



## Executive summary

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### Problem

The project area was the Seven Mile Creek (SMC) watershed, comprising 37 square miles within the Middle Minnesota watershed in Nicollet County. Nonpoint source pollution includes nutrients, chemicals and sediment from agricultural field runoff, increased discharge and peak flows from farm field drainage, nutrients, sediment and bacteria in runoff from livestock operations, sediment from ravine erosion, and nutrients and bacteria from septic systems. SMC is on the Minnesota List of Impaired Waters for aquatic life (turbidity), aquatic recreation (fecal coliform), and drinking water (nitrates).

### Waterbody improved

This project was to track the implementation of BMPs, build sustainable landowner engagement, and monitor the effectiveness of implementation projects.

- BMP implementations occurred through a BWSR Targeted Watershed grant (2015-2019)
- A wide variety of events and media were used to reach landowners
- The project collected extensive data about the weather, water and land-use in the watershed

### Project highlights

- 7 vegetated buffers, 1 manure pit closure, 1 grade stabilization project, 1 drainage water management project, and 2 cover cropping contracts were funded by “match” dollars from the BWSR grant. (Many additional projects occurred in preceding years.)
- Watershed monitoring, data analysis, mentoring, outreach and education activities occurred September 2018 – August 2022.
- A Nine Key Element Plan was completed, and project activities aligned with that plan.
- There are no plans to continue this work in the SMC watershed. Nicollet SWCD will continue engaging with farmers as usual, and GRG is applying lessons learned to other watersheds.

### Results

The project produced high-quality, high-resolution assessment data and new insights. The targeted reductions in pollutant concentrations were not met; indirect evidence suggests that water quality improvements nevertheless occurred, but further analysis is needed. The project sustained but did not increase landowner engagement in this watershed. The project did lead to emerging partnerships and enthusiasm in nearby watersheds.

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### Partners

**Gustavus Adolphus College (Laura Triplett and Julie Bartley):** administered the grant as the grantee, conducted all water quality monitoring, coordinated nutrient survey, analyzed data, distributed data, participated in some outreach and education, and handled all reporting to MPCA.

**Great River Greening (Brad Gordon):** communicated with stakeholders, built relationships with farmers, conducted public outreach, encouraged new implementation projects, mentored outside watershed organizations, managed and updated the website, led creation of videos and other media outreach.

**Nicollet Soil and Water Conservation District (Eric Miller):** conducted weather monitoring, completed PTMApp work, oversaw BMP implementation, mapped BMP projects and land parcels, built relationships with farmers, participated in outreach and education efforts.

### Section I – Work plan review

#### A. Approved Changes to the Original Work Plan

The central activities of the original work plan were not changed over the course of this grant. However, these minor changes were made and approved:

- The grant period was extended by one year in order to accommodate time and opportunities lost to COVID
- Some outreach activities that had been planned as in-person meetings or gatherings (e.g., Objective 2 Task b) had to be canceled or recreated as online or asynchronous outreach due to COVID. For example, some money designated for in-person meetings was instead used to develop a series of videos teaching about cover crops and water management in the Seven Mile Creek (SMC) watershed.

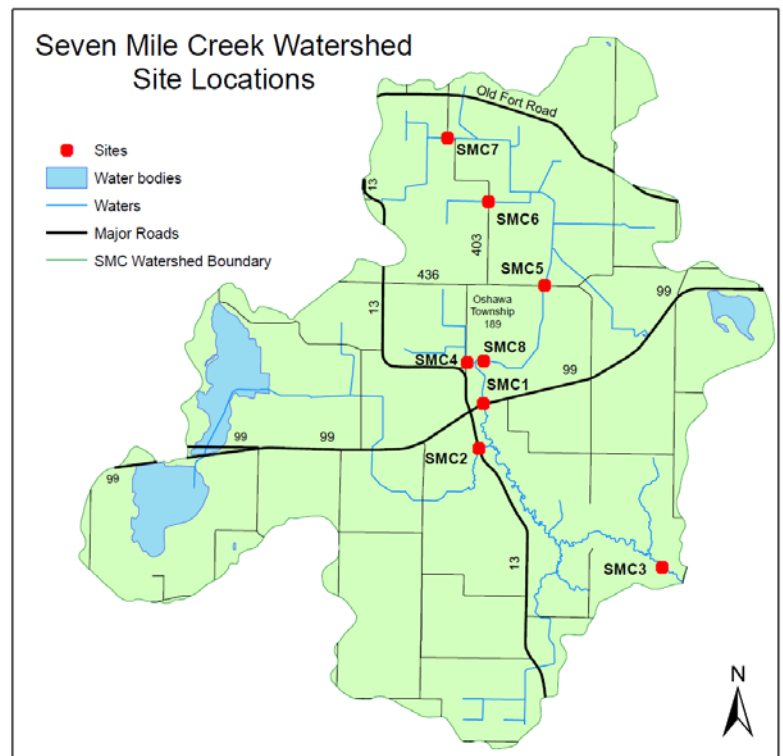
#### B. Summary of Accomplishments by Objective and Task

##### Objective 1: Water quality monitoring and land monitoring

**Task (a): Monitor streams and BMP implementation projects.** We planned to monitor stream discharge and water quality (nitrate, phosphate, total suspended solids, fecal coliform bacteria) in two SMC tributaries at locations SMC1 and SMC2; flow and water quality (nitrate and/or total suspended solids) at two field-scale BMP implementation projects; aquatic invertebrates in the mainstem (at and around location SMC3); and *E. coli* bacteria abundance and genotype at several locations (SMC4-8) in the SMC1 subwatershed (Figure 1).

- We accomplished extensive stream discharge monitoring at SMC1 and SMC2 during the open-water (ice-off) seasons. However, data collection was significantly interrupted at various times due to: multiple equipment failures, weather impediments like deep snowpack immediately followed by dangerously high water levels, road construction necessitating the removal of one site in 2021, COVID-related travel restrictions in 2020, and a delayed start to the project in 2018 due in part to prolonged contract negotiations between MPCA and Gustavus.
- We accomplished extensive water quality monitoring in the tributaries: approximately 830 samples were analyzed for nitrate, total phosphorus, total suspended solids and/or *E. coli*. We were unable to remotely operate the autosamplers as planned due to weak cellular reception at the sampling sites. Therefore, we depended on manual triggering of the autosamplers to collect high-resolution sample sets during large storms (Figure 2).
- We accomplished 4 years of nitrate monitoring at a nitrate bioreactor but could not measure flow through the bioreactor due to structural failures in the bioreactor itself. We accomplished 2 years of erosion monitoring in one ravine (downstream of field-scale BMP implementation projects) using permanently-deployed field cameras, field surveys and drone imaging.
- We surveyed aquatic invertebrates in the mainstem in two years, but COVID-related travel and classroom restrictions prohibited further work.
- We conducted in-depth studies of bacteria quantity and origin in one major tributary. The original plan was to do all sampling during one year, but a miscommunication with the Sadowsky lab at the University of Minnesota combined with that lab's

Figure 1: Map of Seven Mile Creek watershed sampling locations



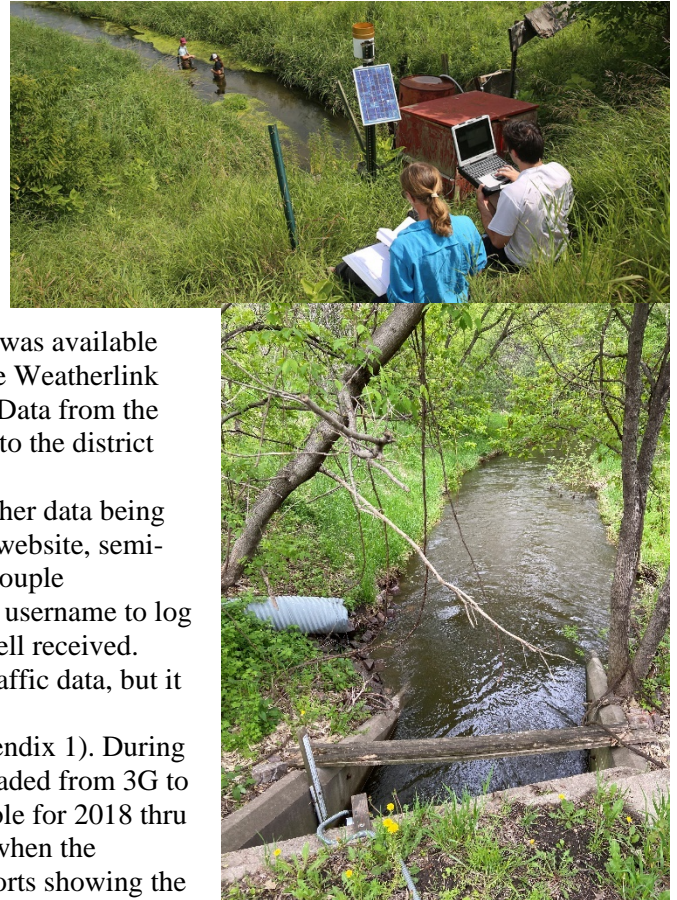
reduced capacity to process samples meant we did not start until late 2019. We intended to complete storm event sampling in 2020, but the University labs were closed due to COVID. Therefore, the second half of the bacteria samples were collected and processed in early 2021.

Figure 2: Water quality monitoring setups at SMC1 and SMC2, 2019

**Task (b): Monitor weather and make data available to the public by posting the data to the Seven Mile Creek watershed website.** Nicollet SWCD (SWCD) purchased two Davis Instrument Vantage Pro2 weather systems for deployment in the watershed. The weather stations were coupled with the Vantage Connect system, which allowed for 5-minute data upload. An additional Vantage Pro2 system was purchased and placed at the SWCD office in Nicollet. This station was connected directly to the internet via a desktop console. All data was available via the Weatherlink.com website as well as through the Weatherlink application, available for Apple and Android phones. Data from the Vantage Connect systems was also backed up directly to the district technician's laptop automatically.

The SWCD shared information about the weather data being available with the public via social media, the SWCD website, semi-annual newsletters, and word of mouth. Except for a couple individuals who needed help multiple times to create a username to log in and see the data, distribution of the data was very well received. Davis Instruments was contacted requesting website traffic data, but it has not been made available.

Available weather data has been printed (Appendix 1). During the grant period, the cellular service needed to be upgraded from 3G to LTE communications. Monthly reports are not available for 2018 thru 2020 as the data was removed from the Davis system when the upgrade occurred. 2018, 2019 and 2020 are yearly reports showing the data that is available. 2021 and 2022 data contain monthly reports from Davis. Several errors in data continuity seem to have occurred as there are several lapses in the data collected. The SWCD considers this acceptable as these units were primarily for public information rather than collecting "scientific" data.



**Task (c): Conduct nutrient application assessment for the watershed.** The Minnesota Department of Agriculture (MDA) was contracted to conduct a nutrient application assessment of the watershed. The original goal was to interview 20 farmers. However, the MDA staff was unable to contact many people and was also inhibited from meeting with people in person during COVID. Therefore, the contractor used fewer interviews with farmers (6). As substitution, he conducted his own transects (visual observations) in the watershed during two periods and interviewed fertilizer dealers with specific knowledge of nutrient application in the watershed. (Appendix 2)

## **Objective 2: Boost efficiency of conservation delivery, establish open communication for ongoing work, and monitor land management practices**

**Task (a): Complete Prioritize, Target and Measure Application (PTMApp) targeting with landowners and operators.** Updated GIS data was compiled using multiple GIS tools. Nicollet SWCD worked with the Board of Water and Soil Resources (BWSR) and Houston Engineering (HEI) to update the local Prioritize, Target, and Measure Application (PTMApp) data. The new data for Seven Mile Creek is available through the PTMApp webapp administered by BWSR. Nicollet SWCD also received a digital copy of the data, which can be accessed through the local computer server.

Additionally, SWCD completed an update to the Agricultural Conservation Planning Framework (ACPF) planning tool locally. Data was run using the most recent version of the tool and updated data is available to all staff via the server.

GIS data updated during this time was also used to assist the district in landowner outreach and targeting in both the Rogers Creek watershed and the City of Saint Peter Drinking Water Supply Management Area (DWSMA).

Using parcel data from Nicollet County, the SWCD also analyzed local parcel data in the Seven Mile Creek watershed to assess land ownership changes over a 16-year period. This data is available in Appendix 3.

**Task (b): Recruit farmer-to-farmer conservation efforts, e.g. demonstration projects and stakeholder meetings.** Great River Greening (GRG) completed this objective via one-on-one farmer meetings, farmer dinners, community gatherings, videos, webinars, social media outreach, and online resource development. SWCD regularly met with landowners and participated in creating and editing producer outreach videos.

- Over the course of the project, GRG engaged in direct communication with over 50 farmers in the area. Not all reside in the watershed, but all are within 10 miles of the watershed boundary. Approximately 10-15 have fields within the watershed. Because there was no reimbursement funding to support implementation of BMPs in coordination with this project (beyond what had already been contracted and listed as “match” funding, as described above), most of the conversations with farmers focused on perennial and cover crops (especially Kernza® and winter camelina) that are marketable on their own while also providing water quality and soil health benefits. Farmer dinners brought farmers together to discuss the potential for these new crops and their experiences with each other. These were successful meetings that yielded strong interest and commitments from farmers to try the new crops within the next five years.
- Through community gatherings, GRG engaged over 75 other community members who were interested in supporting farmers who grew these new perennial or cover crops (Figure 3).
- GRG produced 9 videos about sustainable cropping systems. Four videos were edited by a Gustavus Adolphus College student intern, 3 were produced and edited by a GRG volunteer videographer, and one was produced by the two in partnership. The last video was produced and edited by GRG staff. GRG, Nicollet SWCD, University of Minnesota, and a local Seven Mile Creek farmer participated in a Fishers and Farmers Partnership Boots on the Ground webinar that is also available on the Seven Mile Creek Partnership website (7-milecreek.org) along with all the other videos and resources.
- Over the course of the project, the website has received 1,720 visitors and 2,335 page viewers.



Figure 3: Cover crop in SMC watershed

**Task (c): Encourage, support, and oversee BMP implementation and monitoring and track land management activities through landowner surveys and interviews.** Most of this task was completed through conversations with partners, DNR fisheries gatherings at the park, conversations and interviews with farmers and partners, and watershed science meetings.

- Some of the work for this portion of the project was originally intended to be met through a separate “match” project that included watershed monitoring, farmer meetings, and water monitoring. However, the match project had to change watersheds and ended up working in the nearby Rogers Creek watershed instead. The objective was still completed but to a lesser extent than originally hoped. Furthermore, COVID limited the amount of direct communication. However, the partnership hosted two science meetings and one core team meeting during the project. We worked with MDA staff to set up sampling routines and evaluate historic water quality data, worked with MPCA staff to examine historic data and implement water quality monitoring in Rogers Creek, and other staff from universities and agencies to organize historic data and determine trends in the watershed related to BMP implementation. GRG staff also communicated with Nicollet County staff to discuss options for

protecting the ravines and creek within the Seven Mile Creek Park from massive erosion events. County staff felt pressed to implement engineered erosion prevention practices because water storage BMPs in the watershed were not able to retain the flow entering the park. Hundreds of thousands or millions of dollars were likely spent through emergency funds to add erosion control structures in numerous locations within the ravine system over the past decade.

- As part of this task, SWCD oversaw the implementation of \$240,000 worth of projects and contracts that were considered as “match” expenditures for this grant, funded by the 2015 Board of Soil and Water Resources Targeted Watershed Program grant. Those projects were completed in 2018 and 2019 and consisted of: 7 vegetated buffer installations, 1 manure pit closure, 1 grade stabilization project, 1 drainage water management construction project, and 2 cover cropping contracts. Inspection records were filed in the project folders at the SWCD and will assist that office in addressing future issues with projects that were installed.

### **Objective 3: Analyze and synthesize the data obtained in Objective 1 for rapid dissemination and communication**

**Task (a): Analyze and synthesize the data collected by Gustavus and others.** Preliminary analysis of collected data was done on an ongoing basis during the project. For example, preliminary pollutant loads from individual storms were calculated in the early years of the project. However, final data analysis could not be done until we had received official processed flow data from MPCA, and due to delays on our part and the significant workload involved, that took longer than expected. (Indeed, we do not yet have official 2021 flows as of 9/27/22, and so pollutant loads for 2021 are not included in the first submitted version of this report.)

Additionally, the variability of weather conditions during the span of this project emphasizes the necessity for long-term datasets. For example, 2019 – the first full year of this grant – was the wettest year on record in much of Minnesota. In 2020, two enormous storms caused widespread erosion and contributed to high calculated loads. Conversely, in 2021 there was a severe drought, contributing to extremely low calculated loads. Therefore, we needed to have all 4 years of data before even attempting to infer trends, so we did not share entire datasets with the public until now.

