#### **Make Tracks to the Rail Maps**

#### **George Thibault**

#### Mn/DOT's 2002 Right-of-Way Technical Conference Breezy Point, Minnesota January 30, 2002



Note: This paper was composed at a later date by joining the original MS PowerPoint presentation with a transcription taken from videotape taken during the training session on 01/30/2002.

Jay Krafthefer (Session Moderator): I'm going to do a little introduction here for George. George Thibault is currently a temporary employee for Mn/DOT, and he's working on a project to preserve and develop access to approximately 5,000 railroad maps, and by computer convert them into digital form and develop access to them. George retired from Mn/DOT in 1997 after working for the department for 43 years. During that period of time, George was project manager in Management Computer Services Office and in Freight, Rail and Waterways Office. He was a squad leader in the Land Surveyor's Office and the Right of Way Office. George worked on the development of the first Traffic Engineering Manual while working in the Traffic Engineering Office. He's also worked on location surveys and construction inspections in Districts 2, 4, and 7. Over the years, George has been on many committees related to automation and information management for Mn/DOT.

Let's give a hand for George and welcome him.

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G. Thibault: Thank you. If you don't recognize me, I'm the old guy that Kurt referred to this morning. As Jay says, I'm going to Make Tracks to the Rail Maps. The department has probably more rail maps than most of you are aware of. I'll give you some background of the maps—where they came from, what some of the uses are, current status of the maps that Mn/DOT has, as well as the current status of what the railroads have--and then some of the proposed actions that I see happening.

# Make Tracks to the Rail Maps

- Background
- Uses for the rail maps
- · Current status of rail maps at Mn\DOT
- Current status of railroad companies' rail maps
- Proposed actions to deal with rail maps

### **Background**

Minnesota Public Service
 Commission's Records
 Profile Maps
 Land Valuation Maps
 ICC Accounting Reports
 ICC Land & Engineering
 Reports

Railroad Company right of way maps

As far as the background, one set of maps that Mn/DOT has are maps that belonged to the Railroad and Warehouse Commission, which later became the Department of Public Service.¹ When the Department of Public Service got out of the railroad regulation business, they sent all of their information to Mn/DOT. That included profile maps, land valuation maps, ICC (Interstate Commerce Commission) reports. The Interstate Commerce Commission land and engineering reports, those last two, we didn't keep. I just threw them in because they all came in one package.

The ICC reports we gave to the Minnesota Historical Society. The profile maps Mn/DOT turned over to the Department of Natural Resources, which they have in cold storage. The line valuation maps is one set of maps that Mn/DOT has, and it includes maps that run a long stretch—up to 15 feet long—they're also included as station maps. The other set of maps that I show on this slide is the railroad company right-of-way maps.

In 1972 when the then Minnesota Highway Department set out to develop its first large database, which was known as TDA or Transportation Data System, they included in that large database all kinds of information about railroads—number of trains per day on lines, the type of material that was hauled, and all the stations they had. When they did that, they got a complete set of maps from all the railroads that operated in the state in 1972. That's another set of maps that we have out at the Records Center.

<sup>1</sup> In the original transcript this entry was incorrectly stated as Department of Commerce and later corrected by George Thibault to be Department of Public Service. Noted on 04Jan2010.

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Some of these lines are still active today, and some of them cover lines that have been turned into bike trails or have been abandoned and sold to private individuals or are just lying there dormant.

### **Uses for the Rail Maps**

- Help in establishing public land survey corners
- Help in establishing boundary lines common to the railroad
- Help in establishing alignment of abandoned railroad lines
- Determine title ownership of current or former railroad right of way

The reason for having these rail maps and what they're good for could help in re-establishing public land survey corner positions because some of these rail maps have land ties on them, the distance from the railroad center line to a section corner along the section line. It has the alignments, it also helps establish boundary lines that are common between like the highway and the railroad or private property and the railroad, and it helps to establish alignment of abandoned railroad lines. One of the things that the department has tried to do when they become aware of railroad abandoning a line is they try to set up some photo control and order aerial photos along the center line of that rail line in question, but that still isn't all that you need to re-establish that alignment. These rail valuation maps have ownership information as to how the railroad acquired their right of way, who they bought it from, what date they bought it, whether they bought it by deed or by condemnation or by Congressional Act. It also gives the recording information in the courthouse—when the railroad bought it. All that information is helpful to people who are doing title work for Mn/DOT projects that involve getting railroad properties.

