

The BN Expediter

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BNSFSM



The official publication of the **FRIENDS OF THE BURLINGTON NORTHERN RAILROAD**, the historical society focused on the BURLINGTON NORTHERN RAILROAD, the BURLINGTON NORTHERN SANTA FE RAILWAY and the BNSF RAILWAY.

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The *Friends of the Burlington Northern Railroad* was formed to gather, preserve and share information about the history and current operations of the Burlington Northern Railroad. It follows the development of the railroad from its inception in 1970 as the merger of the Great Northern, Northern Pacific, Chicago, Burlington and Quincy and the Spokane, Portland & Seattle Railroads, up to the present and into the future.

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The BN Expediter

The BN Expediter is published four times a year and is included with membership in the **Friends of the Burlington Northern Railroad**. Manuscripts, photographs and information are welcomed for publication. Materials are submitted with the understanding that no monetary compensation will be paid upon publication. Items will be returned only if requested. Otherwise they will go into the archives.

Anything published in *The BN Expediter* (including the classifieds), must be **focused** on the Burlington Northern Railroad, from the 1970 merger on. Information and/or pictures that give historical perspective or context are acceptable (e.g., pre-merger road numbers). The disposition of a locomotive, other piece of equipment or property is also acceptable. Further information is available from the Editor.

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Front Cover

On May 3, 1997, the 7890 leads an eastbound COLX coal train at St. Anthony in Minneapolis, MN.

-Kevin Madsen photo

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President's Message



Tough Times

I hope that by the time you read this that the specter of hard economic times for you and our country look better than they did back in late November

when this report was written. If you or someone in your family has lost a job, or are retired and have seen your retirement assets evaporating before your eyes, you have my sympathies.

I suspect times will be difficult for our organization too. When finances are tight, discretionary spending on things like hobbies tend to be the first to be eliminated.

Fortunately, as of late November approximately half of our members have renewed their membership, including many of our sustaining members who are kind

enough to support us with double the normal membership cost. Since it is likely that you are one of those who have decided to become or continue as a member of the FOBNR, let me thank you from the bottom of my heart.

Our continued success depends mainly upon your financial support.

It is clear that times are going to be tough for the BNSF and, for that matter, all railroads. The AAR's weekly freight volume report for November 8-15 says:

"Carload freight for the week totaled 309,099 cars, down 9.1 percent from last year, with volume off 6.5 percent in the West and 12.8 percent in the East.

Intermodal volume, which is not included in the carload data, totaled 225,375 trailers or containers, down 7.9 percent from last year. Container volume was off 6.9 percent while trailer traffic fell 11.7 percent.

Total volume was estimated at 32.8 billion ton-miles, down 7.9 percent from the comparable week last year. Cumulative volume for the first 46 weeks of 2008 totaled 14,939,959 carloads, down 0.9 percent from 2007; 10,376,137 trailers or containers, down 3.2 percent; and total volume of an estimated 1.56 trillion ton-miles, up 0.2 percent from last year."

Fortunately, the strength of the BNSF was indicated by a rising stock price for the first half of the year, from around 80 on January 1st to over 110 by

June 1st. This was at a time that the Dow Jones average was slowly declining from over 13000 to around 12600. BNSF's stock price took a small hit in June, falling to around 95, but then more or less held its own until October 1st when the bottom fell out of the entire stock market spurred by the dawn of the unprecedented financial crisis. It appears, however, that BNSF is well positioned to handle whatever the economy throws at it, and to thrive when things pick up, as they always do.

In the mean time, we'll continue to do our best to provide quality historical information in The BN Expediter and our web pages.

Of course you can always help by writing an article, sending in information and photos, and helping us find new members.

2009 Convention Seattle, WA

The 2009 FOBNR Convention will be in be held in Seattle, Washington **June 24th-27th.**

There will be lots of train activity, and lots of places to visit. Stevens Pass, Stampede Pass and the Scenic Subdivision along Puget Sound are just a few of the paces to go.

There will be more details soon, so plan to be in Seattle in June 2009.

If you live in the Seattle area and would like to be on the convention planning team, please contact Dave Poplawski at pop@mtu.edu.



Operations in the Twin Cities Terminal Prior to Completion of New Classification Yard

by Earl Currie

Background

Of all the capital projects Burlington Northern undertook to integrate its operations upon merger in 1970, the construction of a modern freight classification yard in the Twin Cities had the greatest impact on the company's success in its early years. Only the programs for upgrading the expansion of capacity, undertaken in subsequent years (from the mid 1970's to 1981) to handle coal from the Powder River Basin, surpassed it.

To establish the "preferred route" between Chicago and the Pacific Northwest, a new connection had to be built between the main lines of the Great Northern and Northern Pacific at Sandpoint, ID. A much larger project was completed at the west end of Spokane in 1972, a high level bridge over Latah Creek to connect the Great Northern, Northern Pacific and SP&S main lines. A third but less impressive project was construction of an improved connection between the GN and NP at Casselton, ND.

Completion of the new connections at these strategic locations allowed road operations to be fully integrated on the BN's northern transcontinental route. It was the result of the very thorough engineering and operations planning that was carried out by a small team of expert operating officers from each of the four roads that merged to form BN. A great deal of credit has to be given Robert W. Downing (GN), Richard K. Mossman (NP), Arthur R. McDonald (Burlington) and N.S. Westergard (SP&S) for the excellent job of planning they carried in anticipation of merger.

In that planning process, the best route for the movement of trains through the Twin Cities terminal was determined, together with what kind of terminal switching facilities would be needed to improve service, reduce costs and replace the large number of antiquated yards that had been built over the years. The answer was to build a large, modern hump yard and locomotive maintenance facility on the site of the NP's Northtown Yard on the north side of Minneapolis. In advance of merger, commitment was made by the Directors and management to undertake those very large projects. This allowed construction to begin a short time after the merger officially took place.

The merger plan also provided for a large freight classification yard to be built at Hauser, Idaho, about 20 miles east of Spokane, along the line of the NP between Spokane and Sandpoint that was to become part of the preferred route. Property was acquired for that yard, and a few long tracks were built in the 1970's to support the operations of the Spokane terminal. However, with improvements made in the

operations of several yards in the Pacific Northwest, together with a shift of more freight to intermodal equipment and unit trains by the early 1980's, there was no need for BN to invest in another large hump yard. A few years ago, a modern, high production locomotive fueling facility was built at Hauser, and crew changes on through trains are now made there instead of in Spokane.

Labor agreements in place at start-up

In anticipation of merger, implementing agreements for operations on the Twin Cities Terminal were negotiated with the unions representing the Conductors, Engineers, Brakemen and Switchmen of each of the component roads. These agreements made it possible to operate all of the 14 yards on a coordinated basis right from the start. They also allowed us to have crews of inbound road trains operate in and out of any yards in the consolidated terminal. We could then move trains within the terminal with road crews, and not require the use of yard crews to move trains between yards.

For example, crews arriving on trains from La Crosse could deliver an inbound train to a yard of the former GN or NP, rather than our having to call a yard transfer crew to take the train west from the Daytons Bluff Yard of the Burlington. These road crews could also handle a train eastbound from any yard within the terminal. In consideration for that flexibility, La Crosse crews went on final terminal delay from their arrival at the east end of the Daytons Bluff Yard, at Oakland Tower, until they had completed their trip and been transported to the crew facility at Minneapolis Junction. Making these payments for crews moving beyond Daytons Bluff was very expensive, but overall, it was beneficial because of our no longer having to use yard transfer crews. Also, this provision for final terminal delay did not apply to employees hired after the date of merger.

The implementing agreement provided for the same flexibility for crews arriving from Willmar and Superior, and for the NP pool crews headquartered in Minneapolis who operated between Minneapolis and Staples. It was a real credit to the General Chairmen of the operating unions and the Labor Relations Department representatives to recognize the need to have these agreements in place at the time of merger. Overall, the implementation went quite well. In return for these considerations, the company provided wage guarantees and lifetime job protection for all who were employed as of the date of merger.

Agreements were also negotiated for consolidation and centralization of crew management, as well as the yard office

and freight office functions. Having the capability provided by these agreements greatly facilitated the administration and flow of information essential for managing the consolidated terminal.

The consolidated agreements, together with sound operational planning, the major capital expenditures already described, and sound operational planning, formed the foundation for early success at BN. The company started to gain the benefits of merging, right from the start. As the operations were fine-tuned, service got better and more routines were established. New challenges and problems arose, but organizational and operational processes had been set up to deal with them. As a result, the merger was carried out very well and allayed the apprehension some of our customers and industry “watch dogs” had due to the extreme difficulties that had occurred in the merger of the Pennsylvania and New York Central railroads about two years before the BN merger.

Operating plan in the early 1970’s

Listed below are brief summaries of the kind of work each of the major yards was set up to handle at the time of merger.

