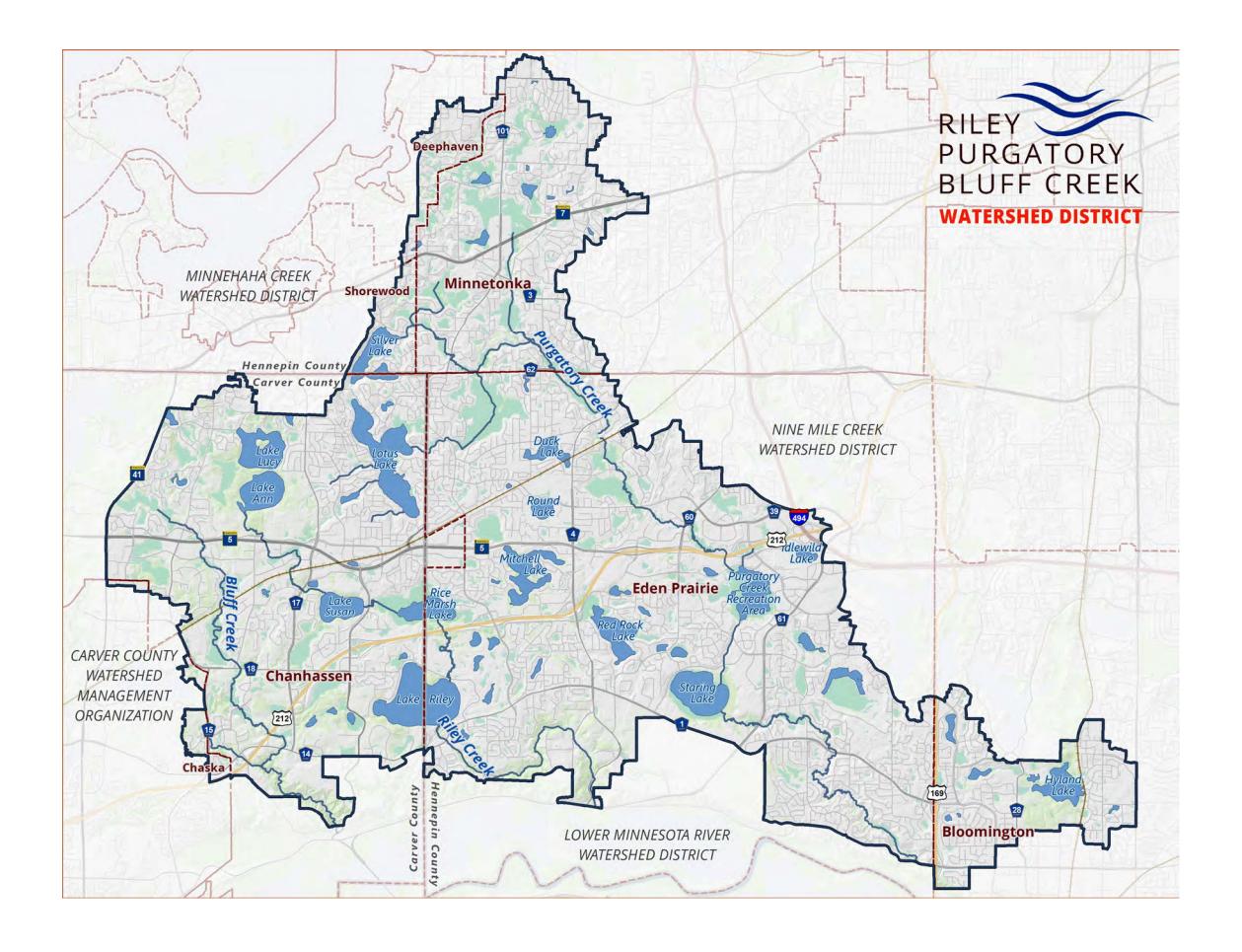
Pre-District

It has been 50 years since the Riley Purgatory Bluff Creek Watershed District was created, but human and geologic forces had been shaping and reshaping the landscape long before that. Explore how today's land and water are a reflection of this past.