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Here's an example of where you need to actually establish a railroad right of way first in order to come up with the right-of-way lines on the highway, which is common to the railroad, and on one side there's private property behind those trees so you've actually got three different types of property lines that you can use these maps to establish. (South of Cliff Road along T.H. 3 in Eagan.)



Example of boundaries involving railroad, highway and private property

# Current Status of Mn\DOT Railroad Maps

- Indexing
- 2400 railroad valuation maps
   Paper blue prints
   35 80 years old

Right now Mn/DOT has more maps than you probably are aware of. There are 2,400 valuation maps in the Records Center. Some of them are out in the district offices because the districts sign them out, and sometimes the Records Center never gets them back. If we're going to preserve them, we'll have to gather them all up. Those maps are predominantly all paper maps like I've got here. They're blue lined, and they average 70 to 80 years old so the paper is getting really fragile. The valuation maps are put in cardboard tubes for storage and, just like these two, have a separate file number on them.

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Mn/DOT currently stores approximately 2400 land valuation maps in these cardboard tubes



# Current Status of Mn\DOT Railroad Maps

- Indexing
- 2900 railroad right of way maps
   Paper blue lines & blue prints
   25 30 years old



Mn/DOT stores 2900 railroad right of way maps in the Records Center

The other Mn//DOT map that I talked about--the Office of Planning and Programming got 2,900 right-of-way maps—includes right-of-way maps and station plats. Those are all much newer. To retrieve those from the Records Center, there's only one index, and it's a set of 1971 county maps that reside in Mn/DOT's Freight, Rails and Waterways Office in St. Paul in the Central Office. All 2,900 of them are stored in 4 inch metal drawers. There may be anywhere from six to ten maps in one drawer, but they're retrievable, and they're in better shape. The thing about the right-of-way maps is they don't contain nearly as much information as the valuation maps. They don't have any of the title information or ownership information on them. They have alignment, right-of-way widths; and they may show parcel numbers, but no information about those parcels; and they may have land ties, or they may not.

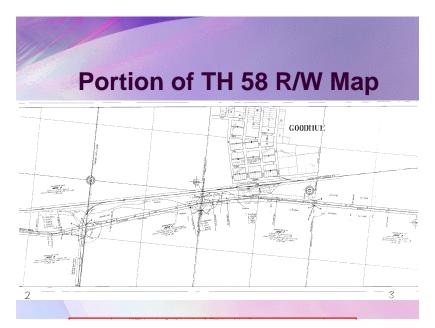
I've put up samples of all of the various types of maps here so after today's session if you want to look at them, you're certainly welcome to.

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#### How to find which map you need

- Determine which RR Co is involved
- Look up RR Co in RR map index
- Determine which RR maps cover the area you are interested in
- · Get the RR map you need
- · Retrieve the information you need

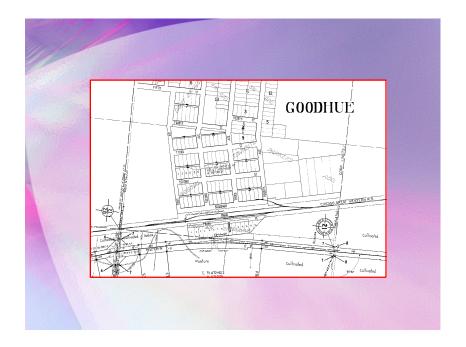
How do you find which map you need? I'm going to go through a little exercise here after I get through with this slide. First you've got to determine which railroad company is involved. If it's a current railroad, active railroad, that's fairly easy to do. If it happens to be an abandoned line, it's a little more difficult. If you're looking for the valuation map, I hope all the districts have a railroad map index, [see figure on page 7] which should look something like this. I happen to have tabs on mine, and I don't know that any of the districts do, but if you have tabs, it's really helpful. I'll show you why in a minute. You go through that index and figure out which map covers the area you're interested in and then call for the right-of-way map from the Records Center. Once you get the map, you can retrieve the information.