Daytons Bluff. This was the only yard operated by the Burlington. It was located a short distance east (railroad direction) from downtown St. Paul. Before the merger, trains arriving from La Crosse were either switched, or delivered directly to the GN or NP by yard transfer assignments. After merger, Daytons Bluff was set up to handle interchange with other railroads having yards in St. Paul, and 500-mile inspections for unit coal trains and through trains such as No. 97 which operated intact from Cicero to Minot. Daytons Bluff switched many trains of empty cars moving west for loading, consisting mainly of refrigerator cars for spud loading on the Dakota Division, and box cars and flat cars for lumber loading in the Pacific Northwest. Eastbound, it blocked cars for points between St. Paul and Eola. This yard was laid out very well, making it a very productive facility, and allowing it to handle much of the load that had to be shifted away from Northtown during the time of construction of the new yard.

Como Yard. This yard was quite small. It was set up to handle cars for industries along the former GN main line between St. Paul and Minneapolis.

Mississippi Street. This yard was closed very soon after merger, as it was possible to consolidate its operation with Daytons Bluff and Como. It was located adjacent to the NP freight main between St. Paul and Northtown, and sold to the Soo Line as provided in the merger conditions. (*Note: the Mississippi Street Yard was distinct from the Mississippi Street passenger car repair facility operated by the GN prior to the creation of Amtrak. The latter facility was located on the south side of the GN line, just east of the Jackson Street Roundhouse that now houses a railroad museum.*)

The above yards were operated under a Terminal Manager as the “St. Paul Zone.” It was interesting to note that before merger, the Daytons Bluff Yard had been managed

with only one management employee, the Terminal Superintendent. The operating routines were so consistent and well documented that the yard could be operated by the employees without intense supervision. After merger, the operation became much more complex, requiring a total of four management personnel for the St. Paul Zone.

Union Yard. This yard was made up of several sub-yards built over the years. It was a very expensive yard to operate, due to most of it being on a grade of 0.6 per cent descending westbound. This required some switch crews to have seven and eight “ground men” to “ride” cars to operate hand brakes on cars being switched, in order to control impact speeds upon coupling. Although most of the through freight trains were moved to Northtown and Daytons Bluff upon merger, Union Yard still handled a heavy work load of industry and interchange cars, and bad order cars that could not be handled at the Northtown car repair facility. After merger, Union Yard continued to originate and terminate trains for the Willmar and Sioux City lines. It handled major interchanges with several lines. Trains of unblocked empty and local cars received from the Chicago Division that could not be handled at Daytons Bluff without delay were sent to Union Yard for switching.

Minneapolis Junction. “The Junction” was a small yard located at the junction of former GN lines from Willmar, Superior and St. Cloud. The Yardmaster served mainly as a “traffic cop” to clear switch engines, transfer jobs and freight line movements out of the way for the through trains that had to be run via Minneapolis Junction instead of the NP freight line between Northtown and St. Paul. Minneapolis Junction also handled some industry assignments and the switching of inbound trains from the Willmar line.

Lyndale Yard. This yard was located on the west side of Minneapolis, at the junction of the lines to St. Cloud (now referred to as the Osseo line) and the main line to Willmar. Lyndale handled interchange with foreign lines having yards in the vicinity, and local trains for the GN lines to Willmar and St. Cloud, and the Hutchinson branch.

Cedar Lake Yard. This yard was a “rider” hump yard, closed in 1971. It had operated on a seasonal basis to handle grain destined to elevators in Minneapolis. Since it was never modernized or upgraded in any fashion, it required ground crews of eight employees to “ride” cars and operate hand brakes to control coupling speed. As a result it was very inefficient and a target for immediate closure upon merger.

Northtown Yard. Northtown was designated the main yard on the preferred route between the Twin Cities and the Pacific Northwest. Several “symbol” trains originated and terminated at Northtown, and intermediate work was done on most of the through trains. Intermodal operations were consolidated at Northtown upon merger. Northtown consisted of several sub-yards added over the years. Yard switching was greatly restricted while the new hump yard was yard. The Northtown property was well located for interchange with most of the connecting railroads, and accessible

to trains moving to and from the main lines to Willmar and Chicago.

The above comments cover the main yards. In addition, there were a number of smaller yards used for low volume interchange, for staging industry jobs and occasionally for handling overflow from Northtown or Union Yard. The yard at Park Junction was used for interchange with the Rock Island and overflow from Northtown. Both Park Junction and the East Minneapolis Yard were used at times to yard inbound trains until they could be handled at Northtown. The Mississippi Street Yard in St. Paul had been used by the NP to handle industrial switching, but was closed and sold to the Soo Line shortly after merger. That work was transferred to Daytons Bluff. At 7th Street in Minneapolis, the GN had a team track, an LCL freight house and intermodal facility that also were closed, with their functions consolidated into Lyndale Yard and Northtown. By 1972, 11 yards were still in operation. Having this large number of yards was inefficient, as many cars had to be transferred between yards. Also, nearly every yard had to be staffed with a Yardmaster on a 24-hour basis, and with at least one clerk per shift.

Allocation of work.

With the capacity for switching at Northtown limited by construction, it was necessary to move as much of the secondary-type of traffic as possible to other yards, mainly Daytons Bluff. Also, because of the extremely high costs and low productivity of the eight-man crews of Union Yard, we directed as many cars as possible to Daytons Bluff to be switched. Fortunately, the yard at Daytons Bluff was well-designed, and the crews were very productive. Since Northtown had been designed the main yard for handling nearly all of the priority trains, and with a new yard being built there, the employees at Daytons Bluff knew they were on “short time.” To keep Daytons Bluff going as long as possible, they encouraged us to keep moving all of the car-by-car type of switching into Daytons Bluff that they could handle.

Another big help to the Twin Cities Terminal in those days was having the option to run some of the “slop” (i.e., completely unblocked) trains of mainly westbound empties to St. Cloud for switching. A few cars would have to be brought back to the Twin Cities, but the delay from by-passing a Twin Cities yard usually would not amount to more than 24 hours. The Trainmaster at St. Cloud, “Iron Mike” Sherman, would take anything we sent him. The crews at St. Cloud had lost the four through freight trains they had prior to merger. Those trains were run on the St. Cloud – Barnesville line to Fargo, Grand Forks and Winnipeg. Upon merger these trains had been shifted to the preferred route. Like the crews at Daytons Bluff, the St. Cloud crews knew their time was limited, so they were glad to take on as much extra switching as we could send their way. They switched up what we sent them and then lined up the cars for pickup at East St. Cloud by trains operating on the former NP main line (now the preferred route) between Minneapolis and Staples.