While we provide an overview of results in this final report, the large body of data collected and the complexity of the watershed system will require additional consideration, analysis and interpretation beyond the scope of this report.

**Task (b): Communicate via writing and meetings the results of Task A to scientists, policy-makers, the public and SMC landowners and mentor and consult with at least three outside watershed programs interested in learning from or building upon our approach with 319 Small Watersheds Focus Program watersheds.** Similar to the recruitment objective, GRG completed this objective through one-on-one meetings, community gatherings, videos, webinars, social media outreach, and online resource development. In addition to the numbers and resources mentioned above, GRG also communicated efforts and results with policymakers, partners, agency staff, and the public through newspapers and other news media, posters, flyers, partnership meetings, and other outlets. The work of this partnership was communicated to over 10,000 people over the course of the project.

GRG completed this objective by working alongside, having routine meetings with, or mentoring multiple other watershed groups in the state. The most frequent watersheds and watershed groups included the Cannon River Agricultural Collaborative, Rogers Creek Watershed, St. Peter DWSMA, and Lake Pepin Legacy Alliance. Other partners who GRG disseminated information to less frequently included Lac qui Parle SWCD staff, Fishers and Farmers Partnership members, Sauk and Crow River watershed leaders, University of Minnesota students in watershed management courses, and Redwood County SWCD. The four primary watersheds implemented successful communications and implementation concepts that were influenced by the work in Seven Mile Creek watershed.

**Task (c): Mentor and consult with at least three outside watershed programs interested in learning from or building upon our approach with 319 Small Watersheds Focus Program watersheds.** Nicollet SWCD staff worked with landowners in both the Rogers Creek watershed and the City of Saint Peter DWSMA to explore and begin implementation of new conservation practices. Additionally, the SWCD technician was part of the I-90/Highway 14 Soil Health Tour planning committee. In March of 2022, SWCD partnered with Brown SWCD to host a tour stop for the 2022 Highway 14 Crop, Livestock and Soil Innovation Conferences.

The theme of the 2022 meetings was, Benefits & Challenges of Soil Health Practices and the Basics of Carbon. Four stops were hosted along the Highway 14 corridor in Lake Benton, Lamberton, New Ulm and Waseca. The New Ulm stop was very well attended, with 21 farmer participants.

The SWCD technician also attended multiple other conferences and meetings which allowed for further outreach to outside watershed regarding the successes and challenges that were faced in trying to implement conservation practices in southern Minnesota.

## Section II – Grant results

### A. Implementation Projects: Present and Past

As reported above under Objective 2 Task C, some implementation projects from the Board of Soil and Water Resource’s FY15 Targeted Watershed Demonstration Project were included as “match” expenditures in this grant. However, the history of coordinated efforts to improve water quality in this watershed goes back to at least 1996. On-the-ground implementation projects over that time have included a wide variety of approaches: wetland restoration, vegetative buffer strips, drainage management (e.g., WASCOBs), manure pit closure, conservation tillage, erosion control measures, failing septic system repair/replacement, edge-of-field woodchip bioreactors, runoff re-routing, and cover cropping.

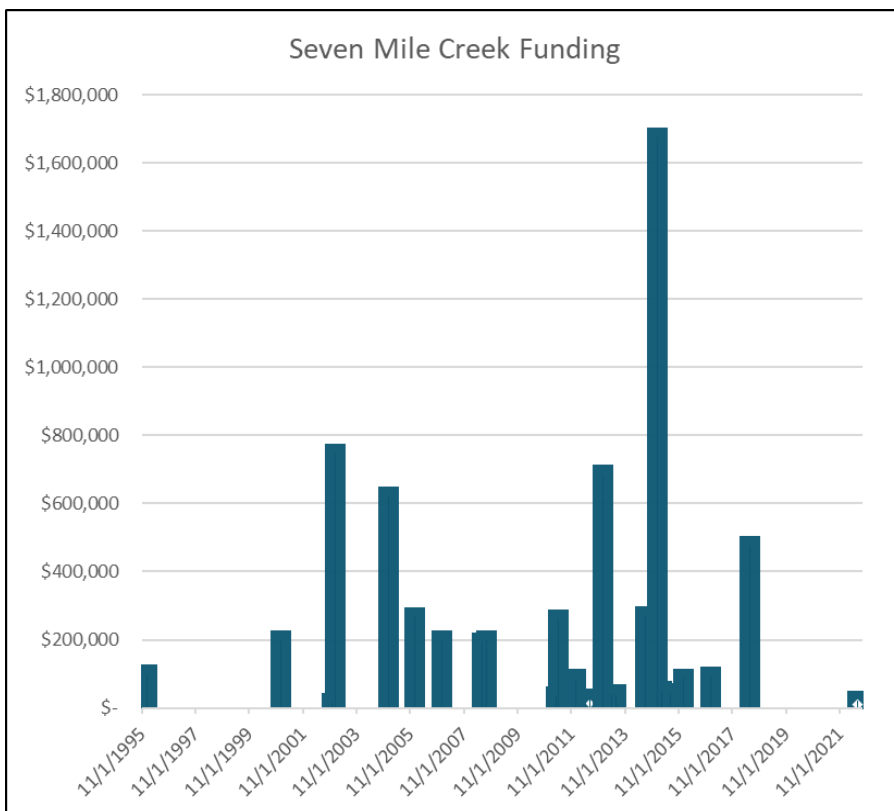
For many types of implementation projects and BMPs, estimates can be made of what flow reduction or pollutant reduction would be expected. For the 12 projects used as “match” for this 319 grant (reported under Objective 2 above), the estimated reductions were:

Phosphorus load	1222 lbs/yr
Nitrogen Load	0 lbs/yr*
Sediment Load	652 lbs/yr

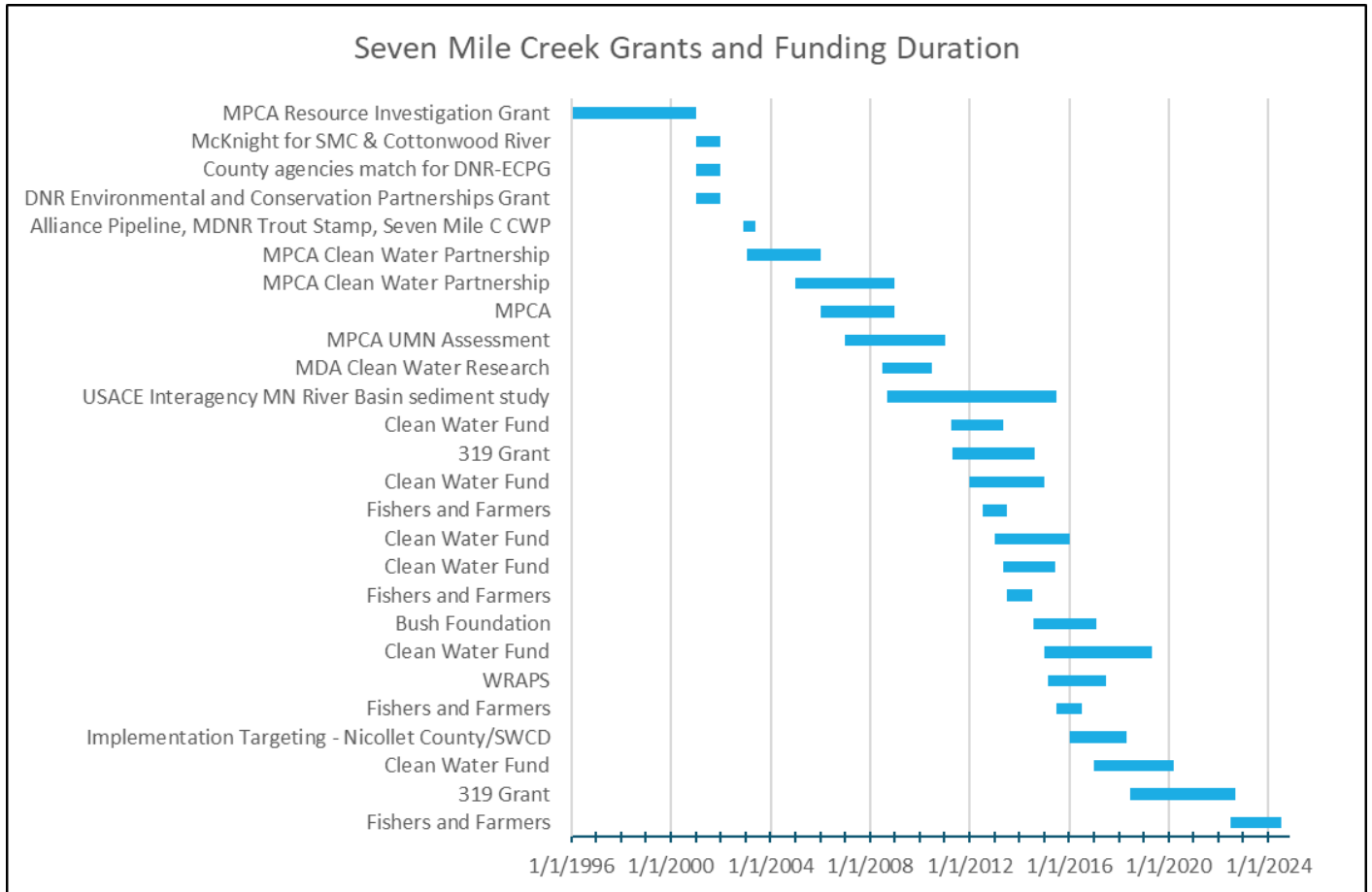
*\*Nitrogen removal likely occurred from some BMPs but SWCD determined that it was not possible to estimate those load reductions*

See Appendix 4 for a more complete description of the estimated load reductions from all BMPs and implementation projects installed during the period 2004-2020.

These physical improvements were accompanied by periods of intensive outreach to landowners and producers, funded by various grants from federal and state agencies, private foundations and nonprofit entities. For a comprehensive historical narrative, see Appendix 5. We calculated that the amount of money expended on the watershed between 1996-2024 was well over \$6.5 million (Figures 4 and 5).



*Figures 4 and 5 (next page): 28 years of grants and funding in SMC watershed. This tabulation does not include departmental funds, in-kind match, FEMA, or Farm Bill funds that went toward BMP implementation. The dollar value of two early MPCA grants and the USACE grant are approximated. Start dates may be off by a couple of months. The funds represented here equal approximately \$6.5 million.*



## B. Environmental Measurements, Results and Trends

### Weather data in watershed

#### *i. Measurements*

A weather station was installed at the SWCD office in Nicollet, and these parameters were continuously measured from 3/27/2019-8/31/2022: barometric pressure, average temperature, high temperature, low temperature, humidity %, dew point, average wind speed, average wind direction, high wind speed, high wind direction, wind chill, heat index, THW index, THSW index, rain total, rain rate, solar radiation, solar energy, evapotranspiration, UV index, UV dose, high UV index, heating degree days and cooling degree days. Two other weather stations were remotely deployed – one in the northern part of the watershed (Oshawa township) and one in the central part (Belgrade township) – to collect the same data. Monthly summaries are available from March 2019-Dec 2020 and daily summaries from Jan 2021-Aug 2022.

#### *ii. Results and Trends*

Different years had very different weather patterns; a full analysis of the many parameters is beyond the scope of this report. In terms of trends, 4 years is too short a time to discern trends in weather patterns or climate. Over a decadal timescale, the Lower Minnesota River watershed has recently had higher temperatures and more precipitation as predicted by global climate change models.

### Tributary discharge (streamflow)

#### *i. Measurements*

Campbell Scientific dataloggers and radar water level sensors obtained from the MPCA Mankato office were installed at previously monitored station locations SMC1 and SMC2. Over the course of this project several generations of dataloggers, sensors and software were used. The last setups included CR850

dataloggers, CS-475A-L sensors, and PC200W 4.5 datalogger support software. While we attempted to continuously collect data from ice-out to ice-in (approximately April-November), we had frequent equipment failures and other problems so the datasets have occasional interruptions on the order of hours to weeks.

*ii. Results and Trends*

Looking at discharge volumes from 2002-2020, the mainstem (SMC3) appears to have substantially higher discharge in the years 2016-2020, which were also years of higher precipitation (Figure 6). The discharge records for SMC1 and SMC2 are not continuous through the period, but for those years that are available they also have higher discharge volumes in 2016-2020 as compared to earlier years.

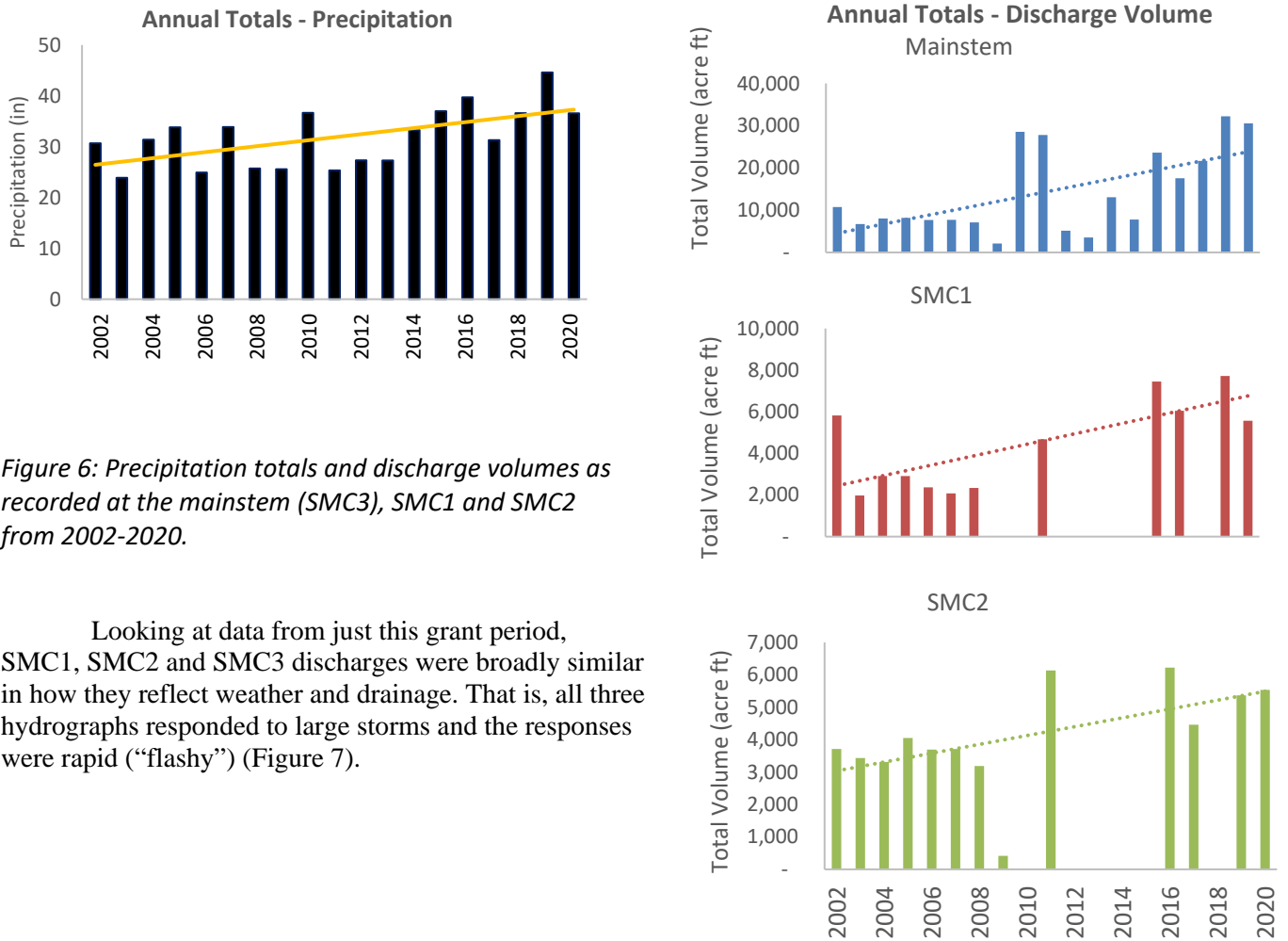
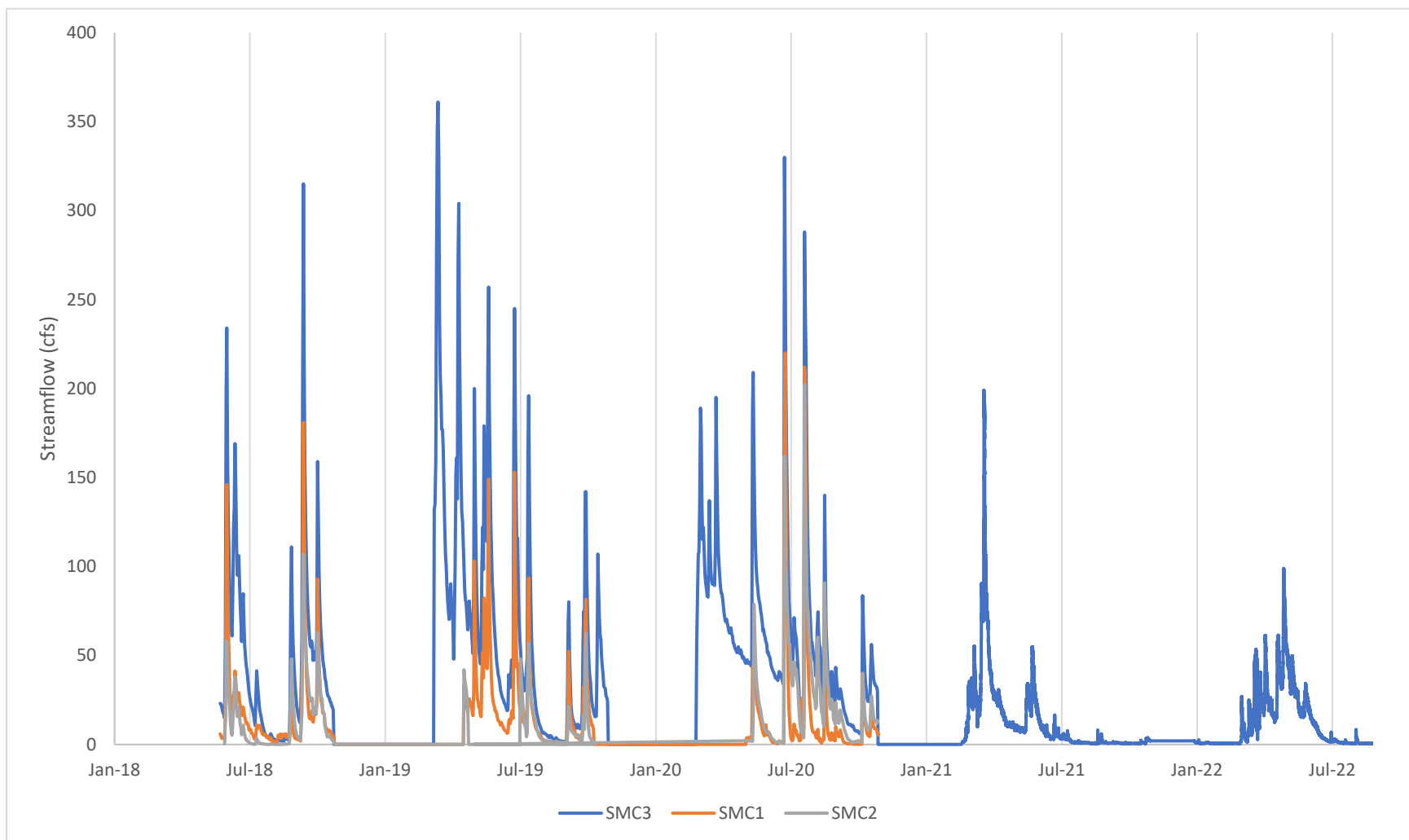


