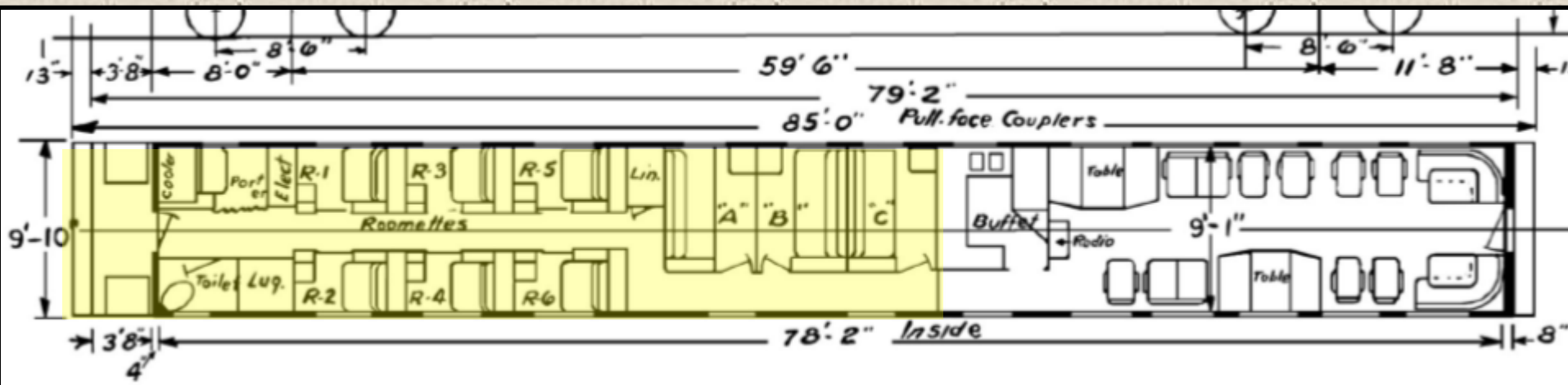
Expenditure and change approved and authorized _____



Pullman Plan 4163 was unique to the two SP&S 6-3 [6 Roomettes-3 Double Bedrooms] Buffet-Lounge cars.

Pullman did not start the design from scratch – taking an existing NP sleeper floor-plan (above – and item B-2 in the order), changing only the zone to the right of the third bedroom.

Both: Passenger Car Diagrams SP&S Railway, by Paul Hobbs 2007



The **Mount Hood** and **Mount St. Helens** were delivered in February 1950 for local service Portland – Spokane on SP&S trains 1 and 2.

The car at Spokane was open for occupancy from 9:30 p.m., the train departing just after midnight, with through cars from Chicago off Great Northern's Empire Builder.



Sleeping accommodations were not made down Eastbound in daylight.

The cars were equipped with full buffet facilities. Unused, the equipment was quickly sold back to Pullman.

On March 29, 1958 service was changed to turn one car at Spokane, for a round-trip each day. Just one car was needed, and that was the **Mount Hood**.

The **Mount St. Helens** was released from the Pullman contract, now serving as a dining crew dormitory when extra sections were run to connect with late Westbound trains, and with the business car on occasion.

Both cars are preserved today.

Inventories from documents found in Commissary Department records

Inventory at car delivery – assuming breakfast service:

**6 each Bowls, Oatmeal; Platters, Med;
12 each Chips, Butter; Creamers, Ind.;
Cups, Coffee; Saucers, Coffee; Plates, B&B;
Plates, Tea; Forks, Dessert;
3 each Pots, Tea, Ind.; Pots, Hot Water;
2 each Bowls, Sugar, Sm.; Caster Set,
8 each Pots, Coffee, Silver**



An inventory check on January 2, 1969 showed the Mount Hood carried:

Glassware: 22 Ale, Highball; 21B&S; 4 Brandy; 3 Cocktail, Stem; 11 Cocktail O.F.; 2 Cordial; 11 Highball 5oz; 2 Mixing; 1 Sherry; 6 Whiskey; 57 Stirrers.

Silverware: 1 Bowls, Sugar, Small; 1 Shaker, Lemonade; 2 Shaker Salt and Pepper; 2 Spoons, Iced Tea; 1 Strainer, Bar; 1 Tongs, Ice; 2 Trays, Cash 12"; 2 Trays, Cash 14"; 1 Wine Cooler.

Pantry: 1 Board, Lemon; 1 Brushes, Bottle; 1 Brushes, Silver; 1 Extract, Juice, Kg. Arnold; 1 Humidor, Aluminum; 2 Knife Cap; 1 Knife, Orange; 2 Opener, Cap; 1 Pails, Garbage, Qt; 1 Picks, Ice; 1 Pitcher, Bar, Alum.; 1 Scoops, Ice; 1 Shavers, Ice; 1 Squeezer, Lime; 1 Steels, 1 Strainers, Manel?; 2 Tray, Bolta. Cash; 1 Tray, Bolta. Round; 4 Tray, Bolta. 13 ½ x 18; 1 Tray, Cigarettes

Car equipment: 1 Berth Key; 4 Smoking Stands; 1 Knife Rack.

Consumables included: Tomato Juice, Maraschino Cherries, Lemons, Oranges, Cocktail Olives, Black Pepper, Table Salt, Worcester Sauce, Straws, Granulated Sugar, Peanuts, Toothpicks, Cocktail Napkins, fifteen different cocktails, seven different beverages, two brands of cigars, eight brands of cigarette, regular and bridge packs of cards.

OREGON ELECTRIC RAILWAY COMPANY
(Insert Name of Company)

E 53-65
Exhibit A

AUTHORITY FOR EXPENDITURE

Authority for an expenditure of \$ 1,025.00 is requested for the purpose of retirement
to the property of O. E. Ry. Co. (Character of)
(Charge) that is now operated by Oregon Electric Railway Company (Name of Owner)
September 10, 1965 Requested by R. A. Lawrence, Traffic Manager
Portland, Oregon, (Date) (Name) (Title)
Location of proposed project: State Oregon Valuation Section Santiam Branch (Title)
Station or M. P. Sweet Home Division Eleventh Sub-Division

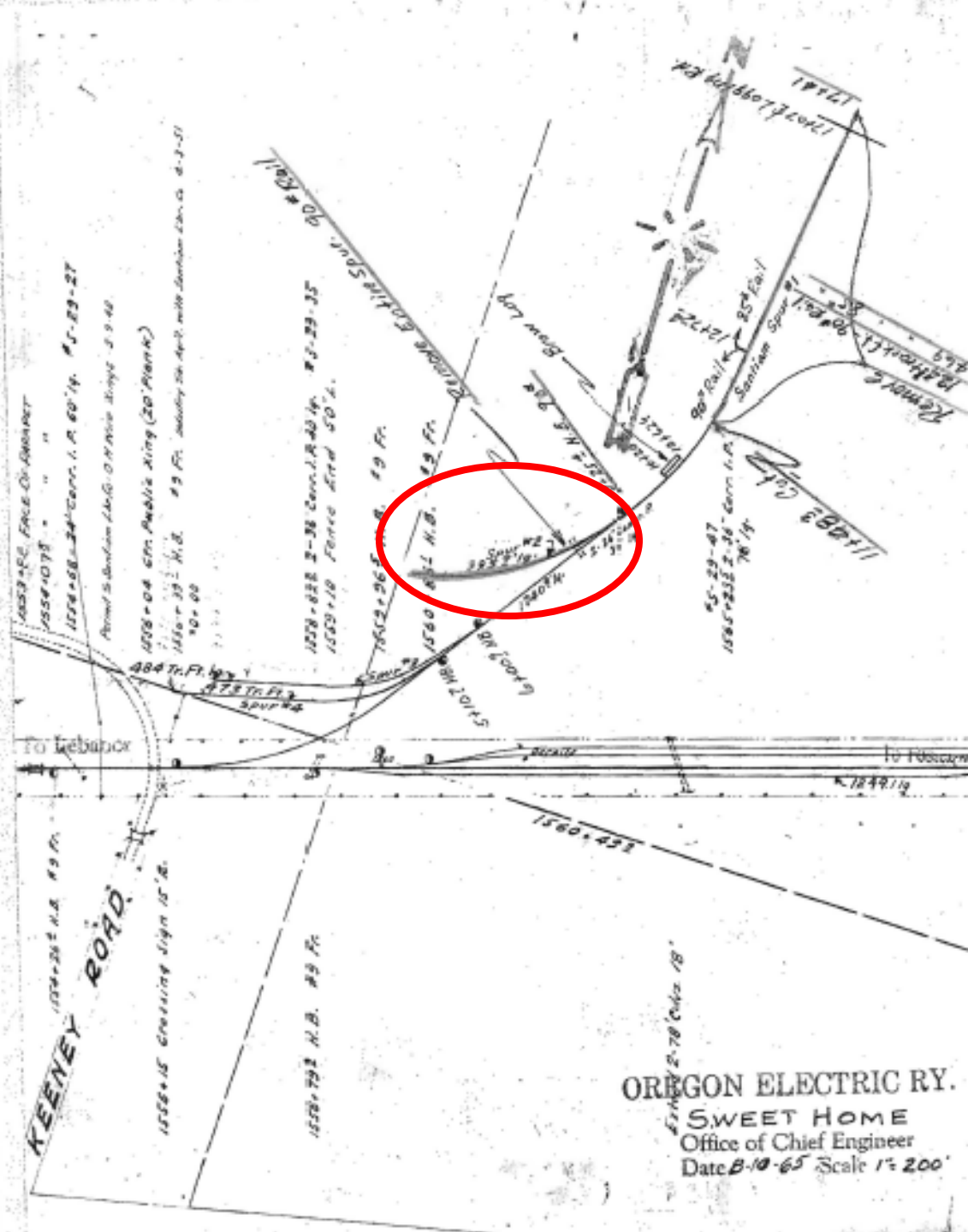
Description of Project: Remove and retire 592.7 track feet of plywood spur number one, and all of spur number two, 395.7 track feet, serving Santiam Lumber Company.

Reasons and necessity for the extension, improvement, or other change. Santiam Lumber Company have requested the removal of 592.7 track feet of spur number one, as they plan to fill the log pond and cold deck logs in this area and across spur. Spur track number two is no longer required for their mill operation and should be removed to avoid future maintenance expenses and release material for salvage.

SUMMARY OF ESTIMATE

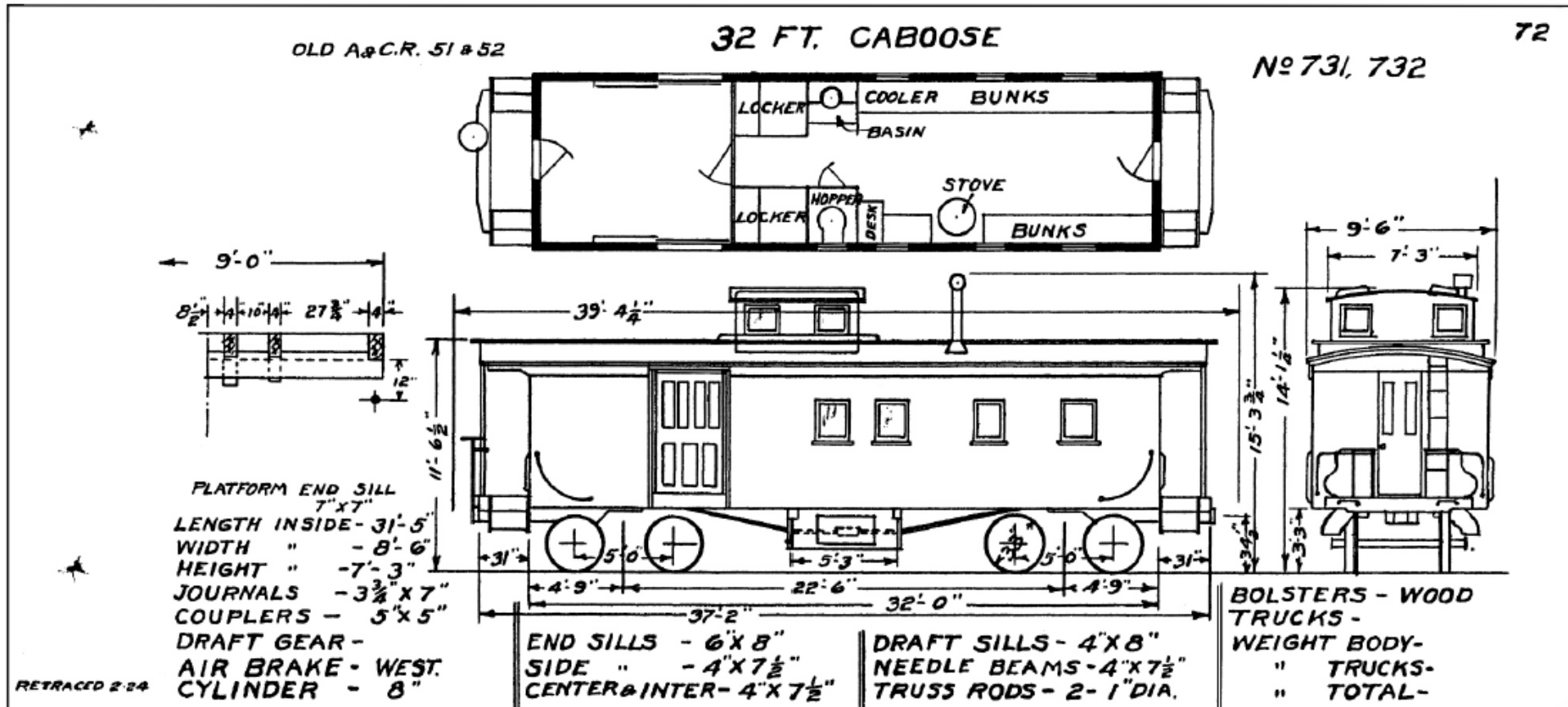
Estimate gross cost of project	\$ 1,083.00
Amount chargeable to operating expenses for property retired	\$ 598.12
Value of Salvage recovered	\$ 2,597.00
Cost of property retired	\$ 3,195.12
Incidental costs chargeable to operating expenses	\$ 1,025.00
To other accounts	\$ 4,220.12
Net credit ^{credit} to property investment account	\$ 3,137.12
Total credit ^{credit} to be borne by <u>Oregon Electric Railway Company</u>	
(Name of Company)	
Or participated in by	(Name all participants and amount borne by each)
Approved <u>R. P. Straughan, General Roadmaster</u>	Approved <u>J. L. Monahan</u>
Approved	Superintendent
Recommended <u>H. F. May</u>	Recommended <u>N. S. Westergard</u>
Chief Engineer Vice President and General Manager	

This AFE in 1965 retired a spur at Sweet Home, Oregon, and included a map of the location. Narrative explains purpose. May include correspondence.