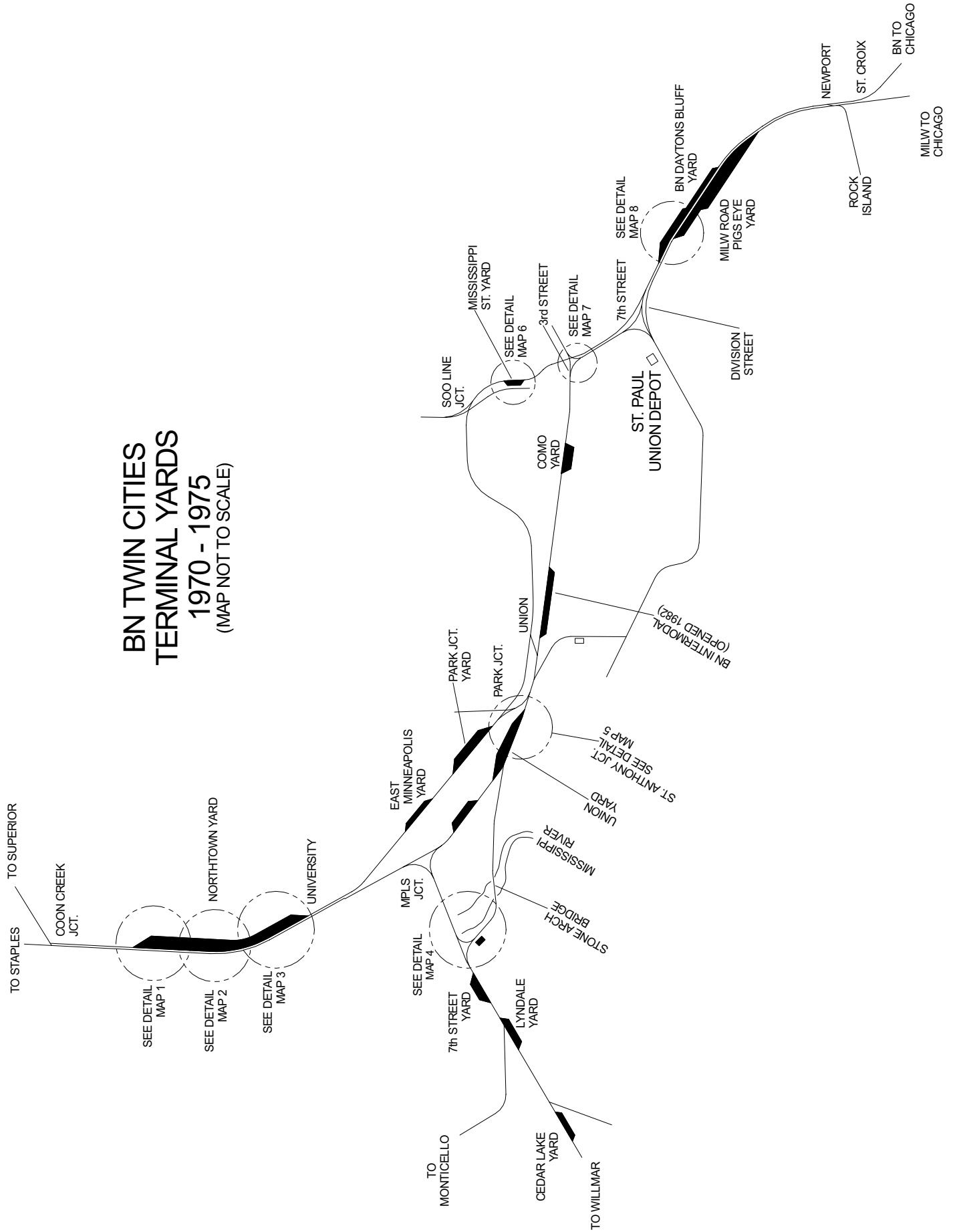
Moving trains through the terminal

None of the routes through the terminal had been designed or maintained for fast or efficient movement of through freight trains. The GN had an excellent route for moving passenger trains between St. Paul and Minneapolis, but the passenger main tracks were not situated for efficient movement of freight between yards or end points within the terminal. This was unfortunate, as the passenger mains were built for 50 MPH and had absolutely no grade crossings in their 11 miles (another part of the legacy of James J. Hill). Because of limited clearances through the Minneapolis passenger station, the only freight trains that could be run on it were those with cars no higher than a standard box car. However, we made good use of it for moving unit coal trains coming in on the line from Willmar and going beyond the Twin Cities. It was amazing that these trains of about 15,000 gross tons could be handled on the historic Stone Arch Bridge, built in 1882. *(Note: Between St. Paul and St. Anthony Tower, seven miles, there were two freight main tracks running parallel and adjacent to the passenger mains, equipped with an automatic block signal system, and maintained for 25 MPH. West of St. Anthony and on to Minneapolis Junction, 2.5 miles, these tracks were not signaled, and were located along the south edge of Union Yard. Any train moving on those tracks was subject to interruption by yard switching and transfer movements, or being blocked by inbound trains yarded on them between the west end of Union Yard and Minneapolis Junction. As a result, the route of the former GN between St. Paul and Minneapolis was not practical for use by through freight trains, although it did not have the clearance restrictions on the two passenger main tracks at the Minneapolis passenger station).*

Even though the NP freight line between St. Paul and Minneapolis was the preferred route, traffic was not controlled by a Dispatcher. Instead, all movements were directed on an informal basis by the Yardmasters, Switchtenders and Operators located at various points along the way. As a result all of the freight routes were slow and full of interference from yard engine activity, transfers and movements of other railroads making interchange runs to and from our yards. It was very difficult to get priority trains moved any distance at all without being stopped for interference from such movements. The NP and La Crosse road crews were very thorough in documenting the reasons for delays, as inability to move their trains was frustrating to them. This was a problem they had not encountered before merger, since trains they operated into the terminal were yarded in yards closer to the perimeter of the terminal complex i.e., Daytons Bluff and Northtown.

The problem of having such slow routes caused final terminal delay payments to be exceedingly high. It was not uncommon for a crew from Willmar to get paid for three to five hours of final terminal delay in taking a coal train to Daytons Bluff on the GN freight mains and then having to take their power to the maintenance facility at Minneapolis Junction. To

BN TWIN CITIES TERMINAL YARDS 1970 - 1975 (MAP NOT TO SCALE)



reduce those payments we began to take the Willmar crews off duty at Lyndale Yard and put on a La Crosse crew, and then run the train on the route built for passenger trains (i.e., through the depot and over the Stone Arch Bridge). Likewise, we took crews off duty at Northtown for trains arriving from Staples and put a La Crosse crew on to continue east.

The La Crosse crews showed a burning desire to get home, and usually, they would be on the engine and caboose even before their on-duty time. The minute that they reached their on-time duty time, they would call the Yardmaster on the radio and ask permission to depart. We even had some cases where those crews would ask permission to change the on-duty time to five or 10 minutes earlier so they could start to move. This kind of hustle was an example of good morale and was a big help in improving the overall operation.

However, these efforts were not enough to overcome the problem of interference to road movements caused by switch engines and transfer jobs using the same main tracks between yards. Employees at each control point were making their own decisions on what or when each train should be moved, and there was little coordination among them. Since there was no system, one would have to be invented. We brainstormed the problem with our terminal officers and John Boyd, the senior region officer in charge of operating rules instruction and interpretation. There was nothing in the Consolidated Code or dispatchers manual that we could draw on as a “system” that would enable us to move trains any better through this complex territory in which trains were not dispatched.

John Boyd was an “ace” rules man, and together we worked up a system that would meet the unique needs of the Twin Cities Terminal. We called it “main track permission,” which turned out to be very similar to the rules later developed for “Track Warrant Control” (TWC), which came into use on most railroads by the mid 1980’s, 10 or 12 years later. Control was vested in a Terminal Dispatcher, and the authority he issued for track occupancy had to be respected by the assortment of people whose work somehow affected train and yard engine movements through the terminal. Our train performance improved immediately, as we no longer had delays due to low priority movements blocking them. This system remained in effect until CTC was installed on the preferred route through the terminal in the late 1970’s.

Establishment of a terminal control center

To coordinate operations among all of the yards and to help facilitate the movement of cars and trains, we established a terminal control center staffed by experienced Terminal Trainmasters. They kept in touch with trains by radio, so they could give orders for immediate corrective action whenever a road crew reported a problem in keeping their train moving, no matter what route they were using. That capability for “real time” and immediate and somewhat repetitive corrective action helped get people trained on our standards for train

movement. Final terminal delay payments came down. Crews from all districts could see that we cared about getting them in and out of the terminal, and worked with us very well in overcoming repetitive problems.

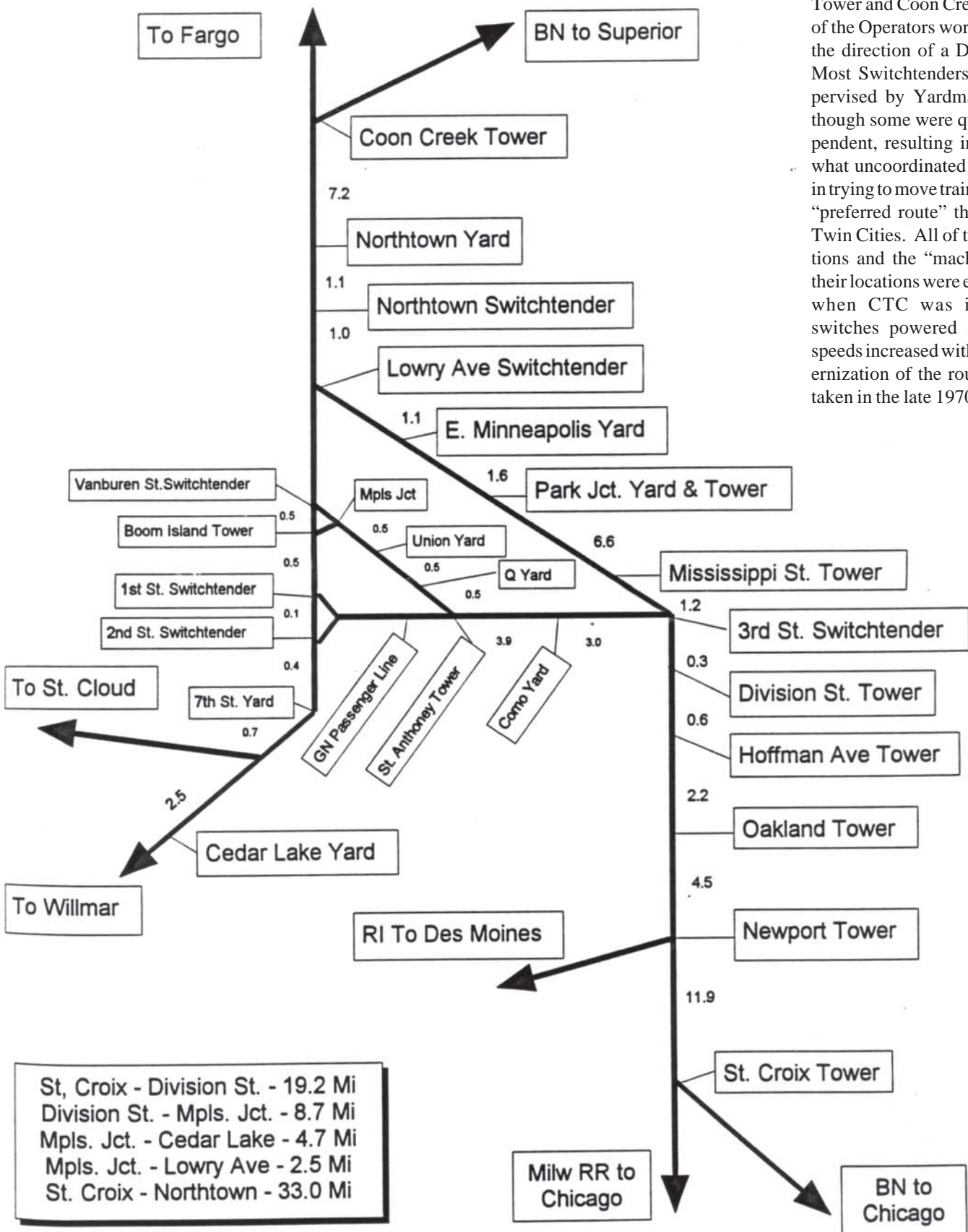
In return, the road crews requested we do something to get them better information as to the times we would be running outbound trains. The accuracy and completeness of such lineups is an age-old problem in railroading, and I have never experienced more success in meeting this concern of road crews that we had in the Twin Cities. In beginning our work on this problem, we had the advantage of the terminal control center and its role in coordinating the timing of train makeup with the yards, and coordinating the work of Crew Callers, System Diesel Control (locomotive management) and Dispatchers. It was staffed with senior level Trainmasters who had spent most of their careers in the Twin Cities. They did an excellent job in managing all of the activities in the terminal, to make the operation orderly and efficient. Because the people in the control center had knowledge of everything that was going on, they were able to give the road crews good information on what trains we planned to run in the next eight hours.