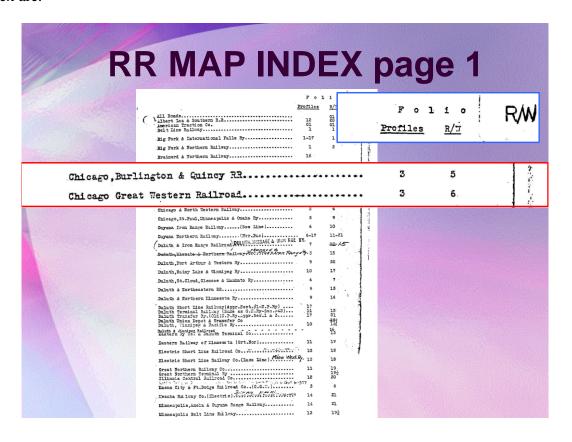
What I did was I took a portion of T.H. 58 right-of-way map in Goodhue County. T.H. 58 has got parcel information, the alignment, and everything. You see there's a railroad here. For example, if you were going to be doing some work on T.H. 58—widening it or taking some curves out or whatever—you pull this map out and say, "Oh, I've got a railroad that's pretty close to where the highway is. I should really check and find any information that's on the railroad map."

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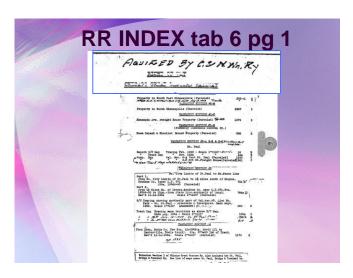
This is just a blow-up of the area right in the village of Goodhue. Again, you can see this is the right of way with the parcels and section line information. The name of the railroad is the Chicago Great Western. By the way, this happens to be a line that was abandoned a long time ago and is no longer in existence.



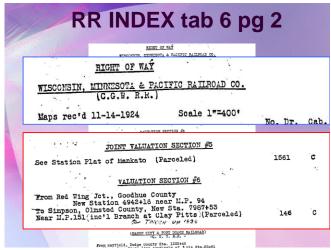
What I do is go to the railroad index map. The first couple pages just list the railroads by company name. Here it says "Profiles" and then "Right of Way." You're going to be interested in Right of Way, which lists a bunch of numbers. The number after Chicago Great Western is an example. It's no. 6 and relates to this tabbed 6 that I've got on my set of index sheets. That gives you some idea of what the first couple pages of the map index are.



Now I go to my tab No. 6, which is Chicago Great Western Railway. Start looking down through this listing of the maps. There are some weird termini typically. They're typically relative to something familiar to the railroad and not familiar to us. The first page of tab No. 6 doesn't have anything in the area where I want to be so I go to the next page.



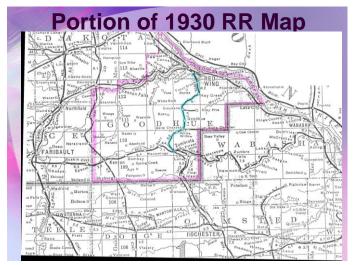
Right here it says, "Red Wing Junction in Goodhue County to Simpson in Olmsted County." I don't know if that's where I want to be or not, but I'll look at a county map and see if I can find anything. Well, Red Wing Jct. doesn't show up on a county map and doesn't show up on a highway map; Simpson may show up on a county map in Olmsted County.

