

Intro

The Loop Line is a unique artifact of railroad history. The State Line Trailhead is built on the Loop Line grade near its northern end; the tracks were a few feet directly behind you, where the access drive now runs. The North Country National Scenic Trail (NCNST) follows the west side of the Loop Line for 0.4 miles south from this point, then crosses over the loop and follows its eastern side for 0.4 miles. The entire Loop Line railroad grade is maintained by Carlton County (Minn.), and may be hiked. Take note especially of the stone culverts at the water crossings, showing the high quality of construction of this special section of track.

The Loop Line by Frank A. King

Drumming up a steady 0.4 of one percent grade, a unit train headed by three SD-40 (engine) units trailing 100 empty coal hoppers, loses speed momentarily while ascending a short stretch of 1.16 percent grade at State Line, appropriately named for the location where the track crosses the Wisconsin-Minnesota border. The crew pays scant attention to the station sign alongside the right-of-way and undoubtedly also to the fact that the former Great Northern, over whose line the train is operating, once crossed the Northern Pacific Carlton to Superior Line at this location. The Northern Pacific line, now gone (repurposed as a snowmobile/ATV trail), was a victim of the BN merger. A manually operated interlocker protected the crossing for over seventy years.

Having an engineering background prompted this writer to question the presence of this short (one mile) stretch of one percent plus climb on this line with its otherwise moderate ascending grade. Also the fact that the employee timetables indicated a two mile adjustment in mileage (reduction) at this location was odd. Old railroad maps of the State Line area indicated a much different track layout than that existing today. Back in 1899, James J. Hill decided to relocate his Great Northern Line between Cloquet, Minnesota and Saunders, Wisconsin, in order to bypass the two percent westbound grade leading up the escarpment from New Duluth. Ore and grain traffic was reaching such proportions that continued operation over this route would prove intolerable in the future. In keeping with Hill's policy of low grades and heavy tonnage trains, a new line was therefore constructed between Cloquet and Boylston via Carlton with a maximum ascending westbound grade of only 0.4 of one percent. The new line presented no particular engineering problems except at State Line where it had to cross the Northern Pacific. Crossing under would have been possible but expensive so, in order to maintain the modest ruling grade over the crossing, Hill's engineers resorted to a most remarkable two-mile stretch of line just south of the crossing which incorporated a balloon loop, which along with connecting trackage contained 540 degrees of central angle, or in more basic terms, one and one-half complete circles!

The line served its purpose well, the modest grade permitting Great Northern's engineers to easily start their trains when stopped by the Northern Pacific at State Line crossing. During 1906 ore traffic over the Great Northern's Mesabi division became so great that it was necessary to double track the Mesabi division between Swan River and Saunders. However, rather than double track the three-mile Loop

Line, the decision was made to construct a one mile cut off bypassing the loop and shortening the distance by two miles. This was achieved by resorting to a 1.12 percent grade. After this time the Loop Line was customarily used by westbound trains and the shorter, more direct line by the heavily loaded ore trains. To operate in this fashion, it was necessary to have trains cross over from one track to the other at each end of the loop against the current of traffic. This required a second interlocking tower, located slightly over one mile below the existing tower protecting the Northern Pacific crossing. Under this arrangement trains could pass through the area using either line without the necessity of having to stop and line switches at each end of the loop.

Introduction of Mallet (2-8-8-0 type) power on ore trains during 1910 brought about substantial increase in ore train weights. So much so that it became difficult to brake them when descending the steep down grade just south of State Line crossing. (The problem was primarily one of controlling slack in the longer trains sufficiently to prevent break-in-twos). This problem was overcome by routing the loaded ore trains via the loop with its easy grades and using the cut-off for empties. A water tank was installed at this time just south of Loop Tower for use of the thirsty Mallets on west bound ore trains. In as much as it was impossible to climb the steep grade on the cut-off from a standing start, a consolidation type helper engine was stationed at Loop Tank to assist all ore trains up the grade. At this time there were over twenty men employed at State Line, consisting of tower man, helper engine crews, a section crew, signal maintainer, and a pumpkin who kept the water tank filled.

And so, it remained until 1923, at which time the Great Northern placed its big 2000 class 2-8-8-0 Mallets in ore service replacing the smaller 1900 class Mallets. Even though the standard ore train length was then stretched to 150 cars, the big engines were able to ascend the steep grade, bypassing the Loop Line without the assistance of a helper engine. It is believed that the cut-off was double tracked about this time and the Loop Tower removed. From then on, the Loop Line was seldom used except for occasional emergencies. During the late 1920s the 2-8-8-0s were rebuilt to single expansion and equipped with large Vanderbilt type tenders, enabling them to avoid the stop for taking water at Loop Tank. The Loop Line by then no longer used, became overgrown with vegetation, and during 1929 the rails were taken up. Over half a century has passed since then. The old grade now provides an interesting trail for hikes. Semaphore signal foundations along the abandoned roadbed indicate that the line was signaled for operation in either direction. The ore-stained rock ballast and heavy grading attests to the fact that this was once a first class piece of railroad. It represents an unusual and interesting remnant of railroading's past.

Frank A. King of Duluth (1923-1985) retired as Senior Industrial Engineer for the Duluth Missabe & Iron Range Railway. Used by permission of the St. Louis County Historical Society, 2023.