Before we employed the capability of the control center to prepare lineups, road crews had to get that information from the Crew Callers, who got it from the Chief Dispatcher, who in turn got it from the terminal. In most operations I have been a part of, this traditional, linked process does not work well. To the Chief Dispatcher or equivalent position, the needs of road crews to have good information so they could plan their time off and their rest was way down their priority list, compared to their other responsibilities. As a result, most of them made little effort to cater to the crews. Having crews ready and available is often taken too much for granted. To do the job better, we had to take control of the information flow and establish contact with crews through the control center.

That change worked very well, right from the start. About every two hours, a crew member who was away from home would call the Control Center for a new lineup, and would copy it and post it on the bulletin board in the hotel lobby. Before long, crews from one district would even take a lineup for trains to be run on another district. These may seem like small things, but over time, they helped in taking down the barriers between people from the various former roads. The crews got good information that way, and especially appreciated someone caring about them.

The quality of off-duty time for the road crews depends to a great extent on how well we can keep them updated on our plans for the train operation. Not enough people in railroading appreciate that need, and tend to treat the road crews as a big pain whenever they call for information. It takes a Godfather approach to effectively handle these crews, similar to what works well in looking after the needs of people for safety in their work. Railroading is fun when you can raise the enthusiasm of employees so they will join in. With an attitude of mutual respect, and willingness to help overcome each

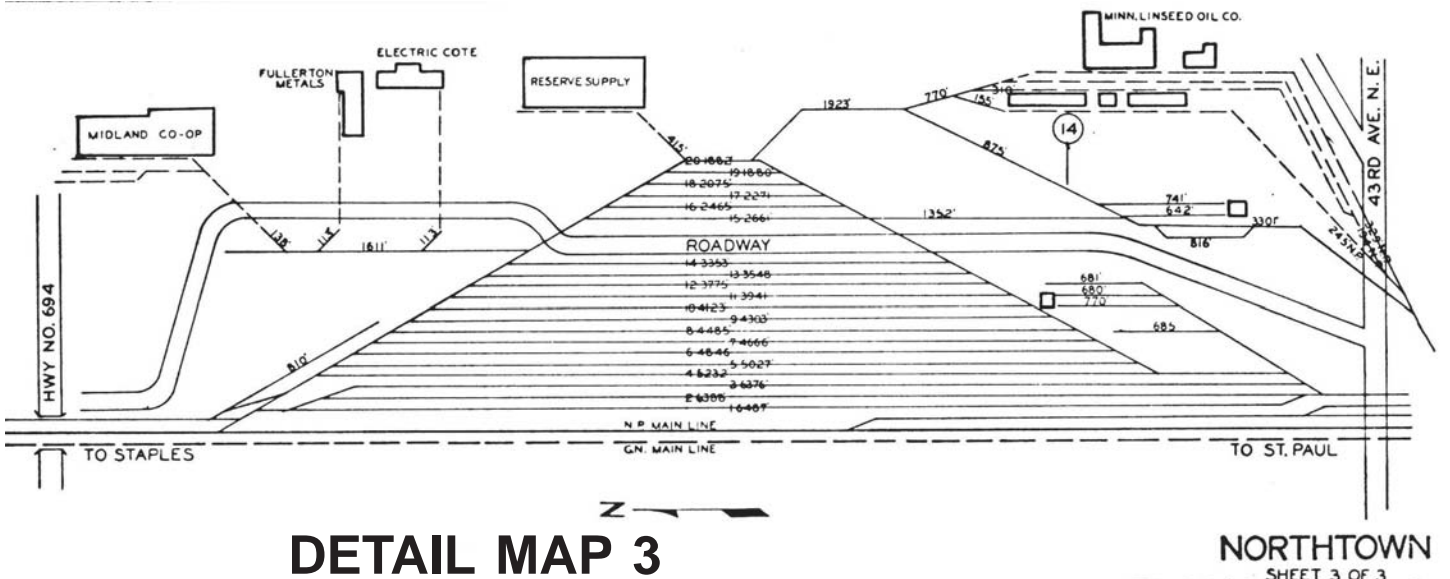
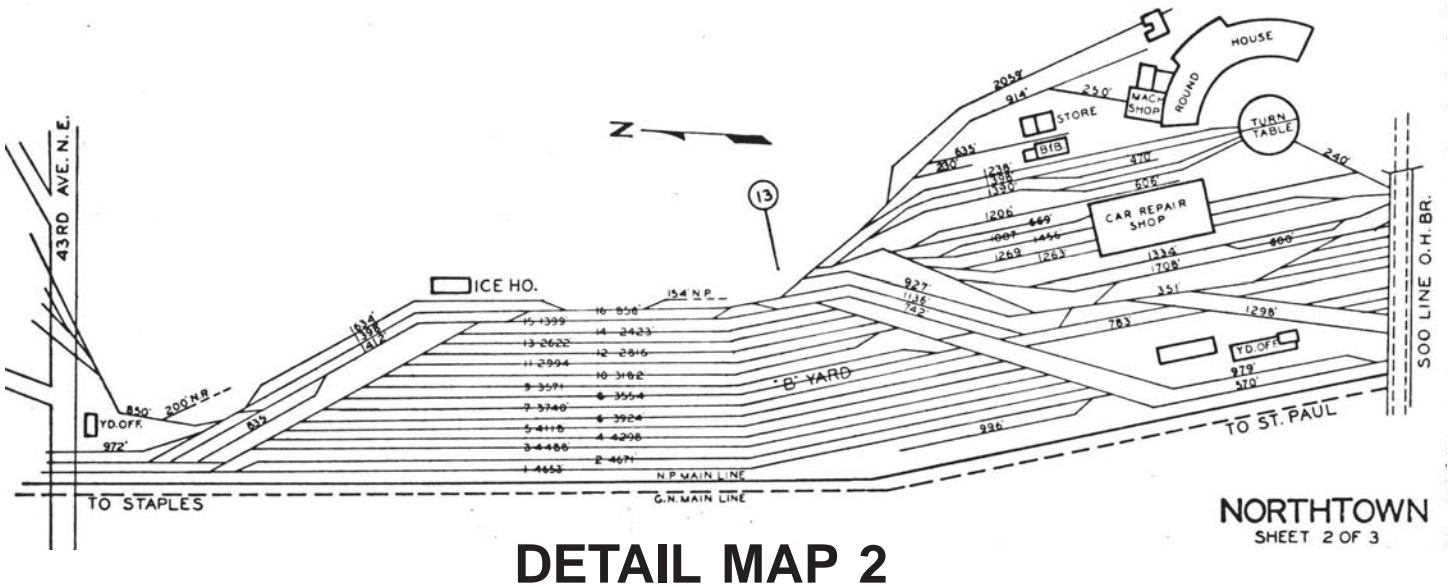
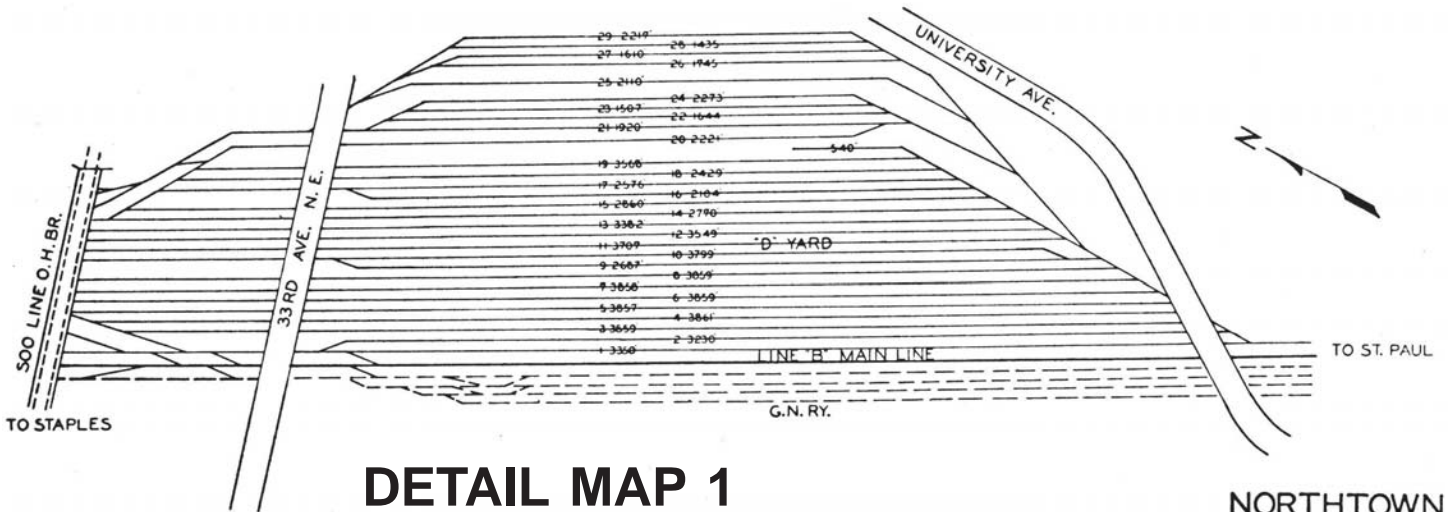
Twin Cities Terminal - 1972