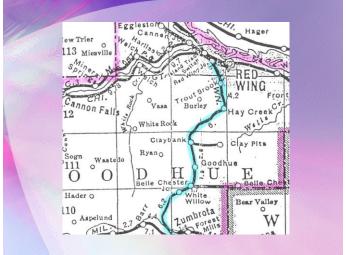


Here you get a better idea. This map, 146C, also includes the branch line that goes to some clay pits. Down in the Red Wing area--I think you're all familiar with Red Wing Potteries—there used to be lots of pottery type facilities down here—clay pipe manufacturing because there were good clay pits. But I do double check where that map is.

On the back wall framed is a 1930 Railroad and Warehouse Commission map that shows all the rail lines that were in existence in 1930. 1930 was probably the peak of rails in Minnesota. At that time we had 9,000 and some miles of rail lines in Minnesota; right now we're down to less than half that. We're at about 4,500 miles.

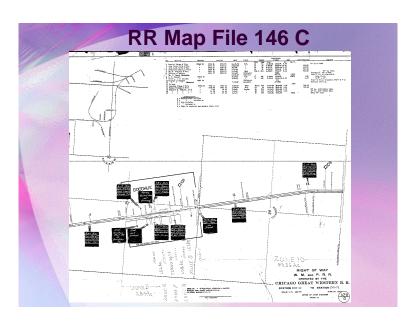
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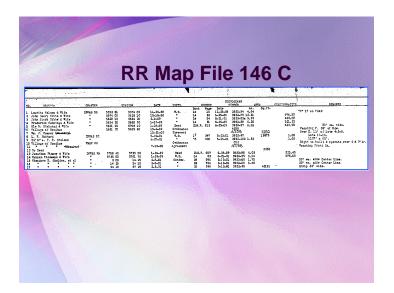


Anyway, I found Goodhue County on the blow-up of the 1930 rail map. Here I blew it up a little larger. You can see Red Wing Junction. If you look down at the bottom, here's Rochester. This line only covers it through Zumbrota, but it continues on downward. If you follow that line, you can see Simpson. That's where that map ran from Red Wing Junction down to Simpson. The highway map that I had out on T.H. 58 was of Goodhue so that map probably covers what we need. Here you can see the spur. You have to remember that these aren't highways; these are rail lines so this is a Chicago Great Western line. Here's that spur that went over the clay pits. Here's another spur that I do have colored up, it goes from Belle Chester Jct. over to Belle Chester. As an example, 58 crosses that abandoned line over here so you'd also want to look at the rail information in that area.

When I went to the index, the map that it called for was 146C. Call the Records Center and get it; they only have one 146C. This is a 4 foot section of a 50 foot map; actually, 146C is about 50 feet long.

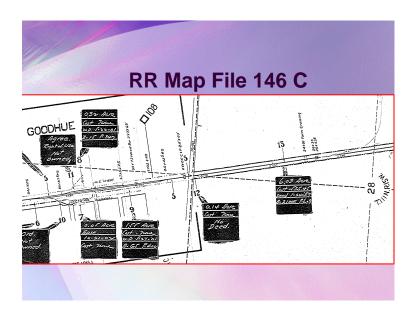


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This is where it's got the title information, parcel numbers, owners, stations, railroad stations, and who the deed ran to. In this particular case it isn't even the Chicago Great Western; it's the predecessor to the Chicago Great Western. And it's got the date of the deed, warranty deeds, book and page, where it's recorded, and that type of information.

Down below are the parcel numbers. When you see something like this on a railroad map (a diamond with a 108), that would be the mile post marker. If a rail line is in operation, you can find those along the railroad today. It will be a pretty good size sign. They're whole numbers. Normally, they don't have tenths of miles or anything here, just whole numbers.