OREGON ELECTRIC RY.
SWEET HOME
Office of Chief Engineer
Date 8-10-65 Scale 1" = 200'

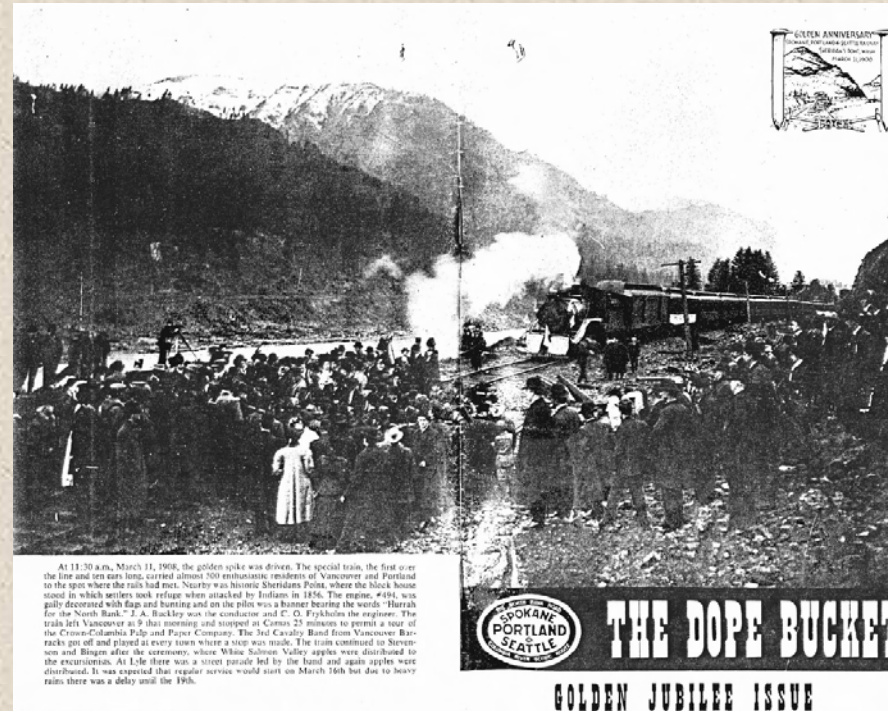
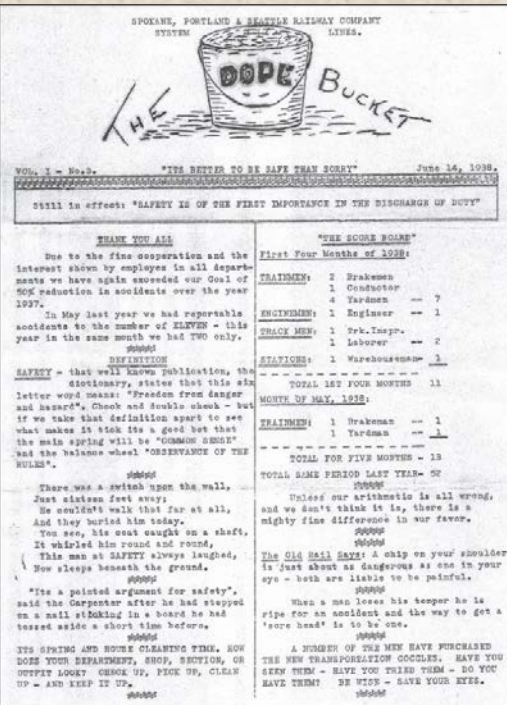
Railroad Equipment Diagrams



Equipment Diagrams provide dimensions and information about appliances.

Often includes former owner and builder information.

Company Employee Magazine



The SP&S Company newsletter "**the Dope Bucket**" was started in 1938 by the Safety Department. Early editions were strictly safety information.

In time the magazine evolved into a folksy commentary, sometimes celebrating significant events. Employee names are a genealogical resource.

Researching Extinct Railroad on the Ground

- In 2012 I was invited to join an NPRHA “Mafia” tour before the convention at Butte, Montana.
- We visited a number of nearby NP track sites, some abandoned, some still active.



Our Company vehicle, complete with monads on the doors.

The van was dead-headed 840 miles (round-trip) from Salt Lake City for our use. It aged considerably in a few days!

Researching Extinct Railroad on the Ground



DSCF0923 Jul. 15, 2012 Paul Hobbs

Bill Kuebler holds a photo of the North Coast Limited
on the now abandoned track behind.

Researching Extinct Railroad on the Ground



<http://trainweb.org/DOMEmain/picCBQ557c.jpg>



**The North Coast Limited
derailed on Evaro Hill, near
Missoula, Montana, on
June 10, 1962,
incurring the only fatality, a
3-year old girl, in the train's
71-year history.**



DSCF1030 and 1034 Jul. 16, 2012 Paul Hobbs

Bill Kuebler invited the girl's sister from Seattle, and current family, to visit and see the site of the wreck today. We are at the spot where the dome-coach stopped. The lady and her parents were aboard that car – 50 years ago.

Researching Extinct Railroad on the Ground

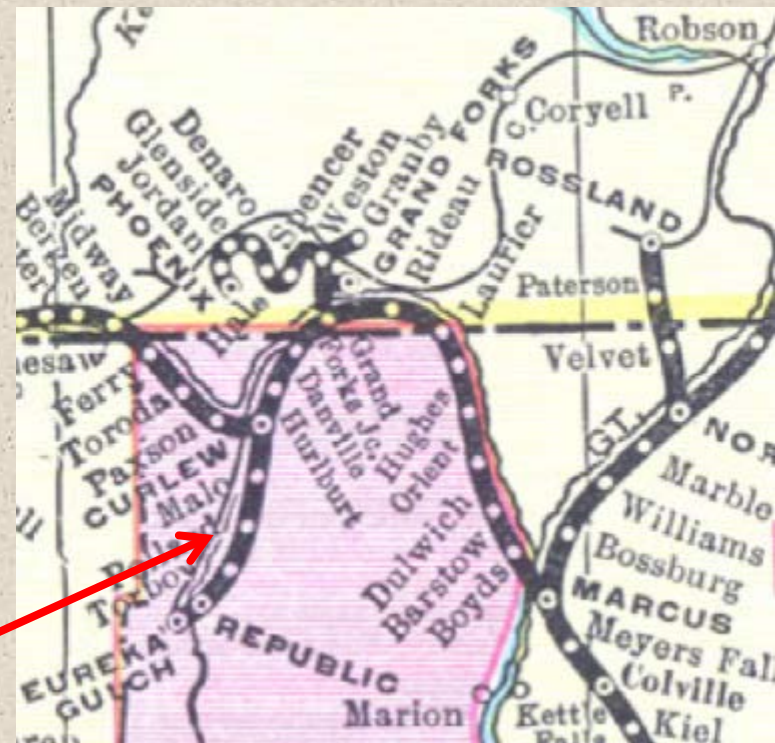
- With friends Greg and Suzy Madsen, we researched the Spokane & British Columbia Railway, which operated between Republic, WA, and Grand Forks, BC until 1919.
- This involved comparing historic USGS, Sanborn and modern Google maps for locations.
- In some areas everything is gone.
- Some bridges still exist (as highway or trail).
- Right of way is visible in places.
- Scenery and some town structures are the same!

Researching Extinct Railroad on the Ground



The Grand Forks Railroad uses this former CP Rail SW-8 to switch industries on former S&BC, Great Northern and Canadian Pacific Railway track within Grand Forks, British Columbia.

Paul Hobbs collection



DSCF5350 Paul Hobbs photo June 2014

Part of Great Northern Railway
Washington State map of 1910.
Spokane & British Columbia
route shown parallel in light line.

Researching Extinct Railroad on the Ground



DSCF5323 Paul Hobbs photo June 2014

This Spokane & British Columbia Railway bridge is today part of a rural road. Greg is inspecting elements of its construction.

Former railroad grade becomes smooth and broad curved county road.

DSCF5315 Paul Hobbs photo June 2014



Researching Extinct Railroad on the Ground



DSCF5261 Paul Hobbs photo June 2014

Former mine site, with visible railroad grade.



DSCF5275 Paul Hobbs photo June 2014

Seemingly abandoned mine sites are still owned, posted and dangerous.

Researching Extinct Railroad on the Ground



DSCF5265 Paul Hobbs photo June 2014

Gathering samples of rock and ballast for authentic appearance on the model to be built.



DSCF5215 Paul Hobbs photo June 2014

This industry in Spokane, Washington was once served by rail – still visible in the street.

Researching Extinct Railroad on the Ground



DSCF5301 Paul Hobbs photo June 2014



DSCF5299 Paul Hobbs photo June 2014

Downtown Republic is little changed in many years – excepting the modern automobiles!
The Northern Inn is a good place to stay.

Railroad Brochures

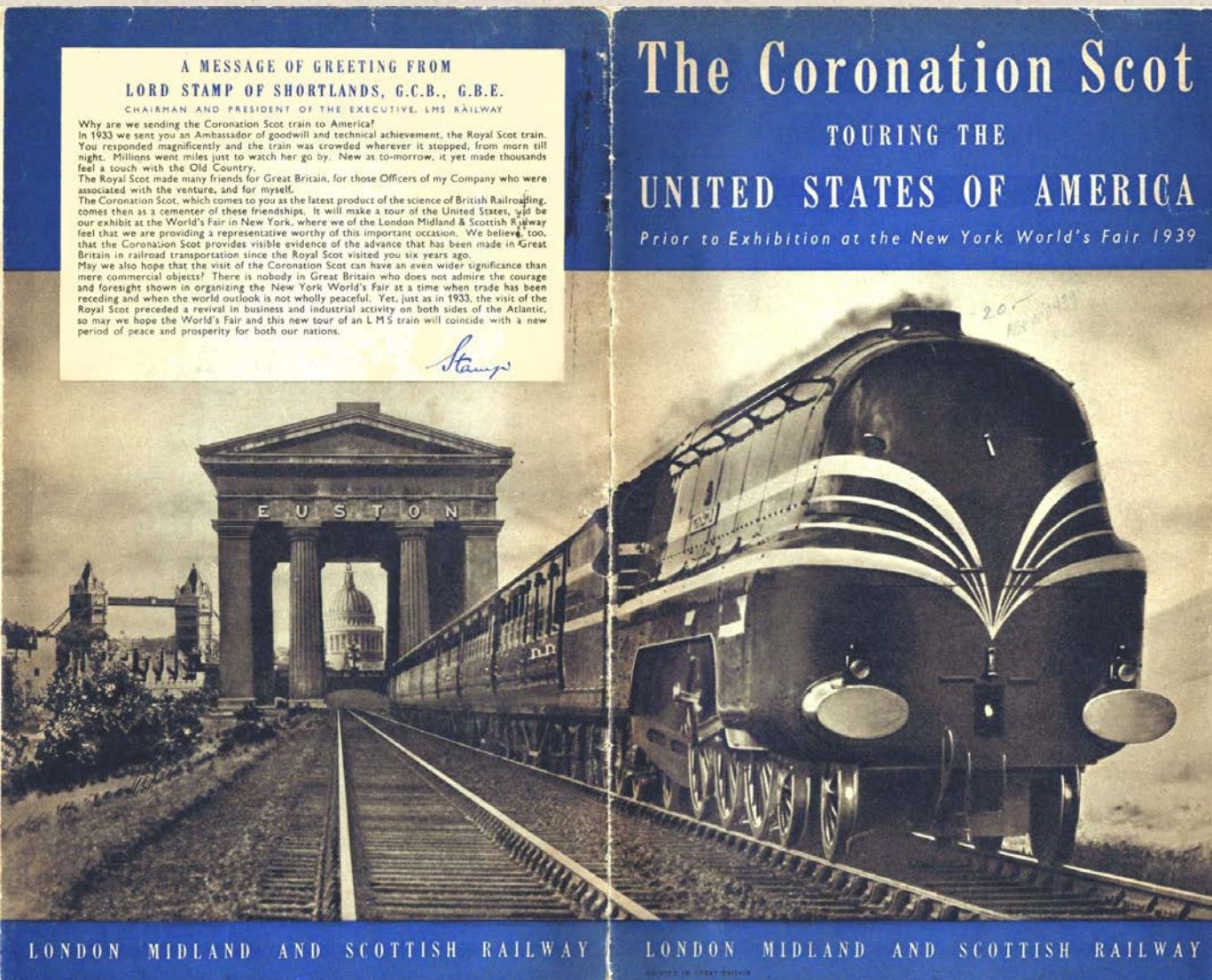


Railroads promoted travel to their destinations with many colorful brochures.

Some are designed for following the route of the train.



Railroad Brochures



Some brochures promoted now historic events.

The new LMS
Coronation Scot
(actually Duchess of Hamilton) 4-6-2
and train visited and
toured the United
States in 1939, then
exhibited at the
New York World's Fair.

Paul Hobbs Collection

Railroad Employee Timetables

SPOKANE, PORTLAND & SEATTLE R'Y CO. Vancouver Division AND OREGON TRUNK RAILWAY

TIME TABLE No. 80

To be used in conjunction with
Special Instruction Book No. 1

To take Effect at Twelve-one (12:01)
O'clock A. M., Pacific Time

Sunday, October 17, 1937

Superseding Time Table No. 79 and all
Supplements Thereto.

For the Government of Employees only. The
Company reserves the right to vary therefrom
at pleasure. Be positive that you have the
Current Time Table and destroy all previous
numbers. Read carefully the Special Instru-
ctions and always have for reference a copy
of TRANSPORTATION RULES.

M. C. LaBERTEW, Superintendent

Shows scheduled trains, mileages,
station facilities.