Operators and Switchtenders were located at numerous junction points and manual interlocking plants over the 40.6 mile distance between St. Croix Tower and Coon Creek. Some of the Operators worked under the direction of a Dispatcher. Most Switchtenders were supervised by Yardmasters, although some were quasi-independent, resulting in a somewhat uncoordinated operation in trying to move trains over the "preferred route" through the Twin Cities. All of these positions and the "machinery" at their locations were eliminated when CTC was installed, switches powered and track speeds increased with the modernization of the route undertaken in the late 1970's.

NORTHTOWN YARD

These three prints show the "chain" of small yards that made up the Northtown complex, on which the new yard was constructed.



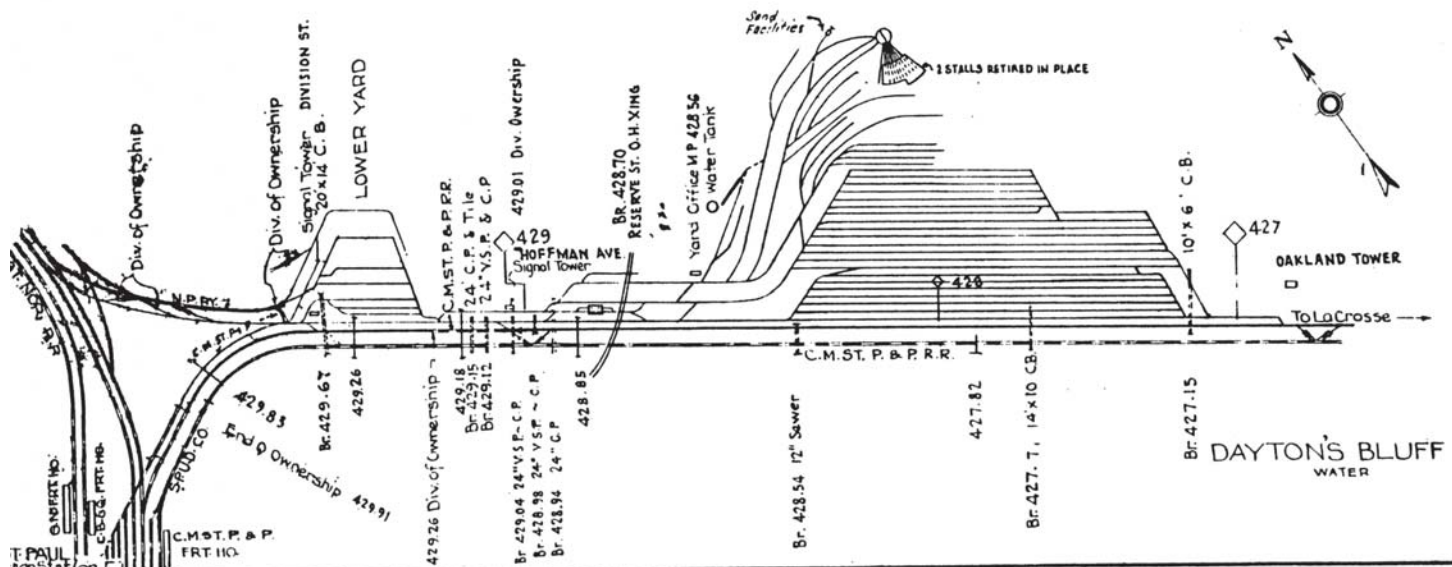
LYNDALE YARD

OSSEO LINE
WAYATA BLVD.
RICHARD OIL
MRS. INDUSTRY INTERCHANGE
N.W. HANNA
116 CARS
ANDERSON BOX
CHIPPENAW SPUR
B.W. INVESTMENT
REINHARD BROS.
LYNDALE AVE.
LINK BELT
PALSH CORP.
TALLC
J.I. 30 CARS
GOOGLE-ROBINSON J.I. C.N.-C.B.&Q.
UNIVERSAL C.B.&Q.
METHUEN
HOGUE LAKE 7 TRKS. 115 CARS O.A. TOTAL 241 CARS
6th ST. N.
FISH ALLEY
M.S.T.L. WESTERN AVE. POCKET
M.L.-4 POCKET
ARCHER DANIELS MIDLAND CO.
ARCHER DANIELS; O & P YARDS 1244 CARS
G.N. HILL
OLD WEST MAIN
OLD EAST MAIN
MIDWEST HILL
G.N. MIDDLE YARD
FREIGHT HO. 204 CARS

DETAIL MAP 6

"Lyndale Yard was located at the junction of the main line to Willmar and the alternate route to St. Cloud via Osseo. It was built to handle interchange with the M&STL and MN&S railroads, cars for local industries, and the Hopkins and Hutchinson branches. It was closed shortly after the new yard at Northworn was opened.

Daytons Bluff was the Burlington's yard serving the Twin Cities. After merger, and before the opening of the Northtown Hump Yard, it was used for interchange with the Milwaukee, St. Paul industry cars, for switching "miscellaneous," unblocked trains from the east, and for 500-mile air brake inspections required for No. 97, a priority merchandise train and the unit trains.



DETAIL MAP 8

other's problems, much can be accomplished. It takes a little longer for some groups than others to join in, but you must leave the door open. You want to get all of them on board. At the same time, you must try to avoid appearances of having "in groups and out groups."

Establishing yard switching routines

At the same time we were working to shape up the train operation, we had to work on the yard switching routines. We had to reduce the number of yards that cars had to be moved through, and the best way to achieve that was to try to close some of the 11 active yards. If fairly short order, we got three of the smaller yards closed. Later, we got each of the larger yards designated to only handle cars for specific industries, and for the makeup or breakup of specific trains. These changes helped reduce the number of cars that had to be transferred from one yard to another, and the number of transfer assignments could then be reduced as well. Customer complaints went down because of less delay to get an inbound car processed from its inbound train to its industry switching job. Once the customers saw those routines followed consistently, their apprehension went down as to the kind of handling their cars would get. Even if some of the car handling routines were slow, when customers would see that we followed them consistently, they would generally be satisfied. It is when a terminal lacks consistency in its operation that a railroad will get in trouble with its customers.

When there is a system for moving cars and trains through a terminal that is understood, employees will know what is to be done and will work to help insure the plan is adhered to. Less supervision and order-giving is necessary than when a new "plan" is made every few hours. When there are routines in effect, performance can be measured, the causes of failures are more evident, and employees can stay focused on getting the routines accomplished.

We started to check the work load of various yard crew assignments and found that some were handling but a few cars. We kept reorganizing the work as we found such opportunities and reduced the number of yard and industry assignments from 117 to 90.

However, it took the new Northtown Hump Yard to really make a dent in that number. Our plans provided for a reduction to 50 assignments. Within two years of opening the new yard, that number was reduced to between 35 and 40, depending on work load and the day of the week. Of course, the shift to intermodal and trucks, and plant shutdowns contributed some to those reductions, but intelligent use of the capabilities of the new yard was what really produced the savings. All of the other 10 yards, except for a small portion of Union Yard, were closed in a few years. Burlington Northern's investment in the new yard at Northtown produced some of the best returns it made in its first 10 years.

Implementation of COMPASS

Shortly after I came to the Twin Cities Terminal, it was scheduled for implementation of the COMPASS System (Complete Operating and Service System). COMPASS was an operating date system that had been adopted by BN from the Southern Pacific's TOPS System. There had been discussion about skipping over the Twin Cities Terminal due to its complexity and the difficulty we already had in running the operation. However, the decision was made at the highest level of management not to skip us, so we had to get ready. The COMPASS teams had started on the west coast about a year earlier, and had gained much experience as they moved eastward across the system. Tremendous resources were provided for the planning, training and cutover, to help insure the quality of the operation would not suffer. That early version of COMPASS was very labor intensive, and the requirements for data input were far more complex and detailed than under the old system, it was to replace.