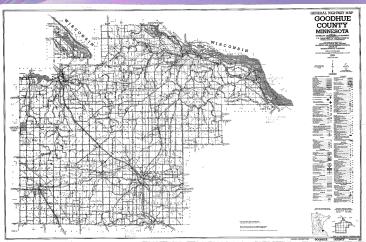


This particular section of map doesn't show much alignment seeing it's a hunk of tangent, but there's a curve in here that shows up going to the clay pits that is actually on the inset of this map, that shows the alignment information. But it gives you the beginning point and the end point of the curves and the sharpness of the curve, what it is in degrees, and I imagine the beginning and end stationing.

Another thing that's showing up on here is the spurs or sidings that were in the Goodhue area. See this heavy line here? That indicates a station plat for Goodhue.

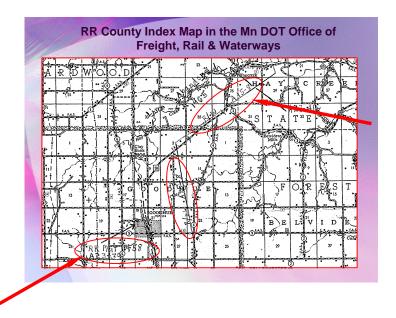
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## RR County Index Map in the Mn DOT Office of Freight, Rail & Waterways



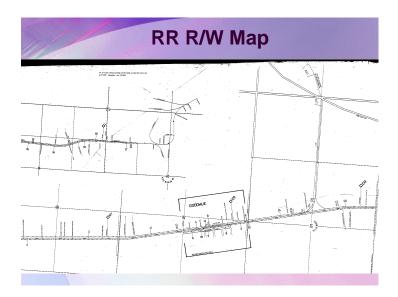
The other set of maps I said we have were the index maps for the 2900 railroad right of way maps. I'm sure all of you have seen this type of county map.

You can't see it right here, but somebody has put a pencil line here that comes down to here and over to the railroad. It says "Right of Way A15-8," and it says it again up here, indicating that there's a railroad right-of-way map covering that stretch. You can call the Records Center for file A15-8.



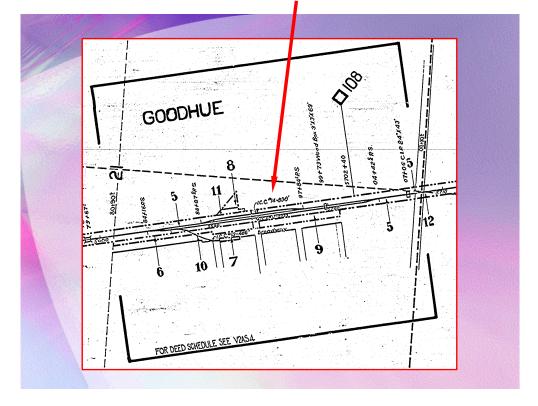
Another thing that's shown here is the right-of-way plat, which is the station plat for the town of Goodhue. It says "A23-39." That's the file number at the Records Center so you'd call and ask for that.

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Now this is that A15-8 map. Notice that it doesn't have nearly as much information on it as the valuation map I showed you in this area before. It does show some parcel numbers, alignment, and right-of-way width; and that's about it. But at least that's some more information if the rail valuation map isn't available.

Again, this is a blow-up of the area right in Goodhue.



Another thing that shows up here is ICC no. 14838 or whatever it is. That's an Interstate Commerce Commission order allowing them to put in a siding in this area. This has a different ICC number. Sometimes you can get hold of the railroad. For example, if you're trying to establish this spur—they bought some right of way for that and depending on how they bought it—and if they bought it off that spur line, you could get that information from an active railroad company.

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# Indexing MnDOT's rail maps

- Determine data attributes needed to index the maps
- Index existing lines using the state base maps railroad line level
- Digitize abandoned lines using 1930 rail map as reference
- Index abandoned lines using digitized line work

One of the things that we're right in the early stages of doing is indexing all of these rail maps to our state base maps, the GIS maps. Currently, the state base map has all the active rail lines in there at one particular level, but it doesn't have any of the abandoned lines. What we want to do is get somebody to digitize all the lines that show up on that 1930 map on a separate level of the GIS map. Then once we have all those lines in, we'll start putting some intelligence on those lines. That intelligence would be to put file numbers of rail maps that covers particular areas so you could bring up the map, click on it in the area where you've got a project, and up pops a window with five different map numbers that cover that area. That part of the line would also be highlighted.