2 WESTWARD			FIRST SUB-DIVISION										EASTWARD												
Stn. Code, Time, Wagon, Yard, Locals, Freight, Yard Locals	Station	Car Capacity	THIRD CLASS			SECOND CLASS			FIRST CLASS		Distance from Portland	TIME TABLE No. 80 OCTOBER 17, 1937	Distance from Portland	FIRST CLASS		SECOND CLASS		THIRD CLASS							
			301	275	273	3	1	4	2	274				276	302										
																Local Freight	Time Freight	Freight	Passenger	Passenger	Passenger	Passenger	Freight	Time Freight	Local Freight
																Leave P.O. Th. Sat.	Leave Daily	Leave Daily	Leave Daily	Leave Daily	Arrive Daily	Arrive Daily	Arrive Daily	Arrive Mo., We., Fr.	
WCO KL	100	Yard	6:00P	2:30P	1:00P	3:10P	4:20P	2:40P	3:10P	4:20P	2:40P	WIERHAM	100	11:35P	12:08P	10:15P	4:15P	2:00P							
Y	100		6:03	2:32	1:03	3:12			3:15	4:26	2:42	CELLO WYE SWITCH	100	11:29		10:13	4:12	1:58							
	100		6:07	2:38	1:07	3:15			3:15	4:26	2:42	AVERY	100	11:25	12:01P	10:09	4:05	1:52							
	100		6:16	2:50	1:18	3:22	4:32	2:48	3:30	4:40	2:48	SPRANFIRE	100	11:18	11:55	10:00	3:55	1:42							
	100	20	6:25	3:04	1:30	3:30	4:40	2:54	3:45	4:59	2:54	NORTHDALLIES	100	11:12	11:50	9:51	3:43	1:30							
WTC	100	100	7:05	3:45	1:50	3:45	4:59	3:00	4:02	5:14	3:00	LYLE	100	10:59	11:38	9:34	3:20	1:00							
	100	110	8:30	4:17	2:16	4:02	5:14	3:00	4:02	5:14	3:00	DR. BINGER-WHITE SALMON	100	10:44	11:24	9:14	2:54	12:30P							
	100	40	8:45	4:26	2:24	4:07			4:07		3:00	UNDERWOOD	100	10:40		9:08	2:46	11:15							
	100	7	8:51	4:34	2:28	4:10	5:21	3:00	4:18	5:28	3:00	HOOD	100	10:37	11:17	9:04	2:42	10:51							
W	100	20	9:15	4:52	2:40	4:18	5:28	3:00	4:18	5:28	3:00	COOKS	100	10:29	11:10	8:54	2:38	10:29							
	100	10	9:50	5:20	3:02	4:32	5:41	3:00	4:32	5:41	3:00	CARBON	100	10:16	11:00	8:38	2:07	9:45							
	100	40	10:10	5:35	3:11	4:39	5:47	3:00	4:39	5:47	3:00	STEVENSON	100	10:10	10:55	8:30	1:56	9:32							
	100	20	11:00	5:53	3:23	4:47	5:54	3:00	4:47	5:54	3:00	NORTH BONNEVILLE	100	10:02	10:48	8:20	1:43	9:15							
W	100	10	11:25	6:15	3:38	4:57	6:03	3:00	4:57	6:03	3:00	SEAMANIA	100	9:52	10:40	8:08	1:27	8:55							
	100	10	11:45	6:32	3:51	5:06	6:11	3:00	5:06	6:11	3:00	PRINDLE	100	9:44	10:33	7:58	1:13	8:40							
	100					5:10			5:10		3:00	CAPE BORN (No Riding)	100	9:40											
	100		12:10P	6:52	4:06	5:16	6:19	3:00	5:16	6:19	3:00	MT. PLEASANT	100	9:35	10:26	7:47	12:58	8:25							
W	100	10	12:32	7:07	4:17	5:24	6:27	3:00	5:24	6:27	3:00	WASHOUGAL	100	9:28	10:20	7:37	12:46	8:10							
	100	100	1:20	7:30	4:25	5:30	6:36	3:00	5:30	6:36	3:00	CANAS	100	9:22	10:15	7:30	12:38	8:00							
	100	4	1:35	7:52	4:37	5:39	6:45	3:00	5:39	6:45	3:00	FISHER	100	9:14	10:08	7:18	12:24	7:24							
	100		1:47	8:12	4:49	5:48	6:54	3:00	5:48	6:54	3:00	McLOUGHLIN	100	9:06	10:02	7:09	12:11	7:13							
WTCY OHL	100	Yard	2:00P	8:30P	5:00P	6:00P	7:05P	3:00	6:00P	7:05P	3:00	VANCOUVER	100	9:00P	9:56P	7:00P	12:01P	7:05P							
BETWEEN PORTLAND AND VANCOUVER TRAINS WILL BE GOVERNED BY TERMINALS DIVISION TIME TABLE AND RULES																									
KL	4	Yard				6:30P	7:35P	3:00	PORTLAND, Union Depot	VC	4:0	8:30P	9:30P												
WTCY KL	8	Yard			10:00P	6:00P			3:00	PORTLAND, Mayfield Depot	GO	4:0			6:15P	9:00P									
			Arrive P.O. Th. Sat.	Arrive Daily	Arrive Daily	Arrive Daily	Arrive Daily	Leave Daily				Leave Daily	Leave Daily	Leave Daily	Leave Daily	Leave Mo., We., Fr.									
			2:00	4:00	4:00	2:00	2:00	3:00				3:30	2:10	3:18	4:14	4:50									
			12:0	11:0	10:0	10:0	10:0	10:0				10:0	10:0	10:0	10:0	10:0									
									Time Over District Average Speed Per Hour																

SPECIAL RULES

Eastward trains are superior to westward trains of the same class.
Registering stations: Wierham, Vancouver, Portland.

No. 1 will stop at any station to discharge revenue passengers from
Spokane or east of Spokane.

No. 1 will stop on flag at Stevenson for revenue passengers for Vancouver
and Portland.

No. 2 will stop at any station to pick up revenue passengers for Spokane
or east of Spokane when advance arrangements are made for it with Agents.

No. 2 will stop at Stevenson to discharge revenue passengers from
Portland and Vancouver.

No. 3 and 4 will stop on flag at Ellsworth, M. P. 16.5 and Fort Rain.

Railroad Special Instructions

SAFETY
IS YOUR RESPONSIBILITY

Spokane, Portland & Seattle Railway Co.
System Lines

Special Instructions No. 16

Effective 12:01 A.M. Pacific Standard Time

Thursday, June 1, 1967

These Instructions constitute a part of the Time Table currently in effect.

Employees whose duties are in any way affected by the Time Table must have a copy of The Current Special Instructions and Current Time Table with them on duty.

F.S. BARLOW, Jr.
Superintendent

N.S. WESTERGARD,
Vice President & General Manager

Special Instructions detail track facilities along the line and include tables like:

Stock Pens

26. Location, Capacity and Facility of Stockyards—

Location	No. of Pens	Capacity in Cows	Facilities
Wahrum	6	19	Water
Roosevelt	2	4	Water
Plymouth	2	4	Water
Pasco	27	38	Water
Centerville	1	2	Water near
South Junction	4	9	Water
Gateway	4	11	Water
Redmond	4	7	Water & Feed Racks
Bend	7 cattle 2 sheep	14	Water & Feed Racks
Clifton	Portable Chute		None

Bulletin Stations

27. Bulletin Stations—

Portland	—Union Station telegraph office Roundhouse Yard office
Willetbridge	—Yard Office
Vancouver	—Telegraph office and roundhouse Yard office (yard men only)
Wahrum	—Telegraph office and roundhouse
Bend	—Telegraph office and roundhouse
Goldendale	—Telegraph office
Pasco	—Passenger Station telegraph office, Roundhouse and Yard Office
Spokane	—G.N. passenger station
Hillyard	—Yard office and roundhouse
Parkwater	—Roundhouse
Yardley	—Yard office
St. Helens	—Depot
Astoria	—Depot
Seaside	—Depot
Salem	—Depot
Albany	—Yard office and roundhouse
Eugene	—Depot
Sweet Home	—Depot

20

Watch Inspectors

28. Watch Inspectors—

Bull Railroad Time Serv. Of Ohio	—284 Endicott Bldg., St. Paul, Minn.
Roy and Melle	—206 S.W. Sixth, Portland
Zell Brothers	—400 S.W. Morrison, Portland
N.L. Nielsen	—1527 Lloyd Center, Portland
W.L. Ransyn	—Vancouver
Robt. G. Tyack	—The Dalles, Ore.
Crotes Jewelry	—No. 3 Wall St., Spokane
Bob's Jewelry	—5101 North Market St., Hillyard
Canade Jewelers	—Bend
L.H. Mason	—St. Helens
Stevens & Son	—239 Court Street, Salem
F.M. French & Sons	—Albany
Seth Larway	—Eugene
W.E. White	—Sweet Home
Kullander's Jewelry Store	—Vernonia

Standard Time Clocks

29. Standard Time Clocks—

Portland	—Union Station telegraph office Roundhouse and yard office
Willetbridge	—Yard office
Vancouver	—Telegraph office and roundhouse
Wahrum	—Telegraph office
Pasco	—Passenger Station telegraph office, Roundhouse and Yard office
Spokane	—G.N. Passenger Station
Hillyard	—Yard office, roundhouse
Parkwater	—Roundhouse
Yardley	—Yard office
Bend	—Telegraph office
Astoria	—Telegraph office
Seaside	—Telegraph office
Salem	—Telegraph office
Albany	—Yard office
Eugene	—Telegraph office

21

SAFETY

IS YOUR RESPONSIBILITY

Special Instructions No. 16

Thursday, June 1, 1967

Employees whose duties are in any way affected by the Time Table must have a copy of The Current Special Instructions and Current Time Table with them on duty.

N. S. WESTERGARD,
Vice President & General Manager

Tonnage Rating of Locomotives by location and direction

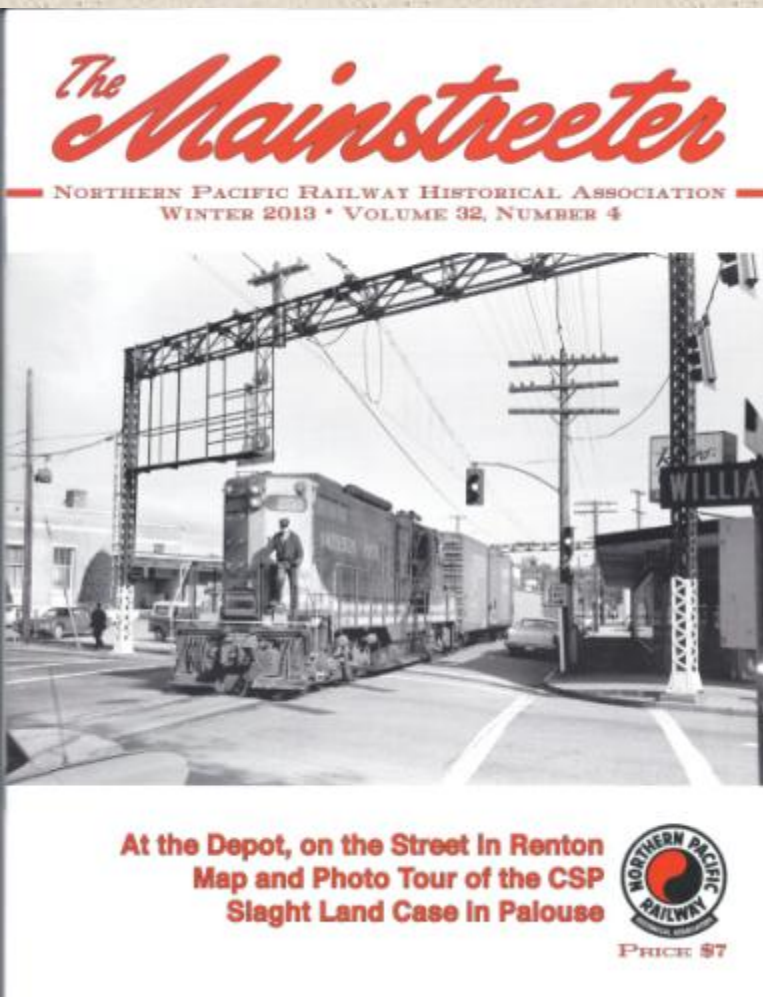
[illegible]

* Trailing mortgage when in mortgage with Third Union

[illegible]

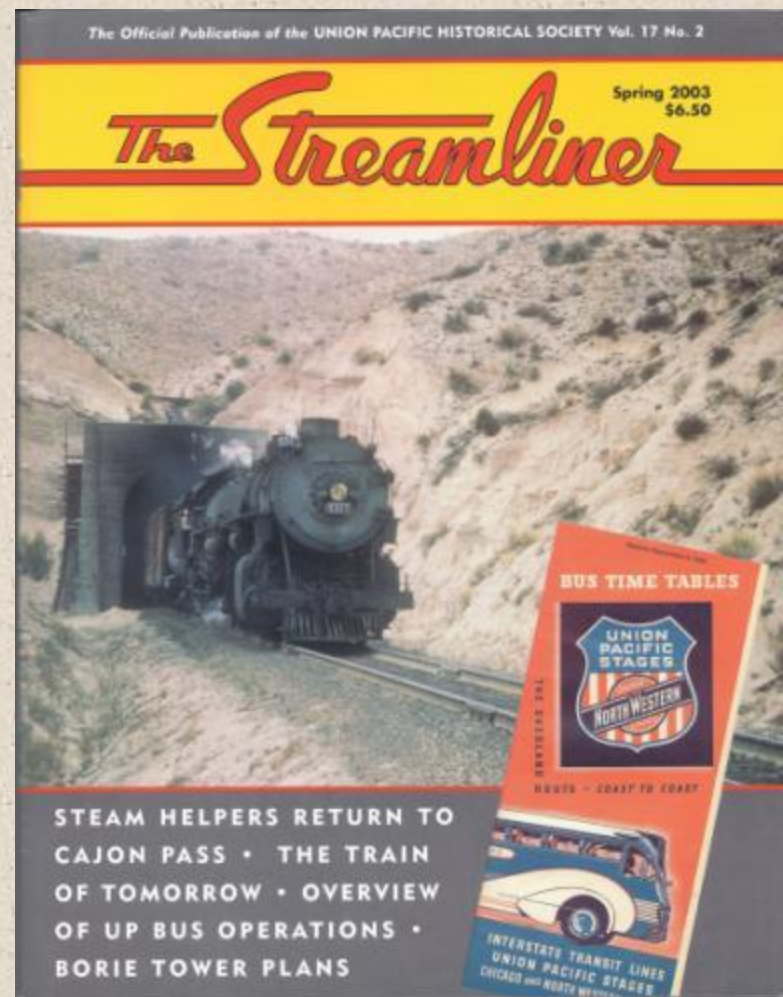
100
100
100

Railroad Historical Societies



Historical Societies usually publish a quarterly magazine and host a convention each year.

Excellent source of railroad specific data of all kinds.



Railroad Archives

Historic Corporate records for many railroads have been donated to regional historical societies.

The **Minnesota History Center** has records from the Great Northern and Northern Pacific Railways, once headquartered at St. Paul, Minnesota.

