

CHICAGO NORTH SHORE and MILWAUKEE RAILWAY COMPANY

A N N U A L   R E P O R T

FOR THE YEAR 1949

SUPERINTENDENT OF WAY, STRUCTURES and POWER

Highwood, Illinois  
February 21, 1950

CHICAGO NORTH SHORE and MILWAUKEE RAILWAY COMPANY

WAY, STRUCTURES and ELECTRIC POWER SERVICE

ANNUAL REPORT  
FOR THE YEAR 1949



## FOREWORD

This report is an account of the work accomplished by all divisions of the department and includes all A.F.E. and extraordinary maintenance work performed by contractors and regular Company forces as well as information and statistics relating to the regular maintenance work which are of interest at this time and will be of value in the future for record and reference purposes.

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## TRACK and ROADWAY DIVISION

### ADDITIONS AND BETTERMENTS

#### SIDE TRACK CONSTRUCTION - WOODALL PRODUCTS CO. - JOB ORDER 743

A new track 676 feet long was built east of and parallel to the existing track serving the Phillips Petroleum and Wyeth Laboratory plants in the Weber area. This track starts from a 9 degree turnout in the existing track 460 feet south of the center of Oakton Street, extends north, crossing Oakton Street at grade and ends 150 feet north of the street. A second track 475 feet long was built from a 9 degree turnout in the first new track with the point of switch 10 feet north of Oakton Street and extends north on the east side of the first track to serve the new building of the Woodall Products Company. All track work was done by the Deckert Corporation with the cost being borne by Rand-McNally Company, owner of the property north of Oakton Street, and the Woodall Company. Construction consists of secondhand 100# rail and 90# special work on new ties and stone ballast. The Oakton Street crossing is a special monolithic concrete and steel design developed by the contractor.

#### SIDE TRACK RETIREMENT AT BRIERGATE - A.F.E. 5128

In order to provide more parking space at Briergate Station, the south 100 feet of side track No. 3 was retired.

#### RAIL RENEWAL - BIRCH ROAD SIDING - A.F.E. 5121

842 lineal feet of 65# rail was relaid with 80# relay rail on the north end of the Birch Road siding.

## TRACK and ROADWAY DIVISION

### ADDITIONS and BETTERMENTS

#### COOK COUNTY CROSSING IMPROVEMENTS

Removable precast concrete slab crossings were installed at Dempster Street, Gross Point Road and Dundee Road on the Skokie Valley Line. The crossing slabs were furnished by the Cook County Highway Department and were unloaded and installed by Railway forces. At all locations, the County's contractor dug out the devil strip, repaved it with concrete and applied blacktop on the approaches. Details of each location are given below:

##### DEMPSTER STREET

Crossing 72 feet long includes the crosswalk on south side of street. All ties were renewed and tie plated and 468 lineal feet of 100# rail renewed. The track was lined and surfaced on new stone ballast.

##### GROSS POINT ROAD

Length 96 feet on 2 main tracks and siding. All ties renewed and tie plated. 234 lineal feet of 100# rail renewed in main line and 264 feet of 65# rail in siding renewed with secondhand 100# rail. Tracks were raised, lined and surfaced on new stone ballast.

##### DUNDEE ROAD

Length 42 feet. Ties were partially renewed and tie plated. Track was raised, lined and surfaced on new stone ballast.

#### EXTENSION OF SIDE TRACK AT LIBERTY LAKE - JOB ORDER 768

The team track on the north side of the main line at Liberty Lake was extended 275 feet west to serve the new building of the Lumber Dealers Supply Company. Construction consists of 80# relay rail on new side track ties and gravel ballast. Grading and ballast were furnished by the industry. The west 120 feet of the existing team track was taken up and rebuilt during the course of this work, existing 65# rail being replaced with 80# relay rail and all ties renewed. The extension was fully electrified.



## TRACK and ROADWAY DIVISION

### MAINTENANCE WORK

Effective October 1, 1949 the number of track sections was reduced from 18 to 14. All sections were renumbered and the limits of all except the Shore Line Sections extended. The average main line section is now 8 miles long.

Both tracks between Dodge Avenue and the Canal Bridge were resurfaced due to heavy tie renewals. 105 pairs of reconditioned 100# angle bars were installed.

Gauntlet switches at Ridge Avenue, Asbury Avenue, Dodge Avenue and Main Street were spiked and switch lamps removed on June 21, 1949.

24 cars of cinders were unloaded between the Canal Bridge and East Prairie Road for shoulders.

Unloaded 5 cars of stone between Lake Avenue and Winnetka Avenue, Skokie Valley Line, to fill in the devil strip.

Lined and surfaced both tracks through Briergate curves from south of Deerfield Road to north of Berkley Road. Both road crossings were renewed with plank and asphalt. The ties were found to be good and were not renewed.

The crossing at Bain Road, South Kenosha, was extended 8 feet south by the installation of one additional row of gumwood crossing sections.

The Nash Motors Company's north crossing over the team track south of 52nd Street, Kenosha, was rebuilt with precast concrete slabs. Ties were renewed and 132 lineal feet of 65# rail replaced with 80# relay rail. The track was raised 5 inches through the crossing. The Nash Company furnished the crossing slabs and bore all costs.

After the barrier was removed at Middle Road, the gumwood crossing was extended 8 feet. All existing crossing sections were taken up and moved 4 feet north and one additional row installed on the south end. The devil strip was widened with asphalt.

TRACK and ROADWAY DIVISION  
MAINTENANCE WORK - CONTINUED

The double track crossing over the Transport Company's tracks at Greenfield Avenue, Milwaukee, was removed and 102# rail installed in our tracks.

Ground corrugated rail on South 5th Street, Milwaukee from Mitchell Street to Harrison Street.

Renewed broken expansion rails on 6th Street Viaduct and made 32 thermit welds.

Repaired broken rails in Milwaukee and made 36 thermit welds.

Thermit welded 11 joints in National Avenue Crossing and 2 joints in Wells Street Crossing, Milwaukee.

On July 15, 1949 all gauntlet switches through the Winnetka Grade Separation, from Willow Road to Harbor Street, were spiked and the switch lamps removed.

The C. & N. W. Ry. renewed the crossings over the Libertyville Line on October 30, 1949. New 115# crossings were installed. North Shore track forces assisted in this work, the cost of which was borne by the North Western.

Planted 4,000 multiflora rose seedlings on private property north of Rockland Road from St. Mary's Road east about 2,000 feet. This is an experimental planting to determine the effectiveness of these shrubs as a snow fence. The owner of the land furnished the seedlings and Railway track forces did the planting.



TRACK and ROADWAY DIVISION  
MAINTENANCE WORK - CONTINUED

Installed 13,603 - 100# double shoulder tie plates as follows:

<u>SECTION</u>	<u>TIE PLATES</u>
5 - Libertyville	275
7 - Waukegan	70
8 - Zion	165
9 - McKeon Road	1,050
10 - Kenosha	956
11 - Racine	764
13 - Ryan Tower	500
14 - Grange Avenue	1,210
16 - Howard-Dempster	2,528
17 - Glenayre	3,233
18 - Briergate	879
20 - Deerpath	600
21 - South Upton	<u>1,373</u>
TOTAL TIE PLATES - 13,603	

TIES RENEWED

Ties were renewed by Company forces as follows: -

<u>SECTION</u>	<u>MAIN LINE</u>	<u>SIDE TRACK</u>	<u>SWITCH</u>
1 - Winnetka	-	-	39
3 - Highwood	2	9	5
5 - Libertyville	352	-	18
7 - Waukegan	129	-	-
8 - Zion	-	-	3
9 - McKeon Road	461	-	-
10 - Kenosha	529	110	-
11 - Racine	406	-	2
13 - Ryan Tower	285	-	-
14 - Grange Avenue	605	-	22
15 - Milwaukee	-	-	7
16 - Howard-Dempster	1,853	-	634*
17 - Glenayre	1,819	-	-
18 - Briergate	650	-	19
20 - Deerpath	305	-	8
21 - South Upton	<u>1,212</u>	<u>-</u>	<u>-</u>
	8,608	119	757

\*Includes 553 - 3rd Rail Chair Ties

TRACK and ROADWAY DIVISION

MAINTENANCE WORK

FENCING

Right-of-way fence was repaired as follows:

Oakton Street to Main Street - repaired east side and built new fence on west side - 5,200 Lin. Ft.

Northbrook to Kohling Road - repaired east side - 1,000 ft.

South of County Line Road, Skokie Valley Line, east side, built 1,000 feet of fence on new line. Repaired fence from Kohling Rd. to County Line Road - 2,000 feet.

Green Bay Road to Scranton Avenue, rebuilt north fence - 1,000 feet.

Grand Avenue, Waukegan to Pine Street Substation, built 400 feet of fence on new west right-of-way line.

Bethlehem Avenue to 18th Street, Zion, rebuilt west fence - 1,100 feet.

Kenosha, 52nd Street, north, patched fences, both sides - 2,300 feet.

Taylor Avenue to Middle Road, renewed and repaired both sides - 20,000 feet.

New fence around Nechuta Substation property - 570 feet.

New fence around College Ave. Substation property - 430 feet.

New fences around property sold north of Bolivar Avenue - 1,800 feet.