We took that 1930 map and had somebody in the GIM Unit of Mn/DOT's Office of Transportation Data and Analysis bring it in as a reference map. It was amazing how well that thing fit. It had to be rectified a little bit, but not very much. A 72-year-old map—those draftsmen that made that map really did a great job.

# Current Status of Railroad Companies Maps

- Right of way maps
- Valuation maps
- Digital format
- Abandoned lines
   Minnesota Historical Society

The railroad companies that have active lines have right-of-way maps and valuation maps to this day. I don't know if any of you have ever contacted a railroad to get a map.

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Sometimes you get what you want; other times they just ignore you. They're a pretty independent group. A couple of the railroads that I've contacted do have their maps in digital format. The Burlington Northern Santa Fe, which has the largest number of miles in the state, has all their maps in digital form; and they use them that way. The Union Pacific, which bought out the Chicago Northwestern, did digitize or scan all their maps so they have them in digital form; but they don't have an application developed to use them. When I talked to them last year, I had to go about four levels deep before I found anybody who even knew what I was talking about, and he wasn't even sure where they were stored.

Abandoned lines—some of the original maps from the railroads they used linens just like we did for our old right-of-way maps. Some of those original linens were sent to the Minnesota Historical Society so they do have some. But in a lot of cases, the only maps for the abandoned lines are the blueprints or the blue lines that we've got out at the Records Center.

In the back of the room next to the 1930 map is a black-and-white scanned print of the 1930 map. I didn't have a color scanner when I scanned the 1930 map so it just came out in black and white. I think it would be helpful if all the districts at least had a copy of that tif file. Then you could bring it up when you're doing some railroad stuff. If you want, you can contact me, and I'll just attach a tif file to a GroupWise e-mail and send it out to you.

Next to that back there is just a little short section that probably covers the south border of the state. Using a yellow highlighter, I colored all the abandoned lines in the southern quarter of the state. It blew me away to see how many abandoned lines there were down there and how many of them are gone. As far as a company, there's nothing to get a hold of.

### **Get maps into Digital Form**

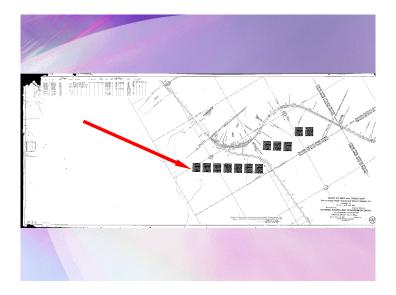
- Determine what maps are available in digital format
- Scan MnDOT maps that weren't already available in digital format
- Get all maps loaded onto a server
- Make the files available on a web page

Getting the map into a digital form—the first thing is to see if any of the railroads have them in digital form and will give, sell, or allow us to have their digital files. The Duluth Winnipeg & Pacific (DWP) Railroad Company runs from International Falls down to Duluth and then over to Superior. They're also part of the Canadian National line that runs around the south side of Lake of the Woods. They've got all of their original maps for both of those lines in Superior, their headquarters. They were willing to let us scan their maps as long as we would give them a copy of the digital file.

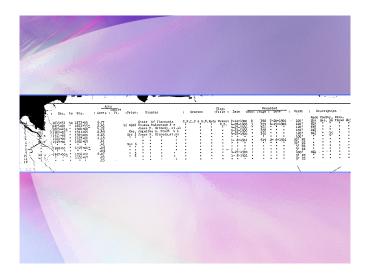
If we can't get digital files from the rail maps, then we're forced to scan all those maps that we've got. To scan these old blue lines—a lot of them are fragile—you have to take

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good care of them while you're scanning. It's fairly simple to scan. This map down here is an actual print that I ran off a scanned file of this one. Again, if you want to look at how these came out, I'm impressed that it reverses the image so you don't have all that blue background.