There was good reason for apprehension about what this cutover might do to the Twin Cities operation and to the entire BN system if big problems in car handling would result from the cutover. However, the plans we made with the COMPASS advance team were well thought out, and by the cutover, we were as prepared as it was possible to be. Delaying the cutover would have done no good. We started on a Sunday morning in November and 24 hours later our yards were still in fairly good shape. We had some rough times over the next three months, but nothing bad enough to seriously impact customers, or the BN network. The COMPASS teams were very skilled, and this undertaking went as well as any major project I have had to work on.

Specifications and features of the new hump yard

Overall benefits realized

-A car switched in the Twin Cities Terminal moved through the terminal an average of 18 hours faster than before completion of the yard.

Yard track specifications

-11 receiving tracks on 20-foot centers to allow for mechanized car inspection. Capacity – average of 120 cars per track (based on 50-feet per car).

-63 classification tracks. Capacity – 2,175 50-foot cars.

-9 departure tracks. Average capacity – 165 cars.

-27 tracks in Transfer Yard. Average capacity – 38 cars (used for cars interchanged with connecting lines and for BN industry switching jobs).

Mechanical facilities

-Locomotive maintenance shop with 6-tracks (2 for inspections and servicing; 4-tracks of maintenance (total capacity – 62 units).

-Car repair shop with 4-tracks.

-Maintenance facility for cars (refrigerator and insulated box cars) owned by Western Fruit Express Co.

Additional facts

- Built at cost of \$43.9 million.
- Construction started in 1971; completed in 1976.
- Humping began in November, 1974.
- Built on 230 acres of land.
- Contains 105 miles of track.
- Designated humping speed: 2.5 MPH.
- Height of hump: 21.5 feet.
- Project included construction of building to house

Hump Yardmaster, Mechanical Foreman, Terminal Superintendent and operating supervisors, hump control equipment, Terminal Dispatcher and office staff.

-A new intermodal facility was built in Midway District, about five miles east of Northtown, in 1983.

-Within two years of opening, all other yards in the Twin Cities were closed, with the exception of Union Yard, where enough tracks were retained to handle less than half of its pre-1974 volume.

Effect of new yard on yards outside the Twin Cities

As already mentioned, substantial economies came about from the new Northtown hump yard. Additional savings came from the closing or reduction of switching required at several yards that had supported the Twin Cities Terminal by making block of cars for major connections in the Twin Cities, and major destinations beyond. To help speed up deliveries to connecting lines in the Twin Cities, and to help reduce congestion, eastbound trains had been blocked at St. Cloud, Willmar and Superior. That work was discontinued when the new yard went into operation. Gavin Yard in Minot no longer was required to make blocks on eastbound trains, other than a block for the Twin Cities and beyond. Westbound, Cicero, Savanna, La Crosse and Galesburg had been making blocks for each of the three zones in the Twin Cities. With Northtown open, such blocks were no longer needed.

With the new capability at Northtown, large blocks of cars could be made up for delivery to connecting lines in Chicago. For some connections, these blocks were big enough to make up an entire train, mainly to the Belt Railway and Conrail. This enabled Cicero to reduce the amount of switching of eastbound trains it had been doing previously. These are examples of savings that added considerably to those made in the Twin Cities. Overall, BN's northern corridor operated much better once the new yard was operating at its full capability. Costs were reduced, service reliability improved, and overall transit time was reduced for a large volume of traffic. With its application of the best in technology and equipment, the new yard was a real showpiece, a source of great pride to the people running it and to those who had worked on its design and operating plan since the early days of merger planning.

It was a surprise to many when the managers of the Twin Cities Region found in the early 1980's that the hump operation at Gavin Yard could be shut down. The capabilities of Northtown had exceeded the expectations of those who had

planned the operation. Of course, the shift of much of the merchandise business from box cars to intermodal equipment had reduced the number of cars that had to be run through classification yards. In addition, more and more grain was being moved in unit trains to destination or transfer points. Grain no longer had to be held or switched at intermediate points such as Minot for inspection and movement orders. Some of the flour mills and terminal elevators in the Twin Cities had been closed which reduced the volume of grain moving eastward. Having more higher-capacity 100-ton cars in service reduced the number of cars required to handle the same amount of business. All of these factors combined to reduce the amount of hump yard capacity needed on BN's northern corridor, making it possible to reduce Gavin Yard to a medium-sized flat switching yard. Even at the time the new Northtown hump yard opened, I doubt anyone at BN had envisioned the possibility of closing down the hump at a facility as modern and well-established as Gavin Yard.

In later years, following the merger that created BNSF, and with the completion of the upgraded, modernized yard at Galesburg, some reductions were made in the work load at Northtown. One group of tracks was removed from the classification yard (bowl) and some of the switching moved out to smaller yards outside the Twin Cities, among them Dilworth, Willmar and La Crosse. Those moves caused considerable reduction in the number of cars handled at Northtown. More recently, however, some of the reduced volume has been returned to Northtown, although it still is operating below the level it had handled. Since Galesburg is a common point for the former BN and Santa Fe Railway, it made sense to use the hump yard at Galesburg for combining eastbound business from the northern corridor and from the lines coming into Galesburg from the west and southwest. A disadvantage of this operating plan was the considerably longer distance when cars are moved between the Twin Cities and Chicago via Galesburg instead of the more direct route, from Savanna to Chicago via Oregon. Making adjustments in the allocation of work among terminals is part of a continuous effort to find more efficient ways to move the business, and as a reaction to the ever-changing mix of traffic and service requirements.

Routes through the terminal

Overall, the planning for operations for the merged company was excellent. It was realistic, clearly defined, and well communicated to all units of the Operating, Labor Relations and Marketing departments. It was validated right from the start. There had been full participation and buy-in from the leaders in all four companies that merged to form BN. No unforeseen conditions arose that required revamping the plan. From the vantage I had as Terminal Superintendent in the early years following the merger, the only deficiency in the plan was a failure to analyze and establish a plan for fast and efficient movement of trains through the terminal, in the 15.6

miles between Northtown and Dayton's Bluff in St. Paul. A major program for modernizing this part of BN's preferred route was finally undertaken after the new yard was completed. As pointed out earlier, movements over this segment were not controlled by dispatchers until we set up the "Main Track Permission" method. Until that method was set up in 1973, trains were moved from one location to another by authority of several Operators, Yardmasters and Switchtenders. There was no central point for control and no regimen of any kind existed to coordinate their decisions or directions given to the crews of road trains.

The route used had been owned and operated by the NP. Most of the line had double track, with each main track signaled for operation in one direction only. Rule D-251 was in effect, although no train orders or other form of movement authority was issued to trains, yard engines or transfer jobs. The 5.6 miles between Park Junction and Northtown were not signaled. There as a 1.3 mile segment of single track at the east end (Mississippi Street Tower and 7th Street) and another mile between Lowry Avenue and the east end of Northtown yard. During the construction of Interstate 35W through Minneapolis from 1974 through 1976, another single track segment was created when a shoofly was built to accommodate the construction of a new double track bridge over the new highway.

Most of the rail was 112-lb. conventional bolted rail or heavier, although some 100-lb. rail remained west of Park Junction. It was ballasted with granite rock and the tie condition was fair to good. East of Park Junction, it was maintained for 30 MPH, and yard limits applied west of Park Junction.

The NP operated none of its through freight or passenger trains on this line, which accounted for the lack of any system for directing train and yard engine movements over it. It was used mainly by transfer jobs run by the Burlington for interchange with the GN and NP. None of those movements were considered to have any priority, with one exception, that being the transfer that handled cars off No. 97 for delivery to Union Yard for GN's 1st 401 and Park Junction for the NP's No. 603. There was strong competition between the "northerns" for merchandise moving to the west coast, hence, an urgency on their part to get the Burlington's transfer job handling their cars through the terminal without delay.

To get to and from the GN, the Burlington used the NP freight line in preference to the GN's main line because of its much more favorable grade of one per cent (ascending westbound). The GN's line had a grade of 1.65 per cent at its east end. To get from the NP line to the GN's Union Yard, the Burlington owned and maintained a connection of about 0.8 miles off the NP line at Union, located 1.7 miles west of St. Paul.

Shortly after merger, the NP's "A" line between Park Junction and the milling district on the west side of the Mississippi River was shut down. This segment included a

large bridge over the river, commonly referred to as "Bridge Nine." Eliminating this line permitted removal of a bridge over the GN line near St. Anthony Tower that had a restricted overhead clearance for movements on the GN line. The NP also owned a double track, signaled (ABS) line between Northtown and the GN depot in Minneapolis used by its passenger trains, and which provided access to several industries. When the NP freight line between Northtown and St. Paul was congested, we sometimes ran coal trains moving to and from the Staples-Dilworth line on the NP's passenger line, since it connected with the GN line over the Stone Arch Bridge. It was often referred to as the "hole in the wall" line. It was reduced to single track with the line rationalization program completed after the new yard opened.