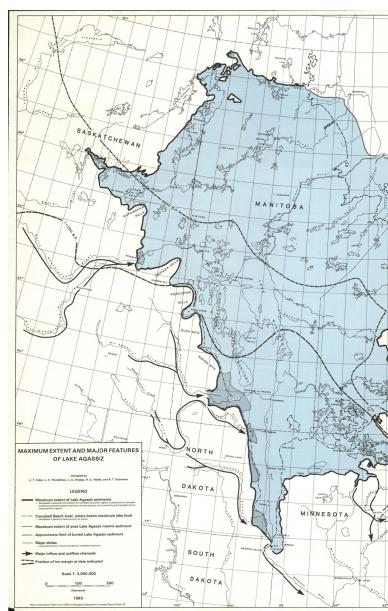
Giant glaciers

The landscape that is now home to the Riley, Purgatory, and Bluff Creeks has been shaped by glacial activity over the past 2 million years. Across this span of time, at least 12 major glacial movements occurred², with the last of the ice retreating from this area about 12,000 years ago.

This melting ice sheet formed the massive glacial Lake Agassiz in Canada, northern Minnesota, and North Dakota. As Lake Agassiz drained through its southern outlet, it created the River Warren-- a large river that carved out the area now known as the Minnesota River Valley¹³. Approximately 7,500 years ago, the lake stopped draining into River Warren and instead flowed east towards what is now Bloomington. As the River Warren slowly receded, it deposited sediments and created smaller creeks, including Riley, Purgatory and Bluff Creeks¹⁴.

It was these glacial movements that also created most of Minnesota's lakes, including the lakes in this district. As the glaciers retreated, they left behind small patches of ice that melted into lakes, and depressions in the landscape that slowly filled with water. Most of the lakes were groundwater lakes, with no natural inlet or outlet.¹⁰

Glacial Lake Agassiz covered much of Canada, northern Minnesota, and North Dakota around 12,000 years ago. (WC)



A solid foundation

The bedrock of the District has three main layers: St. Peter Sandstone, Prairie Du Chien dolostone, and Jordan Sandstone.

Sandstone is a sedimentary rock, formed as sand is exposed to extreme pressure until it becomes a solid rock. Dolostone is made of dolomite, a carbonate rock that has traces of magnesium and calcium. It forms when water runs through limestone, and is used in concrete and fertilizers¹². The Prairie Du Chien dolostone is thickest in Chanhassen, where it formed roughly 480 million years ago.⁵

> This figure from the Carver County Geologic Atlas⁷, shows the bedrock layers of the county. Blue is Prairie Du Chien dolostone, Yellow is Jordan sandstone, and tan is St. Peter sandstone. The watershed office is marked with a

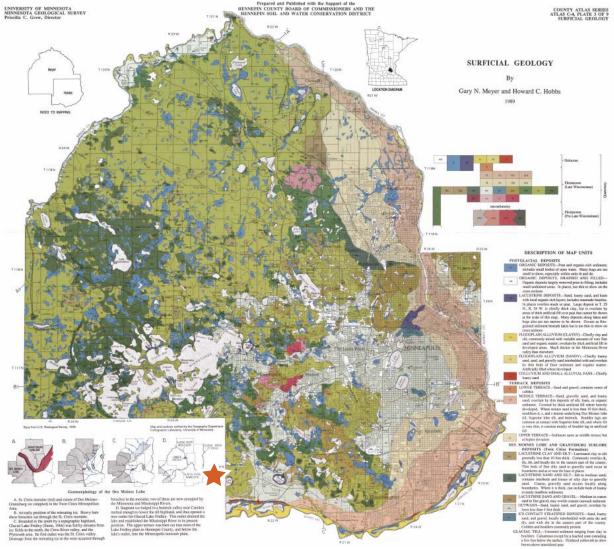
billing of the second s

Fertile ground

Approximately 14,000 years ago, the Des Moines Glacial Lobe deposited thick layers of rich soil loam in this area^{2,10}.

This loam (a soil mixture of sand, silt and clay) is a fertile soil, which supported diverse plant ecosystems, and later on, agriculture. The soils in this area are mainly classified as Alfisols (soil developed under trees), with some Mollisols (soil developed under grass). Wetland areas in the region have different types of soil, which is made of organic debris and clay⁴.