Renewed 2,600 feet of fence on south side of Scale House.

Renewed north fence east of 4th St., Libertyville - 550 feet.

Rebuilt south fence from 4th St. to Milwaukee Avenue - 1,650 feet.

Rebuilt south fence from Butterfield Road, east - 600 feet.

TOTAL FENCING - 42,200 Lineal Feet



## BRIDGE and BUILDING DIVISION

### ADDITIONS and BETTERMENTS

#### HEATING CHANGES AT DEMPSTER STATION - A.F.E. 5105

The existing Utica steam boiler in the Dempster Station, which was damaged beyond repair, was removed from the building and scrapped. One of the "Ideal" steam boilers retired from Milwaukee Terminal was reinstalled at Dempster Street.

#### CHANGES TO DEMPSTER STATION - A.F.E. 5112

A frame and plaster board partition with a door was erected at the south end of the main waiting room at Dempster Station, closing the waiting room off from the ticket booth and toilet area. The old waiting room has been rented and all station activities confined to the south end of the building. New doors were installed to provide access to the Ladies' Room and the Parcel Room. A new drinking fountain was installed and the train annunciators moved to the new waiting room. The wooden fences between the building and the elevated platform were removed.

#### REMODELING AT EDISON COURT STATION - A.F.E. 5103

A 14' x 9' Trainmen's Room of frame construction was built on the south end of the station waiting room west of and adjoining the boiler room. A radiator was installed and connected to the station heating system and a 110 volt light fixture and switch installed.

The west side of the boiler room was partitioned off and a lavatory and toilet bowl installed. A new heating boiler was installed and a new brick chimney built.

The men's public toilet room was extended west 3'-6" and a lavatory installed.

Thomas J. Killian Company installed the plumbing. All other work was done by Railway Company forces.

BRIDGE and BUILDING DIVISION

ADDITIONS and BETTERMENTS - Continued

RETIREMENT OF STATION SHELTERS - A.F.E. 5118

Station facilities were retired as follows:

- 2 standard #3 shelters at Austin Avenue
- 1 standard "H" shelter at Three Mile Road
- 1 standard #3 shelter at Berryville Road

Wood intertrack fences were removed at College Avenue, Layton Avenue, Bolivar Avenue and Austin Avenue.

BRIDGE and BUILDING DIVISION

MAINTENANCE WORK

BRIDGES and TRESTLES

The following repairs were made by Company forces: -

CANAL BRIDGE

Repaired timber shoring bent at east end of bridge, shimmed second steel bent east of Drainage Canal and repaired plank walk.

LAMB'S CROSSING

Renewed one cap.

ROOT RIVER

Renewed deck on southbound track, using 219 ties and 40 pieces of guard rail.

OAK CREEK

Renewed all 4 piles and cap in bent #1 southbound and 1 pile and 1 brace in bent #6 northbound.

FUETZ ROAD

Renewed 22 piles, 7 caps, 8 stringers, 19 braces and 4 mud sills. Bents #6 and #8 northbound and #3 and #7 southbound were completely renewed.

SOUTH MILWAUKEE ROAD

Renewed 2 piles, 1 cap and 2 braces.



BRIDGE and BUILDING DIVISION

MAINTENANCE WORK

BRIDGES and TRESTLES - Continued

LAYTON AVENUE COAL TRESTLE

Renewed 13 caps, 38 stringers, 50 ties and 6 guard rails.

BOLIVAR AVENUE

Renewed 11 piles, 1 cap, 6 stringers, 6 guard rails and 4 braces. Renewed timber wing walls at both ends of bridge.

NAVAL STATION TRESTLE

Renewed 4 piles, 5 caps, 9 stringers, 212 ties, 18 braces, 40 guard rails and 5 mud sills. The 65# rail on the bridge was renewed with 660 feet of 80# relay rail. 424 secondhand 80# x 100# tie plates were installed and 660 feet of 65# rail placed for inside guard rail. ✓

## BRIDGE and BUILDING DIVISION

### MAINTENANCE WORK

#### BUILDING and PLATFORM REPAIRS

In addition to routine minor repairs to buildings and platforms on the system, the following major items were done:-

At Adams and Wabash Station the E. H. O'Neill Floors Company removed the old floor and installed new rubber tile on the main floor public space and ticket office; the entire mezzanine floor and the second floor waiting room. New asphalt tile wainscoting was installed in the Men's Room in the basement.

The treads on the stairway from the main floor to the mezzanine floor at Adams and Wabash were resurfaced with non-skid "Martex" by the American Abrasive Metals Company.

At Montrose Avenue, Chicago, the wood catwalks, formerly used in trailer-flatcar operations, were removed by Company forces.

The high concrete platform and canopy at Main Street, Skokie, were cut back to permit operation of standard freight equipment on the main line without using the gauntlets.

At Dempster Station the sewer connection from the building to the main sewer was rerouted due to the sale of part of the station grounds. Two manholes, 121 feet of 6 inch vitrified pipe and 107 feet of 8 inch vitrified pipe were installed by the Santucci Construction Company.

At Northfield Station the basement was extended under the remainder of the living quarters and a concrete floor placed. The double door entrance to the waiting room was remodeled and a single door installed.

Wooden steps from the parking lot to the platform were built at Glenayre and Northbrook, replacing existing stone steps.

Waiting room entrances at Briergate and Deerpath were remodeled. Existing double doors were replaced with new single doors.



BRIDGE and BUILDING DIVISION

MAINTENANCE WORK

BUILDING and PLATFORM REPAIRS - Continued

Overhauled the platforms at Edison Court and straightened up the southbound shelter. Installed a new 3/4" copper water line from the east side of the station to west side of west platform.

Following a fire in the Edison Court Freight House, extensive repairs were made to the building by Jenkins and Boller, Contractors. Company forces repaired the foundation under the north half of the building.

Extensive repairs were made to the Section Tool House at Beach Road.

Company forces removed the old frame interlocking tower at Kenosha.

At Racine Station a new 1" copper water line was installed from Grove Avenue to the building. The old line from Washington Street was abandoned. J. S. Martin Plumbing Company was the contractor.

The roof on Milwaukee Barns was patched, all flashings repaired and the entire surface given a heavy coat of hot asphalt by the South Side Roofing Company.

The two apartment buildings at 5th and Michigan Streets, Milwaukee, were torn down; the site leveled and surfaced with cinders for use as a parking lot. The contractor was the Mid-West Wrecking and Salvage Company.

Repaired the foundations at Church Street, Evanston, Station. ✓

At Linden Avenue, Wilmette, the ticket counter and candy cases were enclosed by a steel grill and sliding gate. ✓

BRIDGE and BUILDING DIVISION

MAINTENANCE WORK

BUILDING and PLATFORM REPAIRS - Continued

Remodeled the second floor of the main office building at Highwood to accommodate relocation of various departmental offices. ✓

Installed 500 square feet of "Hexteel" surface Armor and Rock Tred flooring in Highwood Car Shops. ✓

At Great Lakes, Main Gate, the ticket booth was out in two and the south half connected to the south end of the freight office forming a combined freight and ticket office. ✓

A new 3/4" copper water line was installed across Milwaukee Avenue, Libertyville to serve the station.



## BRIDGE and BUILDING DIVISION

### MAINTENANCE WORK

#### HEATING

Installed a new hot air furnace at Harmswoods Station.

At Highwood Boiler Room the low water cut-off was connected to the boiler feed pumps and an electric water feed valve mounted on the feed tank by R. A. Heffelfinger. Boiler scale was removed and 102 tubes renewed by Peter's Portable Welding Service Company.

A thermostat, 2 aquastats and manual control switches to govern operation of the unit heaters were installed in the Highwood Blacksmith Shop by R. A. Heffelfinger.

A new A.B.C. gun type oil burner, including all new controls, was installed in the Libertyville Station by F. W. Meeker.

#### MISCELLANEOUS

All station benches, the candy case, concession safe and ice storage box were removed from Dempster Station and taken to Highwood. All other concession equipment was sold for junk.

An old wood box culvert under the team track and driveway at 4-Mile Road was replaced with 60 feet of 24-inch concrete pipe.

The 48-inch culvert under the track on the south side of Ryan Road was extended west 12 feet with corrugated metal pipe and backfilled with dirt from the right-of-way.

Reinforced concrete jacking pads were installed on both sides of the transfer table pit at Milwaukee Barn. These pads are continuous under both rails of the side track immediately south of the Barn.

BRIDGE and BUILDING DIVISION

MAINTENANCE WORK

MISCELLANEOUS - Continued

Unloaded 4 cars of cinders at Edison Court on the west side of the Cut and Add track, eliminating the wood catwalk and timber retaining wall.

Maintained Chicago Passenger Stations and Baggage Room.

Operated steam heating plant at Highwood Office.

Repaired asphaltic crossings.

Operated the Weed Killer.

MACHINE SHOP

In addition to the routine work of maintaining plumbing and heating facilities, tools and work equipment, the following work was done: -

Overhauled 12 Section Gang motor cars and 6 small speeders including one speeder rebuilt following a collision with an automobile.

Rebuilt 4 push cars.

Installed a new water pump at Highmoor Station. The old pump was rebuilt and installed at Racine Substation.

Made 24 steel gear racks and did general welding and repair work for the Signal and Interlocking Division.