Figure 6: Precipitation totals and discharge volumes as recorded at the mainstem (SMC3), SMC1 and SMC2 from 2002-2020.

Looking at data from just this grant period, SMC1, SMC2 and SMC3 discharges were broadly similar in how they reflect weather and drainage. That is, all three hydrographs responded to large storms and the responses were rapid (“flashy”) (Figure 7).



Figure 7: Hydrographs for SMC1, SMC2 and SMC3 (mainstem) during the grant period. As of 9/27/22 the 2021 official flow data for SMC1 and SMC2 were not available. Periods of no data are indicated as zero flow. Data retrieved from MN Cooperative Stream Gauging network on 9/28/22 (<https://www.dnr.state.mn.us/waters/csg/index.html>).



## Tributary water quality

### *i. Measurements*

Collection and measurement occurred according to the Quality Assurance Project Plan approved for this project in July 2018. Samples were collected from SMC1 and SMC2 on an approximately weekly basis during the open-water season, and more frequently around storm events. Some samples were analyzed for total suspended solids (TSS), nitrate-N, total phosphorus and *E. coli* at Minnesota Valley Testing Labs (MVTL) certified laboratory in New Ulm. Some samples were analyzed for TSS and nitrate-N at the Gustavus laboratories. The latter were periodically cross-checked with duplicates submitted to the MVTL lab.

### *ii. Results and Trends*

Concentrations of TSS, nitrate and total phosphorus in the tributaries varied greatly from year to year. Concentrations are important for understanding local ecosystem stresses and are, of course, a critical metric for setting standards and determining impairments, but loads are also important to consider. For one thing, loads indicate how much of a pollutant is being exported from the local system (e.g., Seven Mile Creek) to the downstream system (e.g., the Minnesota River) where it might create additional detrimental effects. Therefore, both concentrations and loads are discussed here. For this project report, simple linear regressions were calculated to show trends in flow-weighted mean concentrations (FWMCs) and loads from 2000-2020 (Figures 8-10). Ongoing work will use more sophisticated trend analyses to better determine the magnitude and significance of long-term trends.

#### *a. Total suspended solids*

TSS concentrations vary greatly in all 3 sampling locations (Table 1). Very broadly, TSS concentrations tend to be high in the first few hours of a storm event, and extremely low at most other times of year. This indicates that high flows are the main control on mobilizing sediment. But, it is an open question whether that sediment was also disturbed/eroded in the same event or whether it was produced by other processes and had lain waiting for the next big storm to move it downstream. See Appendix 6 for more discussion of the related topic of ravine erosion monitoring.

*Table 1: Total suspended solids (TSS) summary statistics of all samples collected during the grant period. They are influenced by the fact that we collected more samples during and immediately following storm events. SMC1 and SMC2 were monitored within this project; SMC3 data were produced by state agencies and retrieved from MPCA's webapp surface water search tool (9/15/22).*

Site	Mean (mg/L)	Median (mg/L)	Min (mg/L)	Max (mg/L)	25% (mg/L)	75% (mg/L)	% exceeding standard*	Count
SMC1	90	25	1	1160	14	50	82%	446
SMC2	72	38	1	989	15.5	78	85%	418
SMC3	375	103	2	4700	13	290	76%	92

*\* Cold water stream standard of 10 mg/L, as specified in MPCA WRAPS report for Lower Minnesota-Mankato. Note that more samples were taken during and after storm events in order to better capture rapidly-changing TSS dynamics. The result is that these statistics are biased towards times of higher TSS concentration.*

Looking at TSS data over 20 years it appears that TSS concentrations have not decreased in the mainstem and subwatersheds (Figure 8). And, discharge has increased as discussed above. Therefore, TSS loads have increased substantially since 2016.

#### *b. Nitrate*

Nitrate concentrations, on the other hand, are less variable during the year but may still respond to changes in flow (Table 2). This indicates that nitrate yield from the landscape is relatively steady, independent of precipitation. A major exception was observed in 2021, when a severe drought emerged from July-October; nitrate concentrations *and* stream flows dropped precipitously, showing that nitrate can be retained in soil (or, at least, be withheld from surface water discharge) during dry periods.

Table 2: Nitrate-N summary statistics of all samples collected during the grant period. They are influenced by the fact that we collected more samples during and immediately following storm events. SMC1 and SMC2 were monitored within this project; SMC3 data were produced by state agencies and retrieved from MPCA’s webapp surface water search tool (9/15/22).

Site	Mean (mg/L)	Median (mg/L)	Min (mg/L)	Max (mg/L)	25% (mg/L)	75% (mg/L)	% exceeding standard*	Count
SMC1	11	11	0.03	27	7.5	15	56%	400
SMC2	7	7	0.1	20	4.8	10	24%	372
SMC3	9	9	0.2	17	5.7	12	43%	144

\* This is relative to the drinking water standard of 10 mg/L. It may not be specifically applicable to all streams but is provided for context

Looking at data over the past 20 years, nitrate concentrations have decreased in the SMC mainstem and SMC2 subwatershed (Figure 9). Concentrations have similarly decreased in the Le Sueur River and High Island Creek, which did not have targeted watershed work like SMC, and similar trends are observed elsewhere in southern Minnesota during this time period. Also, keeping in mind that most projects implemented in the SMC watershed were not expected to have a large impact on nitrate, we conclude that the nitrate reductions are likely due to other factors, e.g. increased precipitation, decreased fertilizer use by farmers, and/or changes in nitrate retention in soils. Again, discharge volume increased so nitrate loads still increased in recent years. Further analysis is needed, and more graphs are provided in Appendix 7..

c. Total phosphorus

Total phosphorus concentrations are highly variable (Table 3). In most years, peak concentrations in the tributaries occurred during the second half of summer or fall, or during large storm events. For example, in 2020 TP concentrations were extremely high during two major rain events. During a megastorm at the end of June, which caused extensive erosion and damage in the park, an SMC2 sample reached 1.02 mg/L and an SMC3 sample reached a whopping 3.43 mg/L. These high values correlate with high TSS concentrations. Note that the phosphorus water quality standard is provided in Table 3 as context only; these calculations were not done as part of or in alignment with an official impairment determination.

Table 3: Total phosphorus summary statistics of all samples collected during the grant period. They are influenced by the fact that we collected more samples during and immediately following storm events. SMC1 and SMC2 were monitored within this project; SMC3 data were produced by state agencies and retrieved from MPCA’s webapp surface water search tool (9/15/22).

Site	Mean (mg/L)	Median (mg/L)	Min (mg/L)	Max (mg/L)	25% (mg/L)	75% (mg/L)	% exceeding standard*	Count
SMC1	0.28	0.12	0.02	11	0.06	0.27	2 summers	186
SMC2	0.20	0.13	0.04	1.3	0.08	0.25	2 summers	158
SMC3	0.35	0.18	0.01	3.4	0.06	0.4	2 summers	152

\* Standard of 150 ug/L as specified in MPCA WRAPS report for Lower Minnesota-Mankato. This standard may not specifically apply to SMC1 and SMC2. Calculated as “summer average” (Jun1-Aug31) per MN Rule 7050. These are not official statements of impairment.

Looking at 20 years of data, total phosphorus concentrations have decreased slightly in the subwatersheds but not in the watershed as a whole (Figure 10). Discharge has increased due to wetter years from 2016-2020, which has contributed to higher total phosphorus loads.

Figure 8: TSS flow-weighted mean concentration and annual loads for SMC1, SMC2 and the mainstem. Discharge volumes are provided for context.

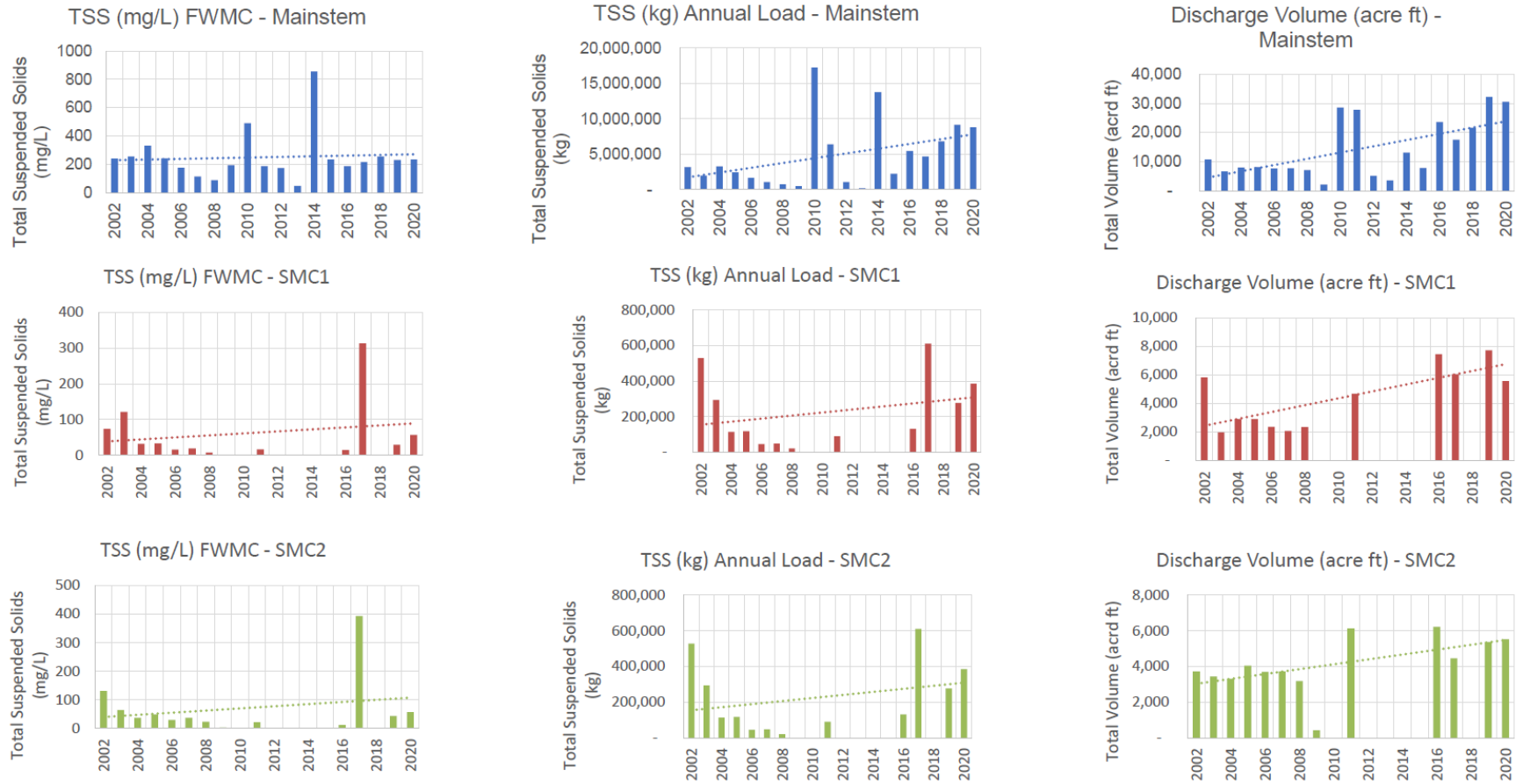


Figure 9: Nitrate flow-weighted mean concentration and annual loads for SMC1, SMC2 and the mainstem. Discharge volumes are provided for context.