> This figure from the Hennepin County Geologic Atlas⁵, shows the Soil types of the county. The watershed office is marked with a and the light green near the star is loamy till.

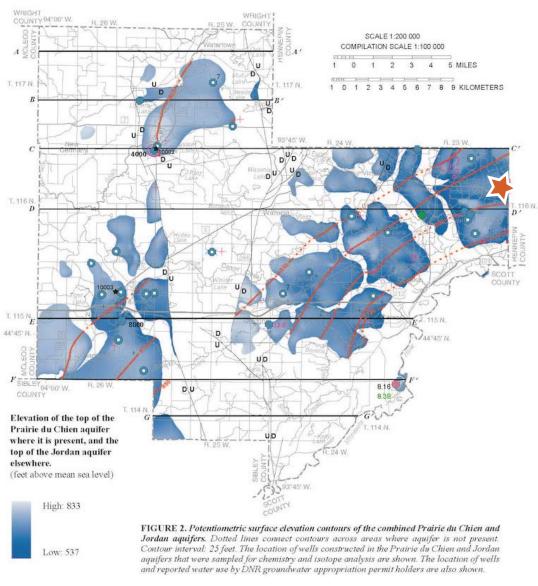


HUDSON BAY

Glaciers in Minnesota also left us with one of our most precious natural resources-- groundwater. In this region, groundwater is the main source of drinking water for most cities. The main aquifers are the Prairie Du Chien -Jordan Sandstone aquifers. These are two unique aquifers, but they function as one because, excepting local features, there is nothing that prevents water from one from flowing into the other.⁷

This figure from the Carver County Geologic Atlas²⁹ shows the Prairie du Chien and Jordan aquifers. The watershed district office is marked with a

STATE OF MINNESOTA DEPARTMENT OF NATURAL RESOURCES DIVISION OF ECOLOGICAL AND WATER RESOURCES

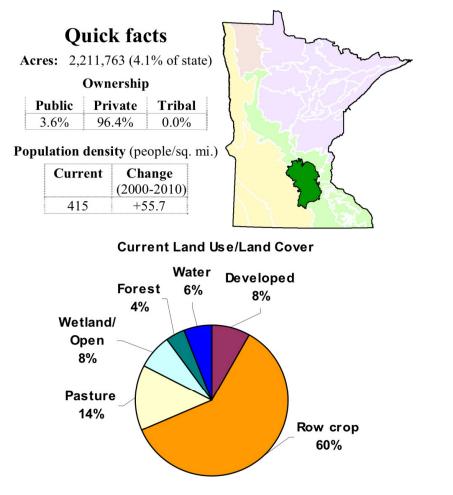


Land of big woods

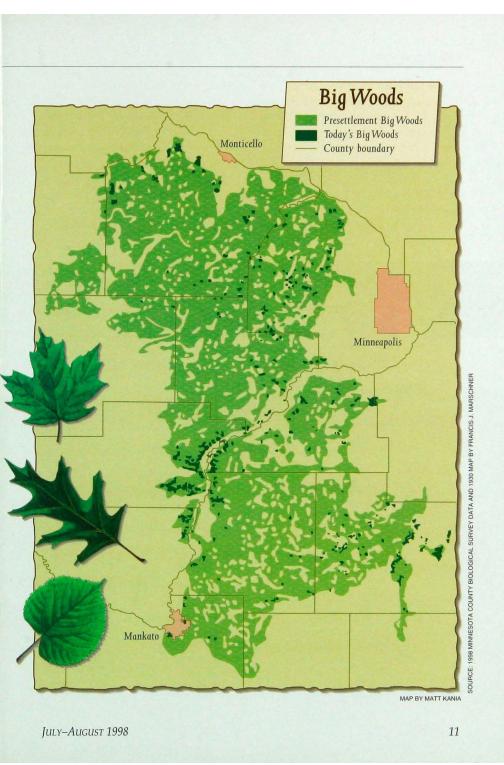
Before the land was developed, this area was dominated by oak woodland and maple-basswood forest, with prairie to the east and west¹.