Repaired 9 switch points.

Built up crossing frogs at Ryan Tower, National Avenue and 5th and Wisconsin; rail ends on St. Paul Bridge, Milwaukee, and switch points at Austin Avenue and Harrison Street Yard.



BRIDGE and BUILDING DIVISION

MAINTENANCE WORK

TIN SHOP

About 75% of the time of this shop is devoted to making water coolers, flush tanks, water supply tanks, card holders, toilet chutes, destination sign box panels, car heater magazines, roof flanges, roof jacks and ventilators for the Mechanical Department. Made up all sheet metal work for 11 cars in the reconditioning program.

In addition to the foregoing work for the Mechanical Dept. and miscellaneous spot maintenance to heating plants and sheet metal work on buildings, the following was done:

Renewed gutters on Kenosha Freight Station and repaired gutters and downspouts on Kenosha Passenger Station.

Renewed hot air furnace in Harmswoods Station.

Repaired switch lamps, headlights and marker lamps.

Made garbage and trash cans for stations and concessions.

BUILDINGS PAINTED

<u>LOCATION</u>	<u>DESCRIPTION</u>
Adams and Wabash Station	- Painted outside.
Wilson Avenue Station	- Painted inside and outside.
Downey's Station, West Line	- Washed ceilings, painted toilet rooms.
North Chicago Junction Station	- Painted interior woodwork.
Edison Court, Waukegan	- Painted inside and outside.

## SIGNAL and INTERLOCKING DIVISION

### ADDITIONS and BETTERMENTS

#### NEW GATE START and HOLDING SIGNAL - NILES CENTER ROAD A.F.E. 5111

The existing southbound start for the Niles Center Road automatic gates was moved from the north side of Dempster Street to a point south of Dempster Street Station platform. A two-position signal was installed adjacent to the southbound track approximately 280 feet north of Niles Center Road. This signal is normally red and shows green only when the gates are in a fully lowered position.

#### KENOSHA INTERLOCKING PLANT - A.F.E. 5027

The old mechanical interlocking machine and tower were removed and scrapped. All work on the new semi-automatic interlocking plant was done in 1947 and 1948 and is described in the Annual Reports for those years.

#### INSTALLATION OF BLOCK SIGNAL FACILITIES THROUGH KENOSHA - A.F.E. 5028

This project involved installation of a 2200 volt signal power line, overhead and underground signal cables, relay cases and signal controls from 75th Street, Kenosha to the north end of Burlington Road curve. The major portion of this work was done in 1947 and 1948 and was covered in the reports for those years. Work in 1949 consisted of installing the last 4 transformers on the 2200 volt line and removing the old aerial cables and line wires between 73rd Street and the northbound home signal.

#### INSTALLATION OF AUTOMATIC GATES AT BIRCH ROAD - A.F.E. 5123

Two track circuit controlled Griswold Signal Company automatic crossing gates complete with flashing light signals and signs were installed at Birch Road, replacing one track-box operated wigwag signal.



## SIGNAL and INTERLOCKING DIVISION

### ADDITIONS and BETTERMENTS - Continued

#### INSTALLATION OF AUTOMATIC GATES AT MIDDLE ROAD - A.F.E. 5116

Two rebuilt Model "M" automatic gates and two new flashing light signal units, complete with signs, were installed at Middle Road, Racine. The old automatic barriers were removed by a scrap metal dealer.

#### COOK COUNTY CROSSING PROTECTION PROGRAM

Work was started on a program of crossing protection improvements for 9 Cook County grade crossings. The contract for this work was signed in 1944 but work was deferred until 1949 due to material shortages. All costs except engineering are to be borne by Cook County.

#### CRAWFORD AVENUE

Relocated the southbound cut-out to the south side of the crossing. Relocated the northbound cut-out and Block Signal No. 115 to the north side of the street. Installed insulated joints and track wires for a short single-rail circuit on the side track through the crossing. Moved the 2 automatic gates farther back from the curb and installed concrete bases and poles for 2 flasher signals. Pushed 2 3-inch steel pipes across under the street and installed old steel trolley poles under both tracks south of the street for carrying underground signal cables. Installed a precast concrete battery box.

#### DEMPSTER STREET

Relocated the southbound cut-out and Block Signal No. 136 to the south side of the street. Installed pipe across the street in the devil strip. Renewed cables to southeast gate.

SIGNAL and INTERLOCKING DIVISION

ADDITIONS and BETTERMENTS - Continued

COOK COUNTY CROSSING PROTECTION PROGRAM - Continued

GROSS POINT ROAD

Pipe was laid through the crossing, in the devil strip.

DUNDEE ROAD

Relocated the northbound cut-out to the north side of the crossing; installed precast concrete battery box and installed 2 concrete bases for flasher signals. The concrete for the bases was furnished and placed by the contractor for the crossing work. Laid old steel trolley poles through the crossing in the devil strip and renewed cables from the relay case to the northeast gate.



## SIGNAL and INTERLOCKING DIVISION

### MAINTENANCE WORK

In addition to the routine work of maintaining interlocking plants, block signals and crossing protection devices, the following work was done by Company forces and charged to maintenance accounts:

Underground cable installed in 1948 between Signal No. 4 and Signal No. 93 on the Howard-Dempster Line was put in service. The old signal wires and wooden trunking between these points were removed and scrapped.

Track circuits for operation of automatic gates at Oakton were lengthened in both directions. The southbound start was relocated from Main Street to Niles Center Road and the northbound start moved back to Kostner Avenue, an additional distance of 340 feet.

Train annunciators in the Dempster Street Station were moved to the south end of the building when the main waiting room was abandoned.

A time selector circuit was introduced into the northbound gate control circuit for Lake-Cook Road, Skokie Valley Line to provide for northbound trains turning back at Northbrook.

The standard wooden crossbuck sign at Old Mill Road, Skokie Valley Line, was replaced with 2 reflectorized crossbuck signs on wood posts located at the northeast and southwest corners of the crossing. Both posts are further equipped with reflectorized "2 Track" signs and in addition the northeast post carries a reflectorized "STOP" sign. Two reflectorized advance warning signs were bought by the Railway and furnished to the City of Lake Forest which were installed east of the track on Old Mill Road and Buena Road.

SIGNAL and INTERLOCKING DIVISION

MAINTENANCE WORK - Continued

Renewed the concrete base for the southwest gate at 22nd Street, North Chicago, West Line.

At Bain Road the automatic gates were relocated and Block Signal No. 502 moved farther south due to widening of the road by the State Highway Department. Three runs of 2-inch pipe were laid under the road east of the track and new cables run from the relay case to both gates. The main signal cable was lowered to clear the highway ditch on the south side. Gate arms were modernized by the addition of a third lamp which is steady burning.

Installed pipe under 63rd Street, Kenosha and across the tracks and renewed all cables from relay case to gates.

A two-way indicating signal was installed under the canopy of the Kenosha Tower to furnish information to operators of track motor cars of the C. & N.W. Railway.

Renewed manual gates and pipe lines at 12th Street, Racine.

The old manually operated electric crossing gates at Ryan Road were retired and replaced with 2 Model "M" gates, manually operated from the tower. The power supply was changed from D.C. to 110 volt A.C.

Mechanical switchman units at Austin Avenue, Oklahoma Avenue and south end of Oklahoma Avenue Crossover were cleaned and flushed and refilled with new oil.

At Wilmette Avenue, Shore Line, one run of 3-inch pipe was pushed across the street in the devil strip. Renewed all cables from relay case to gates and changed control for gate indication signal from ring switch to mercury controller. ✓

The two shifts of Flagmen at Foss Park Avenue, North Chicago, East Line, were discontinued and signs erected making this crossing a positive safety stop for all trains.



## SIGNAL and INTERLOCKING DIVISION

### MAINTENANCE WORK - Continued

Control circuit for southbound annunciators at Highland Park Station and Elm Place gate shanty was removed from the ring switch contacts on the Highwood Avenue gates and is now operated by the Highwood Avenue track relay and time relay which permits the bell to ring for 7 seconds. ✓

Shortened the westbound control circuit for automatic gates at 4th Street, Libertyville, and installed a two-position signal east of the crossing to indicate position of gates.

A third lamp was added to each gate arm at 4th Street and Milwaukee Avenue, Libertyville. These lamps are steady burning during the gate operation cycle.

Installed a precast concrete battery box at Garfield Avenue, Libertyville Line.

Removed ARUQ relays in the automatic gates at 75th Street, Kenosha; 4th Street and Milwaukee Avenue, Libertyville; Harbor Street, Highwood Avenue, Deerpath Avenue and Westminster Avenue. These relays were replaced with General Electric contactors.

During the year, 34 relays were repaired in the C.T.A. Relay Shop. Motors repaired include 10 by Holt Electric Company, Milwaukee; 3 by Sievert Electric Company, Chicago and 10 by Cote Electric Company, Waukegan.