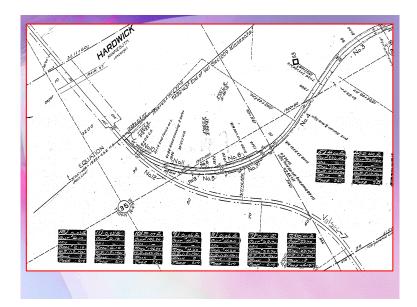
One of the other things that happens when you scan blueprints, the Railroad Warehouse Commission eradicated blue areas and wrote in parcel information. When you have a light area on a blueprint, and you reverse that image, it comes out black. It's pretty hard to read. One good thing about it is that all of this information in these black boxes is actually contained up here in this title block with the parcel information.



I just threw this one in. It's on the back wall. I took one blueprint out of the file from the Records Center and scanned it without any preparation whatsoever. It really came out good. When you get it into digital form, you get a viewer on your computer to bring up a tif file. You can zoom in or zoom out on those, and you can read all the text information on that map.

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Here's just a blow-up of it.



Another thing that I should have mentioned is the valuation maps are typically 1'' = 400'; the station plats are 1'' = 100' so you usually get a little more alignment detail, which you can read better. The right-of-way maps are basically the same scale as the valuation maps, usually 1'' = 400'.

Another thing I should mention as far as the difference between valuation maps and rail right of way maps is that valuation maps, active lines are kept in the real estate offices usually, and the right-of-way maps are kept in their engineering departments. This shows you title information or ownership information from this map.

### **In Summary**

- Mn/DOT uses railroad maps daily
- The maps contain valuable information
- The maps need to be accessed more easily than is possible today
- The maps need to be preserved
- To accomplish this the maps need to be stored digitally

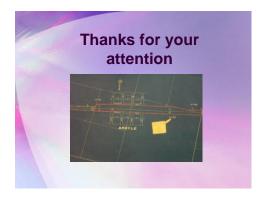
In summary, Mn/DOT uses rail maps daily. I'm continually surprised by people who either call me or contact somebody else in Land Management, Central Office or the Rail

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Office asking for information about rail maps. I've gone out to the districts, and they say, "Oh, yes, we've got all of ours here." They've got them stuffed on top of a cabinet. They are being used, and they do contain a lot of valuable information. They need to be accessed more easily. The first thing, I think, that needs to be done to make it easier to access them is the indexing—where we have it indexed so that you can click on the GIS maps and get the map numbers that you want.

They need to be preserved, and the best way I can think of is to scan them. To scan 5,000 maps of varying lengths—the majority of them are 30 to 50 feet long; some of the right-of-way maps are shorter than that. The other thing about those 50 foot maps is that if you would go to the railroad company that was in existence when they were made, the maps were either 4 feet or 6 feet long sheets of linen. To make the valuation maps that we've got in the Records Center, the Railroad Warehouse Commission ran prints from the linens and glued them together to make one big role.

That's my story of the railroad maps. I thank you for your attention.



I just took a digital photo so you could see a little section of a blueprint, but I brought some of them along with me. Does anyone have any questions?

**Audience:** This 1930s map that you have in the back there, those stations that are on that map, we're not talking about a numbered station by name?

**G. Thibault**: Railroad station, by name not a numbered station. It's better than 80% of them. A lot of those maps in this index use junction points, not all of them; a lot of them use junction points or rail stations. If they're using rail stations, most of them are on that map, and a lot of the rail junction points are.

I was talking to somebody when they were looking at that map. I had sent them a digital file of it. They said, "Hey, we want to check this out." One of the guys remembered a rail junction that he was looking for at one time. They looked and said, "Oh, look, it shows up on there."

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**Audience**: You said you made copies of it in black and white because you didn't have a color scanner. We have a color scanner at Metro.