Early European settlers gave it the name "Big Woods," because at that time a continuous maple-basswood forest covered over 3,000 square miles. The boundaries of this forest were in large part controlled by the frequency of fire. The dominant trees were highly fire sensitive

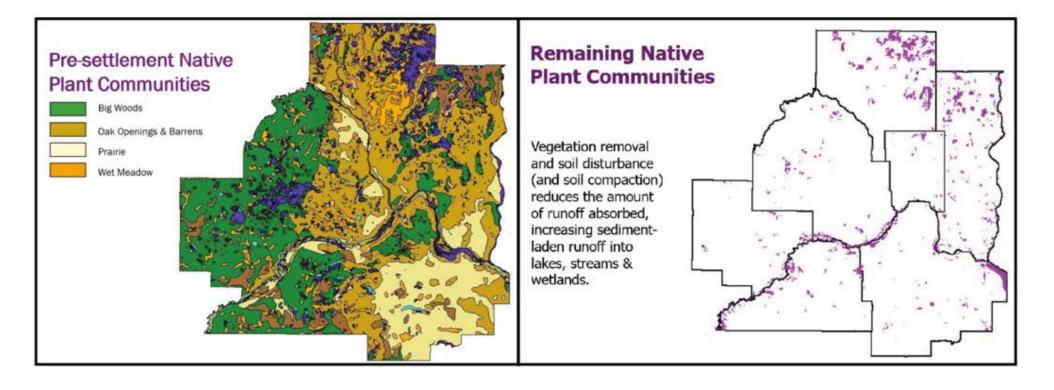
and restricted to areas where natural firebreaks such as rivers, lakes and rough topography prevented the spread of fire from the adjacent prairie lands.² Only a small fraction of the original "Big Woods" area remains intact, while the rest of the landscape has been converted for agricultural and residential use. The areas that do remain are fragmented into small patches.³ One such remnant forest patch that exists within the RPBCWD can be found in the Riley Creek Conservation Area in Eden Prairie.



Quick facts about Minnesota's Big Woods area (MN DNR)



Comparison of original Big Woods habitat and remnants in 1998²⁸



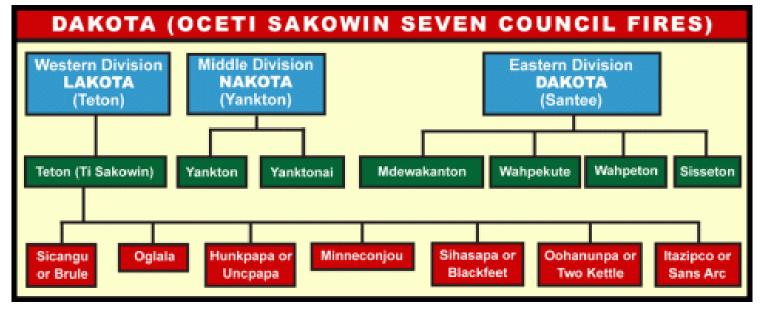
The Dwellers of Spirit Lake

A large part of what we consider the Midwest was home to The Great Dakota (Sioux) Nation, made of up of 7 bands of Dakota, Lakota and Nakota people. Today, tribal governments and communities of The Great Dakota Nation are located in Minnesota, North and South Dakota, Nebraska, and Montanta in the United States, and Alberta, Manitoba, and Saskatchewan in Canada¹¹.

One of the seven bands was the Mdewakaŋtuŋwaŋ (Mday-wahKah-too-wah) Dakota who have lived in this area for thousands of years. The Jeffers Petroglyphs in southwest Minnesota left by the early Dakota date back 7,000 years¹³. "Mde Wakaŋ" is translated as "Spirit Lake" and refers to Lake Mille Lacs, while Mdewakaŋtuŋwaŋ means "The Dwellers of Spirit Lake." Similar to what happened with many tribes, Mdewakaŋtuŋwaŋ was shortened to Mdewakanton by settlers who had trouble pronouncing the name.



An image from Jeffers Petroglyphs in Comfrey Minnesota. Petroglyphs are rock out-croppings with human-made carvings. The Jeffers Petroglyphs are etched into a 23-mile long quartzite outcrop and are thousands of years old. (WC)



The Mdewakaŋtuŋwaŋ were one of seven bands in The Great Dakota (Sioux) Nation. (MNHS)

A people of the seasons

The Mdewakaŋtuŋwaŋ were a seasonal people, relying on hunting, trapping and gathering for the majority of their food source. They did grow some wamnaheza (corn), but also gathered foods such as tipsiŋna (prairie turnips), úma (hazelnuts), and mdo (a type of sweet potato). Mdewakaŋtuŋwaŋ women would also go out in canoes onto the lakes to harvest psiŋ, wild rice, and in the winter and spring would collect sap to make maple sugar. Men could be gone for days at a time, tracking and hunting deer, ducks and other birds, and trapping beaver and muskrat¹³.