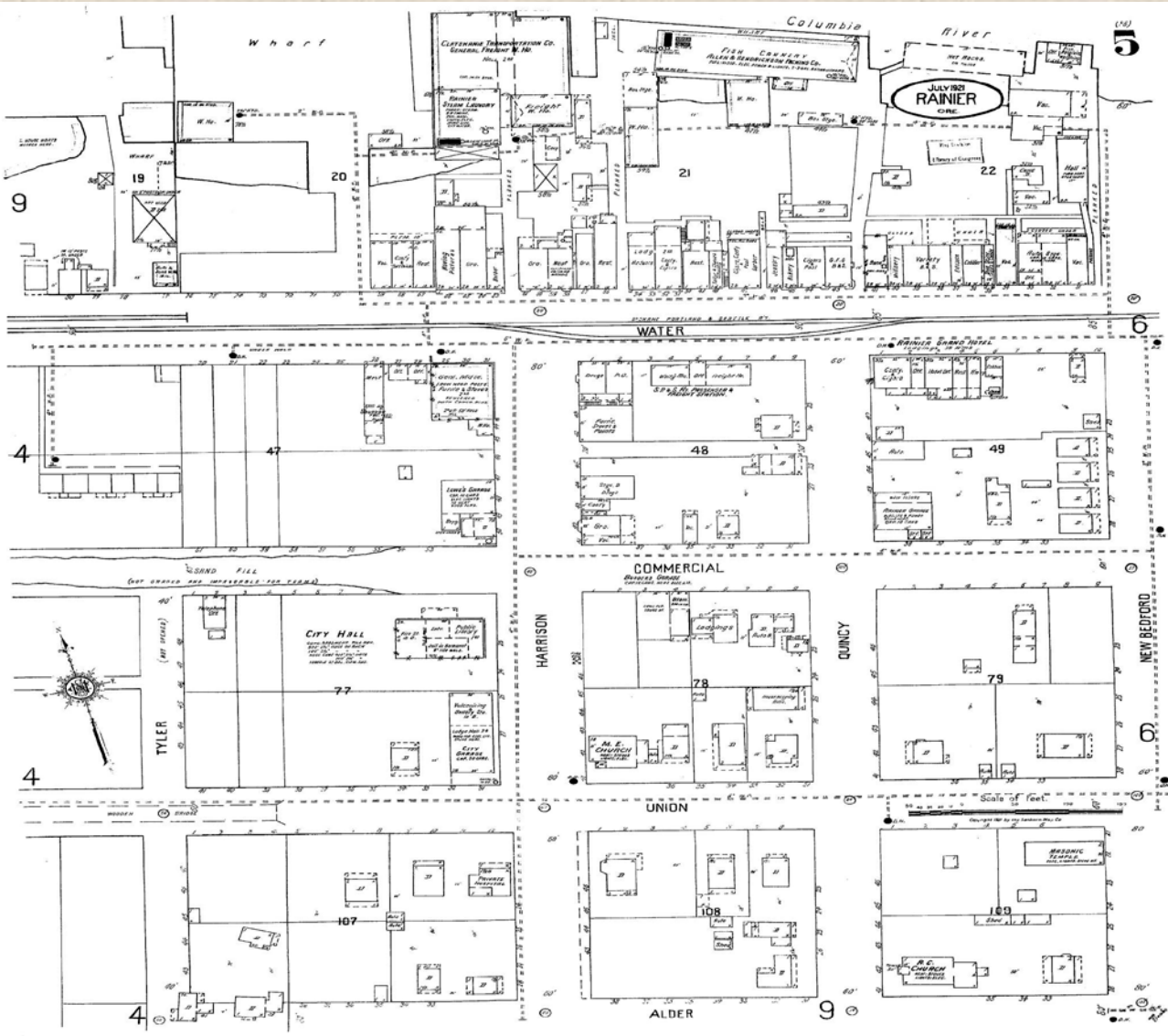
Chicago, Burlington & Quincy records are at the **Newberry Library, Chicago, Illinois.**

Atchison, Topeka & Santa Fe records are at the **Kansas Historical Society, Topeka, Kansas.**

Pennsylvania Railroad records are at the **Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.**



Sanborn Insurance Maps



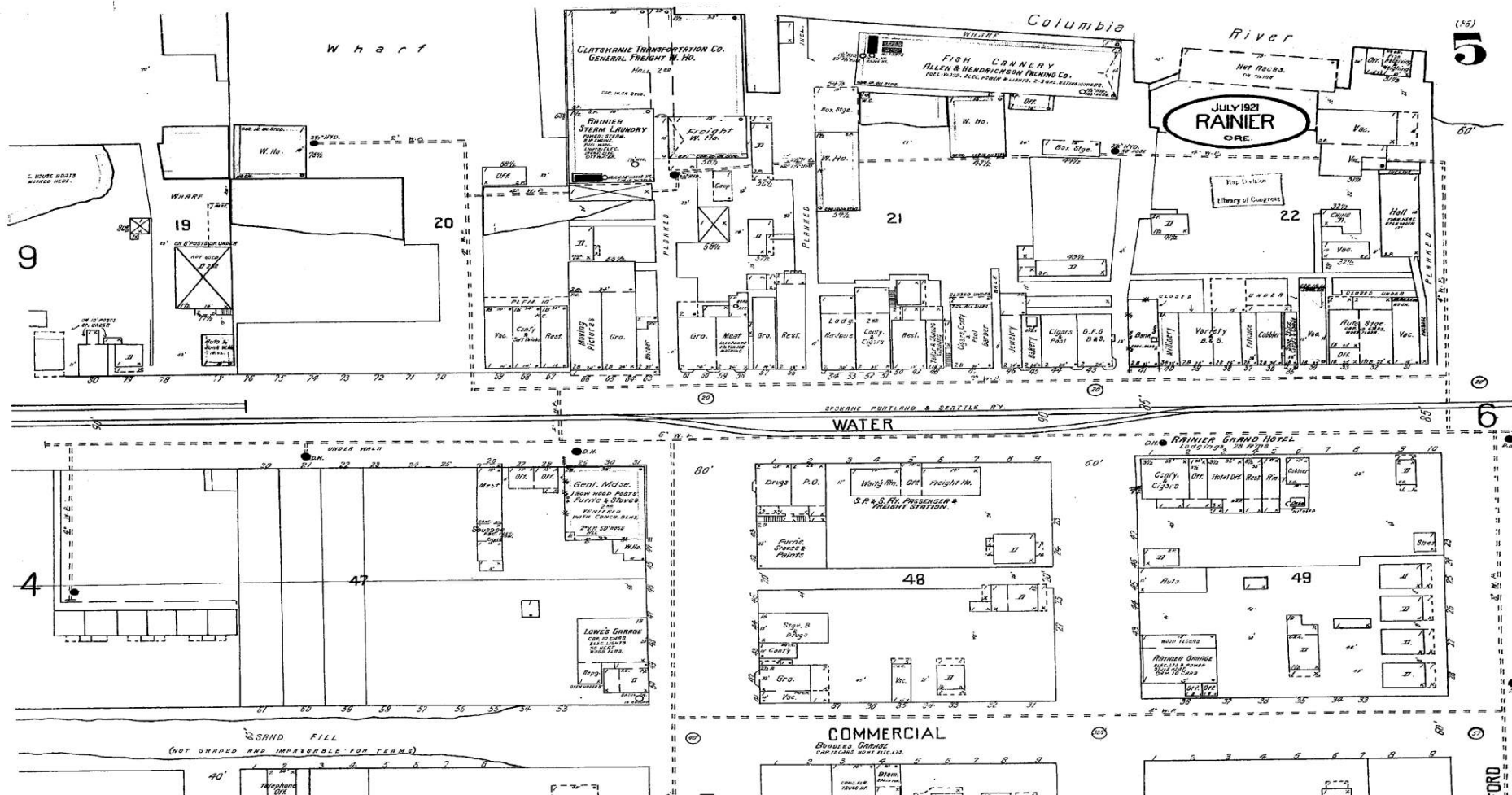
Sanborn maps have served the insurance industry since 1867.

They provide details of structures and other insurable assets.

This map of Rainier, Oregon dated July 1921 shows the tracks in the street, location of the passenger depot among other businesses.

The siding is enough for a short train at the depot.

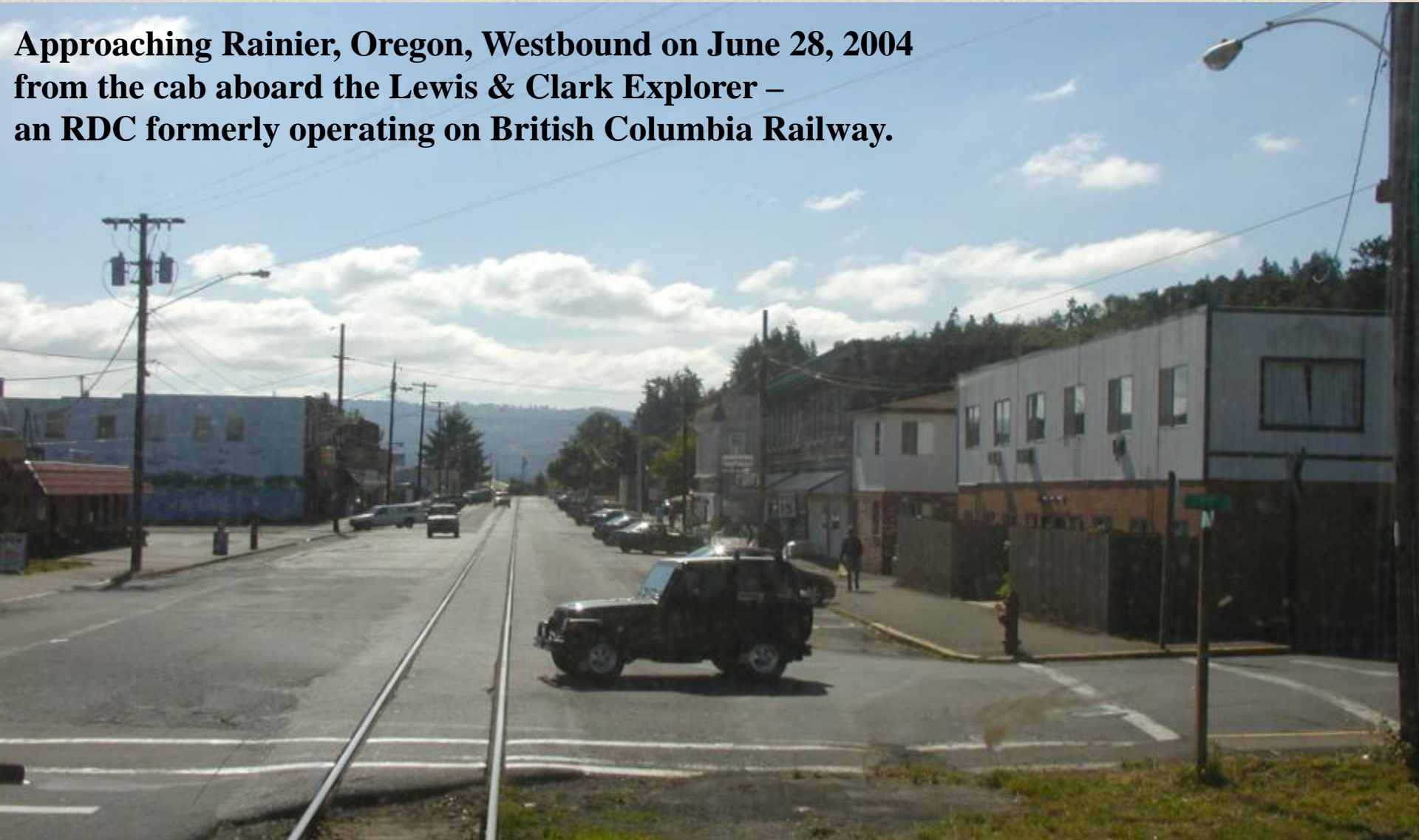
Sanborn Insurance Maps



Business structures can be identified.
Local libraries hold these maps for their area.
Library of Congress has a large collection.

Sanborn Insurance Maps

**Approaching Rainier, Oregon, Westbound on June 28, 2004
from the cab aboard the Lewis & Clark Explorer –
an RDC formerly operating on British Columbia Railway.**



Tracking Equipment History



RDC3 ORRX 31 is former BCR 31, Amtrak 43 and built new in July 1956 for Great Northern Railway as its 2350, and only RDC car.

Internet Resources

Railpictures.net is a member contributed photo archive.

It has half a million images searchable by several criteria.

The screenshot shows the Railpictures.net website. At the top is a banner for "RAILPICTURES.NET" with the tagline "The BEST railroad photos on the net". Below the banner is a navigation bar with links: Home, Members, Photos, Videos, Forums, and RP Elite. There are also social media icons for Facebook, Twitter, and YouTube, and a "Login - Sign Up" link.

The main content area is divided into several sections:

- Photo of the Week - & Screener's Choices**: Features a large photo of a train and a smaller photo of a train. Below the photos are captions: "Photo of the Week: Alex Keith" and "Screener's Choice: James Belmont".
- Most Popular in the World**: A section with a large photo of a train and text stating "Now with over 448,000 photos online! 87 added so far today - 176 added yesterday - 1068 in last week". It includes a "Sign up" link for a free Member account today!
- Railroad Photo Map**: A map of the United States with numerous red pins indicating photo locations. Below the map is a link to "View Larger Interactive Map".
- Railroad Photo Search Engine**: A search form with the following fields:
 - Select as many of the options below as you wish to generate a search result:
 - Select Locomotive Type... (All Locomotives)
 - Select Railroad... (All Railroads)
 - Select Country/State... (All Countries/States)
 - Select Photographer... (All Photographers)
 - Enter Keywords... (All Fields)
 - Photo Year... (All Years)
- Top of Past 48 Hours**: A section with three small photos of trains.
- Top Shots of Past Week**: A section with three small photos of trains.
- People's Choice Awards**: A section with two small photos of trains.

Internet Resources

The screenshot shows the Yahoo Groups search results for the keyword "railroad". The interface includes a search bar at the top with "railroad" entered, and buttons for "Search Groups" and "Search Web". On the left, there's a sidebar with "Groups Home" and a list of groups including AMRA-Online-NZ, amtrak, BNSF, CGMRC, gngoat, jmriusers, modelintermodal, NMRAAP, North_American_..., northwesterntrails, All My Groups, Manage My Groups, Create a Group, and Browse Groups. The main content area displays a list of groups:

- Free-mo**: English language discussion of Free-mo and Fremo modular model railroad concepts including design, construction, standards, ... 1343 members • Last activity Aug 2
- up_modelers**: ... dealing with modeling the Union Pacific Railroad and/or its predecessors (WP, SP, etc.). This ... 893 members • Last activity Jul 30
- BM_RR**: ... promote the exchange of information regarding the Boston & Maine Railroad and its corporate predecessors. Appropriate historical and ... 957 members • Last activity 3:04 AM
- IHB**: ... for those interested in the Indiana Harbor Belt Railroad (IHB). The IHB is currently owned by the ... 300 members • Last activity Jul 29
- ColoradoMidland**: ... and/or modeling aspects of the Colorado Midland Railroad/Railway, Midland Terminal Railroad, Florence ... 315 members • Last activity Jul 28
- wabashrailroadhistoricalsoc**: This club is an extension of the Wabash Railroad Historical Society for the purpose of promoting and ... 526 members • Last activity 10:43 AM
- InterlockingTowers**: To collect, discuss and disseminate data, history and photographic information about railroad interlockings and towers in North America and ... 283 members • Last activity Jun 05
- Model_Railroad_Sales**: Post your Model Railroad items for Sale or those items that you want to buy ...

Yahoo Groups is a popular forum for numerous topics.

Many railroad historical societies host sites here.

Specific interests like:
steam era freight cars,
JMRI,
railroad operations

All host discussions you can participate in and learn from.