Eight automatic gate pedestals were replaced and taken to the Signal Shop for overhaul. Locations are:

Willow Road, S.V.L.	-	1 Gate
Deerfield Road, S.V.L.	-	1 Gate
Scranton Avenue, S.V.L.	-	1 Gate
Mawman Avenue, S.V.L.	-	1 Gate
75th Street, Kenosha	-	1 Gate
Durand Road, Racine	-	2 Gates
Knollwood	-	1 Gate

SIGNAL and INTERLOCKING DIVISION

MAINTENANCE WORK

CROSSING GATE OPERATION

61 Automatic Gate Locations.

	<u>1949</u>	<u>1948</u>
Gates broken by automobiles	125	106
Other interruptions*	287	328

20 Manually Operated Crossing Gate Locations

Gates broken by automobiles	34	24
Other interruptions*	102	87

\*Includes interruptions due to power failures, blown fuses, mechanical failures, frosted contacts, line trouble, track circuit trouble, sleet, pedestrians breaking sidewalk arms, etc.

CROSSING GATES and SIGNALS MAINTAINED

Automatic Gates	49	50
Automatic Gates & Flashers	12	10
Manual Gates	20	20
Flasher Signals	6	6
Autoflags - Track Circuit	16	16
Autoflags - Manual Control	3	3
Block Signals - S.T. Miles	111.0	111.0
Switch Protection Signals	8	8
Fire Crossing Signals	4	4
Interlocking Plants	4	4
Smash Gates	3	3
Gate Indication Signals	15	13



WAY and STRUCTURES SUMMARY

	<u>1949</u>	<u>1948</u>
<u>TRACK CONSTRUCTION - LINEAL FEET</u>		
Side Track Constructed	1,426	367
Side Track Retired	100	-
<u>RAIL INSTALLED - SINGLE TRACK FEET</u>		
100#	2,500	1,717
80#	<u>2,419</u>	<u>367</u>
TOTAL -	4,919	2,084
<u>RAIL RENEWED IN KIND - SINGLE TRACK FEET</u>		
100#	702	487
80#	<u>-</u>	<u>445</u>
TOTAL -	702	932
<u>RAIL REMOVED - SINGLE TRACK FEET</u>		
91#	-	18,830
80#	-	1,717
65#	<u>2,267</u>	<u>-</u>
TOTAL -	2,267	20,547
<u>TIE PLATES INSTALLED</u>		
100#	13,603	1,936
<u>ANGLE BARS RENEWED - PAIRS</u>		
100#	131	148

SUMMARY - Continued

	<u>1949</u>	<u>1948</u>
<u>SPECIAL WORK</u>		
Crossovers Removed	-	1
Turnouts Installed	2	1
Turnouts Removed	-	12
Crossings Built Up	3	4
Frogs Repaired	-	6
Switch Points Repaired	9	5
Thermit Welds	90	89

<u>TIES RENEWED</u>		
Main Line	8,608	1,107
Side Track	119	263
Switch	204	251
Bridge	481	233
3rd Rail	<u>553</u>	<u>17</u>
TOTAL -	9,965	1,871

<u>TIES INSTALLED ON NEW WORK</u>		
Main Line - New	466	-
Side Track - New	207	-
Side Track - Secondhand	-	145
Switch - New	84	-
Switch - Secondhand	-	36

<u>BALLAST - CARS</u>		
Stone	10	14

<u>BROKEN RAILS</u>		
100#	1	-
80#	1	2



SUMMARY - Continued

	<u>1949</u>	<u>1948</u>
<u>CROSSINGS</u>		
Precast Concrete Crossings Installed	3	1
Gumwood Crossings Extended	2	-
Asphalt Crossings Rebuilt	2	1
<u>BRIDGE REPAIRS</u>		
Bridges Repaired	9	5
<u>PAINTING</u>		
Buildings - Painted and decorated	5	17
<u>CROSSING PROTECTION</u>		
Automatic Gates and Flashers Installed -		
Locations -	2	-
Automatic Flashers Installed - Locations	-	1
Automatic Gates Damaged by Automobiles	125	106
Manual Gates Damaged by Automobiles	34	24
<u>FENCING</u>		
Right-of-Way Fence Rebuilt - Lin. Feet	42,200	4,700
<u>WEED KILLER</u>		
One Application - Single Track Miles	200	200
Total Solution Used - Gallons	33,200	26,400
<u>CARLOAD MATERIAL</u>		
Sand and Stone	21	23
Coal	19	24
Ties	8	4
Cinders	40	29
Miscellaneous	<u>8</u>	<u>5</u>
	96	85

## ELECTRIC POWER SERVICE DIVISION

### ADDITIONS and BETTERMENTS

#### RETIRE LIGHTS AT MONTROSE AVENUE, CHICAGO - A.F.E. 5124

The platform lighting system installed for trailer loading service at Montrose M.D. Station was taken down by C.T.A. forces. The material was shipped to Highwood and scrapped.

#### BIRCH ROAD AUTOMATIC GATES - A.F.E. 5123

The 2200 volt power line from Kenosha, which terminated at the north end of Burlington Road curve, was extended north to Birch Road, a distance of 4,600 feet. Transformers were installed at the northbound start for Birch Road gates and at Birch Road crossing. The line was further extended north to Bose Road Substation, a distance of 3,600 feet. This extension will eventually be a part of the 2200 volt line but at present is transmitting only 110 volts to the Birch Road southbound start.

#### RETIRE LIGHTS AT HARRISON ST., MILWAUKEE - A.F.E. 5125

The lighting system installed in the east yard at Harrison Street, Milwaukee for trailer loading service was taken down by Company forces and the material scrapped.

#### INSTALLATION OF SUBMARINE CABLES AT MILWAUKEE - C. & M.E. Ry. A.F.E. 5

Two runs of 1,000,000 C.M. submarine feeder cable and one 11-pair submarine telephone cable were installed under the bed of the south branch of the Menomonee River immediately east of the Sixth Street Viaduct. Cables start from a connection to existing lines at the first column south of the river, run underground to the south bank, thence in a trench across the river bottom to the north bank and from



ELECTRIC POWER SERVICE DIVISION

ADDITIONS and BETTERMENTS - Continued

there underground to the first column north. Edward E. Gillen Co. did the river crossing work and Wisconsin Electric Power Co. forces performed the work on the shore ends. North Shore forces installed the switches connecting the new cables to the overhead lines at each end. Cables were furnished by the Railway Company. This installation replaces original cables installed in 1907.

ELECTRIFICATION OF SIDE TRACK - LIBERTYVILLE - JOB ORDER #768

The team track on the north side of the main line at Liberty Lake including the 275 foot extension thereto was electrified from the end of existing trolley to the end of track. A total of 790 feet of wire was used. Track was bonded throughout.

## ELECTRIC POWER SERVICE DIVISION

### MAINTENANCE

In addition to the routine work of this division, the following major items of maintenance work were done:-

Due to abandonment of North Chicago Substation, the Load Dispatchers were moved to Racine Substation and the Supervisory Control equipment to Highwood Dispatcher's Office. Communication between Highwood and Racine Substation is had by means of a leased telephone line. Two runs of 500,000 C.M. feeder cable between Tower M-6 on the West Line and North Chicago Substation, a distance of 1,935 feet, were taken down and part of this cable used for a new 4-wire feeder line from Broadway Substation to Tower M-6, a distance of 600 feet. Installed 3 - 500,000 C.M. insulated underground cables in trench from Tower M-6 to Broadway Substation for negative return. All line and cable work was done for the account of the Public Service Company at their expense.

A track box controlled autoflag was installed at Berryville Road, replacing the old bell and light signal.

An electric bell was added to the track box autoflag at Linderman Avenue, Racine.

Renewed 72 wood poles; 235 - 45,000 volt transmission line insulators; 451 anchors and 461 back guys.

Added 1 wood strain insulator to each end of 303 cross spans. These are in addition to the porcelain insulators.

Renewed 7.85 miles of 4/0 trolley wire including 5,400 feet used to repair 22 wire breaks.

Renewed 3,024 - 400,000 C.M. rail bonds.



# POWER STATISTICS FOR YEAR 1949

## POWER DISTRIBUTION

Wisconsin, exclusive of Milwaukee City  
 Milwaukee City  
 Wisconsin, including Milwaukee City  
 Milwaukee D.C. furnished by Wisc. Elect. Co.  
 Wisconsin D.C. furnished by Winthrop Harbor  
 Wisconsin Total  
 Illinois - Public Service Co. & C.T.A.

Total Purchased

K.W.H. A.C.  
 K.W.H. A.C.  
 K.W.H. A.C.  
 K.W.H. D.C.  
 K.W.H. D.C.  
 K.W.H. A.C. & D.C.  
 K.W.H. A.C. & D.C.  
 K.W.H. A.C. & D.C.

1949

8,784,489  
 335,461  
 9,119,950  
 2,551,208  
 335,935  
 12,007,093  
 22,504,811

1948

8,066,061  
 343,656  
 8,409,717  
 2,015,840  
 292,783  
 10,718,240  
 24,463,787

% Inc. or Dec.

8.91  
 2.38  
 8.45  
 26.56  
 14.74  
 12.02  
 8.01

1.91

Average Monthly demand for year in K.W.  
 A.C. & D.C. K.W.H. purchased on Demand charge basis  
 Load factor for year  
 Car miles operated on North Shore power, including  
 C.&M.E. and C.T.A. on Skokie Division

8,880  
 31,659,195  
 40.7%

9,566  
 33,799,592  
 40.3%

7.2  
 6.33  
 0.9

6,481,565  
 5,788,241  
 11.98

ELECTRIC POWER SERVICE DIVISION

COST OF ELECTRICAL ENERGY PER CAR MILE

K.W.H. - C.N.S. & M. Ry. Co. and C. & M.E. Ry. Co.