This far east in the Big Woods region, deer were the main large game, though they did also hunt bison in the prairies. In the summer months, they stayed in relatively permanent timber-frame houses, lined with elm bark to keep them cool. During the winter months, they would be more mobile, living in ti ikčega, or tipis, made of deer and bison hide. Because the men were often away hunting, women were in charge of building and breaking down the timber frame houses and the ti ikčega, as well as harvesting, making food, clothes and several other necessary tasks¹³.

They marked time by a 13 moon cycle. Each moon was associated with certain events such as the Wozupi Wi (planting moon), the Psiŋhnaketuŋ Wi (rice harvesting moon), and the Tahecapsun Wi (deer antler shedding moon)¹³.



A depiction of a permanent timber house that might be built during summer months (Seth Eastman, MNHS)

The US-Dakota War

The first immigrants arrived in the mid 1600s, and traded with the Mdewakaŋtuŋwaŋ for furs and other goods. However, as more European-American immigrants came into the area, tensions rose. A series of unfulfilled treaties imposed on the Dakota of Minnesota by the United States government took from them more and more land, driving them to starvation and reliance on government annuities¹³.

This culminated with the US-Dakota War of 1862, where starvation and maltreatment had created a dangerously volatile situation. Only a small portion of the Dakota people believed war would be the best solution and the majority did not support or participate in the conflict. Despite this, in the course of the 6-week war, 600 white settlers and an unknown number of Dakota people died. An additional 150-300 Dakota non-combatants died from harsh conditions in the Fort Snelling concentration camp.

Military tribunals, in 5-minute trials, condemned 302 Dakota men to death by hanging. However, President Lincoln reduced that number to 39 after being begged by Bishop Whipple, and one additional man was saved after that. On December 28th, 1862, 38 of those men were hung at Fort Snelling in the largest mass execution in United States history. The following year, congress passed a law annulling the previous treaties and exiling the rest of the Dakota nation, with a few exceptions, from Minnesota.



"Captured Sioux Indians in Fenced Enclosure on Minnesota River below Fort Snelling." Image by Benjamin Franklin Upton, circa 1862 (MNHS)

The Shakopee Mdewakaŋtoŋ Sioux Community (SMSC)

The Shakopee Mdewakanton Sioux Community (SMSC) gained federal recognition as a tribal government in 1969¹³. Despite severe systemic disadvantages and attempted cultural annihilation, the SMSC has not only revitalized itself, but has become the largest employer in Scott County¹³.

Though its casinos are perhaps the most famous of the SMSC businesses, they are only two out of more than a dozen projects, all of which are built with sustainability in mind. A common phrase of the Mdewakaŋtoŋ is "for the next 7 generations", which represents the fact that all decisions, especially those involving the land, are intended to be sustainable for future generations. For example, in 2006 SMSC opened the largest green roof water reclamation facility in the Midwest, which collects an average of 11 million gallons of rainwater annually¹⁶, reducing pressure on aquifers and decreasing runoff.

Additionally, the SMSC has invested in public safety departments, infrastructure maintenance, green initiatives, charitable donations and academic scholarships. Since 2007 they have offered a wide range of health services free of charge to several communities throughout the state¹⁵. Shakopee Mdewakaŋtoŋ Sioux Community Shield (SMSC)



Left: Celebrating culture in formal regalia at the SMSC annual wacipi [wah-chee-pee] (powwow) celebration (SMSC)

Bottom left: Hoċokata Ti Cultural Center in Shakopee, MN (SMSC)

Bottom: SMSC Organics Recycling Facility. Through a partnership with the SMSC, the watershed district is brings invasive carp to the facility to be composted. (SMSC)