Internet Resources

The screenshot shows an eBay search results page for the keyword 'railroad'. The page features a sidebar on the left with category filters such as 'Collectibles', 'Toys & Hobbies', 'Books', 'Home & Garden', 'Clothing, Shoes & Accessories', 'Coins & Paper Money', 'Art', 'Stamps', 'Jewelry & Watches', 'Music', 'DVDs & Movies', 'Antiques', 'Crafts', 'Video Games & Consoles', and 'Entertainment Memorabilia'. The main content area displays three search results. The first result is a 'Reading Railroad Brass Plate Figural RR Locomotive Advertising Paperweight' for NZD 31.07. The second result is a 'Vintage Tool Check Brass Tag: NEW YORK CENTRAL RAILROAD; Railroadiana' for NZD 16.82. The third result is a 'Jas. P Marsh Corporation Chicago Brass Steam gauge Railroad Industrial Steampunk' for NZD 63.43. The right sidebar contains a 'genesis' logo, a promotional banner for 'make a splash', and a 'Popular on eBay' section.

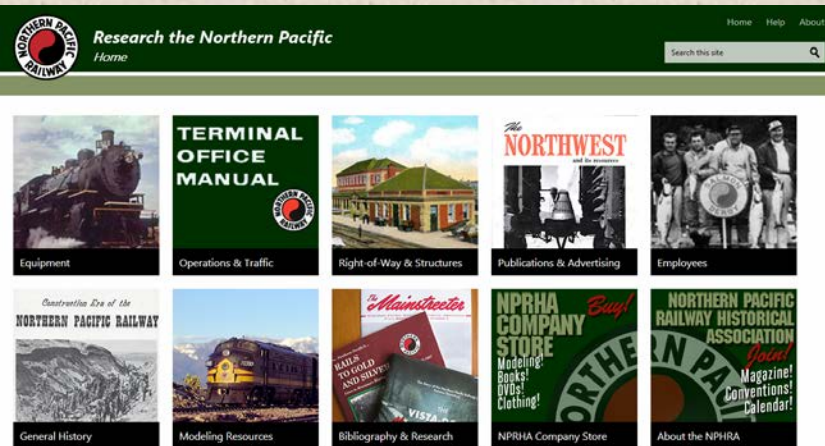
eBay can be a source of significant material towards your research project.

On this day the search word **railroad** yielded 197,159 items.

You may want to refine it a bit!

Research Hint:
Start with broad term, then filter!

Internet Resources



Railway Historical Societies have web sites of variable utility.

The Northern Pacific Railway Historical Association has significant collections on their web site.

They include photos, equipment diagrams, depots, track plans, operating information.

The New York Central System Historical Society site provides links to internal and outside resources.

The Union Pacific Historical Society provides some of each.

<http://www.nprha.org/Pages/Home.aspx>



<http://nycshs.org/>

Internet Resources

What's New

Western Canada Commercial Fleet
Integration Program for grain shippers

[READ MORE](#)

[About CN](#) [Investors](#) [Media](#) [Careers](#) [Contact Us](#) [English](#) [▼](#)

**Modern Railroads
all have web sites.**

**Here is the home
page for **Canadian
National Railway.****

**Some corporate
sites include brief
histories of their
systems.**

**Most Railroads
have a historian
and library.**

**Railroads are
operating a
business. They do
not necessarily
know minutiae of
their history.**



[Your Industry](#)

[Our Business](#)

[Customer Centre](#)

[Delivering Responsibly](#)

[Customer Login](#) ▼

[Search](#)

Shipping Solutions



Destinations

Whether you're importing to or exporting, we can help you capitalize on market opportunities.



Video Gallery

Come and take a virtual tour of our network and service offering through our video gallery.



Products

Whether it is shipping bulk, industrial or consumer products, CN is ready to help you transport your goods to market.

Latest News

August 8, 2014

CN Western Canada Commercial Fleet Integration Program for grain shippers [read more](#)

July 31, 2014

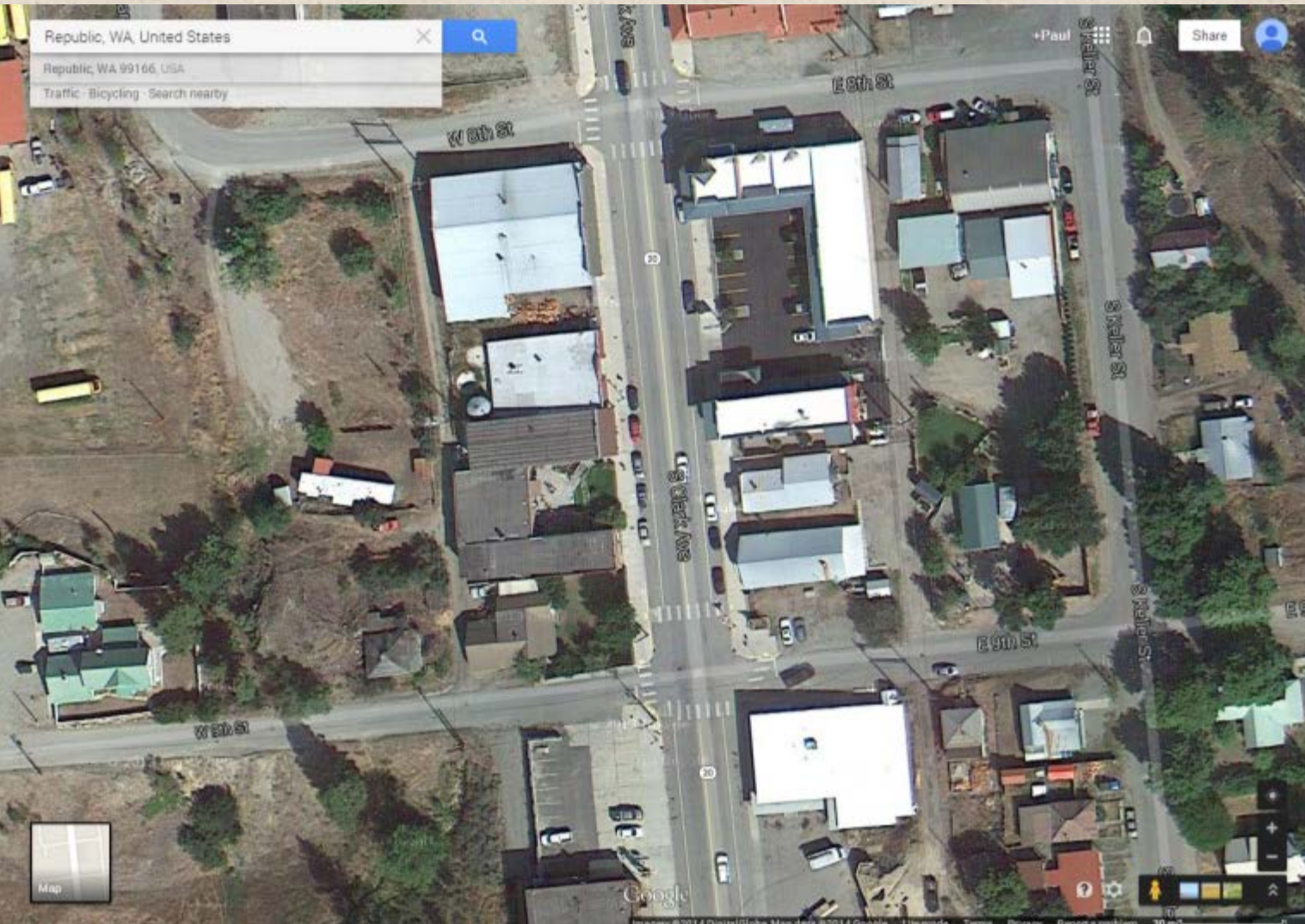
CN Optional Services Carload - Changes Effective September 1, 2014 [read more](#)

Customer Essentials

[Maps](#)

[Rate Card Prices](#)

Internet Resources



**Google Maps with
Satellite view.**

**Here is the
Northern Inn at
Republic,
Washington.**

<https://www.google.co.nz/maps/place/Republic,+WA+99166,+USA/@48.6451589,-118.7376198,177m/data=!3m1!1e3!4m2!3m1!1s0x549d6ea629f11965:0x5905f1f1bf44886d?hl=en>

Internet Resources



**Google Maps with
Satellite view.**

**Wishram,
Washington,
100 miles up the
Columbia River
from Portland.**

**You can zoom in
to detailed track
plan.**

**Overall track
layout is generally
similar to SP&S
days (45 years
ago), with
numerous
structures now
removed or
replaced.**

<https://www.google.co.nz/maps/place/Wishram,+WA,+USA/@45.6557441,-120.9606823,2999m/data=!3m1!1e3!4m2!3m1!1s0x5496274973eb0ead:0x6efa8738004c0a41?hl=en>

Internet Resources



Google Maps with Satellite view.

Wishram, Washington, 100 miles up the Columbia River from Portland.

You can zoom in to detailed track plan.

Overall track layout is generally similar to SP&S days, with numerous structures now removed or replaced.

<https://www.google.co.nz/maps/place/Wishram,+WA,+USA/@45.6557441,-120.9606823,2999m/data=!3m1!1e3!4m2!3m1!1s0x5496274973eb0ead:0x6efa8738004c0a41?hl=en>

Internet Resources



Main page

Contents

Featured content

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Special pages

Permanent link

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Wikidata item

Cite this page

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Create a book

Download as PDF

Printable version

Languages

Alemannisch

العربية

Azərbaycanca

Беларуская

Беларуская

(тарашкевіца)

Български

Čeština

Article Talk

Read

Edit

View history

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Create account Log in

Rail transport

From Wikipedia, the free encyclopedia
(Redirected from [Railroad](#))

"Railway" and "Railroad" redirect here. For other uses, see [Railway \(disambiguation\)](#).

Rail transport is a means of [conveyance of passengers and goods](#), by way of wheeled vehicles running on [rails](#). It is also commonly referred to as [train transport](#). In contrast to [road transport](#), where vehicles merely run on a prepared surface, rail vehicles are also directionally guided by the tracks on which they run. Track usually consists of [steel](#) rails installed on [sleepers/ties](#) and [ballast](#), on which the [rolling stock](#), usually fitted with metal [wheels](#), moves. However, other variations are also possible, such as slab track where the rails are fastened to a concrete foundation resting on a prepared subsurface.

Rolling stock in railway transport systems generally has lower frictional resistance when compared with [highway](#) vehicles and the passenger and freight cars (carriages and wagons) can be coupled into longer [trains](#). The [operation](#) is carried out by a [railway company](#), providing transport between [train stations](#) or freight customer facilities. Power is provided by [locomotives](#) which either draw [electrical power](#) from a [railway electrification system](#) or produce their own power, usually by [diesel engines](#). Most tracks are accompanied by a [signalling system](#). Railways are a safe land transport system when compared to other forms of transport.^[*Nb 1*] Railway transport is capable of high levels of passenger and cargo utilization and energy efficiency, but is often less flexible and more [capital-intensive](#) than [highway](#) transport is, when lower traffic levels are considered.

The oldest, man-hauled railways date back to the 6th century B.C, with [Periander](#), one of the [Seven Sages of Greece](#), credited with its invention. Rail transport blossomed after the British development of the [steam locomotive](#) as a viable source of the power in the 18th and 19th centuries. With steam engines, it was possible to construct mainline railways, which were a key component of the [industrial revolution](#). Also, railways reduced the costs of [shipping](#), and allowed for fewer lost goods, compared with shipping, which faced occasional sinking of ships. The change from canals to railways allowed for "national markets" in which prices varied very little from city to city. Studies have shown that the invention and development of the railway in Europe was one of the most important technological inventions of the late 19th century for the United States, without which, GDP would have been lower by 7.0% in 1890.

In the 1880s, [electrified](#) trains were introduced, and also the first tramways and rapid transit systems came into being. Starting during the 1940s, the non-electrified railways in most countries had their steam [locomotives](#) replaced by [diesel-electric](#) locomotives, with the process being almost complete by 2000. During the 1960s, electrified [high-speed railway systems](#) were introduced in [Japan](#) and a few other countries. Other forms of guided ground transport outside the traditional railway definitions, such as [monorail](#) or [maglev](#), have been tried but have seen limited use.

Contents [hide]



Four BNSF GE C44-9W diesel locomotives hauling a mixed freight train along the banks of the Columbia River, between Kennewick and Wishram, Washington State, USA

Part of a series on
Transport

Modes

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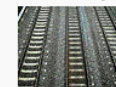
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V · T · E

Rail transport



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Depending on who you talk to Wikipedia will be lauded or maligned.

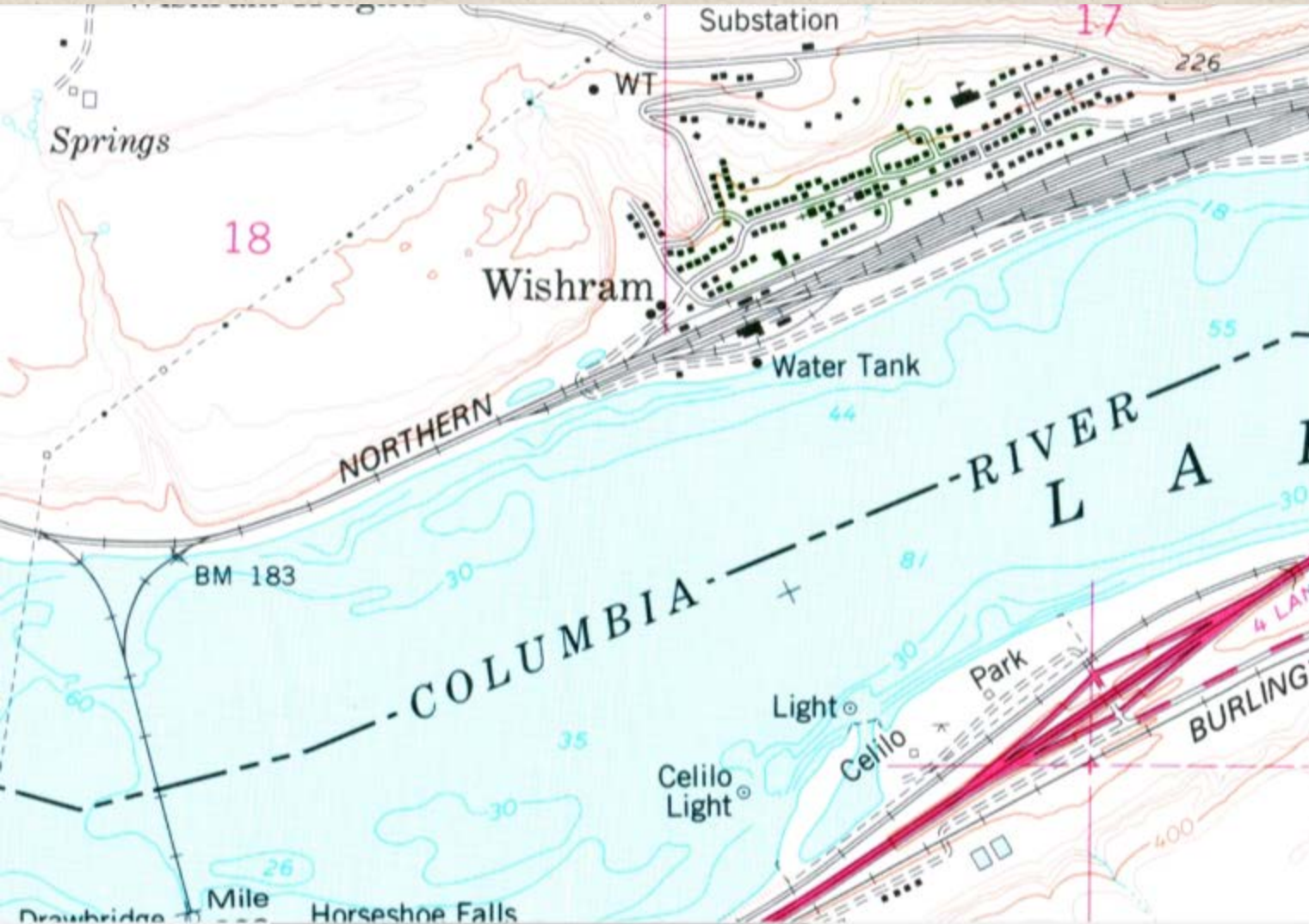
Information here is vast.