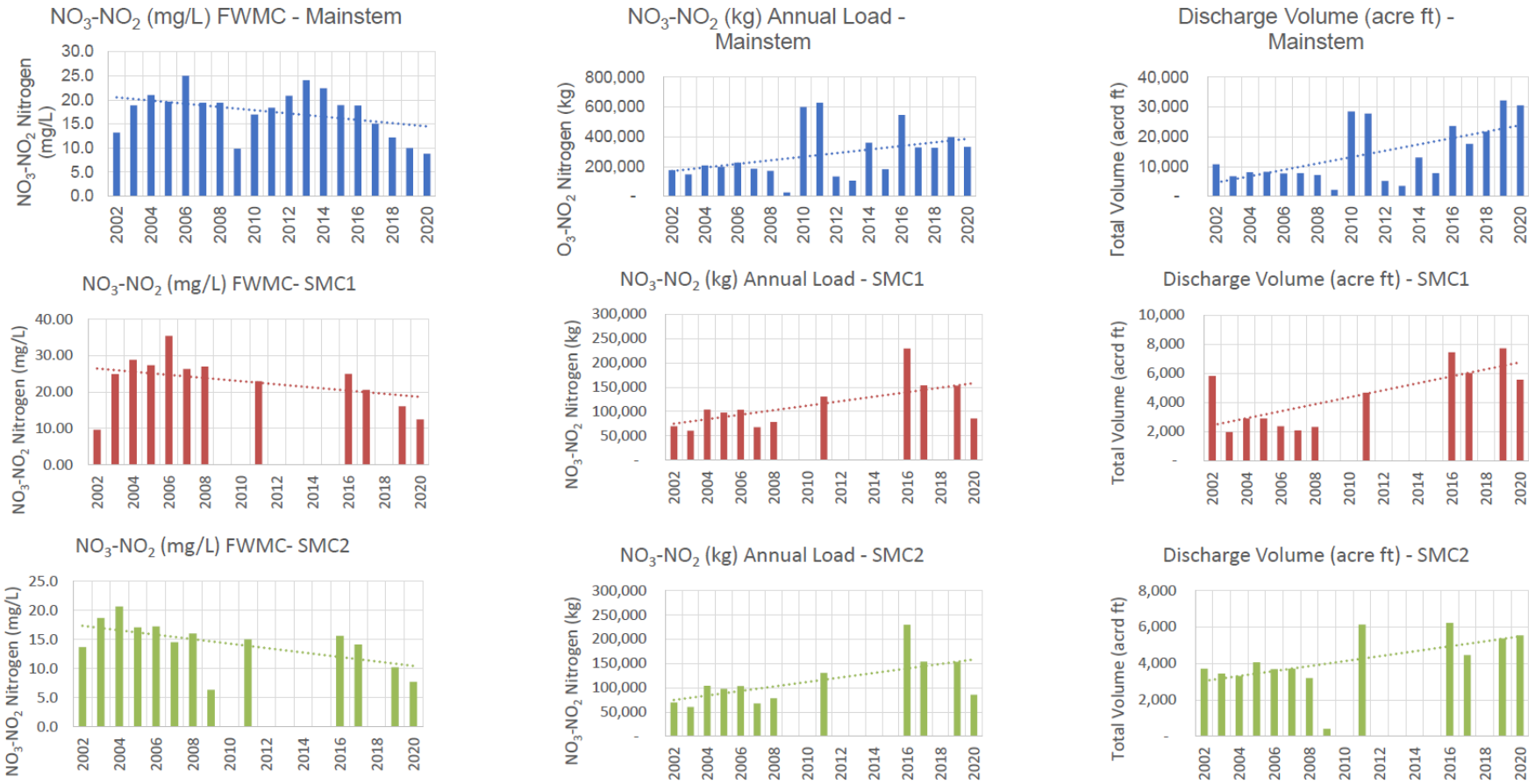
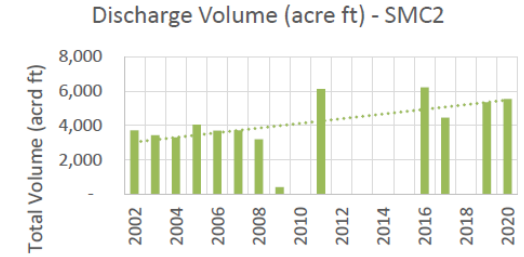
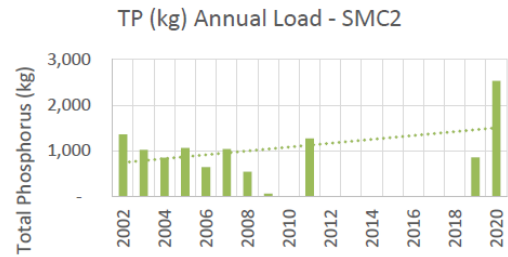
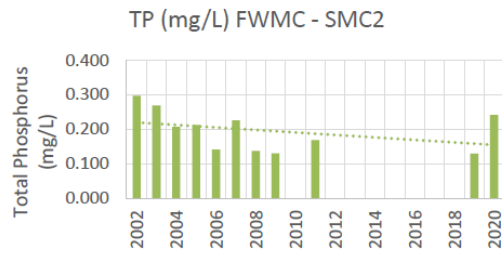
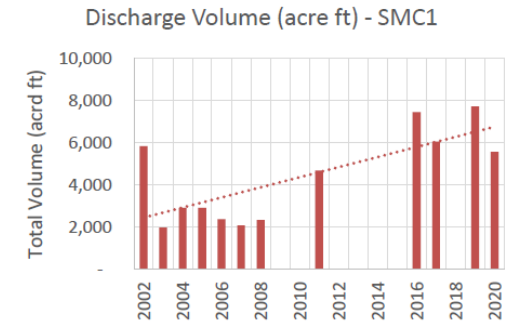
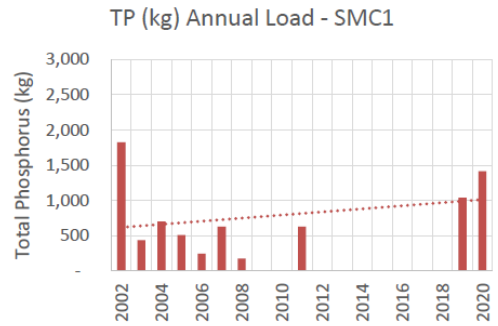
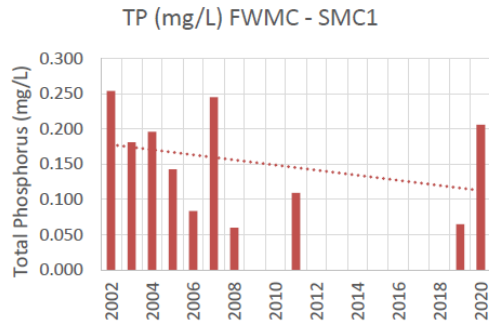
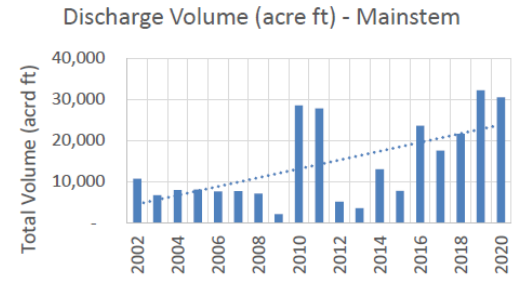
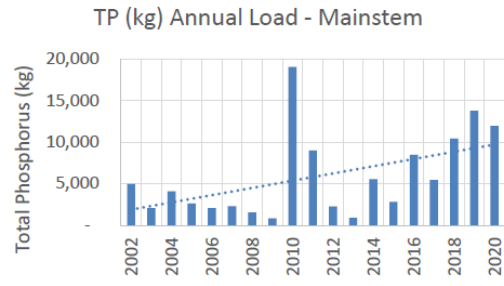
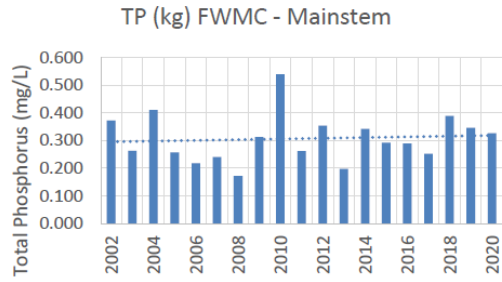


Figure 10: Total phosphorus flow-weighted mean concentration and annual loads for SMC1, SMC2 and the mainstem. Discharge volumes are provided for context.



## Groundwater monitoring well water quality

### *i. Measurements*

Five shallow monitoring wells in Seven Mile Creek Park were monitored approximately monthly during ice-out for the period of this grant. Nitrate concentrations were measured at Gustavus Adolphus College laboratories and were not submitted to MPCA because these wells are not part of a state monitoring project.

### *ii. Results and Trends*

Generally, concentrations were high: the average concentration overall was 5 mg/L, and 4% (5 of 74 samples) were above the drinking water standard of 10 mg/L (Appendix 8). However, the two wells nearest the creek had the highest concentrations, suggesting that the high nitrate concentration in the creek is influencing those wells. If those two are excluded, the average of the 3 wells further from the creek was 3.56 mg/L; that is perhaps more representative of shallow groundwater moving into the valley. Future work will consider this further.

## Field-scale implementation project monitoring

Two types of field-scale implementations were monitored in this project: a woodchip bioreactor and a drainage management system.

### *Woodchip bioreactor*

#### *i. Measurements*

Woodchip bioreactors are promoted as a means for intercepting nitrate as it leaves agricultural fields. In short, draintile is plumbed into the bioreactor – a large underground tank filled with woodchips. The bioreactor is designed to retain water for long enough that nitrate can be denitrified by bacteria, and the nitrogen gas is vented to the atmosphere. Bioreactors are known to be more effective at warmer temperatures (when bacteria metabolism is faster), and less effective at cold temperatures. Also, bioreactors are less impactful during large flow events (storms, rapid snowmelt) because excess water bypasses the bioreactor. In this project we monitored nitrate concentrations and stage in the inflow and outflow of a woodchip bioreactor that was installed in 2015. Samples were collected approximately once every two weeks during ice-off conditions.

#### *ii. Results and Trends*

Unfortunately and significantly, we could not develop a rating curve between stage and flow because the Agridrain structure had a slight warp in the frame. The warping prevented us from removing damaged flow gates and installing a v-notch weir to determine flow. Without flow we could not directly calculate loads, which we need in order to determine the project's impact on the creek's loads. Future work will attempt to estimate loads using the stage data and flow from nearby monitoring data from MDA. For now, we can report that the bioreactor is very effective at reducing nitrate concentrations during warm months (Appendix 9). Again, though, this does not speak to whether loads are reduced or not; it is theoretically possible that loads are not significantly reduced because the concentrations reductions happen at times of year when flow is very low.

### *Drainage management and erosion control*

#### *i. Measurements*

Through the 2015 BWSR Targeted Watershed grant, drainage water management structures and filter strips were constructed in some fields immediately south of a steep eroding ravine in Seven Mile Creek Park, sometimes named Ravine Z (44.263247° - 94.038354°). We were interested in monitoring how the ravine responded to those changes but knew from previous experience that it is notoriously difficult to measure flow and sediment export from these flashy systems. Therefore, we determined to observe and take measurements of landforms rather than take direct measurements. We installed 3 field cameras and collected hourly photos for over 2 years.



Figure 11: Ravine erosion captured from field camera in Seven Mile Creek Park

## *ii. Results and Trends*

The photos show that significant erosion events are still occurring in the ravine despite the promising implementations upstream (Figure 11, Appendix 6). Further analysis will help discern what are the erosional processes at work, and what factors (e.g., temperature, precipitation rate, precipitation total, etc.) are most important for controlling the ongoing degradation. This should lead to better erosion control strategies.

## Invertebrate surveys

### *i. Measurements*

An invertebrate survey was conducted in fall 2019 (Appendix 10). Unfortunately, surveys were not conducted in 2020 due to COVID restrictions. A survey was attempted in 2021 but extremely high water levels at the time diminished the quality of the survey so those data are not included here.

### *ii. Results and Trends*

SMC2 and SMC3 sites were surveyed, and several indices of ecosystem health were applied. The Family-Based Biological Index (FBI) was used, after consultation with MPCA staff that the identifications were likely correct to the genus level but not reliable at a species level. And, as discussed in the full report, fewer specimens were collected than are recommended for applying some IBIs. Findings suggest slight differences between the two locations, but both being classified as ‘moderate’ water quality.

## Bacteria monitoring

### *i. Measurements*

*E. coli* (or fecal coliform) samples were collected at SMC1 and SMC2 on approximately the same regular schedule as other water quality parameters and were taken to MVTL for analysis. In addition, during periods in 2019 and 2021 samples were collected at multiple sites in the SMC1 subwatershed, usually around storm events. Those samples were analyzed in two ways: first, *E. coli* abundance was measured at Gustavus (with periodic duplicates analyzed at MVTL). Second, samples were prepared for specialized genotype identification and delivered to the University of Minnesota for analysis.

### *ii. Results and Trends*

At the broadest level, most sampled sites show impairment for *E. coli* for at least part of each sampling season. Samples showing fewer than ~1260 cfu/100mL, the water quality standard for recreational waters, tend to occur near the beginning or end of a sampling season, when air and water temperatures are lower. To probe potential sources of bacteria in the watershed, we coupled sampling for *E. coli* abundance with sampling for host-specific enteric bacteria. These enteric bacteria are obligate anaerobes and do not survive in the environment for any substantial length of time. Because of this, we can consider these enteric bacteria as pollutants in the watershed, with a limited lifespan. Further, quantitative polymerase chain reaction (qPCR) analysis can both determine the host (cattle, swine, or human) and quantify the abundance of enteric bacteria in the watershed.

Notably, sampling in both 2019 and 2021 showed very few instances of enteric bacteria belonging to cattle, swine or human hosts. The positive events for enteric bacteria were not correlated to particularly high *E. coli* enumeration measurements; indeed, most of the very high *E. coli* counts corresponded to no significant enteric bacterial genes recovered and sites with recovered enteric bacterial genes did not always show high *E. coli* counts. The simplest explanation for these observations is that most *E. coli* in the Seven Mile Creek Watershed is endemic, rather than allochthonous – that is, the bacteria live in microenvironments that are anaerobic and reproduce when temperatures warm. The movement of water and sediment across the landscape moves these active colonies into streams, where they can be detected. These findings are in agreement with previous work reported by Sadowsky and others (“*Growth, survival and genetic structure of E.coli found in ditch sediments and water at the Seven Mile Creek watershed, Project Report to MN Department of Agriculture*”, 2010). See Appendix 11 for data tables.

## Nutrient management assessment

The nutrient assessment conducted in 2020-21 was compared to the 2002 nutrient assessment with the following notable findings:

- In 2002, farmers’ corn yield goals were reported to be 171 bu/acre. In 2021, the average yield goals were 208 bu/ac – 120% of the previous yield goals.
- In 2002, all crop acres (except alfalfa) were fall tilled and spring tilled”. In 2020, however, 29% of corn



acres and 22% of soybean acres were *not* fall tilled. That is a significant change and improvement in soil health practices.

- Furthermore, in 2002 10% of the soybean acres that were fall-tilled were done using a moldboard plow. In 2020, no soybean acres were tilled with a moldboard plow. A small number of corn acres were still tilled using a moldboard plow.
- The 2002 report does not mention cover crops at all. In 2020, cover crops were used on 8% of the corn acres and 3% of the soybean acres.
- In 2002, average N application (considering fertilizer and manure) was 160 lbs/acre. At that time, 37% of field corn acres were classified as having too much N applied relative to the University of Minnesota recommendations at that time, and the nutrient assessment report highlights that as an opportunity for watershed improvement. In 2021, N applied from fertilizer and manure averaged 164 lbs/acre and was still over the more recent recommendation of ~150 lbs/acre for this area on fields that do not receive manure. (Note: The current recommendations take into account economic and environmental factors, and also distinguish between tillage types and whether a field has also received manure. Therefore, recommendations are site-specific.)

### Additional land monitoring

Three Gustavus faculty members conducted short-term watershed investigations under the umbrella of this project:

Dr. Amy Kochsiek: Measured plant species richness and abundance at two sites (Molitor and VanZee) that have planted a native plant species mix on their vegetative buffer strip adjacent to the drainage ditch. To do that, the team quantified percent cover of each species present within a 0.25 m<sup>2</sup> quadrat along transects perpendicular to the ditch. This was compared the seed mixes applied to these sites to see which plant species were successfully established. Also, she began developing protocols for more extensive sampling in the buffer strips, which would include above and below ground biomass and water infiltration. This would support future work comparing the native buffers to the buffers that have not been planted with native species and that are almost entirely *Bromus inermis*, a naturalized cool season grass species from Europe.

Dr. Jeff Jeremiason: Measured nitrate reduction in soil and peat related to dissolved organic carbon (DOC) concentrations. Peat and soil cores from the Seven Mile Creek watershed were spiked initially with nitrate to measure nitrate reduction rates in the upper five cm of soil or peat. Nitrate reduction rates were monitored over time and related to DOC concentrations and DOC production/loss rates. DOC may influence initial rates of nitrate reduction, but may also be formed or consumed as nitrate reduction proceeds. Iron speciation likely plays a key role influencing nitrate reduction and these initial experiments informed future work aimed at examining the influence of DOC on Fe speciation and the subsequent effects on nitrogen cycling.

Dr. Anna Versluis: Conducted literature and record review of land ownership patterns in the watershed and broader region, in preparation for a larger future project. Most land in Seven Mile Creek watershed, like much of the land in southern Minnesota, is privately owned and used for agriculture. Landowners are powerful entities with great latitude in shaping decisions about land use, how the land is viewed and treated, and what the vision for the land is going into the future. Herein she determined what land ownership data is available for Nicollet County, explored aggregated agricultural land ownership data available from the US Department of Agriculture, and created and analyzed a map of land ownership for the watershed. Findings include: there are over 300 land-owning entities in the watershed; the top five landowners hold 20% of the watershed's property value; 11% of the land has an absentee owner. Full report is in Appendix 3.

## **C. Public Outreach and Education**

GRG and SWCD implemented extensive outreach and education efforts throughout this project despite being limited during the COVID time period. Outreach activities were originally intended to be multiple in-person gatherings to talk about BMPs and water quality, but they had to adapt and turn into numerous virtual and digital resources instead. However, through meetings, dinners, gatherings, online resources, social media, emails, newsletters, posters, flyers, and videos, the project still reached over 10,000 people with information about the work in Seven Mile Creek (Table 4). Examples of printed materials are articles are provided in Appendix 12.