European settlement

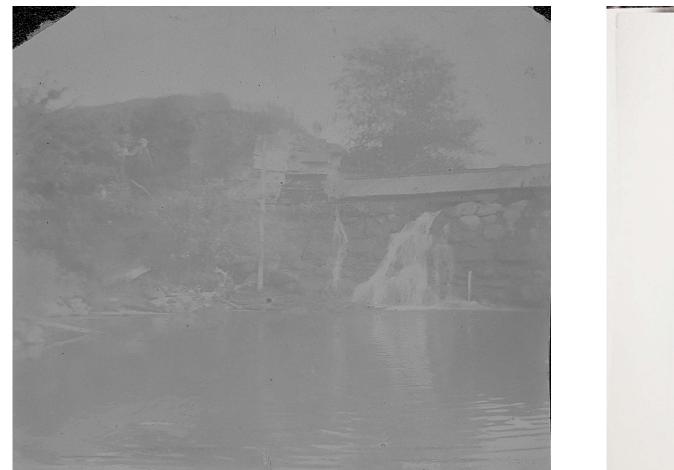
News of fertile prairies in attracted pioneers who wanted to farm to Minnesota in 1800's. When the first settlers arrived, no official government land survey had been done, but they marked their land by "putting notches in trees or plowing a ditch"¹⁸.

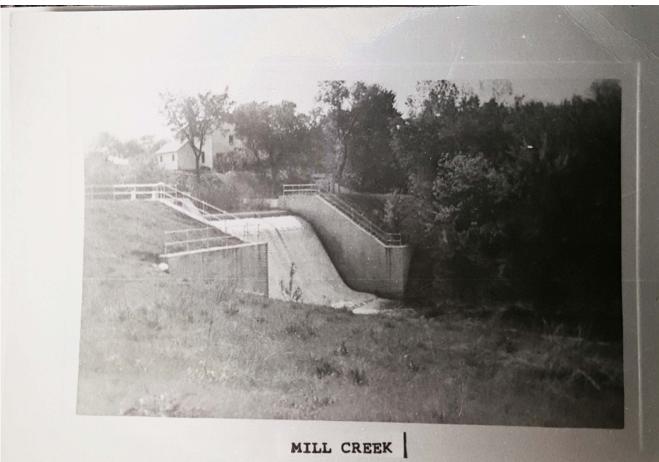
Many settlers were concerned about land titles, and so the government passed the "Preemption Act of 1841" which gave title rights to settlers who occupied and "improved" the land via farming, grandfathering in older pioneers. Most of the local townships had settlers as soon as it was legal in the early 1850s, and it did not take long for this area to become fully occupied. For example, all the land in what is now Eden Prairie was claimed by 1855¹⁸.

What is now Minnesota was acquired by the United States of America acquired via two separate treaties; land east of the Mississippi was ceded by Great Britain in 1783, and land west of the Mississippi was part of the 1803 Louisiana purchase. Some settlers came after Fort Snelling was built in 1819, but it was the forced removal of the Dakota and Anishinaabe (Ojibwe) and illegal seizure of their lands in the 1850s and 1860s that allowed for large numbers of European-American settlers to move into the area¹⁷.

Purgatory Creek Mill

In 1865 Dr. Nathan Stanton built a grain mill on Purgatory Creek just north of Pioneer Trail, which was then called Mill Creek. Historical references give the name Eden Mills, but local residents remember it as the Happy Hollow Mill. In 1867, mill operators planned to dig a channel into a wetland area that is now Neill Lake for extra water, but the plan was abandoned when property owners opposed¹⁸. Instead, they built a dam in the 1870s to try to solve the low water problem¹⁸, but by 1890 the mill was forced to start using steam power¹⁸. The dam was rebuilt in 1955, then removed in the following decades.