	<u>Total K.W.H.</u>	<u>Car Miles on N.S. Power</u>
Jan.	3,378,168	623,374
Feb.	3,193,430	566,824
Mar.	3,295,796	591,486
Apr.	2,982,821	557,033
May	2,826,463	571,688
June	2,543,072	513,624
July	2,537,374	513,995
Aug.	2,611,955	532,547
Sept.	2,524,829	503,584
Oct.	2,623,656	494,363
Nov.	2,809,286	494,439
Dec.	<u>3,185,038</u>	<u>518,608</u>
TOTAL -	34,511,904	6,481,565

Purchased Power - Account 59 \$498,857.02  
Purchased Power - C. & M.E. Ry. Co. 41,572.31

Total Purchased Power \$540,447.33

Operating Expense - Power Accounts \$591,602.92  
- C.&M.E. Portion 42,772.31

Total Operating Expense - \$634,375.23  
Power Accounts

Total car miles on North  
Shore Power 6,481,565

Unit power cost - cents per KWH:  $540,447.33 \div 34,511,904 = 1.566\text{¢}$

Unit power consumption - KWH per CM:-  
 $34,511,904 \div 6,481,565 = 5.325 \text{ KWH}$

Unit power cost - Cents per car mile:-  
 $1.566 \times 5.325 = 8.339\text{¢}$

Total operating expense - Power Accounts incl.  
C. & M.E. Portion = \$634,375.23

Unit operating expense - Power Accounts -  
Cents per car mile  
 $\$634,375.23 \div 6,481,565 = 9.787\text{¢}$



POWER STATISTICS FOR YEAR - 1949

LOCOMOTIVE METERED K.W.H.

Engine No. 452	K.W.H. for year	126,870
Engine No. 453	K.W.H. for year	172,370
Engine No. 454	K.W.H. for year	194,520
Engine No. 455	K.W.H. for year	361,610
Engine No. 456	K.W.H. for year	144,640
Engine No. 457	K.W.H. for year	148,060
Engine No. 458	K.W.H. for year	192,440
Engine No. 459	K.W.H. for year	162,870
Total Metered at Locomotive 1949		1,503,380 K.W.H.

Power used by locomotives 1,503,380 D.C. KWH  
Illinois Part 74.8% 1,124,528  
Plus 10% Distribution Losses 112,453  
D.C. KWH used in Illinois at point of delivery 1,236,981 K.W.H.  
Wisconsin Part 25.2% 378,852  
Plus 25% Transmission & Conversion Losses 94,813  
A.C. KWH used in Wisconsin at point of delivery 473,665 K.W.H.

K.W.H. Illinois Part - 1,124,528 @ 1.7055¢ \$19,178.83  
K.W.H. Wisconsin Part- 473,665 @ 1.3638¢ 6,459.84  
Total cost for Elect. Energy \$25,638.67  
Total Energy at point of delivery K.W.H. 1,710,646  
Total freight car miles Freight 977,189

A.C. & D.C. at point of delivery per freight car mile 1.75 K.W.H.  
Purchased Power Cost per freight car mile 2.62¢

## PURCH. SEL. POWER - 1949

	1949			1948					
	Amount	Average Rate	Cost	Amount	Average Rate	Cost	Amt.	Rate	Cost
<u>Public Service D.C. Contract</u>									
Demand as Run	78,348	--	--	68,556	--	--	14.3	-	-
Billing Demand	78,348	\$ 2.133	\$ 167,109.00	89,091	\$ 2.087	\$ 185,909.25	12.1	2.2	10.1
Energy - K.W.H.	22,539,245	0.9766¢	\$ 220,125.83	24,389,875	0.9444¢	\$ 230,394.43	7.7	3.4	4.5
Total and Average	--	1.718 ¢	\$ 387,234.83	--	1.707 ¢	\$ 416,303.68	-	0.64	19.9
<u>Public Service A.C. Contract</u>									
Demand as Run	10,000	--	--	9,463	--	--	5.7	-	-
Billing Demand	**10,214	\$ 1.50	\$ 15,321.00	**12,489	\$ 1.50	\$ 18,733.50	18.2	-	18.2
Energy - K.W.H.	2,939,440	0.7256¢	\$ 21,329.89	3,339,511	0.7051¢	\$ 23,546.95	11.9	2.9	9.4
Total and Average	--	1.245 ¢	\$ 36,650.89	--	1.266 ¢	\$ 42,280.45	-	1.7	13.3
<u>Wisconsin Electric Power Co. A.C.</u>									
Demand as Run	15,888.1	--	--	13,033.7	--	--	21.9	-	-
Billing Demand	***18,000	\$ 1.222	\$ 21,999.96	***13,507.6	\$ 1.222	\$ 16,507.57	23.3	-	23.3
Emergency Demand	--	--	--	--	--	--	--	--	--
Energy - K.W.H.	6,180,510	1.079 ¢	\$ 66,692.99	5,070,206	1.084 ¢	\$ 54,963.23	21.9	-	21.9
Total and Average	--	1.435 ¢	\$ 88,692.95	--	1.410 ¢	\$ 71,470.80	-	1.8	24.1
W.E.P. Co. Metered D.C.	2,469,793	1.20 ¢	\$ 29,637.52	1,942,376	1.20 ¢	\$ 23,308.51	27.2	-	27.2
W.E.P. Co. Wells St. D.C.	81,415	1.00 ¢	\$ 814.15	73,464	1.00 ¢	\$ 734.61	10.8	-	10.8
C.T.A. Co. Calvary D.C.	301,501	1.319 ¢	\$ 3,976.14	366,695	1.1424 ¢	\$ 4,189.46	17.8	15.4	5.1
GRAND TOTAL -									
Demand D.C. & A.C.	106,562	\$ 1.918	\$ 204,429.96	115,067.6	\$ 1.922	\$ 221,150.32	7.4	0.21	7.6
Energy D.C. & A.C.	34,511,904	.9926 ¢	\$ 342,576.52	35,182,127	0.9582 ¢	\$ 337,137.22	1.9	3.6	1.6
Cost	--	1.585 ¢	\$ 547,006.48	--	1.588 ¢	\$ 558,287.54	-	0.19	2.0

## STATISTICS

	Public Service D.C.			Public Service A.C.			Wisconsin Electric Power		
	1949	1948		1949	1948		1949	1948	
Coal Cost per Ton - Mo. Avg.	\$5.364	\$5.055		\$5.364	\$5.055		\$7.532	\$7.535	
Fuel Cost per Therm - Mo. Avg.	2.529¢	-		-	-		-	-	
Load Factor as Run	39.4%	29.63%		40.3%	27.8%		53.2%	38.4%	
High Monthly Demand	Month KW	Month KW		Month KW	Month KW		Month KW	Month KW	
Low Monthly Demand	Feb. 7,267	Jan. 9,372		Jan. 1,080	Jan. 1,367		Feb. 1,484.4	Aug. 1,504.7	
Average Monthly Demand	July 5,846	May 110		June 623	May 53		Sept. 1,183.9	Apr. 0	
	6,529	5,710		833.3	789		1,324	1,125.6	

\*Meter Correction

\*\*70% Clause

\*\*\*Minimum Demand



POWER SUMMARY - YEAR 1949

1,406,248	No. 30 Skokie	D.C.
874,645	No. 31 Lake Avenue	D.C.
636,612	No. 32 Kotz Rd.	D.C.
122,510	No. 32 Signals	A.C.
852,548	No. 33 Deerfield Rd.	D.C.
619,380	No. 34 Old Mill Rd.	D.C.
124,040	No. 34 Signals	A.C.
413,176	No. 35 Laurel Avenue	D.C.
990,050	No. 36 Libertyville	D.C.
643,246	No. 37 Central St.	D.C.
2,192,725	No. 38 Winnetka	D.C.
2,682,281	No. 39 Ravinia	D.C.
1,831,199	No. 40 Ft. Sheridan	D.C.
7,000	No. 42 North Chicago	D.C.
1,442,411	No. A24 North Chicago	D.C.
1,422,163	No. 43 Waukegan, Pine St.	D.C.
282,810	No. 44 Beach Rd.	D.C.
1,006,900	No. 45 Winthrop Harbor	D.C.
4,230,320	No. 80 Lake Bluff	D.C.
236,130	Highwood Shops	A.C.
217,420	Skokie Shops	A.C.
58,000	Glencoe Signals	A.C.
60,300	Kenilworth Signals	A.C.
101,148	Howard St. Station	A.C.
24,280	Waukegan Signals	A.C.
72,900	Zion Signals	A.C.
22,539,245	Public Service Co. D.C. Contract Billings	
301,501	C.T.A. Calvary Billings	D.C.
22,840,746	Total Purchased - Illinois	D.C.
335,935	Less Winthrop Harbor to Wisconsin	D.C.
22,504,811	Total - Illinois	D.C.
2,939,440	Public Service Co. Billings	A.C.
25,444,251	Total - Illinois	A.C. + D.C.
6,180,510	Wisconsin Elect. Power Company	A.C.
2,551,208	Wisconsin Elect. Power Company	D.C.
335,935	Winthrop Harbor to Wisconsin	D.C.
34,511,904	Total A.C. & D.C. Purchased	
=====		
689,900	McKeown Substation	D.C.
805,650	Kenosha Substation	D.C.
494,200	Bose Rd. Substation	D.C.
901,900	Racine Substation	D.C.
200,658	Quarry Substation	D.C.
314,080	Four Mile Rd. Substation	D.C.
661,700	Nechuta Substation	D.C.
634,000	Carrollville Substation	D.C.
489,600	College Ave. Substation	D.C.
1,172,000	Milwaukee Substation	D.C.
6,363,688	Total Converted in Wisconsin	D.C.
2,551,208	Wisconsin Elect. Power Co.	D.C.
335,935	Winthrop Harbor to Wisconsin	D.C.
9,250,821	Total - Wisconsin	D.C.
9,119,950	K.W.H. Wisconsin	A.C.
335,461	Less - Milwaukee City	A.C.
8,784,489	K.W.H. A.C. to Wisconsin exclusive of Milwaukee City	
335,935	K.W.H. D.C. to Wisconsin from Winthrop Harbor	
9,120,424	K.W.H. to Wisconsin exclusive of Milwaukee City	