**G. Thibault:** If Metro has a color scanner, I'd like to know where it is because I'll go out and use it and get in color. All of the rail lines are in different colors for different companies. One of the great lines in the state in the 1930s was the Northern Pacific. It's in a yellow-orange color. It didn't scan real well. If you zoom in, you can see it on my black-and-white print, but if I find a color scanner . . .

**Audience**: I do believe that we have a color scanner. You think it would be more beneficial to have it, great.

**G. Thibault:** Absolutely, yes. Give me a call, Sophia, and I'll bring a map out. This one I borrowed yesterday from the Freight, Rails and Waterways Office. They said, "You can't take it out of the frame." I said "okay." But I know where there is at least one other and I think I know where there are two others that have been folded up.

**Audience**: If they're as bad as 20% that they can't find on that map, the junctions, where do you find those if you get into a problem like that?

**G. Thibault:** One thing that you can do . . . the Minnesota Historical Society just put up a site in the last two or three months called Minnesota Place Names. I don't know how many they've got in there, but if you go into that, you might find it in there. You might find what county it was in or what area of the state it was in.

**Audience**: You were saying that you may be able to get the maps by just asking the railroad for them. They've never given me maps. In fact, some of them say that their maps are all down in Texas. You never mentioned anything about that, and I was just wondering about it.

G. Thibault: You keep bugging them until you find the right guy. He may send you a segment. As far as getting your whole digital set of files, I'm not sure who to contact. There are probably half a dozen people at the B-N Santa Fe and found out quite a bit about their system, find out how they've got it set up. They had this work done by a consulting engineering firm somewhere in Arizona. They actually scanned all the maps, set up the applications for accessing those maps. I haven't found anybody who can say, "Oh, yes, we can make you a set of CDs for all the maps in Minnesota." I don't know if you have to go up or down in the organization to do that.

**Audience**: Do you try to get hold of the engineering part of the railroad or do you go to the real estate or who do you usually go to?

**G. Thibault:** I try to talk to the real estate people because they've got the title information. That's off the maps that the real estate department has.

**Audience**: The valuation maps?

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**G. Thibault:** Yes. That's why I've gone over to the CP Rail or what used to be the Soo Line, and they say, "You guys aren't even supposed to know about that information" because they're new. In the old days when the Railroad Warehouse Commission was set up, they had to turn that information in to the Railroad Warehouse Commission.

**Audience**: She was talking about Dick Ebenstein had it tested as a 1930s map. We couldn't find a junction that wasn't on there so the 20% that you're talking about, I think, are some abandoned lines prior to a 1930 map they had. I don't know how often you get into that.

**G. Thibault:** When I was going through that index, remember I went to page 1 of tabbed 6, and it said, "Chicago Great Western?" When I went to the second page behind tabbed 6, the top listed the rail company. It wasn't the Chicago Great Western, but it was the predecessor to Chicago Great Western; it was the Wisconsin-Minnesota and Pacific Railroad Company. That was the company that actually bought that right of way and eventually built the rail in that area, but then they sold it to the Chicago Great Western later.

On the back table are a set of sheets that list railroad predecessors prior to 1962, I think. As an example, you've got the Chicago Great Western. You look at the Chicago Great Western and can't find anything; then you look at that sheet, which shows others that Chicago Great Western bought out. If anybody wants a copy of those, there are about 30 sets back there. I'd like to say don't take more than two to a district. That information came out of a book that's out of print. It was called *Rails to the North Star*, and it was printed in the early 1960s. That book has more information about railroads in Minnesota than any other book I've ever seen. It lists what year the railroad was incorporated, how it was incorporated, what type of funding it had, what year it was built, which segment of line, what was it supposed to build a line between. I had to have the Mn/DOT Library go through the interlibrary organizations, and they came up with one copy of it. I made a copy of it for myself, but I don't want to give out copies of the whole book to everybody. If you ever run across that book—buy it or get hold of it some way—by all means, I recommend it. It really has a lot of valuable railroad information in it.

Any other questions? If not, thank you for your attention, again.