Outreach/education effort	Metric of impact (e.g., # of participants)
7-milecreek.org website: announcements, videos, reports, watershed stories, links Created videos about watershed and efforts Weather data available via Davis weatherlink -----	1,720 visitors and 2,335 page views  9 videos, on website -----
Sept 18: Cover crop seeding demonstration field day Oct 18: Day-long fieldtrip of watershed, initiatives Oct 18: Co-hosted Nicollet County Farm Bureau Supper Oct 18: Gustavus Nobel Conference on soil  Sep 19: Nicollet Sibley Farm Bureau AgScape Sustainability Tour Jan 20: Article in Nicollet SWCD newsletter Feb 20: Science meeting Feb 20: Invitation mailed for March community meeting <i>(meeting ultimately canceled due to COVID)</i> Mar 20: Core team meeting Sept 20: Kernza pre-harvest field day Oct 20: Kernza harvest day field day Mar 21: Article in Nicollet SWCD newsletter Mar 21: Mailed postcards to farmers Apr 21: Presentation to NRCS state technical committee May 21: Student presentation at U.S. Capitol Posters on the Hill event (virtual) Jul 21: Boots on the Ground webinar Fall 21: Cover crop field days Mar 22: Soil Health Tour (hosted a stop) -----	25 farmers and ag professionals 47 members of public 170 farmers, ag professionals, St. Peter citizens many local farmers, citizens, ag professionals, students (7000+ attendees total including online/global) ~40 farmers, ag professionals, SWCD staff  2248 mailed 18 scientists from agencies, universities ~100 community members  8 farmers, agency staff, grantees ~15 participants ~15 participants 2212 mailed ~100 mailed ~15 agency staff Presented to U.S. Sen. Tina Smith's staff  ~50 participants + 33 youtube views 75 farmers, stakeholders, community members 21 farmers -----
Mentoring and outreach/education to other watersheds  -----	Rogers Creek, St. Peter DWSMA, 3 Cannon River subwatersheds, Redwood River, Cottonwood River, Clean River Partners -----
Innumerable 1:1 meetings with landowners, producers, ag professionals, and interested nonprofit entities (e.g., Pheasants Forever, Fishers and Farmers, Mankato Area Trail Runners, etc.)	

While we were implementing these outreach activities, GRG was also adapting to what seemed to resonate with farmers best. One watershed mentoring project was with Rogers Creek, a small, similar watershed adjacent to Seven Mile. There has been far less attention given to Rogers Creek, so in some ways it was a 'clean slate' for trying new ideas and applying lessons learned in Seven Mile. Through the Rogers Creek watershed project, GRG subcontracted a local farmer to meet with farmers in person and establish a local collaborative of farmers interested in marketable perennial and cover crops. We learned that many of the farmers in the area watch what one or two farmers do, see if it works well, and then slowly try the same practices. We realized that finding these leaders, assisting them with pilot funds, and promoting their work and other information about the crops they're trying worked better than talking about what farmers are trying in other parts of the state. We also concluded that watersheds who had farmers leading the efforts and taking the initiative to encourage their neighbors seemed to be more successful and make more progress. Therefore, our communication and outreach efforts in both Seven Mile and Rogers Creek shifted more toward promoting and praising local leaders rather than bringing outside knowledge into the watershed.

Farmers also expressed a desire to see community support that would provide confidence in sustainable markets for new crops and social encouragement rather than discouragement. Therefore, later in this grant our

education efforts shifted more toward excitement about new crops and opportunities to support farmers through markets rather than educating the public about how farmers need to change their practices. Moving forward, GRG will continue these new adaptations of outreach and education in these watersheds and elsewhere.

#### D. Progress Toward Achieving Project Outcomes

From the project Work Plan:

*“This project will demonstrate whether voluntary implementation of a suite of BMPs in a watershed can result in measurable water quality outcomes.”*

##### Outcome 1: The stream and land monitoring at multiple scales will create a comprehensive dataset

This outcome was achieved. We collected a tremendous amount of data about the watershed over these 4 years that will, as hoped, contribute to understanding BMP effectiveness and improve modeling.

##### Outcome 2: The overall project will result in improved water quality, as a result of the implementation projects used as grant matching funds and new projects that will be recruited.

Specifically, the measures of success were declared in the Work Plan to be:

*Decrease maximum peak flow by at least 10-20%; decrease total suspended solids concentrations by 30%; decrease nitrate concentrations by at least 15%; increase Minnesota Stream Health Assessment score by at least 15%; increase the number of taxa and “percent intolerant” of benthic macroinvertebrate species by at least 25%.*

This outcome as stated was not achieved. We do have evidence that progress was made on some measures, although the magnitude is somewhat opaque because the metrics themselves are complicated. We will enumerate the challenges and our initial conclusions for each measure below.

**i. Decrease peak flow:** To determine whether peak storm flow has decreased, ideally we would compare two identical storms in “before” and “after” years. Those two storms would need to have approximately the same precipitation rate, precipitation total, initial soil moisture condition, and would need to occur in approximately the same part of the growing season (to account for crop uptake of water) in order to be similarly reflected in the stream hydrograph. If the storm in the “after” year resulted in a lower peak flow on the hydrograph, we could assert that watershed improvements had successfully led to that change.

Unfortunately, the 3.5 hydrologic seasons monitored during this grant period were extremely variable. For example, 2019 was the wettest year on record in Minnesota and in our region. Conversely, a severe drought emerged in 2021 with zero storm events recorded on the hydrographs from July-October. Therefore, there is not a straightforward way to assess peak streamflows over the grant period, and further

**ii. Decrease total suspended sediment concentrations:** Simple linear regressions of TSS monthly average concentrations in SMC1 and SMC2 suggest an increase from 2000-2020. Also, simple linear regressions of TSS FWMCs in both the tributaries and mainstem suggest an increase from 2000-2020 (Figure 8).

However, the years 2016-2020 were also far wetter than the previous decade. Because TSS can be both produced in and mobilized from a landscape by processes like rain impact, sediment saturation leading to slumping (e.g., slumping of bluffs), and fluvial erosion, more precipitation might be expected to lead to higher TSS loads even if effective land practices had been implemented. Therefore, we argue that the TSS concentrations would have been *even higher* in 2016-2020 had these practices *not* been implemented. In other words, a relative reduction in concentrations – that is, relative to an alternative present without best practices – has most likely occurred.

To explore this possibility, we tallied up the predicted sediment reductions from 224 of the projects implemented during 2004-2020. (These were all the projects for which we could find the needed information.) Projects included all of the types listed in Section II.A above. The predicted annualized reduction in TSS was 2,300 t/yr by 2020. In that same year, the measured TSS load in the Seven Mile Creek mainstem was 8,815 t. So, if a 2,300 t reduction was indeed achieved, that is equivalent to a ~20% reduction in sediment load. There are significant uncertainties in such an estimate, but it is at least arguable that the stream has experienced a lower sediment load than it otherwise would have, even though TSS concentrations have not decreased. See Appendix 4 for details of this calculation.

This begs the question of what a pollutant concentration goal means in an era of rapid global climate change. Just because the situation might have been worse had these practices not been implemented should not be an excuse for accepting worsening water quality conditions. Scientists and government regulators will need to explicitly consider what is desirable and achievable under new meteorologic regimes.

In terms of BMPs, most sediment control approaches implemented in this watershed, like filter strips and drainage control structures, cannot possibly handle the tremendous amount of water (and sediment) moving across and through the ground during the largest storms. The two watershed restorations completed the 2000s are probably the most effective at reducing peak flows and the erosivity of this stream.

In addition, discrete sediment-producing events in the watershed that are unrelated to implementation projects need to be accounted for. For example, in 2019 the ditches in the SMC1 watershed were dredged as part of the county's regular maintenance, and the work was done poorly. The dredge operator undercut the banks, and less than 2 years later the slumping of ditch walls is extensive (Figure 12). Some of that slumped sediment was certainly mobilized during high flow events in 2019-2021 and we thus measured it as part of the TSS loads at SMC1 (and SMC3, monitored by MPCA) during that period. Such TSS contributions could have partially masked improvements from BMPs; it may be impossible to know.



Figure 12: Slumping of stream/ditch banks just north of SMC1 monitoring site, 2021

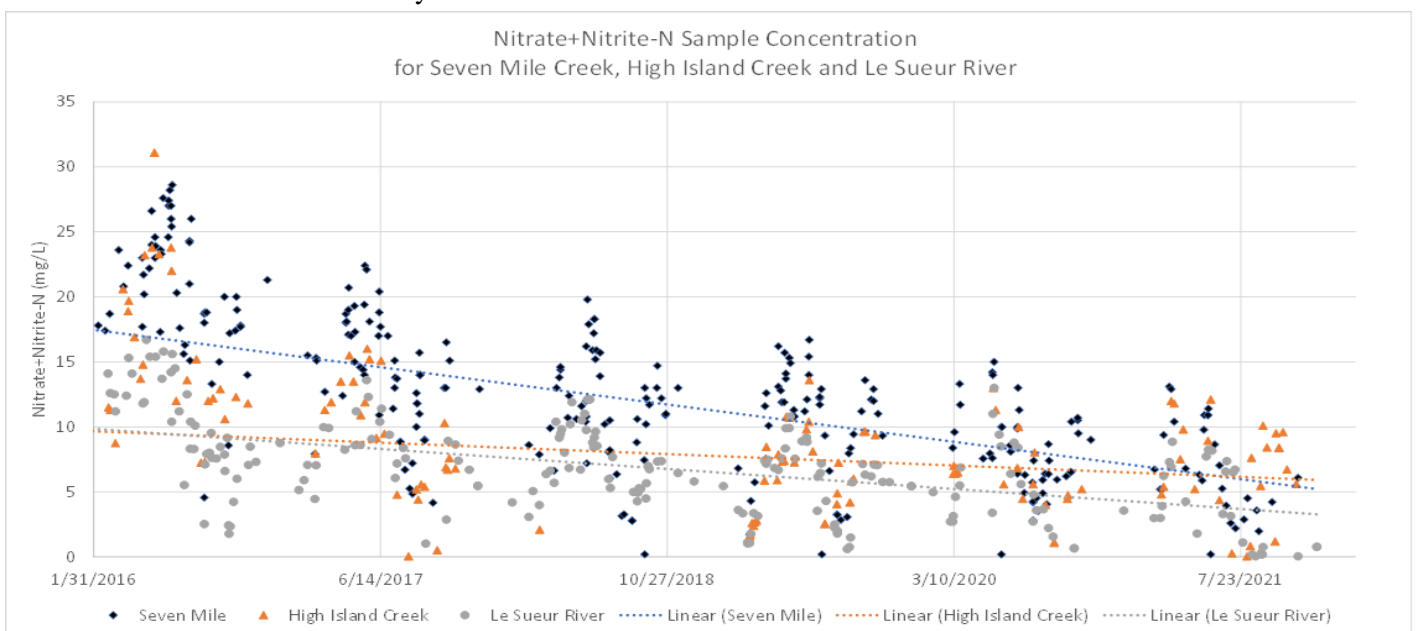
**iii. Decrease nitrate concentrations:** Simple linear regressions of nitrate-N concentrations in SMC1 and SMC2 suggest a decrease from 2000-2020 (Figure 9). The slope of that regression line is  $-0.43$  mg/L; if taken at face value, it would equate to a 2.2 mg/L reduction during 2016-2021 – a ~9% reduction. While this may seem to be a sign of success, there are two compelling lines of evidence that this decrease is *not* entirely due to watershed projects in the Seven Mile Creek watershed.

First, as with TSS concentration trends, the fact that 2016-2020 was a relatively wet period must be considered. A linear regression of nitrate-N loading from 2000-2020 shows a substantial increase, despite the apparent decrease in concentrations over that time period. As mentioned previously, nitrate-N concentrations are generally inversely proportional to stream discharge. So, the apparent decrease in nitrate-N concentrations could be partly or entirely explained by the higher discharges in 2016-2020 – that is, a dilution effect is occurring. And, the apparent reduction in concentration is essentially canceled out, in terms of loading, by the higher streamflow.

Second, streams across the region had decreasing nitrate concentrations over the period of 2016-2020. Two nearby streams with robust nitrate-N data, High Island Creek and the Le Sueur River, also have a negative trendline over this time period (Figure 13), although those decreases are not as substantial as in Seven

Figure 13: 5 years of nitrate concentrations in 3 south-central Minnesota streams

Mile. Whether this indicates that land management practices have positively impacted nitrate-N concentrations in Seven Mile is difficult to say at this time.



**iv. Increase Minnesota Stream Health Assessment (MSHA) score:** We have produced data that will help in calculating this score, but we have not done that calculation ourselves. Completing the multiple assessments required to calculate a MSHA score is beyond the scope of this project and project participants.

**v. Increase invertebrate species types and diversity:**

In consultation with MPCA staff, it was decided that the Gustavus team could reliably identify organisms to genus level but not species level. IBI scores calculated herein are thus considered to be tentative. Therefore, determination of whether this project outcome was achieved must wait until the MPCA or other specialists conduct their next survey.

Outcome 3: By more quickly providing water, pollutant, and weather data to the landowners, we will serve their needs and thus facilitate further community engagement and better integrate the watershed plan. In addition, by supporting farmer-to-farmer engagement and training, we will boost conservation participation and delivery and facilitate farmer-led initiatives in the region.

This outcome was partially achieved.

*Aspects that were successful:*

- Accomplished major parts of watershed plan (Nine Key Element Plan, Appendix 13) and facilitated other initiatives in the region
- Acquired better data for modeling from PTMApp and ACPF
- Learned what to strive for in terms of farmer leadership elsewhere
- Made local weather data available to producers in real time

*Aspects that were not successful:*

- Facilitating further community engagement, boosting participation and delivery, and facilitating farmer-led initiatives in this watershed

Outcome 4: By rapidly communicating findings to scientists, policy-makers, the public and SMC landowners, we can more quickly identify successes, failures and 'lessons learned'. By mentoring and consulting with at least three outside watershed programs, we will expand the reach of this project.

This outcome was partially achieved.

*Aspects that were successful:*

- Mentoring and consulting with other watershed programs led to deeper insights about community engagement and led to new initiatives. The most successful has been a growing movement in the nearby Rogers Creek watershed, where enthusiasm for perennial crops is emerging and being led by local farmers.
- Timely education about local producers' efforts (cover crops, etc.) via videos, articles and field days helped disseminate 'lessons learned' to other interested farmers.
- Some timely education about water quality conditions was possible, e.g. in January 2020 our team published an article in the SWCD newsletter about the record precipitation and resulting erosion in 2019. That newsletter was mailed to 2,248 recipients, primarily landowners in Nicollet County (and including the producers in SMC watershed).

*Aspects that were less successful:*

- It was difficult to rapidly communicate about water quality status and trends. The challenges are:
  - i. Trends can only be inferred over multi-year timescales and so cannot be determined, much less announced, on an annual basis
  - ii. Official flow and loading data are processed over a period of months following the year of monitoring, so there is an inevitable lag in data availability
  - iii. There are several stakeholders who need to be consulted before conclusions are drawn or communicated to the public.

## **E. Long-term Outcomes**

This project was important and successful in creating more high-resolution data about the SMC watershed. If we are to maintain thriving farm communities and improve water quality in Minnesota, we need to understand the complex intersections of weather, water, land and life. The types of data we collected in this project, combined with the robust historical record of water quality in this watershed, will allow for the best possible analysis of whether voluntary BMP implementation can achieve our water quality goals. While that analysis is not yet complete, it is at least now begun.

In the end, this project supported producers who have already been active in the realms of soil health and BMP

implementation and helped them keep momentum with their work. This project did not lead to new enthusiasm or much wider adoption of BMPs within the watershed. We do not foresee any future core team, stakeholder or science meetings occurring organically, because those were driven entirely by the SWCD, GRG and Gustavus; there has not been an emergence of a charismatic farmer-led collaborative that might sustain future efforts. However, this project did lead to mentoring of other watershed organizations around the state, and in particular has inspired energetic new campaigns in the St. Peter DWSMA and the Rogers Creek watersheds.

## **F. Lessons Learned**

*Pollution reduction:* In recent years, increased precipitation appears to have contributed to increased loading of TSS, nitrate and phosphorus from this watershed. Also, *E. coli* counts remain high and are responsive to high flow events. In these ways, changing climate is influencing pollutant transport and intersecting with policy goals. At the same time, indirect lines of evidence suggest that BMPs in the watershed have prevented some pollution, meaning that pollutant loadings would have been even higher had no action been taken. In other words, voluntary conservation efforts may have to some extent mitigated the effect of higher streamflows. Or, an alternative explanation is that these voluntary efforts were not enough to make a dent in impairments. Further statistical analyses of the data need to be complete before these trends and relationships can be fully understood; subsequent publications will address these issues.