It is entered by any account user, and thus suspect by some.

Generally historical data is credible, with references.

Usually entered by knowledgeable historians on the subject.

USGS Maps



United States Geological Survey provides maps in several scales.

Most common are the 15 minute and 7.5 minute series.

This part of the 7.5 minute map for Wishram shows the track layout reasonably accurately.

This is from the United States Geological Survey Map Wishram, Oreg.-Wash. in the 7.5 Minute series.
Dated 1977. Paul Hobbs Collection

USGS Maps

United States Geological Survey provides maps in several scales.

The same map is available as the second item on this list.

Note: several dates are available.

You can purchase the paper map, or download the .pdf.

1:24,000 = 7.5'
1:62,500 = 15'

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Books



Very likely there are books about your favorite railroad.

Popular 128-page pictorials from *Four Ways West*, *Morning Sun* and others have unleashed many slide collections and provided images of much equipment and numerous locations for current and fallen flag railroads.

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Books



The Pennsylvania Railroad has been documented in this series of books, each highlighting a segment of the railroad's line in detail.

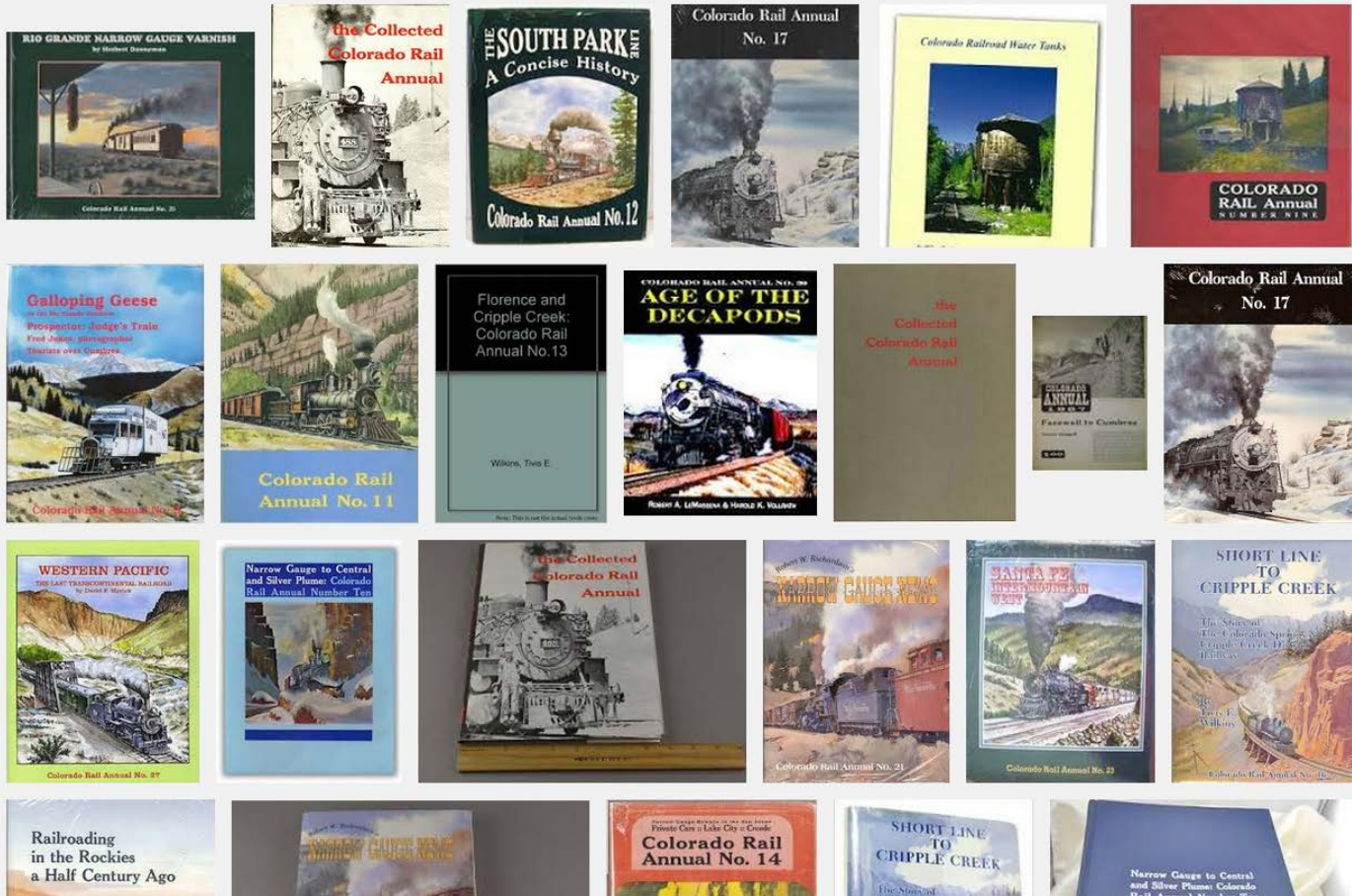
Many books feature the history and operations of the PRR.

<http://www.ebay.com/itm/Triumph-Prr-Pennsy-railroad-book-series-vols-1-8-Messer-Roberts-b-o-/150944462088>

Books

The railroads of Colorado are well documented.

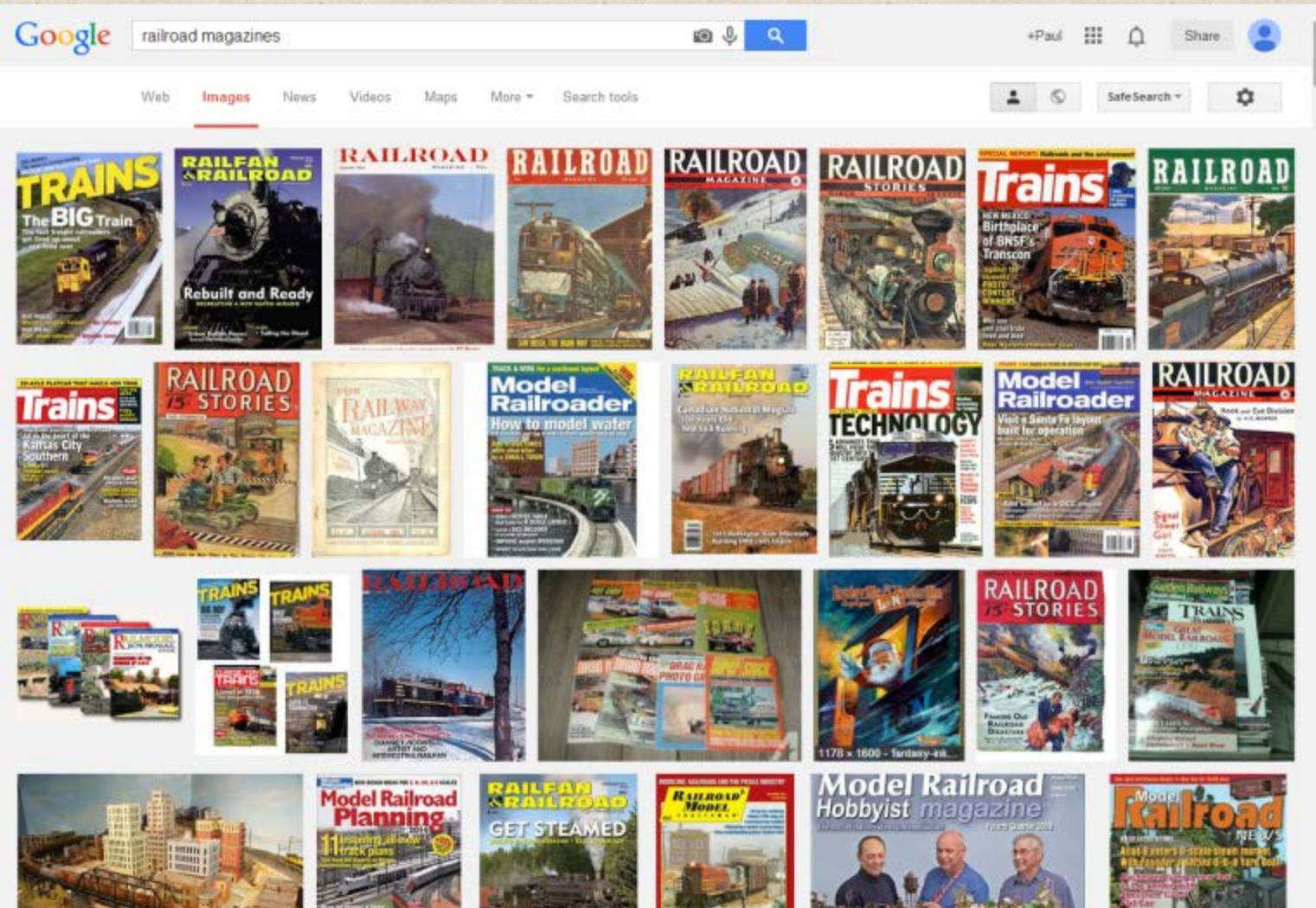
The Colorado Railroad Museum has been publishing its popular “**Colorado Rail Annual**” for more than 30-years.



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Magazines

These, among other titles, contain many articles of railroad historic information.



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Magazines

Kalmbach has built a comprehensive index of articles in numerous magazines.

The screenshot shows the 'trains.com' Magazine Index page. At the top, there's a navigation bar with links for 'Trains.com', 'Site', 'Resources', 'Shop', and 'E-mail Newsletters'. Below this is a banner featuring the 'trains.com' logo and a row of magazine covers: 'Model Railroader', 'Trains', 'Classic Toy Trains', 'Garden Railways', and 'Classic Trains'. The main content area is titled 'Magazine Index' and includes a search bar with a 'Search »' button and a link to 'Advanced Search'. A welcome message states: 'Welcome to the Trains.com Magazine Index. Search entries for more than 70,000 print magazine articles on prototype and model railroading from 1932 to the present day. You'll also find direct links to Kalmbach Publishing Co. titles that are available for purchase.' Below this is a 'Browse Magazines' section with a grid of magazine covers and their titles: 'Model Railroader', 'Trains', 'Classic Toy Trains', 'Garden Railways', 'Classic Trains', 'Railroad Model Craftsman', 'NMRA Bulletin', and 'Narrow Gauge & Short Line Gazette'. A 'View all magazines »' button is at the bottom left. On the right side, there's a user login area with 'Welcome PAUL T HOBBS' and a 'Logout »' link. Below that is a search bar for the site and a 'go' button. Further down is a 'Help' section with links to 'Contact Us »' and 'Customer Service'. A prominent red box contains the text 'Get our free e-mail newsletters' followed by a list of newsletters: 'Model Railroader (weekly)', 'Model Railroader VideoPlus (weekly)', 'Trains (weekly)', 'Classic Toy Trains (bi-weekly)', 'Garden Railways (bi-weekly)', and 'Classic Trains (bi-weekly)'. It also includes a sign-up form with an 'E-mail address' field and a 'sign up »' button, along with links for 'Details about our newsletters »' and 'Read our privacy policy »'. At the bottom right, there's a 'SPECIAL EDITION CLASSIC COMBO!' promotion with an 'ORDER HERE >>' button and images of 'STEAM', 'Classic Trains', and 'TRAINS of the 1950s' magazines.

<http://trc.trains.com/magazineindex/>

Magazines

Keywords
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just one is a
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publication.

Using other search
criteria you could
find the more than
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railroad I have
located over the
years.

The screenshot shows the trains.com website interface. At the top, there's a navigation bar with links for 'Trains.com Sites', 'Resources', 'Shop', and 'E-mail Newsletters'. Below this is a banner featuring five magazine covers: 'Model Railroader', 'Trains', 'Classic Toy Trains', 'Garden Railways', and 'Classic Trains'. The main content area is titled 'Magazine Index' and contains a search bar with the text 'spokane portland'. Below the search bar, it says '23 matches for *spokane portland*' and 'Page 1 of 3'. The search results list several articles, including 'Alco Locomotives, Spokane, Portland and Seattle Railway' by George Hardy, 'ACF gondola' by Kinkaid, James, and 'Wishram, Washington' by Schmidt, Paul. Each article entry includes the author, the magazine issue, and page number. A 'Buy this issue' button is visible next to the 'Wishram, Washington' article. On the right side of the page, there's a sidebar with a 'Welcome PAUL T. HOBBS' message, a search bar, and a section for 'Get our free e-mail newsletters' listing various magazines. At the bottom right, there's a large yellow box with the text 'FREE GIFT!' and 'CLICK HERE >>' leading to a 'Subscribe' button.

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spokane portland Search

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Alco Locomotives, Spokane, Portland and Seattle Railway
by George Hardy
from Mainline Modeler November 2004 p. 54
[alco locomotive](#) [SP&S](#)

ACF gondola
41 steel gon built for Spokane, Portland & Seattle
by Kinkaid, James
from Mainline Modeler November 2003 p. 48
[drawing gondola](#) [Q prototype](#) [SP&S](#)

Wishram, Washington
Spokane, Portland & Seattle division point in 1969
by Schmidt, Paul
from Trains March 2003 p. 28
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photos of SP&S 700 on fall excursions
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Keys to Eras

- **Equipment on the railroad has definite life cycle**
- Mainline Locomotives average 20 years
- Switching Locomotives average 50 years
- Freight Cars average 40 years
- Containers and Trailers average 10 years
- Equipment gets major service 5 years
- Equipment gets repainted 20 years

Keys to Eras

- **Steam Locomotives seemed to add one axle per decade for premier mainline single-engine power:**

	Passenger	Freight	Axles
○ 1890s	4-4-0	2-6-0	4
○ 1900s	4-6-0	2-8-0	5
○ 1910s	4-6-2	2-8-2	6 Large Fireboxes
○ 1920s	4-8-2	2-8-4	7 Super Power
○ 1930s	4-8-4	2-10-4	8

This does not indicate when the wheel arrangement came into use – just dominance, e.g. the 2-6-0 and 2-8-0 origins date to the mid 1860s.