Upon completion of the new hump yard, BN undertook a large project to modernize the main track operation over the entire distance of 40.6 miles between St. Croix Tower (19.5 miles east of St. Paul) and Coon Creek (seven miles west of Northtown, at the junction of the former GN line to Superior, WI). Double track CTC, signaled in both directions, was installed on the NP freight line, with power crossovers. This made it possible to eliminate the Operator and Switchtender positions. Double track was built on the two single track segments. After upgrading the track, train speeds were increased to 45 MPH.

Between Division Street in St. Paul and St. Croix Tower, the main tracks of BN and the Milwaukee Road were operated as double track. This paired track arrangement of 19.2 miles was controlled by a Dispatcher based in the tower of the interlocking plant at Newport. The joint facility agreement between BN and the Milwaukee Road provided the first and third shifts were to be staffed by Milwaukee Dispatchers and the second shift by a BN Dispatcher. In making plans for upgrading this line segment, an agreement was made for BN to take over the dispatching. An agreement was made for BN to dispatch both tracks. CTC was also installed, with both tracks signaled in both directions. The Milwaukee track was upgraded with welded rail and granite ballast and defective ties removed, thereby eliminating slow orders that had been in effect for a long time, due to deficiencies in maintenance. CTC was also installed between the west end of Northtown and Coon Creek.

Together, these projects made it possible to reduce running times and increase the capacity of the preferred route through the Twin Cities. Today's BNSF is fortunate to have a route of this capability through a large urban area.

A Terminal Dispatcher position was established to handle the main routes through the terminal, and located in the hump tower in the new Northtown office building, in proximity to the Hump Yardmaster and terminal officers, to facilitate and coordinate the flow of information and to promote teamwork.

As mentioned earlier, the four-main track route of the GN, while well-maintained, had a severe disadvantage of a steep grade of 1.65 per cent ascending westbound. Two tracks

were designated for passenger trains at 50 MPH. The two freight main tracks were laid with lighter rail, with authorized speed of 25 MPH. An automatic block signal system was in service on all four tracks. Due to overhead clearance limitations in the Minneapolis passenger station, freight trains with auto rack cars and loaded intermodal equipment could not run on the passenger main tracks. However, the passenger mains were used very effectively for coal trains coming in on the line from Willmar, and for trains of empty box cars and refrigerator cars in route to St. Cloud to be switched.

In the program for rationalizing the main tracks through the terminal, the GN line was reduced from four tracks to two tracks between St. Paul and St. Anthony Tower. This amount of capacity was adequate to handle trains moving between St. Paul and the new intermodal facility at Midway (six miles west of the junction at 7th Street in St. Paul), plus trains of the C&NW operating under trackage rights. Since Amtrak trains were operated over a different route (using tracks of the Milwaukee Road and the Minnesota Transfer) when a new station was built in the Midway District, there was no need to retain a route over the Stone Arch Bridge for access to the GN passenger station in Minneapolis. As a result the passenger main tracks were removed west of St. Anthony Tower. Trains moving between the Willmar line and St. Anthony Tower were routed via Minneapolis Junction and Union Yard. Trains moving between Northtown and St. Paul could also use this route as an alternate to the former NP freight line.

Before the 1970 merger, double track was in service between Minneapolis Junction and Wayzata, 14 miles. With the shift of through trains to the new preferred route via Northtown and Staples, it became possible to remove all of that segment of double track, although a two-mile long siding was established on that line between Minneapolis Junction and Holden Street.

An additional improvement was made at the east end of the corridor approaching the Twin Cities in 1984, when a new drawbridge was built over the St. Croix River, 2.9 miles east of St. Croix Tower, at Prescott, WI. With the new bridge in service, and a line change made to reduce curvature from six degrees, 44 minutes to five degrees, two minutes at the east end of the bridge, train speeds were increased from 15 MPH to 25 MPH. This was important since the bridge is a single track bridge, making it a bottleneck in the two main track configuration in service for the entire distance between Northtown and the single track bridge over the Chippewa River (81 miles). Having these line improvements completed, together with a modern hump yard, resulted in a greatly improved operation in which the company and its people could take great pride. And, with the greater capacity that resulted, BN was able to handle the rapid increase in the number of intermodal trains and unit coal trains operated on its northern corridor.

To further simplify the route structure through the Twin Cities, we managed to reroute the trains or other railroads

using various BN lines under trackage rights agreements. To reach Duluth, the Milwaukee Road had operating rights on the NP line for the entire distance between St. Paul and Duluth. Other than to provide local service on a few segments of that line, BN no longer needed it, and did not want to retain it solely for use by the Milwaukee. After the Soo Line acquired the Milwaukee in 1985, BN granted the Soo Line operating rights via Coon Creek and the former GN line into Superior. BN also agreed to allow the Soo Line to operate on both of its routes through the Twin Cities, between a connection a short distance east of Northtown, and the former Milwaukee's hump yard in St. Paul. This change was of great benefit to the Soo Line, but also relieved congestion that often occurred at Park Junction and St. Anthony Tower when the Soo Line was using the Minnesota Transfer to move between its yards in Minneapolis and St. Paul.

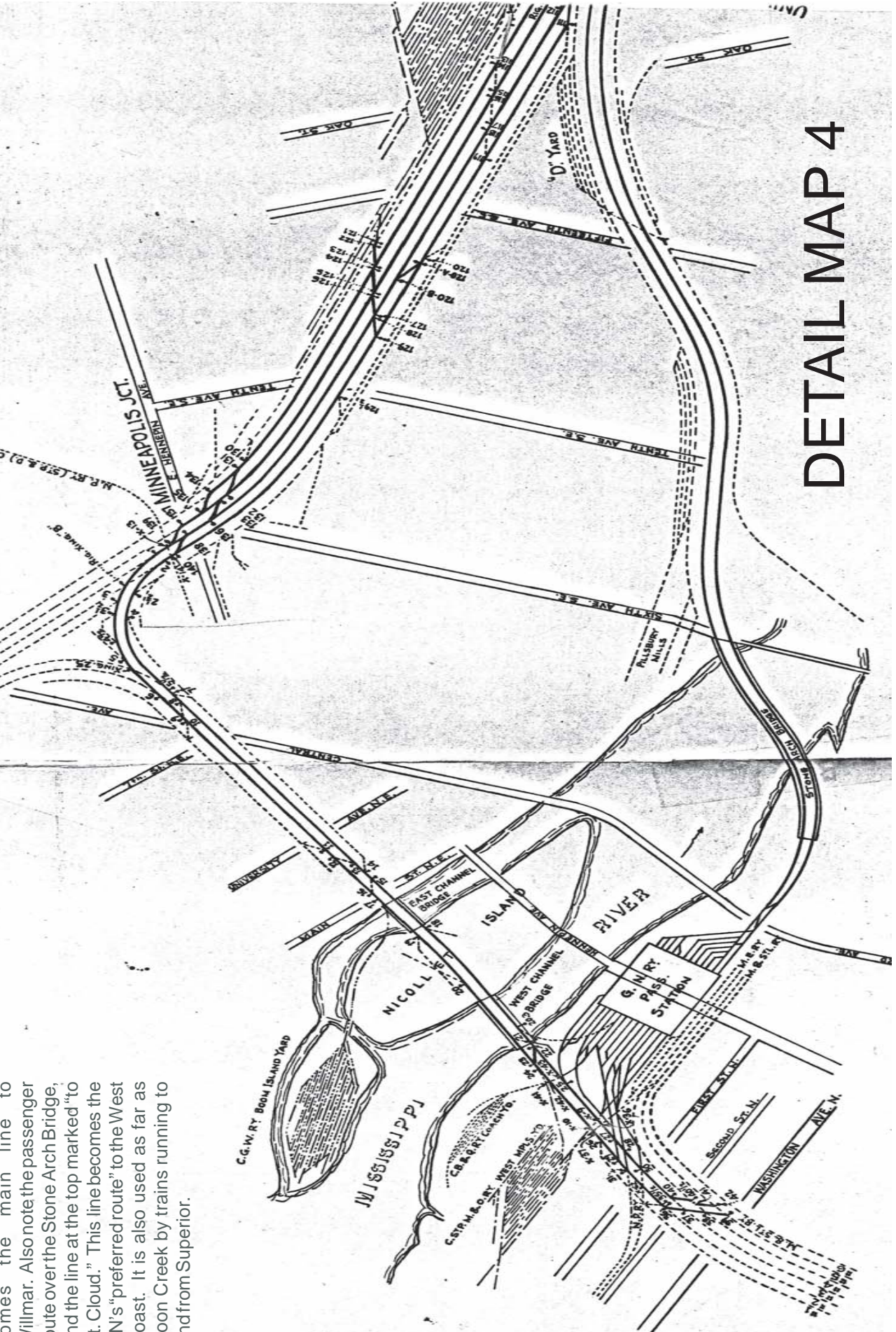
Conclusion

Major improvements that were badly needed in the Twin Cities Terminal had been on hold for many years, in anticipation of eventual merger. The projects described in this article resulted in a complete overhaul of the operation and elimination of many problems of long-standing. Construction of a modern, efficient classification yard was the single most important investment BN made to complete the integration of operations of the former GN, NP and Burlington lines. When all segments of the route between St. Croix and Northtown had been upgraded, the result was a fast, efficient and high capacity route for freight moving through the Twin Cities. The entire terminal has the capability needed for good handling of all types of business, whether it be single car shipments moving in "general" freight trains, unit coal trains, or trains of finished autos, double-stack containers or trailers. The operating capability BNSF has through the Twin Cities would compare very favorably with that of any other large metropolitan area in North America.