*Stream monitoring:* The high-resolution, season-long stream monitoring required to produce useful datasets is particularly difficult in these small high-order tributaries. We recommend that other watershed groups carefully evaluate their ability to hire and retain adequate technical staff (or consultants) before committing to this type of work.

*Technology:* Present technologies have allowed for new ways of communicating with the public that were not as well established only 5 years ago. During this project, members of the community engaged regularly through videos, social media, webinars, e-newsletters, and other online resources. Although COVID was a significant barrier to the successful implementation of the objectives in this project, in particular the communication and outreach, the partnership still successfully engaged a large number of people via these online technologies, which may actually have a wider impact in the long run.

*Social connections:* Action on the ground still depends on numerous social dynamics that would be largely regarded as traditional or basic. Farmer engagement during this project revealed how valuable, close relationships with neighbors and family can lead to or derail efforts to implement conservation practices or try new crops. We observed successes through pressure-free, peer-to-peer recruitment. Neighbors would describe the financial, agronomic, and environmental benefits and logistical details about how their experiences with new practices and crops worked. These honest interactions combined with the promising new market opportunities, spurred more interest than telling farmers what others around the state are doing or offering funding with the hook of a multi-year contract.

*Financial incentives and support:* Initiatives like the 2013 Clean Water Fund grant, the 2015 Targeted Watershed grant, the USDA Conservation Reserve Program (CRP) and Environmental Quality Incentive Program (EQIP) funds provided large sums of money that helped many farmers add conservation practices to their operations without significant cost to their operating budgets. To some extent, we observed that when those up-front financial incentives waned after the Targeted Watershed grant ended in 2019, the adoption of new practices also waned. However, in several cases farmers actually declined available funds; we intuit that this was because ‘outside’ organizations were seen as saying “here’s the problem and here’s some money to solve it”, rather than landowners and producers themselves saying “here’s the problem I actually have, can you help me get money to solve it?”

*Group of leaders:* We had willing participants, but not a charismatic collaborative of farmers that rose up to lead the producer community. Watershed groups elsewhere that have an enthusiastic farmer-led core appear to have more energy and long-term momentum. Therefore, we recommend that other watershed groups/projects consider including leadership identification and/or leadership development in their work plan.

*Conservation exhaustion:* We observed a certain level of ‘conservation exhaustion’ among farmers in this watershed. We attribute this to the challenges described above combined with: a long progression of government initiatives and grants aimed at this small watershed that had to be distributed over the relatively small number of producers; and, a rotating set of researchers and staff reaching out to farmers over the years, inhibiting long-term relationship-building.

*Mixed messages:* While as a whole most government and educational entities are up-to-date and on-board with soil

health concepts and programs, there are some individuals in those entities and some realms of the region's agricultural industry that are not. Producers can thus get mixed messages, resulting in some individuals being reluctant to try 'new' things.

*Rapid dissemination of findings:* One premise of this project was that the rapid dissemination of findings from the environmental monitoring would inform producer decisions and energize conservation efforts. In this project we were able to provide real-time localized weather data to landowners, which can help them make better decisions about farm operations like nutrient application. However, when it came to rapid dissemination of water quality data there were three main reasons why this was difficult to achieve:

- i. There is an inevitable lag between when data is produced and when it is ready to share with the public. For example, streamflow data is typically reviewed, approved and made 'official' by the state agencies 8-12 months after it's collected. Then, calculating a stream's pollutant load can take additional months of work.
- ii. The variability of weather, and the powerful influence of weather on small flashy streams like Seven Mile Creek, made it almost meaningless to compare one year of data from this project to any other single year or set of years. Multi-year averages or running averages are the only reasonable approach, which means findings cannot be determined and released on a yearly timescale.
- iii. Multiple stakeholders should be consulted before communicating findings to the public. This will help avoid erroneous interpretations of data and poor articulation of goals and outcomes, but it does take additional time to have those larger group conversations.

## **G. Sharing beyond the project**

Some aspects of this project will continue, while others will end with this grant.

### *Continuing*

- GRG and SWCD will continue to work with producers and watershed groups in the region to promote implementation of soil health and water pollution reduction strategies. Specifically, GRG and SWCD are currently working with producers in the neighboring St. Peter DWSMA and Rogers Creek watersheds, and there is some overlap with Seven Mile in terms of land ownership and also the interested public. And of course, SWCD will continue serving producers throughout Nicollet County.
- Gustavus Adolphus staff will continue analyzing data collected in this project and communicate findings to the public through, for example, scientific articles, public-facing reports, and/or website content, etc.

### *Not continuing*

- Monitoring is complete and equipment has been removed
- Currently there are no grants for implementation specific to this watershed
- Currently there are no specific outreach plans for this watershed

## **List of Appendices**

1. Weather station data
2. MN Department of Agriculture nutrient survey
3. Land ownership: Maps and literature report
4. BMPs and implementation projects over 20 years
5. Narrative history of watershed efforts
6. Ravines: Erosion monitoring
7. Additional water quality tables and graphs
8. Groundwater monitoring
9. Bioreactor data
10. Aquatic invertebrates: Monitoring report
11. *E. coli*: Monitoring data
12. Outreach and communication
13. Nine Key Element Plan

## **List of Spreadsheet Submitted**

1. Weather station data

**Section III – Final Expenditures**

**GUSTAVUS ADOLPHUS COLLEGE**

**FINAL INVOICE**

September 21, 2022

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 520 Lafayette Road North  
 St. Paul, MN 55155-4194

Project Manager: Laura Triplett  
 Project Title: Seven Mile Creek Assessment and Implementation  
 Grant Amount: \$475,524.00  
 Retainage Amount: \$41,336.43  
 SWIFT Contract Number: 138146  
 Purchase Order Number: 3000021419  
 Grant Period: 6/25/2018 - 8/31/2022  
 Reporting Period: 7/1/2022 -8/31/2022

Grant	Budget	Expended	Current	Expended	Remaining
		Thru 6/30/2022	7/1/2022 - 8/31/2022	Thru 8/31/2022	Balance
Gustavus Faculty Scientists	154,114.55	143,868.79	11,139.76	155,008.55	(894.00)
Gustavus Staff Technician	44,714.43	44,714.43	-	44,714.43	-
Gustavus Student Technician	49,348.84	49,348.84	-	49,348.84	-
Consultants	9,443.35	9,443.35	-	9,443.35	-
Miscellaneous	50,886.07	51,569.07	150.00	51,719.07	(833.00)
Printing	847.94	447.94	-	447.94	400.00
Travel	7,617.69	7,417.69	-	7,417.69	200.00
Lab Supplies	27,021.34	27,035.33	-	27,035.33	(13.99)
Data Services	263.41	263.41	-	263.41	-
Subawardee (Nicollet SWCD)	49,140.39	44,909.48	3,336.00	48,245.48	894.91
Subawardee (GRG)	82,126.00	76,595.40	5,280.20	81,875.60	250.40
	<u>475,524.00</u>	<u>455,613.73</u>	<u>19,905.96</u>	<u>475,519.69</u>	<u>4.31</u>
<b>Match</b>	-	397,616.59			
Gustavus Faculty Scientists	53,121.68	53,121.68	-	53,121.68	-
Gustavus Student Technician	34,927.57	34,927.57	-	34,927.57	-
Travel	48.47	48.47	-	48.47	-
Subawardees	240,000.00	240,000.00	-	240,000.00	-
	<u>328,097.72</u>	<u>328,097.72</u>	<u>-</u>	<u>328,097.72</u>	<u>-</u>
<b>Totals</b>	<u>803,621.72</u>	<u>783,711.45</u>	<u>19,905.96</u>	<u>803,617.41</u>	<u>4.31</u>

Total Expended Per Grant Above 475,519.69

Amount Due 19,905.96

Please remit payment to:  
 Kelly Waldron, Controller  
 Gustavus Adolphus College  
 800 West College Avenue  
 St. Peter, MN 56082

If you have any questions regarding this invoice, please contact Ben Hylen at (507) 933-7045 or benhylen@gustavus.edu



## Grant project summary

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Project title: Seven Mile Creek Assessment and Implementation

Organization (Grantee): Gustavus Adolphus College

Project start date: 6/18/2018 Project end date: 8/31/2022 Report submittal date: 9/30/2022

Grantee contact name: Laura Triplett Title: Associate Professor

Address: 800 W. College Ave.

City: Saint Peter State: MN Zip: 56082

Phone number: 507-933-7442 Fax: \_\_\_\_\_ Email: [triplett@gustavus.edu](mailto:triplett@gustavus.edu)

Basin (Red, Minnesota, St. Croix, etc.) /Watershed & 8 digit HUC:: Minnesota River-Mankato 07020007 County: Nicollet

### Project type (check one):

- Clean Water Partnership
- Total Maximum Daily Load (TMDL)/Watershed Restoration or Protection Strategy (WRAPS) Development x 319 Implementation
- 319 Demonstration, Education, Research
- TMDL/WRAPS Implementation

## Grant funding

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Final grant amount: \$ 475,524 Final total project costs: \$ 475,519.69

Matching funds: Final cash: \$ 240,000 Final in-kind: \$ 88,097.72 Final Loan: \$ 0

MPCA project manager: Greg Johnson

## For TMDL/WRAPS development or TMDL/WRAPS implementation projects only

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Impaired reach name(s): \_\_\_\_\_

AUID or DNR Lake ID(s): \_\_\_\_\_

Listed pollutant(s): \_\_\_\_\_

303(d) List scheduled start date: \_\_\_\_\_ Scheduled completion date: \_\_\_\_\_

*AUID = Assessment Unit ID*

*DNR = Minnesota Department of Natural Resources*

**Appendix 1: Local weather data**

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Weather stations were installed at the SWCD office in Nicollet, in the northern part of the SMC watershed in Oshawa township, and in the central part of the SMC watershed in Belgrade township. Monthly summaries are included here. Spreadsheets of high-resolution daily data provided separately.

MARCH 2019

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES								
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date	
														INSTANT		ARCHIVE			
														SPEED	DIR	SPEED	DIR		
27	68	42	59	46	50	4.010	0.327	0.00	28.82	29.88	6	359	5	24	202	10	202	27	
28	69	34	49	38	42	16.633	0.983	0.00	29.06	30.13	6	309	4	15	338	9	315	28	
29	71	65	68	44	51	0.000	2.860	0.00	29.06	30.13		--	0	0	--	0	--	29	
30	67	64	65	40	48	0.640	0.175	0.00	29.11	30.18		--	0	0	--	0	--	30	
31	65	64	65	38	47	0.287	0.004	0.00	29.20	30.27		--	0	0	--	0	--	31	
	68	54	61	41	48	5.393	0.870		29.05	30.12	6	334.30	4	< Monthly Avg					
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: Date:											
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.00											
SEA LEVEL PRESSURE: >		MAXIMUM: 30.37		DATE 31		TIME 09:00		MONTHLY TOTAL		HEATING: 21.571		SEASON TO DATE TOTAL		82.277					
		MINIMUM: 29.82		DATE 27		TIME 15:30		DEGREEE DAYS: >		COOLING: 4.350		903.931							

MARCH 2019  
Nicollet, MN USA

APRIL 2019

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	70	65	68	42	49	0.006	2.619	0.00	28.95	30.01		--	0	0	--	0	--	01
02	70	64	68	42	50	0.058	2.656	0.00	28.88	29.94		--	0	0	--	0	--	02
03	70	64	67	42	49	0.092	2.342	0.00	29.09	30.16	0	0	0	1	202	0	--	03
04	69	65	67	42	50	0.008	2.440	0.00	29.11	30.18	0	0	0	9	202	0	--	04
05	70	64	68	43	50	0.031	2.785	0.00	28.91	29.98		--	0	0	--	0	--	05
06	67	65	66	44	50	0.000	0.800	0.00	28.81	29.87		--	0	0	--	0	--	06
07	67	64	65	45	51	0.177	0.435	0.00	28.71	29.77		--	0	0	--	0	--	07
08	71	64	68	48	54	0.108	3.371	0.00	28.75	29.81		--	0	0	--	0	--	08
09	70	67	69	48	54	0.000	3.629	0.00	28.87	29.93		--	0	0	--	0	--	09
10	70	66	68	45	51	0.000	3.158	0.00	28.85	29.91		--	0	0	--	0	--	10
11	71	64	68	41	49	0.108	2.835	0.00	28.46	29.51	0	0	0	8	202	0	--	11
12	71	64	68	42	50	0.123	2.819	0.00	28.45	29.50		--	0	0	--	0	--	12
13	65	64	65	40	48	0.508	0.037	0.00	28.94	30.01		--	0	0	--	0	--	13
14	66	64	65	39	48	0.163	0.250	0.00	28.86	29.92		--	0	0	--	0	--	14
15	71	46	62	41	48	4.560	1.329	0.00	28.73	29.79	6	137	3	24	135	13	135	15
16	68	35	53	37	43	11.933	0.194	0.00	28.84	29.90	2	244	3	13	360	5	292	16
17	54	41	48	43	45	16.644	0.000	1.80	28.63	29.69	2	245	5	24	315	10	338	17
18	55	40	46	40	43	19.367	0.000	0.00	28.82	29.88	6	287	6	21	360	10	338	18
19	61	34	50	37	42	15.437	0.000	0.00	28.96	30.03	3	326	2	13	315	7	292	19
20	80	44	61	41	48	7.642	4.004	0.00	28.73	29.79	6	91	7	26	202	14	202	20
21	85	53	66	49	54	2.669	3.940	0.00	28.67	29.73	4	151	6	21	158	9	180	21
22	53	43	47	43	45	18.319	0.000	0.46	28.90	29.96	6	248	6	30	360	13	22	22
23	65	37	50	40	44	14.517	0.000	0.00	29.05	30.12	1	342	3	13	360	6	202	23
24	75	46	61	44	49	6.567	2.117	0.00	28.77	29.82	6	80	6	29	202	18	202	24
25	70	51	60	42	48	5.927	0.846	0.19	28.78	29.84	7	301	7	30	315	15	338	25
26	58	41	50	32	39	14.596	0.000	0.00	28.96	30.02	8	309	8	25	315	12	315	26
27	50	35	42	34	38	23.458	0.000	0.26	28.93	29.99	2	171	2	20	112	8	112	27
28	49	32	42	33	37	23.108	0.000	0.00	29.04	30.10	7	132	7	31	112	16	135	28
29	59	43	50	39	43	15.027	0.000	0.00	28.95	30.01	2	325	6	21	292	11	292	29
30	48	40	44	40	42	21.475	0.000	0.39	29.08	30.15	2	202	2	16	112	6	112	30
	66	52	59	41	47	8.246	2.130		28.85	29.91	4	224.35	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 1		Precipitation ≥ 0.01 in: 5			Greatest 24 - hr precipitation: 1.80 Date: 16-17					
						Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5			Monthly Total Precipitation: 3.10					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.26		DATE 3		TIME 23:00		MONTHLY TOTAL		SEASON TO DATE TOTAL				
						MINIMUM: 29.30		12		04:30		DEGREEE DAYS: >		HEATING: 222.629		82.277		
												COOLING: 42.606		903.931				