Numerous wheel arrangements, including articulated, had niches on the railroad. Outmoded types continued in secondary service for many years.

Keys to Eras

○ Diesel Locomotives evolved differently:

- 1930s Streamlined passenger, plus switchers
- 1940s Road freight cab units
- 1950s Road Switcher — railroads complete dieselization
- 1960s Horsepower race — GE arrives, ALCO departs
- 1970s 3000 HP SD40-2 and U30C dominate
- 1980s AC traction emerges
- 1990s 4000 HP C44-9 and SD70M dominate
- 2000s 4400 HP ES44 and SD70ACE dominate
- 2010s Gensets, Tier 4 emissions issues

Keys to Eras



PRR lettering still on heritage equipment.

Burlington Northern paint scheme dates from March 1970.

PC on new hopper since 1968.

KarTrak ACI labels were introduced in 1968, but abandoned in the late 1970s.

Keys to Eras



Outbound Metra train.

New image on nearest car.

Other paint scheme on older cars without stainless steel sides.



1976

Chicago's commuter railroads introduced gallery cars from 1950.

The Regional Transportation Authority was created in 1974, gradually introducing a unified color scheme.

From a 1983 reorganization, Metra became the heavy rail component of RTA (which also funds the CTA and Pace).

S760733p Paul Hobbs Image, Milwaukee Road Western Avenue Station, April 1976



1980



S801434p Paul Hobbs Image, Northwestern District, Regional Transportation Authority, May 1980

S801433p Paul Hobbs Image, May 1980



1999



S990631p Paul Hobbs Image, Illinois Railway Museum, August 1999

S990926p Paul Hobbs Image, Route 59 Station, Aurora Line, August 1999

Keys to Eras

**BNSF 512 is B40-8W
built in October 1990
as ATSF 512 (Patch)**

**6260 is SD38P rebuilt in July 1993 from
SLSF 296 with
TEBC6 6298 rebuilt from SD-9 BN 6224 in
June 1993. Both in last BN paint scheme**

**BNSF 6878 is
SD40-2 built in
September 1980 as
ATSF 5150**

**BNSF 5491 is
C44-9W delivered
in May 2000**



S030121p Paul Hobbs Image, Argentine Yard, Kansas City, Missouri, March 2003

Roster information from <http://www.trainpix.com/bnsf/ROSTER.HTM>
And Burlington Northern Santa Fe 1994 Annual, by Robert C. Del Grosso

Keys to Eras

Autoracks entered service about 1960.

Protective side panels from mid 1960s

Fully Enclosed from 1973

AutoMax from 1999



S732219p Paul Hobbs image, Norfolk & Western, Bellevue, Ohio, October 1973



DSCF1002 Paul Hobbs image, Montana Rail Link, Logan, Montana, July 16, 2012



DSCF0989 Paul Hobbs image, Montana Rail Link, Logan, Montana, July 16, 2012

Freight Operations

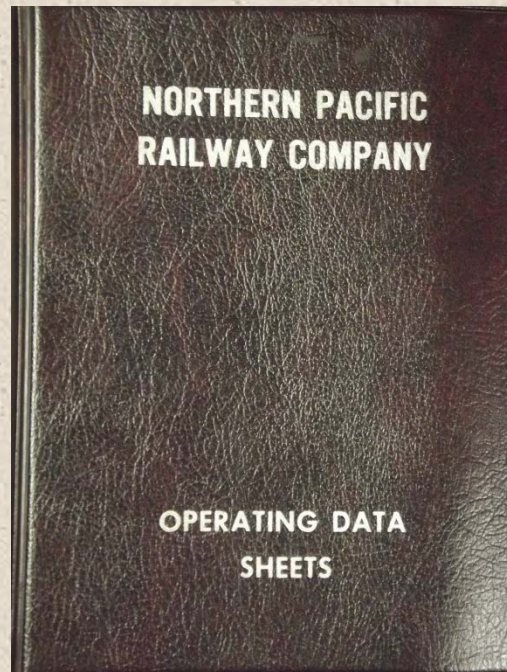
- **Most Freight Trains run as Extras**
- This does not mean the operation is random
- Mainline trains have schedules, specific stops, known connecting traffic
- Cars in trains are recorded in “Wheel Reports”

Train Brief

Train Brief (term may differ on other railroads)

The page is for NP 641 between Pasco and Auburn.

It details the schedule, traffic carried, connecting trains, train blocking and directs switching at way stations.



TRAIN BRIEF	
Train:	No. 641
Frequency:	As required.
Purpose:	Handle overflow traffic from Pasco to Yakima and Auburn.
Schedule:	Lv Pasco 1:00 AM Day 1 Ar Yakima 4:00 AM Lv Yakima 5:00 AM Ar Auburn 1:00 PM
Pasco:	Receives from 601, 603, 607, locals and industries.
Priorities:	1. Loads and empties for Auburn and beyond 2. Loads and empties for Yakima
Grouping:	1. Shorts 2. Longview 3. Kalama 4. Vancouver 5. Portland 6. Tacoma 7. Auburn local and north 8. Seattle 9. Yakima set out 10. Caboose
Yakima:	Delivers to locals and industries. Receives from locals and industries.
Auburn:	Delivers to 2/680, locals and industries.
Office of GST.	7-1-68

60.

ST. PAUL DIV.
FARGO DIV.
YELLOW STONE DIV.
ROCKY MT. DIV.
IDAHO DIV.
TACOMA DIV.

Train Brief

Train Brief (term may differ on other railroads)

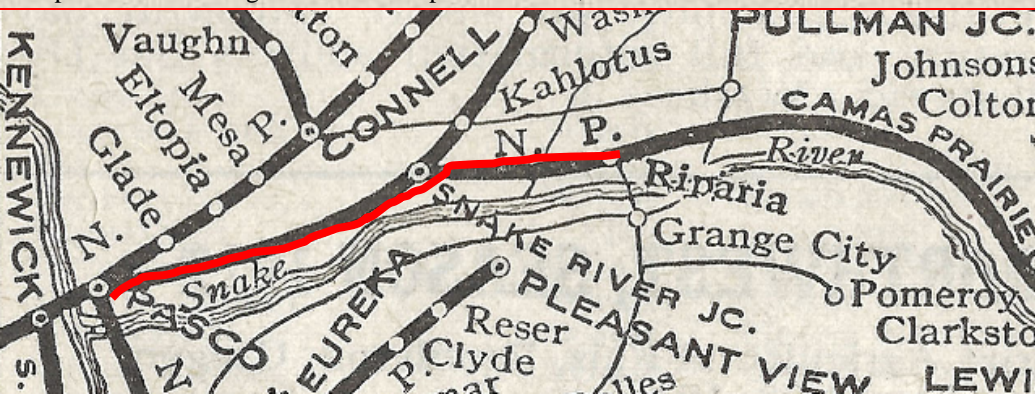
The page is for NP 1252-1253 Pasco – Riparia Turnaround Local.
66.4 miles each way.

It details the schedule, traffic carried, connecting trains, train blocking and directs switching at way stations.

IDAHO DIVISION LOCAL TRAIN BRIEF

Trains:	1252 - 1253 Pasco-Riparia Turnaround Local
Frequency:	Daily except Sunday
Purpose:	Interchanges traffic at Riparia to and from Camas Prairie Railroad. Runs Pasco to Ainsworth Junction via SPS-NP to Villard Junction, then joint NP-UP trackage to Attalia and UP trackage to Riparia.
Traffic Handled:	Lumber, paper products, grain, empties on order for Camas Prairie.
Schedule:	On duty Pasco 8:30 PM
Connections:	Camas Prairie Train 859
Terminal Handling:	Cars in station order
On-line Performance:	Occasional pickup or setout at Attalia. Train must not be delayed enroute due to congestion at UP Ayer Yard.

Map from NP Passenger Timetable September 1912; Paul Hobbs Collection



Northern Pacific Railway Company, Operating Data Sheets 1969
Gary Wildung Collection

Wheel Reports

Definition

Wheel Report

A list of cars in a train showing destination, weight, load or empty status, etc. for each, and which the conductor updates as the train picks up and sets out cars en route.

Also certain way-stations maintain lists of cars passing through that point.

GN97
March 2, 1968

Wheel Report at Willmar, MN

Transcribed to
spreadsheet

1							Great Northern Railway							
2							Willmar,MN							
3							Train 97 March 2,1968							
4							Twin Cities-Minot-Havre-Spokane-Seattle							
5							Chief Dispatcher Minneapolis							
6														
7						H30203509702UD	89 Loads		1 Empties	4120 Tons				
8	Initials	Number	L/E	Kind	Tons	Contents	Junction	Destination	Consignee	Remarks	Origin			Shipper
9	GNE	403	L	EP						SD45				
10	GNE	402	L	ES						SD45				
11	GNE	401	L	ES						SD45				
12	GN	X2	L	NE						Caboose				
13							Rear of Train							
14	NIFX	7512	L	B	10	CAMPERS	11118	GREAT FALLS	MT	VESELY				
15	RTTX	900910	L	F3	15	AUTOS	12373SP	TIGARD	OR	SOUPACIFIC				
16	RTTX	903731	L	F3	20	AUTOS	15129	VANCOUVER	BC	JOHNSTONT				
17	RTTX	900639	L	F3	15	AUTOS	15114	ROYAL OAK	BC	CANAUTCAR				
18	RTTX	911578	L	F3	15	AUTOS	12373SP	TIGARD	OR	FORD				
19	GN	60327	L	F7		G379	00916	MINOT	ND	AGENT				
20	GTTX	300813	L	F8		GNZ501081	12375	PORTLAND	OR	SWIFT				
21	GN	172404	L	C6	75	CORN	61976	SPOKANE	WA	ATWOODLAR				
22	GN	33525	L	B2	15	MDSE	05495	SURREY	ND	AGENT				
23	GN	51714	L	B	15	MDSE	59214	FAIRVIEW	MT	AGENT				
24	GN	3334	L	B8	15	MDSE	01345	HAVRE	MT	AGENT				
25	GN	20950	L	B2	15	MDSE	11118	GREAT FALLS	MT	AGENT				
26	GN	44272	L	B	15	MDSE	01036	WILLISTON	ND	AGENT				
27	CBQ	30668	L	B	15	MDSE	01036	WILLISTON	ND	AGENT				
28	GN	18034	L	B2	10	MDSE	00911	MINOT	ND	TRANSLOAD				
29	GN	50113	L	B	15	MDSE	01036	WILLISTON	ND	AGENT				

Traffic Analysis

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ALASKAN RAILWAY—ELECTRIC RAILWAYS

No. 419.—ALASKAN GOVERNMENT RAILROAD TRAFFIC: ANALYSIS OF STATISTICS OF PASSENGER AND FREIGHT SERVICES, YEAR ENDED JUNE 30, 1926

PASSENGER TRAFFIC		FREIGHT TRAFFIC	
Road mileage operated—monthly average	543.7	Freight train-miles.....	81,176
Passenger train-miles ¹	15,098	Mixed train-miles.....	141,027
Mixed train-miles ¹	141,027	Loaded cars, 1 mile, freight trains.....	928,721
Passenger car-miles, passenger trains ¹	15,122	Loaded cars, 1 mile, mixed trains.....	315,925
Passenger car-miles, mixed trains.....	290,080	Empty cars, 1 mile, freight trains.....	459,576
Total revenue passengers carried.....	57,567	Empty cars, 1 mile, mixed trains.....	214,022
Number of revenue passengers carried		All cars, 1 mile.....	1,918,245
1 mile.....	3,505,717	Percentage of loaded to total car-miles.....	65
Average distance per passenger carried, miles.....	60.98	Tons of revenue freight carried:	
Total passenger revenue.....	\$196,795	Coal.....	32,553
Revenue per passenger.....	\$3.42	Miscellaneous.....	32,483
Average revenue per passenger per mile.....	\$0.05614	Tons of revenue freight carried 1 mile.....	12,267,225
Average revenue per train-mile, passenger and mixed.....	\$1.26	Average distance hauled per revenue ton, miles.....	188.62
Average number of revenue passengers per train-mile.....	22.45	Total freight revenue.....	\$550,614
Average revenue per car-mile.....	\$0.66665	Average revenue per ton per mile.....	\$0.04562
		Average revenue per train-mile.....	\$2.52
		Average revenue tons per loaded car-mile.....	9.86
		Average revenue per loaded car-mile.....	\$0.44962
		Average revenue tons per car-mile loaded and empty.....	6.40
		Average revenue tons per train-mile.....	55.21

¹ Motor miles.

Source: Department of the Interior.

Traffic Analysis

Yakima Valley Transportation Co.

(Union Pacific subsidiary)

revised Jan 15, 2009

Traffic inbound/outbound in reefer cars

from full year 1967 waybill data

compiled by Mark Amfahr

source of original waybill data unknown

Summary

Cars

sorted by initials:

initials	quantity	% of total
ART	1	0%
NPM	4	0%
PFE	1060	99%
REX	1	0%
SFRD	2	0%
	1068	

by overall length:

length	quantity	% of total
unknown	13	1%
40-foot	645	60%
50-foot	304	28%
57-foot	106	10%
	1068	

PFEs, by class:

class	quantity	% of total
(non-PFE) / unk	14	1%
R-40-10	3	0%
R-40-23	34	3%
R-40-25	85	8%
R-40-26	251	24%
R-40-27	220	21%
R-40-28	11	1%
R-40-30	40	4%
R-50-6	62	6%
R-70-5	12	1%
R-70-7	2	0%
R-70-8	10	1%
R-70-9	26	2%
R-70-10	23	2%
R-70-12	169	16%
R-70-13	19	2%
R-70-14	14	1%
R-70-15	29	3%
R-70-16	36	3%
R-70-17	8	1%
	1068	

Contents

product	quantity	% of total
apples	820	77%
cherries	39	4%
dried apples	1	0%
insulation	1	0%
lumber	1	0%
merchandise	1	0%
mixed fruit	103	10%
nursery stock	1	0%
peaches / pears	1	0%
pears	97	9%
pears / prunes	3	0%
	1068	

refrigeration:

	quantity	% of total
unknown	13	1%
ice reefer	605	57%
mechanical	450	42%
	1068	

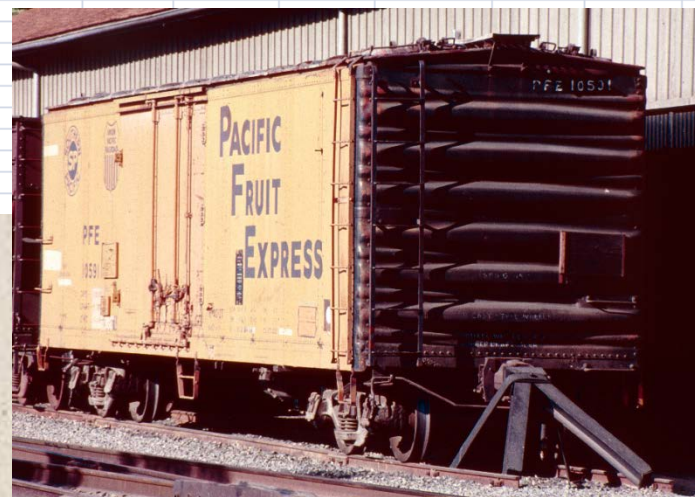
percentages may not add to 100 due to rounding

Peak shipping months

October, November, December *

Majority of business in older 40-Foot

Ice Refrigerator Cars.