# K.W.H. PURCHASED - YEAR 1949

	<u>P.S. Co. D.C.</u>	<u>P.S. Co. A.C</u>	<u>C.T.A. D.C.</u>
Jan.	2,186,730	329,960	23,929
Feb.	2,092,263	279,800	17,628
Mar.	2,174,732	296,340	24,079
Apr.	1,983,041	228,160	31,889
May	1,836,076	215,900	57,288
June	1,654,159	199,860	54,435
July	1,625,331	216,630	38,269
Aug.	1,695,909	234,770	21,117
Sept.	1,632,433	222,700	22,016
Oct.	1,720,215	222,180	1,268
Nov.	1,855,611	220,260	3,370
Dec.	<u>2,082,745</u>	<u>272,880</u>	<u>6,213</u>
	22,539,245	2,939,440	301,501

	<u>Wisc. Elect. Power Co. A.C.</u>	<u>Wisc. Elect. Power Co. D.C.</u>	<u>Wells St. D.C.</u>	<u>Wisc. Elect. Total D.C.</u>
Jan.	577,408	251,750	8,409	260,159
Feb.	577,438	218,750	7,551	226,301
Mar.	571,894	220,375	8,376	228,751
Apr.	542,848	188,750	8,133	196,883
May	524,974	183,918	8,307	192,225
June	465,004	161,500	8,112	169,612
July	476,108	172,750	8,286	181,036
Aug.	475,988	179,875	4,296	184,171
Sept.	460,526	184,625	2,529	187,154
Oct.	471,448	205,875	2,670	208,545
Nov.	488,264	235,375	6,406	241,781
Dec.	<u>548,610</u>	<u>266,250</u>	<u>8,340</u>	<u>274,590</u>
	6,180,510	2,469,793	81,415	2,551,208

Total D.C. K.W.H. Wisconsin Electric Power Co.	2,551,208
Total A.C. K.W.H. Wisconsin Electric Power Co.	6,180,510
Total D.C. K.W.H. C.T.A. Calvary	301,501
Total D.C. K.W.H. Public Service Co.	22,539,245
Total A.C. K.W.H. Public Service Co.	<u>2,939,440</u>

GRAND TOTAL - SYSTEM K.W.H. A.C. & D.C. 34,511,904



MILWAUKEE CITY LINE

Kilowatt Hours - D.C.

	<u>N.S. Feeder</u>	<u>Wisc. Elect. Co.</u>	<u>Wells St.</u>	<u>Total</u>
Jan.	40,230	251,750	8,409	300,389
Feb.	33,500	218,750	7,551	259,801
Mar.	29,760	220,375	8,376	258,511
Apr.	30,570	188,750	8,133	227,453
May	24,810	183,918	8,307	217,035
June	19,860	161,500	8,112	189,472
July	20,780	172,750	8,286	201,816
Aug.	15,950	179,875	4,296	200,121
Sept.	10,600	184,625	2,529	197,754
Oct.	6,580	205,875	2,670	215,125
Nov.	1,290	235,375	6,406	243,071
Dec.	<u>2,320</u>	<u>266,250</u>	<u>8,340</u>	<u>276,910</u>
	236,250	2,469,793	81,415	2,787,458

Kilowatt Hours - A.C.

Jan.	54,959
Feb.	47,653
Mar.	42,213
Apr.	43,923
May	33,120
June	29,642
July	31,015
Aug.	22,215
Sept.	15,588
Oct.	9,748
Nov.	1,832
Dec.	<u>3,553</u>

335,461

Total D.C. K.W.H. to Milwaukee City - 236,250 - North Feeder  
Total A.C. K.W.H. to Milwaukee City - 335,461  
Wisconsin ratio of conversion - 70.4%

# POWER STATISTICS FOR YEAR - 1949

## Illinois Substations D.C. Output in K.W.H.

	<u>Galvary Sub.</u>	<u>Skokie No. 30</u>	<u>Lake Ave. No. 31</u>	<u>Kotz Rd. No. 32</u>	<u>Deerfield Rd. No. 33</u>
Jan.	23,929	142,029	82,408	55,790	78,049
Feb.	17,628	140,139	80,148	50,090	73,899
Mar.	24,079	133,529	75,848	47,190	77,929
Apr.	31,889	119,809	71,848	54,990	77,239
May	57,288	79,069	69,848	50,190	69,949
June	54,435	92,889	51,948	43,890	64,459
July	38,269	105,649	64,818	48,290	69,719
Aug.	21,117	122,469	66,204	53,322	70,929
Sept.	22,016	112,589	79,342	46,790	64,569
Oct.	1,268	131,949	60,576	52,390	59,919
Nov.	3,370	115,819	83,518	54,390	66,719
Dec.	6,213	110,289	88,138	79,290	79,169
	301,501	1,406,248	874,645	636,612	852,548

	<u>Old Mill Rd. No. 34</u>	<u>Laurel Ave. No. 35</u>	<u>Liberty. No. 36</u>	<u>Central St. No. 37</u>	<u>Winnetka No. 38</u>
Jan.	57,690	34,038	106,261	63,000	204,818
Feb.	54,590	34,248	108,699	58,200	200,518
Mar.	52,690	34,858	103,789	67,770	216,418
Apr.	53,190	33,458	88,869	58,730	198,018
May	48,890	31,178	77,199	59,010	204,118
June	46,890	21,708	58,319	51,740	173,627
July	45,490	24,578	52,319	48,580	160,618
Aug.	43,790	28,238	60,979	49,500	163,418
Sept.	47,990	84,088	91,099	47,196	155,518
Oct.	50,790	23,188	63,029	44,720	157,318
Nov.	53,190	25,998	80,129	47,720	171,818
Dec.	64,190	37,598	99,359	47,080	186,518
	619,380	413,176	990,050	643,246	2,192,725



# POWER STATISTICS FOR YEAR - 1949

## Illinois Substations D.C. Output in K.W.H.

	<u>Ravinia No. 39</u>	<u>Ft. Sheridan No. 40</u>	<u>No. Chicago A. 24</u>	<u>Waukegan No. 43</u>	<u>Beach No. 44</u>
Jan.	249,790	187,690	145,000	134,833	31,130
Feb.	242,890	185,190	138,630	135,960	27,240
Mar.	267,890	192,790	139,051	132,950	29,010
Apr.	244,490	157,703	112,680	129,480	22,530
May	228,590	150,590	117,626	112,900	24,560
June	204,291	124,690	107,010	100,940	23,760
July	197,090	107,590	99,920	95,620	19,660
Aug.	194,990	113,990	104,134	102,140	24,150
Sept.	191,390	142,890	136,710	114,950	20,180
Oct.	199,790	137,208	104,980	108,120	16,260
Nov.	213,590	159,578	111,640	121,950	17,730
Dec.	247,490	171,290	125,030	132,320	26,600
	2,682,281	1,831,199	1,442,411	1,422,163	282,810

	<u>W. Harbor No. 45</u>	<u>Lake Bluff No. 80</u>	<u>No. Chicago No. 42</u>
Jan.	100,200	393,370	1,000
Feb.	94,400	381,070	1,000
Mar.	99,500	411,080	1,000
Apr.	86,900	393,850	1,000
May	76,600	363,280	1,000
June	82,880	336,420	1,000
July	69,220	348,070	1,000
Aug.	75,300	350,340	-
Sept.	69,900	155,350	-
Oct.	73,500	352,170	-
Nov.	82,800	359,740	-
Dec.	95,700	385,580	-
	1,006,900	4,230,320	7,000

Total K.W.H. P.S. D.C. - less auxiliary load = 21,522,517 K.W.H.

POWER STATISTICS FOR YEAR 1949

Auxiliary Power Furnished Under  
D.C. Power Contract in K.W.H.