APRIL 2019  
Nicollet, MN USA

MAY 2019

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	46	39	43	39	41	21.904	0.000	0.11	29.00	30.07	3	240	2	11	68	5	45	01
02	54	39	46	41	43	18.783	0.000	0.00	29.09	30.16	3	322	3	16	315	9	338	02
03	64	36	50	41	45	15.333	0.000	0.22	28.99	30.06	5	109	5	28	225	11	158	03
04	70	43	57	42	47	8.881	0.871	0.00	28.85	29.91	2	59	2	16	202	7	202	04
05	64	47	56	41	47	8.717	0.000	0.00	28.79	29.85	4	285	5	18	338	8	338	05
06	58	46	51	33	41	13.556	0.000	0.00	29.04	30.11	6	272	5	21	22	8	360	06
07	64	37	52	35	41	12.733	0.000	0.00	29.16	30.22	2	194	4	16	135	7	338	07
08	56	36	45	40	42	19.919	0.000	1.44	28.84	29.90	5	208	5	22	22	9	45	08
09	54	35	44	37	40	21.387	0.000	0.00	28.90	29.96	8	283	8	26	45	12	360	09
10	60	35	49	35	41	15.975	0.000	0.00	29.07	30.13	2	345	3	16	315	8	315	10
11	63	43	53	39	45	12.342	0.000	0.00	28.89	29.95	7	121	7	28	180	12	202	11
12	60	47	53	40	45	12.410	0.000	0.00	28.82	29.88	5	130	5	18	202	9	135	12
13	66	40	55	39	45	9.817	0.019	0.00	28.88	29.94	3	84	3	19	180	7	202	13
14	74	52	63	51	55	4.185	2.275	0.00	28.84	29.90	5	120	5	22	180	8	158	14
15	80	52	67	50	55	3.840	5.458	0.00	28.83	29.89	1	96	3	18	202	7	202	15
16	83	58	72	54	59	0.527	7.740	0.00	28.63	29.69	3	313	6	25	202	12	202	16
17	68	52	58	48	52	6.808	0.142	0.57	28.75	29.81	4	168	4	24	112	11	112	17
18	59	46	52	49	51	12.567	0.000	0.70	28.59	29.65	5	167	5	26	135	15	112	18
19	48	40	44	41	42	20.942	0.000	0.70	28.74	29.79	6	249	5	25	22	9	360	19
20	61	37	50	40	44	15.019	0.000	0.00	29.08	30.15	2	292	3	19	315	8	315	20
21	58	46	50	43	46	15.144	0.000	0.71	28.86	29.92	5	160	5	29	135	13	112	21
22	61	47	55	49	51	9.942	0.000	0.54	28.53	29.59	9	99	11	37	202	20	202	22
23	60	51	55	48	51	10.265	0.000	0.00	28.96	30.02	5	333	6	22	315	12	292	23
24	73	50	61	56	57	5.998	1.506	0.60	28.80	29.86	7	115	8	27	158	16	135	24
25	69	54	62	52	55	3.415	0.762	0.00	28.82	29.88	6	339	7	21	338	11	202	25
26	73	48	61	49	53	5.338	1.819	0.00	28.99	30.05	0	206	1	12	180	5	135	26
27	63	50	57	54	55	7.787	0.000	1.89	28.74	29.79	4	241	4	26	45	9	22	27
28	64	47	55	51	52	9.821	0.000	0.00	28.76	29.82	2	221	3	15	135	8	112	28
29	72	54	62	55	57	4.625	1.538	0.09	28.71	29.76	1	231	1	11	45	3	22	29
30	79	53	67	54	57	3.015	4.710	0.00	28.71	29.77	1	37	2	11	292	6	202	30
31	89	61	75	57	61	0.479	10.638	0.00	28.72	29.78	4	18	4	19	270	9	248	31
	65	46	56	45	49	10.693	3.123		28.85	29.91	4	195.35	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 11			Greatest 24 - hr precipitation: 1.89 Date: 26-27									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 10			Monthly Total Precipitation: 7.57								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.30		DATE: 7		TIME: 08:30		MONTHLY TOTAL		HEATING: 331.473		SEASON TO DATE TOTAL		82.277				
		MINIMUM: 29.44		DATE: 22		TIME: 07:30		DEGREEE DAYS: >		COOLING: 37.477		903.931						

MAY 2019  
Nicollet, MN USA

**JUNE 2019**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	74	57	66	51	55	1.679	2.642	0.43	28.77	29.83	5	290	5	23	248	10	315	01
02	78	48	65	47	52	4.602	4.140	0.00	28.92	29.98	3	332	3	18	292	9	292	02
03	81	57	69	53	58	1.898	6.142	0.00	28.88	29.94	5	98	5	24	180	12	202	03
04	89	62	70	61	63	0.542	5.431	0.39	28.68	29.73	4	123	6	40	315	17	338	04
05	82	61	72	63	65	0.500	7.454	0.00	28.72	29.77	2	288	3	13	135	6	338	05
06	88	61	75	58	62	0.610	10.419	0.00	28.79	29.85	2	125	2	12	202	5	135	06
07	90	68	80	59	63	0.000	14.915	0.00	28.79	29.85	8	134	8	24	135	12	135	07
08	88	68	78	55	60	0.000	13.333	0.00	28.82	29.87	10	135	9	24	135	13	135	08
09	73	58	65	51	55	1.675	1.381	0.02	28.98	30.04	6	300	8	25	315	13	315	09
10	79	49	65	43	50	4.271	4.742	0.00	29.11	30.18	5	327	5	27	292	12	315	10
11	65	57	60	52	55	4.540	0.000	0.21	28.99	30.05	2	109	3	16	292	10	135	11
12	70	54	61	46	51	4.702	0.896	0.01	28.94	30.00	6	286	6	25	315	11	338	12
13	74	47	62	39	47	5.198	2.544	0.00	28.94	30.01	1	53	3	15	202	8	135	13
14	84	62	74	56	61	0.406	9.006	0.00	28.62	29.68	8	77	9	30	180	13	202	14
15	81	64	69	63	65	0.071	4.254	0.67	28.61	29.66	1	130	3	20	22	9	202	15
16	76	61	67	62	63	1.040	3.254	0.03	28.79	29.85	2	152	2	14	135	8	135	16
17	72	60	65	59	61	1.394	1.390	0.00	28.90	29.96	0	294	3	12	135	8	135	17
18	75	57	67	56	59	1.717	3.252	0.00	28.88	29.94	3	309	2	14	315	6	315	18
19	78	58	68	55	59	1.767	4.785	0.00	28.73	29.78	1	155	1	13	135	6	135	19
20	71	62	66	60	62	0.398	1.348	0.06	28.69	29.74	4	146	3	20	202	8	135	20
21	74	62	67	58	61	0.690	2.546	0.00	28.79	29.85	9	144	9	33	135	18	135	21
22	72	60	67	56	59	0.658	2.190	0.00	28.88	29.94	5	145	5	19	135	10	135	22
23	72	64	68	64	65	0.158	2.694	1.21	28.70	29.75	3	284	2	19	292	9	315	23
24	76	62	67	59	61	1.056	3.467	0.07	28.58	29.64	5	314	5	19	315	10	292	24
25	82	59	71	57	60	0.906	6.944	0.00	28.72	29.77	5	336	6	23	292	12	292	25
26	86	60	73	59	62	0.654	8.996	0.00	28.91	29.97	3	132	3	15	135	7	135	26
27	79	65	72	66	67	0.002	6.783	0.63	28.92	29.99	3	142	4	32	225	14	248	27
28	83	69	76	71	73	0.000	11.048	0.00	28.95	30.01	2	152	2	14	135	8	112	28
29	90	70	80	73	74	0.000	15.340	0.00	28.95	30.02	4	140	4	14	135	8	135	29
30	85	72	79	71	73	0.000	13.933	0.03	28.85	29.91	5	152	6	31	315	14	112	30
	79	60	69	57	61	1.645	6.044		28.83	29.89	4	193.43	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 1 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 11 Precipitation ≥ 0.10 in: 6			Greatest 24 – hr precipitation: 1.27 Date: 23-24 Monthly Total Precipitation: 3.76					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.24 MINIMUM: 29.57		DATE: 10	TIME: 07:30	DEGREEE DAYS: >		HEATING: 41.133 COOLING: 175.267		MONTHLY TOTAL: 82.277		SEASON TO DATE TOTAL: 903.931		

**JUNE 2019  
Nicollet, MN USA**

**JULY 2019**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	76	68	70	68	69	0.000	5.398	2.99	28.87	29.93	1	194	3	30	315	10	315	01
02	81	69	74	70	71	0.000	8.827	0.00	28.79	29.85	1	291	1	10	315	5	338	02
03	86	68	77	71	72	0.000	12.223	0.00	28.76	29.82	3	133	3	14	202	7	135	03
04	84	69	76	70	71	0.000	11.223	0.00	28.79	29.85	1	28	4	16	202	8	202	04
05	81	67	73	69	70	0.000	7.715	0.65	28.93	29.99	2	228	2	20	360	8	360	05
06	80	65	73	65	67	0.000	8.025	0.00	29.04	30.11	3	264	3	12	360	5	360	06
07	83	65	74	65	67	0.000	9.360	0.00	28.99	30.05	2	93	2	12	202	7	202	07
08	85	65	76	66	68	0.000	10.829	0.00	28.90	29.96	6	133	6	20	202	11	135	08
09	83	70	75	68	70	0.000	9.967	0.40	28.74	29.80	6	119	7	22	202	12	135	09
10	79	66	71	64	66	0.000	6.431	0.00	28.80	29.86	7	344	8	32	338	15	315	10
11	81	62	72	64	66	0.229	7.421	0.00	28.96	30.02	2	302	3	15	292	7	338	11
12	86	65	75	68	70	0.000	10.306	0.00	28.83	29.89	4	55	4	19	225	10	202	12
13	84	66	76	69	70	0.000	11.085	0.00	28.91	29.97	2	136	3	14	202	7	202	13
14	91	71	81	73	75	0.000	15.533	0.00	28.91	29.97	5	117	5	18	202	8	202	14
15	91	69	81	73	75	0.000	15.656	0.95	28.75	29.81	7	91	8	27	180	15	202	15
16	84	68	75	70	71	0.000	9.515	0.00	28.78	29.84	3	100	3	21	202	8	202	16
17	83	68	74	70	71	0.000	8.871	0.04	28.75	29.80	4	120	4	24	135	14	135	17
18	89	71	78	74	74	0.000	12.813	0.65	28.60	29.65	2	121	3	21	202	8	202	18
19	94	72	83	78	79	0.000	17.867	0.01	28.58	29.63	3	106	5	23	112	12	135	19
20	78	60	69	65	66	0.606	4.540	1.63	28.77	29.83	3	265	4	40	315	18	315	20
21	80	60	70	62	64	0.858	5.892	0.00	29.00	30.06	3	273	2	12	22	6	360	21
22	77	57	67	56	59	1.710	4.102	0.00	29.14	30.20	4	282	3	14	22	7	338	22
23	80	57	70	60	62	1.137	6.108	0.00	29.14	30.21	3	329	2	11	292	5	315	23
24	81	60	71	61	64	0.848	7.081	0.00	29.07	30.14	3	76	3	19	202	8	202	24
25	74	62	67	62	64	0.344	2.579	0.28	28.97	30.04	6	121	7	24	202	12	135	25
26	86	65	75	69	70	0.000	10.060	0.01	28.88	29.94	6	81	6	19	180	10	202	26
27	85	65	76	67	69	0.008	10.754	0.08	28.92	29.98	2	331	2	19	248	5	338	27
28	77	68	71	68	69	0.000	6.385	0.22	28.80	29.86	4	97	4	22	180	12	202	28
29	75	59	68	62	64	0.538	3.854	0.00	28.87	29.93	7	308	6	25	315	11	315	29
30	75	54	65	55	58	2.900	3.010	0.00	29.05	30.11	1	252	1	10	360	4	360	30
31	79	58	68	59	62	1.754	5.138	0.00	29.07	30.13	4	142	4	14	202	8	135	31
	82	65	73	66	68	0.994	8.664		28.88	29.94	3	178.49	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 10		Greatest 24 - hr precipitation: 3.02 Date: 0-1										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 8		Monthly Total Precipitation: 7.91										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.26		DATE: 23		TIME: 09:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.56		DATE: 19		TIME: 18:00		DEGREEE DAYS: >		HEATING: 10.933		82.277						
										COOLING: 268.569		903.931						

**JULY 2019  
Nicollet, MN USA**

**AUGUST 2019**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	84	60	72	63	66	0.752	7.490	0.00	29.07	30.14	4	136	3	13	135	7	135	01
02	81	64	73	66	68	0.044	8.525	0.00	29.04	30.10	4	141	3	12	112	7	135	02
03	84	67	76	66	68	0.000	10.792	0.00	29.00	30.06	2	120	2	12	202	5	135	03
04	86	65	76	67	69	0.006	10.865	0.00	28.94	30.00	3	92	3	16	202	8	202	04
05	88	70	77	71	72	0.000	12.465	0.00	28.77	29.83	2	16	4	22	360	8	202	05
06	85	61	74	64	66	0.315	9.377	0.00	28.79	29.85	3	347	3	13	292	6	338	06
07	85	65	75	66	68	0.000	10.087	0.00	28.74	29.79	3	353	5	16	315	8	315	07
08	78	55	68	55	58	1.652	4.750	0.00	28.87	29.93	4	314	4	15	292	8	292	08
09	78	53	67	56	59	2.833	4.621	0.00	28.93	29.99	1	66	1	11	202	4	202	09
10	79	62	69	64	66	0.240	4.677	0.32	28.86	29.92	4	149	4	23	135	11	135	10
11	73	64	69	66	67	0.000	3.604	0.00	28.89	29.95	2	278	2	10	22	4	338	11
12	81	63	71	68	69	0.094	6.458	0.00	28.79	29.84	1	284	1	12	292	6	315	12
13	84	63	71	65	67	0.054	6.177	0.00	28.83	29.89	4	335	4	25	292	13	292	13
14	77	62	68	62	64	0.602	3.306	0.02	28.96	30.02	4	309	3	18	292	9	292	14
15	80	60	70	62	64	1.002	5.673	0.10	28.89	29.95	3	183	3	16	202	8	202	15
16	80	61	70	63	65	0.721	5.285	0.00	28.77	29.83	3	260	4	18	202	9	202	16
17	83	60	72	63	65	0.919	7.660	0.03	28.72	29.77	5	131	5	21	135	12	135	17
18	73	58	67	59	62	0.969	2.540	0.94	28.73	29.79	4	300	6	37	315	20	315	18
19	80	54	68	61	63	3.135	5.965	0.00	28.92	29.98	3	137	4	15	202	7	202	19
20	84	67	73	69	70	0.000	8.431	0.51	28.87	29.93	2	158	5	21	202	12	180	20
21	76	60	68	59	61	0.902	3.525	0.00	28.98	30.04	3	319	3	12	338	6	292	21
22	75	53	64	54	57	3.496	2.554	0.00	29.01	30.07	2	359	2	11	22	4	360	22
23	79	53	66	58	60	3.658	4.402	0.00	29.09	30.15	3	121	2	13	202	6	112	23
24	76	59	66	57	60	1.858	3.108	0.00	29.09	30.15	8	126	7	21	135	11	135	24
25	72	60	66	59	61	1.315	2.640	0.01	28.90	29.96	9	130	8	26	112	14	135	25
26	74	61	66	62	63	0.785	1.512	0.83	28.70	29.76	3	148	4	15	112	8	135	26
27	72	55	63	54	57	3.898	1.440	0.02	28.76	29.82	7	275	6	30	315	13	270	27
28	72	54	62	54	57	4.396	1.725	0.00	28.87	29.93	5	282	5	22	292	10	292	28
29	73	55	65	55	58	3.112	2.715	0.00	28.83	29.89	4	292	6	26	315	12	292	29
30	73	48	62	52	55	5.515	2.042	0.00	29.10	30.17	3	316	2	14	270	6	315	30
31	68	56	62	56	58	3.960	0.754	0.00	29.16	30.23	3	126	2	13	112	7	135	31
	79	60	69	61	63	1.778	5.328		28.90	29.96	4	213.11	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 8			Greatest 24 - hr precipitation: 0.97 Date: 17-18									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 4			Monthly Total Precipitation: 2.78								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.28		DATE: 31		TIME: 10:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.53		18		01:30		DEGREEE DAYS: >		HEATING: 46.233		82.277						
								COOLING: 165.165		903.931								