S931433p Paul Hobbs Slide, Sacramento California, July 1993

https://groups.yahoo.com/neo/groups/Classic_UP/files/Train%20lists%20%26%20traffic%20info/

Here is an analysis of Refrigerator traffic in 1967
originating at Yakima, Washington from waybill data.

It is a file on the Yahoo Group Classic UP.

* From online newspaper archive

Traffic Analysis

Here is an analysis over 35-years of general freight traffic (not including coal, ore, intermodal, grain).

Larger capacity cars mean fewer carloads for the same tonnage.

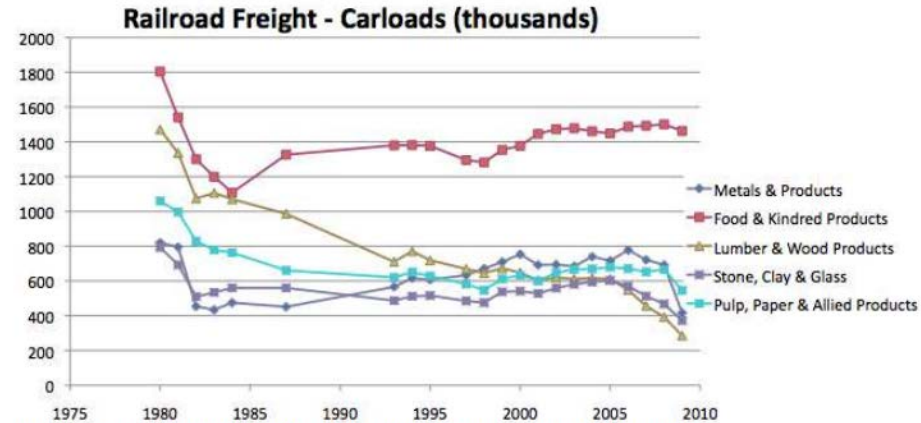


Figure 5: US Freight Rail General Freight, Carloads (thousands)

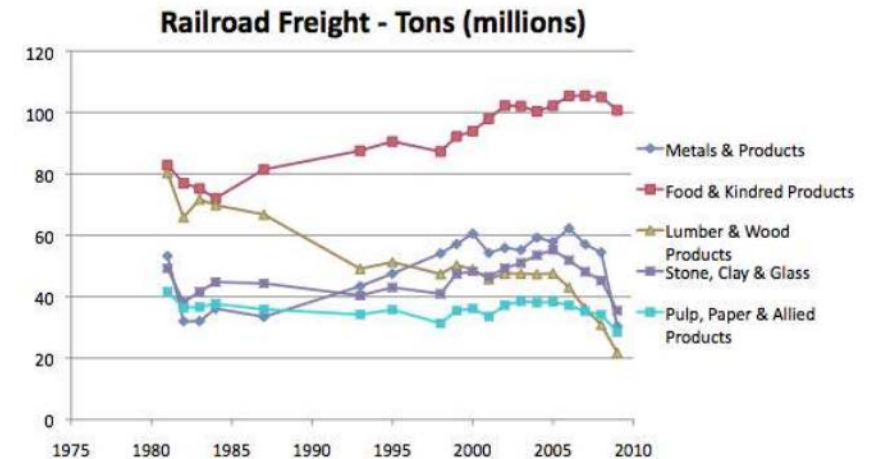


Figure 6: US Freight Rail General Freight, Tons (millions)

Railroad Freight - Average Tons/Car

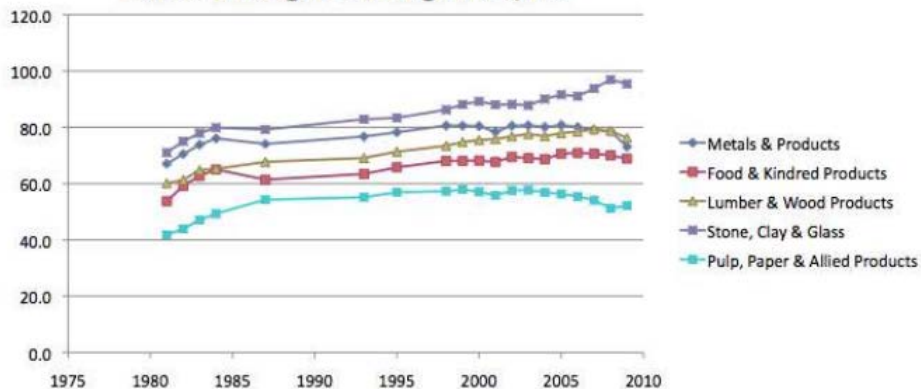
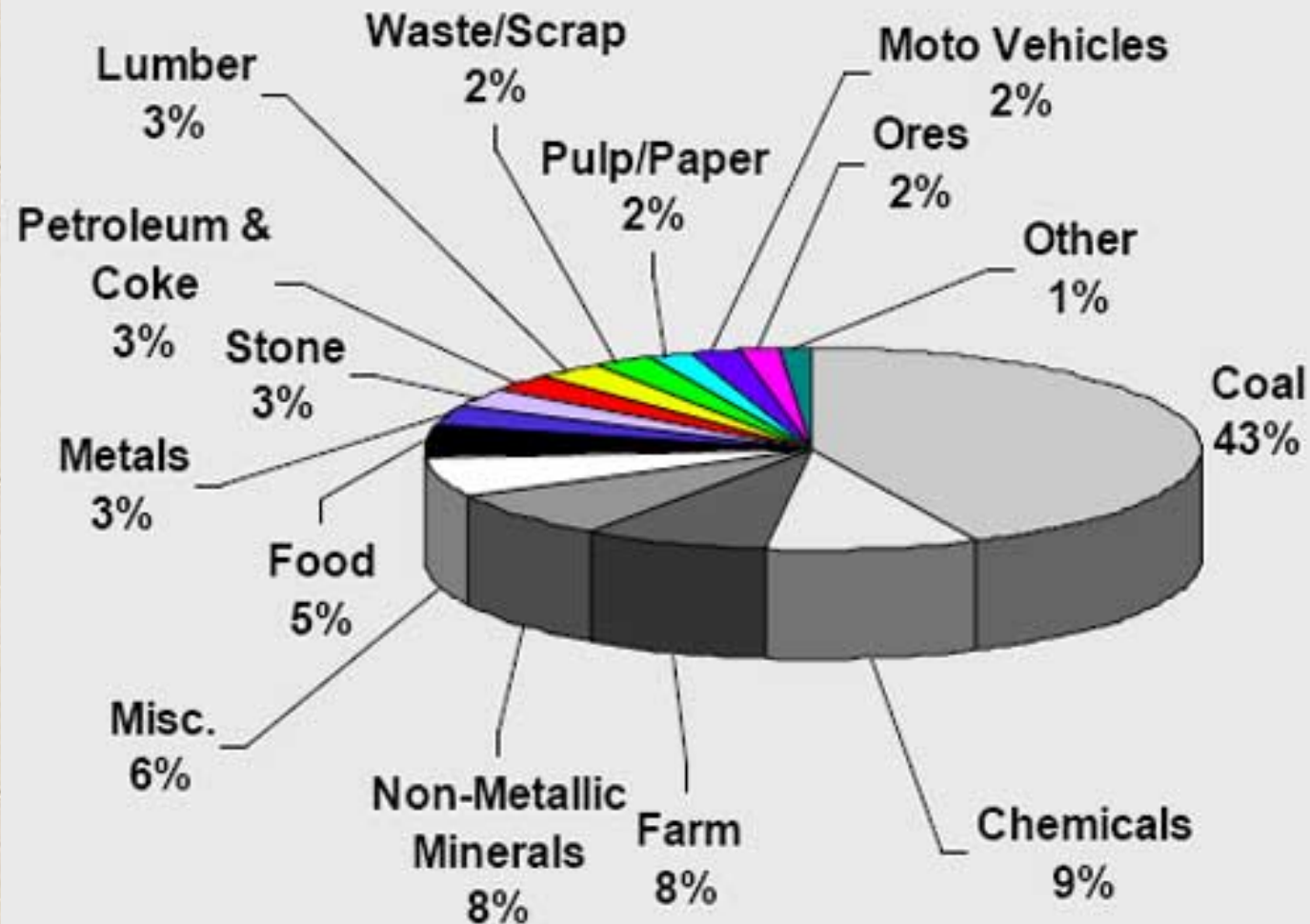


Figure 7: US Freight Rail General Freight, Average Tons/Car

Traffic Analysis

This pie chart shows the percentage of each commodity type carried on Class I railroads in 2004.



Class I Railroads Total Tons Originated 2004 – 1,844,202

Planning for future growth

This is a 75-page university study in 2007, using Open-Track software to propose directional running on BNSF and UP to handle the growth of traffic in 2020.

In 2004 the railroads ran a daily average of 26 trains each, growing to 46 each by 2020.

FREIGHT RAILROAD CAPACITY ALTERNATIVES IN THE PACIFIC NORTHWEST: AN ANALYSIS OF CLASS 1 COOPERATION IN THE COLUMBIA RIVER GORGE

by

ZACHARY HOROWITZ

A research project report submitted in partial fulfillment
of the requirement for the degree of

MASTER OF SCIENCE
in
CIVIL AND ENVIRONMENTAL ENGINEERING

Portland State University

2007

Columbia Gorge Railroad Network

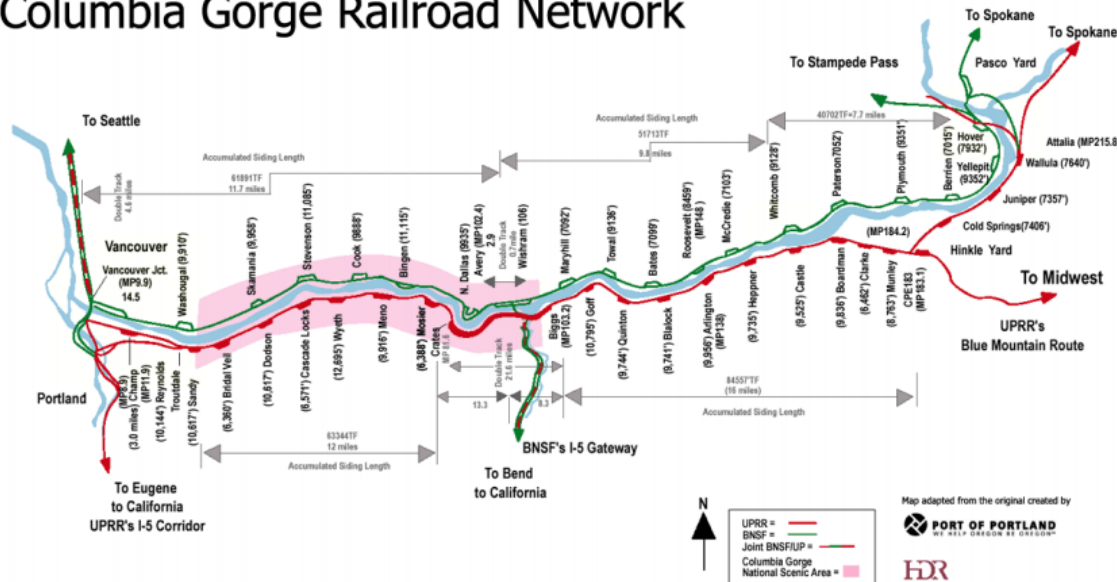


Figure 1 Columbia Gorge Railroad Network (3)

Exotic Equipment



S971219p Paul Hobbs Slide

DODX 39916 Flat Car with Containment Vessel – nuclear fuel rods for aircraft carriers and submarines. The 12-axle car was in a yard at Baltimore, Maryland during 1997. Cars like this are rarely seen, and in select traffic lanes – like serving a naval shipyard!

Exotic Equipment



<http://www.northeast.railfan.net/images/bnsf800121.jpg>

BNSF 800121 Flat Car with Boeing 737 fuselage.

Montana Rail Link and BNSF northern lines feature these cars regularly, going from Wichita, Kansas to Renton, Washington to be completed.

Exotic Equipment



http://www.jeffstrainsite.com/railfan_pics/Industrial_Railcars/steel_industry/inlx_bottle-car_148.jpg

Arcelor Mittal Bottle Car No. 148

These cars transport molten metal around steel mills.

It's not just the trains

- **Railroads serve many different industries**
- Meat Reefers are different from Fruit Reefers
- Oil tank cars are different from Chemical tank cars
- Grain covered hoppers are different from Cement cars
- A ton of feathers takes more room than a ton of lead
- Understanding the industries the railroad serves makes our modeling more realistic.

It's not just the trains

Part of the KapStone Paper and Packaging plant at Longview, WA.

There are two tank “farms”, one for acid cars and the other for caustic soda cars.

This industry receives woodchips, dispatches box cars of paper.

The plant uses its own switchers. It is served by both BNSF and Union Pacific.



It's not just the trains

Yellowstone Packing Company, Billings, MT.

Interesting group of buildings with loading spur for refrigerator cars. A stockyard should be beyond the buildings.

Very modelable!

Google wanted to advise on packing for a visit to Yellowstone National Park!



It's not just the trains

Steelcon Supply
Company, Eastside,
Jacksonville, FL.

A bland,
unidentified
building.

Could be anything.

That gate hasn't
been closed in a
while!

Before its current
use the facility was
a lumber
wholesaler.



<https://www.flickr.com/photos/75483597@N06/14514017295>

**This discussion has hardly
scratched the surface on
research possibilities.**

- **You rarely get the entire answer from one resource.**
- **Don't be discouraged if you do not find what you are looking for – you proved it wasn't where you looked, or that the data may not exist.**
- **Everything learned will lead to the next question.**
- **Share what you learn and people will call you an EXPERT.
You might know better!**

**YOU THOUGHT
PROTOTYPE RESEARCH
MIGHT BE FUN?**

The End

Thank you for visiting