Yellowstone Trail

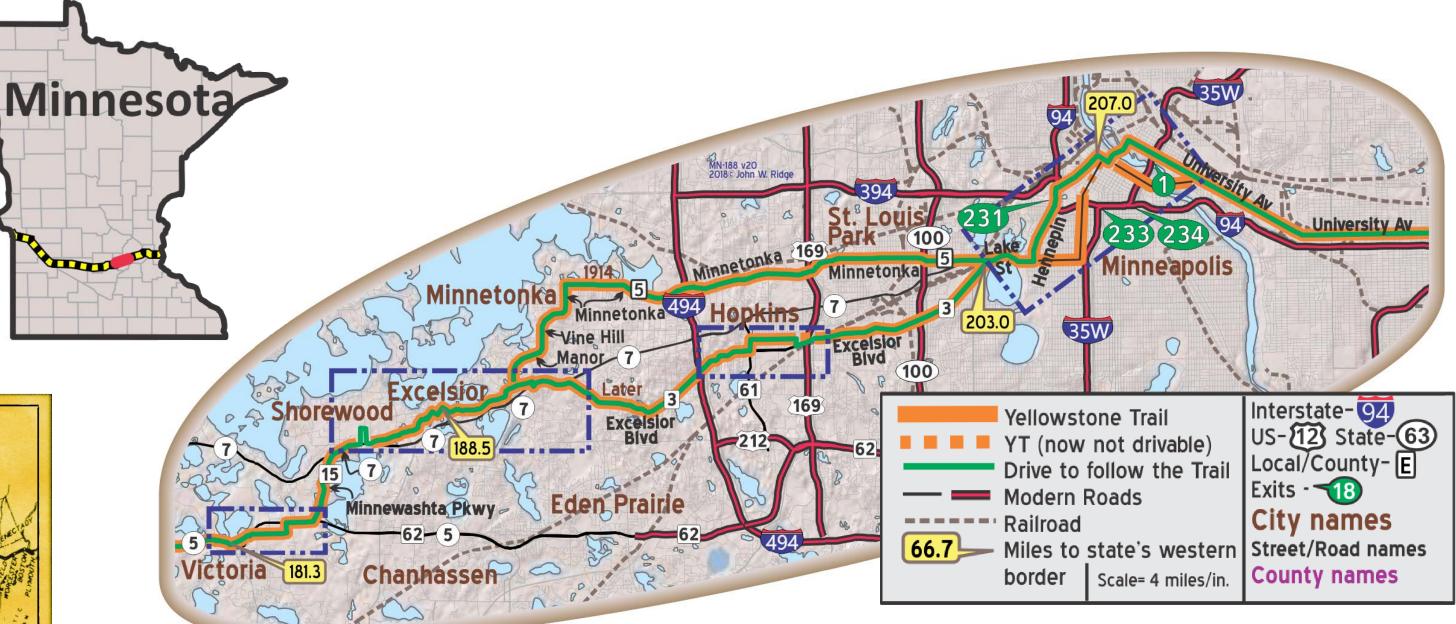
When cars were first being used in the United States, there were very few roads for them, and most were poorly maintained wagon trails. In 1912, J.W. Parmley of Ipswitch, South Dakota imagined a transcontinental highway for automobiles like the Transcontinental Railroad that first connected the coasts in 1869, and he formed the Yellowstone Trail Association, headquartered in Minneapolis.

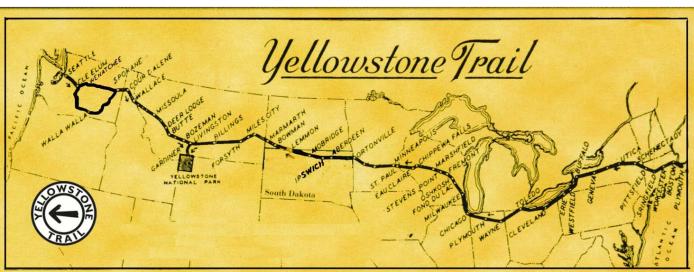
The association worked with local citizens and governments to build and maintain a road that stretched from Seattle, Washington to Plymouth, Massechusets. The 'trail' was exclusively for automobiles, so horses were not allowed - unless they were pulling a car from the ditch.

The road went through Carver and Hennepin Counties, along the routes of what are now County Rd. 5, Highway 7, Highway 169 and County Rd 3. In the mid-1920s, interstate highways became more common, and were regulated by state and federal agencies. The need for the grassroots Yellowstone Trail slowly died off, and the Association disbanded in 1930¹⁹.

Mill Creek Dam in the early 1900s, (EPHS)

The rebuilt mill in 1955, (EPHS)





Maps Courtesy of Yellowstone Trail Association at yellowstonetrail.org