	<u>Kotz Road Signals No. 32</u>	<u>Old Mill Road Signals No. 34</u>	<u>Highwood Shops</u>	<u>Skokie Shops</u>
Jan.	11,530	10,450	31,500	36,070
Feb.	11,010	10,720	19,460	20,900
Mar.	10,950	10,640	23,010	21,520
Apr.	10,340	10,320	19,710	14,860
May	9,450	9,460	17,740	12,070
June	9,060	9,490	15,880	11,620
July	9,040	9,480	15,780	10,490
Aug.	8,920	9,390	14,930	11,270
Sept.	9,470	9,670	15,700	12,600
Oct.	10,470	10,610	18,310	17,020
Nov.	9,960	11,290	20,270	20,740
Dec.	<u>12,310</u>	<u>12,520</u>	<u>23,840</u>	<u>28,260</u>
	122,510	124,040	236,130	217,420

	<u>Glencoe Signals</u>	<u>Kenilworth Signals</u>	<u>Howard St. station</u>	<u>Zion Signals</u>	<u>Waukegan Signals</u>
Jan.	7,000	7,600	9,044	2,080	6,360
Feb.	4,400	4,400	8,222	1,840	5,400
Mar.	5,000	5,200	9,000	2,000	6,120
Apr.	4,400	4,500	8,327	1,920	5,880
May	4,000	4,100	8,499	2,040	6,120
June	4,200	4,400	7,568	1,960	5,520
July	4,000	4,300	8,010	2,000	6,000
Aug.	4,400	4,500	8,222	2,080	6,480
Sept.	4,200	4,700	7,482	2,000	6,060
Oct.	5,400	5,500	8,418	2,160	6,420
Nov.	5,200	5,100	8,762	1,960	6,000
Dec.	<u>5,800</u>	<u>6,000</u>	<u>9,594</u>	<u>2,240</u>	<u>6,540</u>
	58,000	60,300	101,148	24,280	72,900

Total Auxiliary A.C. Under D.C. Contract 1,016,728 K.W.H.



# POWER STATISTICS FOR YEAR - 1949

## Wisconsin Substations D.C. Output in K.W.H.

	<u>McKeown</u>	<u>Kenosha</u>	<u>Bose Rd.</u>	<u>Racine</u>	<u>Quarry</u>	<u>4-Mile Rd.</u>
Jan.	70,500	93,930	39,700	112,300	20,136	27,540
Feb.	64,700	77,880	45,230	78,900	23,319	20,210
Mar.	63,900	78,240	43,560	87,100	21,228	24,020
Apr.	53,600	70,320	41,300	63,800	26,965	19,160
May	60,700	70,250	40,790	67,600	27,419	19,100
June	49,300	62,400	40,190	59,300	27,480	15,770
July	48,800	57,670	37,180	60,600	29,591	17,050
Aug.	55,300	51,600	45,660	76,500	5,788	32,960
Sept.	55,400	60,330	37,370	68,000	7,004	32,090
Oct.	51,500	60,250	38,970	69,700	5,378	34,090
Nov.	64,800	56,850	37,620	81,400	1,080	34,220
Dec.	<u>51,400</u>	<u>65,930</u>	<u>46,630</u>	<u>76,700</u>	<u>5,270</u>	<u>37,870</u>
	689,900	805,650	494,200	901,900	200,658	314,080

	<u>Nechuta</u>	<u>Carrollville</u>	<u>College</u>	<u>Milwaukee</u>	D.C. <u>Wisconsin</u> <u>Elect.Co.</u>	W.Harbor <u>To Wisconsin</u>
Jan.	56,300	79,200	47,700	117,000	260,159	33,400
Feb.	65,200	63,300	54,400	118,000	226,301	31,467
Mar.	56,800	74,200	41,200	122,000	228,751	33,167
Apr.	63,800	47,400	39,800	110,100	196,883	28,967
May	70,400	45,500	58,200	94,800	192,225	25,533
June	56,100	42,500	18,300	74,000	169,612	27,627
July	47,100	38,500	42,200	82,000	181,036	23,074
Aug.	69,500	41,600	40,200	91,300	184,171	25,100
Sept.	42,200	49,700	35,400	76,900	187,154	23,300
Oct.	44,700	47,100	36,400	80,400	208,545	24,500
Nov.	42,400	53,300	36,000	91,100	241,781	27,900
Dec.	<u>47,200</u>	<u>51,700</u>	<u>39,800</u>	<u>114,400</u>	<u>274,590</u>	<u>31,900</u>
	661,700	634,000	489,600	1,172,000	2,551,208	335,935

Grand Total Converted in Wisconsin - 6,363,688 K.W.H.

# POWER STATISTICS FOR YEAR 1949

## A.C. Power Furnished in Wisconsin in K.W.H.

	<u>W. Harbor</u>	<u>Beach</u>	<u>Nechuta</u>	<u>Milwaukee</u>
Jan.	95,800	234,160	68,400	509,008
Feb.	91,000	188,800	78,000	499,438
Mar.	86,500	209,840	64,800	507,094
Apr.	89,200	138,960	75,600	467,248
May	77,900	138,000	84,000	440,974
June	78,100	121,760	68,400	396,604
July	74,700	141,930	74,400	401,708
Aug.	73,500	161,270	70,800	405,188
Sept.	79,500	143,200	57,600	402,926
Oct.	82,340	139,840	56,400	415,048
Nov.	94,900	125,360	52,800	435,464
Dec.	<u>111,200</u>	<u>161,680</u>	<u>58,800</u>	<u>489,810</u>
	1,034,640	1,904,800	810,000	5,370,510

Total A.C. to Wisconsin

Total Converted in Wisconsin

Efficiency - Wisconsin

9,119,950 K.W.H.

6,363,688 K.W.H.

69.7%

Total A.C. for Nechuta

Total D.C. Converted - Nechuta

Efficiency - Nechuta

810,000 K.W.H.

661,700 K.W.H.

81.7%



# POWER STATISTIC FOR YEAR - 1949

## Monthly K.W. Demand - Illinois Stations

	<u>Power #30</u>	<u>Power #31</u>	<u>Power #32</u>	<u>Signals #32</u>	<u>Power #33</u>	<u>Power #34</u>
Jan.	516.6	313.3	293.3	18.3	376.6	363.3
Feb.	610	416.7	363.4	17.7	383.3	350
Mar.	586.6	356.6	320	16.6	336.6	353.3
Apr.	620	340	316.6	15	313.3	276.6
May	363.3	306.7	243.3	11	326.7	276.7
June	283.3	160	196.7	11.3	396.7	326.7
July	423.4	243.3	273.4	11.3	363.4	263.4
Aug.	463.3	214.6	291.3	11.6	340	290
Sept.	373.3	206.6	220.0	12.3	366.7	323.3
Oct.	413.3	190.0	250	12	390	346.7
Nov.	430	383.3	303.4	13.7	406.7	343.4
Dec.	<u>303.3</u>	<u>303.3</u>	<u>306.6</u>	<u>14.3</u>	<u>410</u>	<u>393.4</u>
	5,386.4	3,454.4	3,378	165.1	4,410	3,906.8

	<u>Signals #34</u>	<u>Power #35</u>	<u>Libertyville #36</u>	<u>Central St. #37</u>	<u>Winnetka #38</u>	<u>Ravinia #39</u>
Jan.	16	260	296.6	223.3	650	670
Feb.	18.3	240	316.6	240	660	640
Mar.	14.3	226.6	286.6	220	686.6	670
Apr.	14.3	216.6	246.6	223.3	686.6	680
May	12	200	243.3	223.3	680	630
June	13.7	140	296.7	213.3	737.3	671.7
July	11.4	166.7	256.7	193.3	670	620
Aug.	11.6	203.3	283.3	180	633.3	600
Sept.	15.7	373.3	370.0	193.4	670.0	706.6
Oct.	13	233.8	313.3	216.7	700	740
Nov.	15.3	223.4	346.7	243.3	830	730
Dec.	<u>15</u>	<u>153.4</u>	<u>370</u>	<u>240</u>	<u>773.3</u>	<u>766.6</u>
	170.6	2,637.1	3,626.4	2,609.9	8,377.1	8,125.9

# POWER STATISTIC FOR YEAR - 1949

## Monthly K.W. Demand - Illinois Stations

	<u>Power #40</u>	<u>Power #A24</u>	<u>Power #43</u>	<u>Power #44</u>	<u>Power #45</u>	<u>Power #80</u>
Jan.	580	526.6	423.3	96.6	326.6	1,013.3
Feb.	523.3	506.6	433.3	100	346.6	1,000
Mar.	460	483.3	423.3	70	350	963.3
Apr.	413.3	393.3	440	90	426.6	863.3
May	467.7	416.7	393.3	80	296.7	860
June	573.4	493.3	303.3	120	173.3	963.3
July	406.7	413.3	316.7	96.7	190	873.3
Aug.	390	397	306.6	96.7	223.3	886.7
Sept.	613.3	620	366.7	103.3	143.4	310.0
Oct.	590	480	323.3	46.7	146.7	983.3
Nov.	546.7	506.7	340	73.3	233.4	920
Dec.	623.3	586.6	376.7	80	206.7	1,023.3
	6,187.7	5,823.4	4,446.5	1,053.3	3,063.3	10,659.8