With the impressive financial returns BN made from the modernization of the Twin Cities Terminal, the vastly improved route structure through Spokane, and economies from increasing the density of traffic on its preferred route, the financial community gained confidence in BN and its future. I believe these demonstrations of success were helpful in obtaining the financing needed for expanding capacity and upgrading major parts of the railway needed to handle the impressive tonnages of coal that began to move out of the Power River Basin in the mid 1970's.

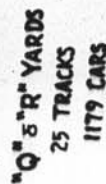
MINNEAPOLIS JCT & MINNEAPOLIS PASSENGER STATION

Note the wye at Minneapolis Junction, located about one mile west of the west of Union Yard. The line heading generally downward on the map and to the left, becomes the main line to Willmar. Also note the passenger route over the Stone Arch Bridge, and the line at the top marked "to St. Cloud." This line becomes the BN's "preferred route" to the West Coast. It is also used as far as Coon Creek by trains running to and from Superior.



DETAIL MAP 4

WORMS CHEMICAL CO.

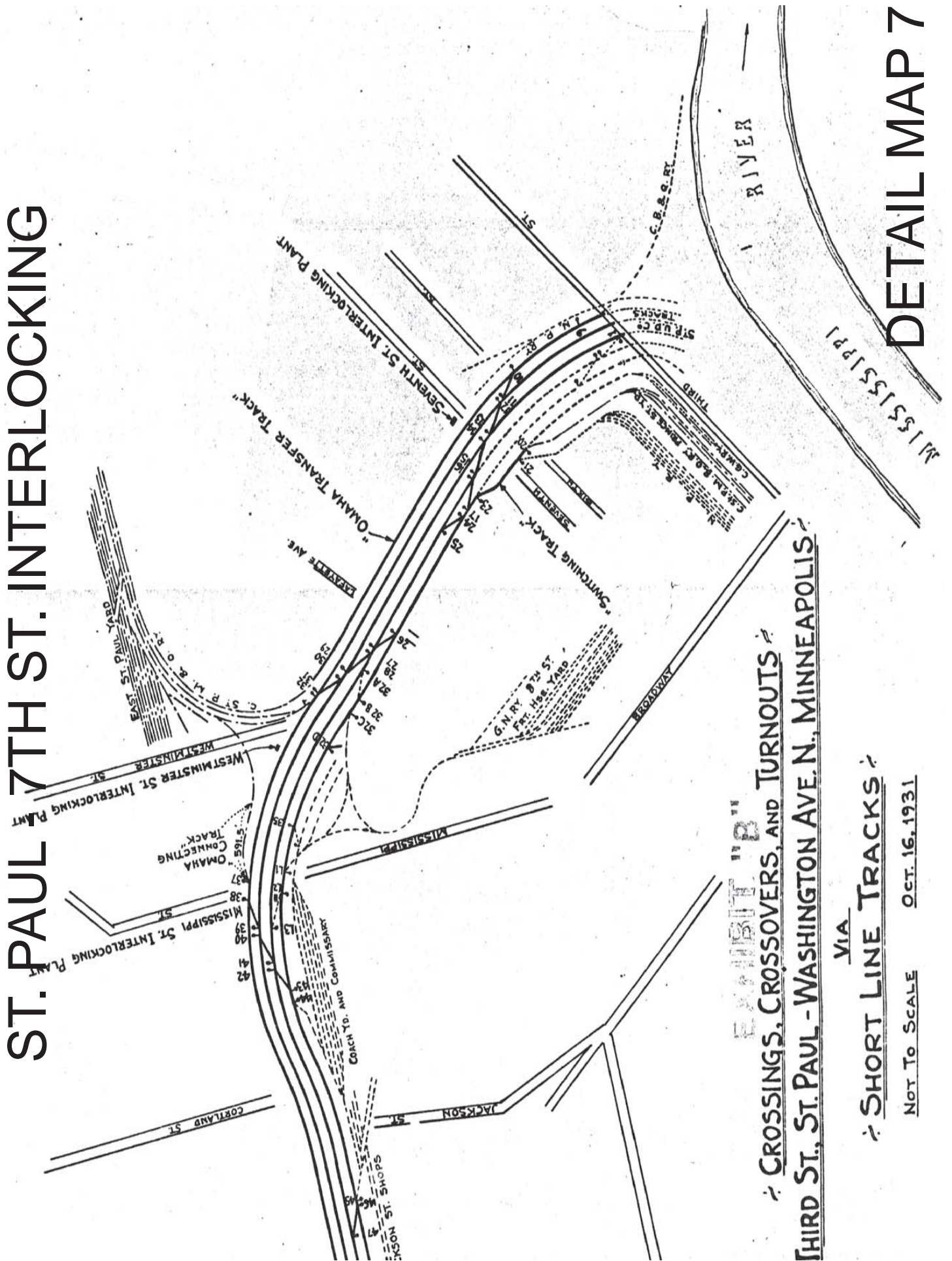


DETAIL MAP 5

⑤ E. ENTRANCE To MINN. TRANSFER
To UNIVERSITY SWITCH

Used for handling interchange cars with the C&NW, Rock Island, CGW and Minnesota Transfer. It served several large grain elevators and flour mills. With the opening of the new yard at Northtown, several tracks were turned over to the C&NW, per merger agreement.

ST. PAUL 7TH ST. INTERLOCKING



DETAIL MAP 7

EXHIBIT "B"
CROSSINGS, CROSSOVERS, AND TURNOUTS

THIRD ST., ST. PAUL - WASHINGTON AVE. N., MINNEAPOLIS

VIA
SHORT LINE TRACKS

NOT TO SCALE OCT. 16, 1931

BN Survivors

text and photos by Brian Ambrose

This first update of BN Survivors (and the premerger partners) is for the BNSF SW1500 3450.

BNSF 3450 was built as the GN 204, part of an order of 10 SW1500's for the Great Northern in October of 1967. Delivered in Big Sky Blue the first 5 units (200-204) were assigned to Spokane, WA and the other 5 to Minneapolis.

After the BN merger in 1970 the 204 was renumbered BN 304 and continued to be assigned on the ex-GN at Hillyard in Spokane.

On a trip through Spokane on Aug 4, 1971 I stopped at Hillyard where I noted the BN 304 was already painted BN green along with the other 4 GN built SW1500's 300-303. Not surprising as Hillyard had a paint booth in the shops so the power assigned there would be some of the first to be repainted.

After Hillyard closed the 300-303 stayed in Spokane being assigned to the ex-NP Parkwater shops while the 304 moved west to Seattle staying assigned to an ex-GN shop, at Interbay so I saw and photographed it a number of times. Note how some of the original GN blue is showing through.

There was very little change for the 304 until after the BNSF merger in 1995. The 304 was renumbered without being repainted to BNSF 3450 in April 1998 and continued to call Seattle home. A popular assignment seemed to be Job 120 working the garbage transfer at Rabanco south of downtown.

Kind of ironic that an ex-GN locomotive delivered in Big Sky Blue would later be painted in the older GN colors of orange and green. The 3450 went into storage at Interbay for awhile but last report has it back in service north of the border at New Westminster, BC on a line which happens to be former GN territory.

As a side note Athearn has announced they will be producing an HO GN SW1500 due in early March 2009 with the 204 to be one of the numbers released. Sounds like it will be a nice looking model.



This photo of the 304 was taken on 7-19-1978 at Interbay, WA.



The 3450 was repainted H1 in February 2002. Here it leads Job 120 bringing a garbage transfer to Interbay a few months after being repainted on 4-20-2000.

New Members

Friends of the Burlington Northern RR
PO Box 271
West Bend, WI 53095-0271
www.fobnr.org

No new members to report.

Feature Articles Needed

The *BN Expediter* is currently looking for articles for future issues.

All types of articles are needed covering all aspects of the Burlington Northern railroad from modeling to rolling stock to locomotives, from the merger to the present. If you have any question or needs any ideas, you can contact me at the address below.

-Kristopher Johnson

Call for Photos

The *BN Expediter* is looking for photographs of BN's P-S2, 2604 cu covered hoppers.

These cars are numbered 430100 thru 430219.

-Editor

In 1987 I received two Rio Grande "wide vision" cabooses from a company called BackYard Rail. Ten years later I painted one of the cabooses like a Union Pacific Ca-10 I believe. This was to go with my new 50th birthday present a SD60M UP diesel #9944.

Well after about 8 years the caboose ended in pretty sorry condition and Mr. Bill Laird offered to rebuild to some thing else. I happen to find an OverLand Brass BN Caboose, so we decided to go that route. So now I'm the owner of three cabooses, a Rio Grande, a BN and lastly a steel riding Rio Grande caboose.

David Hannah, III