	<u>Highwood Shops</u>	<u>Skokie Shops</u>	<u>Kenilworth Signals</u>	<u>Glencoe Signals</u>	<u>Howard Stations</u>	<u>Waukegan Signals</u>	<u>Zion Signals</u>
Jan.	28.6	37	7.3	7.7	15	9	3
Feb.	28.6	27	8.6	9.0	15	10	3
Mar.	23	20.6	6.0	5.3	15	9	3
Apr.	15	7	3.6	3.0	15	9	3
May	17	4.3	2.0	3.0	15	9	3
June	12.7	12.3	2.0	3.0	14	9	3
July	12	9.0	2.0	3.0	14	10	3
Aug.	11	7.7	2.3	3.4	15	9	3
Sept.	20	13.7	2.4	3.0	14	10	3
Oct.	16.4	21.3	2.0	3.0	15	10	3
Nov.	22.7	28.7	6.0	6.3	16	9	3
Dec.	24	32.3	4.3	4.6	16	9	3
	231	220.9	48.5	54.3	179	112	36



# POWER STATISTICS FOR YEAR - 1949

## Monthly K.W. Demand As Run

	<u>Beach</u>	<u>Winthrop</u>	<u>P.S.</u>	<u>Milw.</u>	<u>Total</u>	<u>P.S. Co.</u>	<u>Total</u>
	<u>A.C.</u>	<u>Harbor</u>	<u>A.C. Total</u>	<u>A.C.</u>	<u>A.C.</u>	<u>D.C.</u>	<u>System</u>
Jan.	830	250	1,080	1,484.3	2,564.3	7,075	9,639.3
Feb.	786.6	253.3	1,040	1,484.3	2,524.3	7,267	9,791.3
Mar.	703.6	286.6	990.2	1,470.2	2,460.4	6,906	9,366.4
Apr.	453.3	256.6	710	1,395.5	2,105.5	6,634	8,739.5
May	556.7	193.4	750.1	1,349.5	2,099.6	6,083	8,182.6
June	423.3	200	623	1,195.4	1,818.4	6,130	7,948.4
July	660	150	810	1,223.9	2,033.9	5,846	7,879.9
Aug.	660	270	727	1,223.6	1,950.6	5,874	7,824.6
Sept.	750	140	890	1,183.9	2,073.9	6,054	8,127.9
Oct.	566.7	230	797	1,212	2,009	6,459	8,468
Nov.	443	314	770	1,255.2	2,025.2	6,981	9,006.2
Dec.	606.6	206.7	813	1,410.3	2,223.3	7,039	9,262.3
	7,439.8	2,751	10,000	15,881.1	25,888	78,348	104,241

## Monthly K.W. Demand as Billed

	<u>Beach</u>	<u>Winthrop</u>	<u>P.S.</u>	<u>Milw.</u>	<u>Total</u>	<u>P.S. Co.</u>	<u>Total</u>
	<u>A.C.</u>	<u>Harbor</u>	<u>A.C. Total</u>	<u>A.C.</u>	<u>A.C.</u>	<u>D.C.</u>	<u>System</u>
Jan.	830	250	1,080	1,500	2,580	7,075	9,655
Feb.	786.6	253.3	1,040	1,500	2,540	7,267	9,807
Mar.	703.6	286.6	990.2	1,500	2,490.2	6,906	9,396.2
Apr.	453.3	256.6	756	1,500	2,256	6,634	8,890
May	556.7	193.4	756	1,500	2,256	6,083	8,339
June	423.3	200	756	1,500	2,256	6,130	8,386
July	660	150	810	1,500	2,310	5,846	8,156
Aug.	480	247	756	1,500	2,256	5,874	8,130
Sept.	750	140	890	1,500	2,390	6,054	8,444
Oct.	567	230	797	1,500	2,297	6,459	8,756
Nov.	443	314	770	1,500	2,270	6,981	9,251
Dec.	606.5	206.5	813	1,500	2,313	7,039	9,352
	7,260	2,727	10,214	18,000	28,214	78,348	106,562

### Average Month Demand

Public Service Co.	D.C.
Public Service Co.	A.C.
Wisc. Elect. Power Co.	A.C.

### As Run

6,529
833.3
<u>1,323.4</u>
8,685.7

### As Billed

6,529
851
<u>1,500</u>
8,880

# POWER STATISTICS FOR YEAR - 1949

	<u>Substation</u>	<u>Installed Capacity</u>	<u>Cycle</u>	<u>Number of Units</u>
		<u>K.W.</u>		
	No. 30 Skokie	2,000	60	1
	No. 31 Lake Ave.	1,500	60	1
	No. 32 Kotz Rd.	1,500	60	1
	No. 33 Deerfield Rd.	1,500	60	1
	No. 34 Old Mill Rd.	1,500	60	1
x	No. 35 Laurel Ave.	1,000	60	2
	No. 36 Libertyville	1,000	60	1
	No. 37 Central St.	2,000	60	2
	No. 38 Winnetka	1,500	60	1
	No. 39 Ravinia	2,000	60	2
	No. 40 Ft. Sheridan	1,500	60	1
	No. A24 No. Chicago	1,500	60	1
x	No. 43 Pine St.	1,900	60	1
	No. 44 Beach	1,000	25	1
	No. 45 Winthrop Harbor	1,200	60	1
X	No. 80 Lake Bluff	<u>1,900</u>	60	<u>1</u>
		24,500		19
	McKeown Rd.	1,000	25	2
	Kenosha	1,000	60	1
	Bose Rd.	1,000	25	1
	Racine	1,000	25	2
	Quarry	1,000	25	1
	4 Mile Rd.	500	25	1
x	Nechuta Rd.	1,500	60	2
	Carrollville	1,000	25	2
	College Ave.	500	25	1
	Harrison St., Milw.	<u>2,000</u>	25	<u>2</u>
		10,500		15

NOTE: All substations are rotary converters except No. 35, No. 43, No. 80 and Nechuta which are Mercury Arc Rectifier Stations



## ELECTRIC POWER SERVICE DIVISION

### Summary

<u>Crossing Protection</u>	<u>1949</u>	<u>1948</u>
Autoflag with Bell - Locations	13	12
Autoflag - No Bell - Locations	3	4
Bell and Light Signal - Locations	3	4
600 Volt Bell on Gate - Locations	14	14
Electric Lighted Crossings	63	63

### Overhead Trolley

Catenary Construction - D.T. Miles	32.04	32.04
Wood and Steel Poles - Main Line - D.T. Miles	69.94	69.94
Steel Poles - Milwaukee - D.T. Miles	3.35	3.35
Wood Poles - Yards & Sidings - S.T. Miles	42.26	42.26
Wire Renewed - Miles	7.85	2.0
Wire Breaks	22.	4.

### Lighting

Passenger Stations	37	37
Freight Stations	8	8
Shops and Car Houses	4	4
Substations	10	10
Office Buildings	2	2
Miscellaneous Buildings	31	31
Station Platforms and Shelters	222	222
Yards	8	8

### Substations

Manual	3	4
Automatic	7	7

### Transmission Line - Miles

60 cycle - 33,000 volt - 3 wire	34.9	34.9
25 cycle - 33,000 volt - 3 wire	48.1	48.1
60 cycle - 2,300 volt - 2 wire	52.2	*51.3
25 cycle - 13,200 volt - 3 wire	** 2.4	2.4

### Feeder Cable - Single Wire Miles

Cooper Feeder Cable	169.28	*169.76
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### Bonding

Bonds Renewed	3,024	2,300
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\*Corrected figure.

\*\*Not in service

## COMMUNICATIONS DIVISION

### CHANGES IN TELEPHONE SERVICE

On May 27, 1949, the telephone service at 79 West Monroe Street, Chicago, was transferred to 105 West Madison Street during the process of moving the General Offices. This move was made at night without interruptions to service. A new 80 line PBX with 31 working terminals was installed terminating the Railway's A, B and despatch lines which formerly terminated in the C.T.A. PBX at 79 West Monroe Street. Two additional Bell Telephone lines were put in service from Chicago to Highwood, making a total of four leased lines between these two points. The new telephone number for these lines is Ambassador 2-6400.

Telephone facilities on the second floor of Highwood Office Building were revised and enlarged to accommodate the Purchasing and Stores Department and the Way, Structures and Power Department.

### FACILITIES MAINTAINED

	<u>1949</u>	<u>1948</u>
Aerial Cable - Miles	12.14	12.14
Underground Cable - Miles	26.66	26.66
2-Wire Open Line - Miles	143.64	143.64
Cable Terminals - All Classes	119	119
XYZ Cable Terminal Protections	21	20
Cable Houses	37	37
Telephone Booths	58	58
Telephone Boxes on Poles	9	9
Telephone Stations	188	188
Interlocking Plant Telephones	14	14
Dispatch Boards - 20 Line	2	2



## ENGINEERING

In addition to routine engineering work of preparing plans and estimates and doing necessary field work, the following special projects were carried out by the Way and Structures Department's engineering staff:

Handled all details in connection with moving of General Offices in Chicago from 79 West Monroe Street to 105 West Madison Street and transfer of Purchases and Stores Department from Chicago to Highwood. This involved making floor layouts for new offices, arranging for new carpets, lights, blinds and various services and supervising the work of remodeling and moving.

Moved the Milwaukee Office of the Claim Department from the Security Building to the Terminal.

Co-operated with the Chief Engineer's Office in various studies pertaining to the Eden's Parkway Project of the Cook County Highway Department.

Made surveys of various parcels of land sold by the Real Estate Department and made a property survey for the Racine Motor Coach Company at Racine.