**AUGUST 2019  
Nicollet, MN USA**



**SEPTEMBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	76	56	65	61	62	2.865	3.308	0.00	29.01	30.08	4	145	4	16	202	9	202	01
02	78	63	70	66	67	0.396	5.608	0.00	28.93	29.99	3	105	3	20	180	11	112	02
03	77	60	70	61	64	0.473	5.231	0.00	28.80	29.85	7	314	7	29	292	14	315	03
04	72	49	61	53	56	5.462	1.325	0.00	29.07	30.14	1	323	2	11	315	6	315	04
05	82	56	69	62	64	2.533	6.444	0.00	28.92	29.98	3	149	6	22	180	11	202	05
06	77	59	68	60	63	0.829	3.421	0.00	29.01	30.08	5	318	4	18	315	9	315	06
07	66	56	61	56	58	4.150	0.000	0.01	29.02	30.08	1	352	1	10	338	5	338	07
08	60	55	58	55	56	7.373	0.000	0.24	29.02	30.08	2	99	2	14	112	8	112	08
09	70	58	63	61	62	3.269	0.994	0.15	28.88	29.94	7	119	7	23	112	12	112	09
10	79	65	71	65	67	0.002	6.004	0.00	28.87	29.93	2	257	3	15	202	8	180	10
11	70	62	66	63	64	0.721	1.356	1.54	28.92	29.98	2	16	3	31	135	10	315	11
12	76	59	67	64	65	1.554	3.433	1.46	28.80	29.86	5	127	6	27	112	16	112	12
13	63	53	58	53	55	6.958	0.000	0.00	28.93	29.99	7	267	6	24	292	11	270	13
14	77	50	63	59	60	5.252	3.615	0.00	28.96	30.02	4	131	4	20	135	9	135	14
15	83	57	70	65	66	1.508	6.590	0.00	28.90	29.96	2	134	2	11	180	6	202	15
16	85	61	74	69	70	0.544	9.400	0.00	28.91	29.97	8	120	7	22	112	11	112	16
17	89	71	79	72	73	0.000	14.190	0.00	28.83	29.89	10	123	10	28	180	13	112	17
18	82	64	74	69	70	0.015	9.135	0.29	28.79	29.85	7	147	8	28	180	15	112	18
19	83	61	71	65	67	0.431	6.919	0.00	28.90	29.96	1	142	1	9	180	4	135	19
20	88	68	76	70	71	0.000	11.277	0.00	28.88	29.94	7	126	7	19	180	12	135	20
21	82	64	75	69	71	0.015	9.717	0.03	28.70	29.76	6	156	7	25	202	12	180	21
22	65	54	60	56	57	5.275	0.000	0.00	28.82	29.88	2	291	2	16	292	8	292	22
23	77	50	63	52	55	5.290	3.156	0.00	28.91	29.97	2	247	2	14	270	6	270	23
24	83	58	68	61	63	2.319	4.994	0.72	28.63	29.69	5	176	5	31	180	12	202	24
25	69	48	59	50	53	6.069	0.412	0.00	28.72	29.78	6	288	6	27	292	11	292	25
26	72	44	58	46	50	8.285	0.890	0.00	28.79	29.85	3	182	4	24	202	10	202	26
27	67	50	60	52	55	5.092	0.031	0.00	28.65	29.71	4	309	6	20	180	9	158	27
28	64	44	54	46	49	11.060	0.000	0.04	29.08	30.14	2	13	2	13	338	5	338	28
29	64	50	57	55	55	8.488	0.000	0.30	28.97	30.04	7	113	6	25	135	13	112	29
30	87	58	75	69	70	0.469	10.127	0.13	28.68	29.73	6	179	10	26	180	14	202	30
	75	57	66	60	62	3.453	5.316		28.88	29.94	4	182.26	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 10 Precipitation ≥ 0.10 in: 8			Greatest 24 – hr precipitation: 1.68 Date: 11-12 Monthly Total Precipitation: 4.91					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.21 MINIMUM: 29.52		DATE 28	TIME 11:30	DEGREEE DAYS: >		HEATING: 96.696 COOLING: 127.577		MONTHLY TOTAL	SEASON TO DATE TOTAL			
								24	18:00			82.277		903.931				

**SEPTEMBER 2019**  
**Nicollet, MN USA**

**OCTOBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	58	50	52	51	51	12.869	0.000	0.78	28.91	29.97	5	351	5	22	270	8	292	01
02	51	47	49	47	48	15.954	0.000	0.45	28.97	30.04	3	9	3	15	360	6	360	02
03	49	43	46	42	44	18.992	0.000	0.01	29.18	30.25	7	307	7	25	270	11	315	03
04	53	43	47	41	44	18.237	0.000	0.00	29.30	30.37	4	113	4	21	112	10	112	04
05	60	46	52	48	50	12.896	0.000	1.26	28.81	29.87	4	162	8	26	292	13	135	05
06	66	45	55	43	47	10.419	0.050	0.00	28.94	30.01	6	260	6	29	315	16	292	06
07	69	40	55	41	46	10.827	0.469	0.00	29.06	30.13	2	236	3	15	248	7	270	07
08	72	50	60	44	49	6.277	1.477	0.00	28.89	29.95	8	143	8	32	202	13	180	08
09	73	53	62	48	53	4.610	1.446	0.00	28.81	29.87	10	132	9	30	112	13	135	09
10	62	38	52	50	51	12.975	0.000	0.37	28.76	29.82	2	132	6	23	135	13	135	10
11	40	33	36	30	33	28.925	0.000	0.00	28.80	29.86	10	250	9	34	202	13	248	11
12	38	32	35	29	32	30.054	0.000	0.01	28.68	29.74	8	241	8	26	270	11	248	12
13	44	33	38	32	35	26.860	0.000	0.00	28.80	29.86	7	279	7	23	292	11	292	13
14	52	28	40	33	36	25.152	0.000	0.00	28.93	30.00	2	153	2	15	180	7	180	14
15	52	36	44	39	41	20.708	0.000	0.00	28.85	29.91	6	305	7	26	292	13	292	15
16	47	39	42	37	39	22.888	0.000	0.00	29.07	30.14	5	312	5	22	292	10	315	16
17	61	33	47	38	41	18.481	0.000	0.00	28.91	29.98	6	124	6	21	112	12	135	17
18	73	48	58	44	49	8.010	1.500	0.00	28.59	29.64	12	137	12	38	135	18	135	18
19	68	45	54	41	46	10.952	0.312	0.01	28.63	29.68	3	266	3	18	292	8	180	19
20	65	39	53	38	44	12.390	0.000	0.00	28.74	29.79	5	119	5	23	112	13	112	20
21	56	40	48	45	46	16.994	0.000	1.47	28.24	29.29	2	331	7	39	315	19	315	21
22	50	35	43	36	39	22.419	0.000	0.15	28.55	29.61	16	294	15	40	292	21	292	22
23	45	28	37	32	34	28.167	0.000	0.00	28.91	29.97	3	299	3	16	292	8	315	23
24	46	29	37	29	33	27.821	0.000	0.00	29.29	30.36	3	306	2	13	292	6	292	24
25	57	29	42	31	36	22.794	0.000	0.00	29.17	30.23	7	194	6	25	225	13	202	25
26	56	38	45	31	37	19.954	0.000	0.00	28.77	29.83	6	167	6	21	180	10	180	26
27	45	33	40	33	36	25.454	0.000	0.00	28.90	29.96	7	320	7	23	292	9	315	27
28	37	23	31	21	27	33.996	0.000	0.00	29.09	30.16	3	284	3	20	270	8	292	28
29	39	22	30	20	26	34.681	0.000	0.00	29.24	30.31	3	316	3	15	292	7	338	29
30	35	21	27	18	23	37.119	0.000	0.00	29.30	30.37	2	298	2	12	292	6	315	30
31	38	24	30	20	26	35.398	0.000	0.00	29.08	30.15	2	303	3	13	315	6	315	31
	53	37	45	36	40	20.428	0.876		28.91	29.97	5	230.43	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 8		Precipitation ≥ 0.01 in: 6		Greatest 24 - hr precipitation: 1.59 Date: 21-22										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 6		Monthly Total Precipitation: 4.51										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.49		DATE: 4		TIME: 08:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.11		DATE: 21		TIME: 15:00		DEGREEE DAYS: >		HEATING: 633.273		82.277						
										COOLING: 5.254		903.931						

**OCTOBER 2019**  
**Nicollet, MN USA**

**NOVEMBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	45	32	37	30	34	28.192	0.000	0.06	29.03	30.09	4	275	5	21	292	10	292	01
02	40	29	34	28	32	30.738	0.000	0.00	29.09	30.16	4	299	4	20	292	8	292	02
03	51	30	39	32	35	25.990	0.000	0.01	28.87	29.93	2	216	3	16	202	7	202	03
04	43	29	37	30	34	28.148	0.000	0.01	28.99	30.05	6	310	6	20	338	10	315	04
05	31	19	26	18	23	38.817	0.000	0.00	29.27	30.34	3	290	3	18	315	7	338	05
06	30	17	25	19	23	39.865	0.000	0.12	29.39	30.47	3	345	3	20	338	7	338	06
07	25	2	14	8	13	50.685	0.000	0.00	29.55	30.63	2	274	2	13	270	7	292	07
08	37	13	27	20	25	37.719	0.000	0.00	29.19	30.26	7	173	7	24	225	12	180	08
09	40	25	34	30	32	30.575	0.000	0.00	28.88	29.94	3	286	3	14	292	8	292	09
10	33	18	26	20	24	38.737	0.000	0.00	29.18	30.25	6	352	5	18	360	7	338	10
11	18	8	14	5	11	51.425	0.000	0.00	29.56	30.64	7	335	7	23	292	11	315	11
12	19	2	12	4	10	53.040	0.000	0.00	29.37	30.44	6	176	7	22	225	12	158	12
13	33	19	26	20	24	39.096	0.000	0.00	28.96	30.02	2	242	5	20	180	10	158	13
14	33	19	26	20	23	39.348	0.000	0.00	29.21	30.28	4	275	5	16	338	9	225	14
15	48	24	35	30	33	29.919	0.000	0.00	29.25	30.32	3	136	2	11	158	6	135	15
16	46	35	39	30	35	25.596	0.000	0.00	29.03	30.10	9	159	9	26	180	13	158	16
17	39	32	35	32	34	29.769	0.000	0.05	28.89	29.95	4	305	4	19	292	8	315	17
18	43	31	36	34	35	28.621	0.000	0.04	28.70	29.75	4	155	3	13	158	8	158	18
19	46	33	39	36	37	26.231	0.000	0.00	28.80	29.86	3	304	2	13	292	7	292	19
20	51	35	43	39	41	21.860	0.000	0.11	28.85	29.91	5	141	4	16	135	10	135	20
21	46	19	31	28	30	34.196	0.000	0.29	28.93	29.99	8	330	8	30	292	13	315	21
22	31	16	23	19	22	41.858	0.000	0.01	29.15	30.22	3	226	4	14	202	9	202	22
23	44	26	33	28	31	32.163	0.000	0.00	28.75	29.81	4	240	5	23	202	13	202	23
24	45	30	37	33	35	27.827	0.000	0.00	28.58	29.63	2	229	2	11	202	6	202	24
25	45	36	40	34	37	25.462	0.000	0.00	28.56	29.61	7	283	7	29	292	13	270	25
26	36	30	33	28	31	31.987	0.000	0.06	28.73	29.79	3	21	3	21	360	8	360	26
27	30	26	29	26	28	36.073	0.000	0.13	28.98	30.05	8	333	8	29	338	11	338	27
28	27	23	25	21	24	39.610	0.000	0.00	29.46	30.54	1	102	2	10	360	5	135	28
29	32	27	30	28	29	34.750	0.000	0.25	29.21	30.28	3	118	2	11	135	5	135	29
30	35	32	33	31	32	32.098	0.000	0.17	28.58	29.63	4	90	2	16	90	6	112	30
	37	24	31	25	29	34.346	0.000		29.03	30.10	4	234.03	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 8		Minimum Temp ≤ 32: 26 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 10 Precipitation ≥ 0.10 in: 6			Greatest 24 - hr precipitation: 0.42 Date: 29-30 Monthly Total Precipitation: 1.31					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.72 MINIMUM: 29.44		DATE: 11 TIME: 22:00 30 20:30		DEGREEE DAYS: >			MONTHLY TOTAL: 1030.394 COOLING: 0.000		SEASON TO DATE TOTAL: 82.277 903.931			

NOVEMBER 2019  
Nicollet, MN USA

**DECEMBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	32	14	27	24	26	38.196	0.000	0.00	28.77	29.83	6	353	6	21	338	8	360	01
02	27	4	17	13	16	47.925	0.000	0.00	29.06	30.12	3	199	4	14	202	8	225	02
03	35	18	29	24	27	36.487	0.000	0.00	28.72	29.78	5	273	5	21	292	11	292	03
04	38	22	30	26	29	34.600	0.000	0.00	28.81	29.86	4	281	4	18	292	9	270	04
05	38	20	28	26	27	36.581	0.000	0.00	28.92	29.99	2	296	4	19	270	8	202	05
06	29	14	20	16	19	44.740	0.000	0.00	29.32	30.39	2	272	4	18	292	9	315	06
07	40	24	31	26	29	33.667	0.000	0.00	28.98	30.04	9	181	8	32	202	16	202	07
08	36	25	30	28	29	34.525	0.000	0.00	28.74	29.79	1	277	3	24	225	15	202	08
09	31	-4	13	10	13	51.546	0.000	0.00	28.79	29.85	7	308	7	28	292	12	315	09
10	6	-5	1	-4	-0	64.179	0.000	0.00	29.25	30.32	4	279	4	23	292	9	292	10
11	10	-5	4	-2	3	60.919	0.000	0.00	29.41	30.49	0	306	2	16	360	6	338	11
12	18	4	14	10	13	51.025	0.000	0.00	29.09	30.15	2	349	3	11	338	5	338	12
13	24	3	14	11	13	51.481	0.000	0.00	28.93	29.99	2	237	2	20	338	8	338	13
14	20	-2	6	2	6	58.617	0.000	0.00	28.99	30.06	7	304	7	25	315	9	315	14
15	17	-6	5	1	4	59.890	0.000	0.00	29.13	30.20	3	203	4	16	202	10	202	15
16	27	16	21	17	20	43.894	0.000	0.00	29.19	30.26	4	233	4	14	225	9	225	16
17	25	1	17	13	16	48.023	0.000	0.00	29.16	30.22	4	296	4	16	315	9	292	17
18	22	-6	9	3	7	54.808	0.000	0.00	29.21	30.28	5	159	5	16	225	10	158	18
19	29	15	23	19	21	42.304	0.000	0.00	29.10	30.16	2	156	2	14	202	7	202	19
20	34	20	28	24	26	37.294	0.000	0.00	29.14	30.21	3	200	5	19	202	12	202	20
21	40	15	29	24	27	35.600	0.000	0.00	29.12	30.19	5	186	5	24	225	13	202	21
22	39	30	34	30	32	30.538	0.000	0.00	28.94	30.00	6	190	6	19	202	11	202	22
23	34	25	30	27	29	34.754	0.000	0.00	28.97	30.04	1	97	1	10	135	5	112	23
24	37	29	33	31	32	31.833	0.000	0.00	28.82	29.88	2	149	1	9	158	5	135	24
25	34	30	32	31	32	32.700	0.000	0.00	28.72	29.78	1	40	1	14	22	4	68	25
26	33	26	29	27	28	35.813	0.000	0.00	28.95	30.02	7	280	6	19	270	10	292	26
27	30	25	27	24	26	37.633	0.000	0.00	29.17	30.24	2	220	3	13	202	8	225	27
28	34	27	33	31	32	32.083	0.000	0.27	28.86	29.93	2	107	2	9	112	5	135	28
29	36	31	34	32	33	31.460	0.000	0.24	28.35	29.40	4	148	5	16	158	10	158	29
30	32	18	24	22	23	41.473	0.000	0.01	28.53	29.58	7	300	7	31	292	13	292	30
31	20	11	16	14	15	48.683	0.000	0.00	28.81	29.87	5	293	6	23	292	10	292	31
	29	14	22	19	21	42.686	0.000		28.97	30.03	4	231.43	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 2		Greatest 24 - hr precipitation: 0.49 Date: 28-29										
		Maximum Temp ≤ 32: 17		Minimum Temp ≤ 0: 6		Precipitation ≥ 0.10 in: 2		Monthly Total Precipitation: 0.52										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.59		DATE: 11		TIME: 10:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.35		DATE: 29		TIME: 08:00		DEGREEE DAYS: >		HEATING: 1323.271		82.277						
										COOLING: 0.000		903.931						

**DECEMBER 2019**  
**Nicollet, MN USA**

JANUARY 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	35	16	27	23	26	37.727	0.000	0.00	28.43	29.48	7	188	6	19	225	11	202	01
02	35	30	33	30	31	32.200	0.000	0.00	28.53	29.58	4	290	4	20	315	9	292	02
03	33	20	30	28	29	34.971	0.000	0.00	28.83	29.89	1	287	3	16	22	6	202	03
04	28	16	23	20	22	41.990	0.000	0.00	29.02	30.09	3	195	5	15	158	9	202	04
05	38	19	31	25	28	34.173	0.000	0.00	28.93	29.99	7	288	9	35	270	16	292	05
06	37	18	28	24	26	37.025	0.000	0.00	29.03	30.10	4	233	4	15	292	8	225	06
07	29	4	18	14	17	46.660	0.000	0.00	29.09	30.16	6	299	6	21	315	9	292	07
08	20	-2	8	2	6	57.290	0.000	0.00	29.25	30.33	4	123	4	20	135	11	135	08
09	36	20	27	22	25	37.625	0.000	0.00	28.78	29.84	2	207	7	21	315	12	158	09
10	22	5	15	9	13	50.290	0.000	0.00	29.23	30.30	6	341	6	23	338	8	338	10
11	9	-3	3	-2	2	61.637	0.000	0.00	29.24	30.31	4	359	3	15	360	5	360	11
12	22	3	15	11	14	50.029	0.000	0.10	29.19	30.26	3	131	2	11	135	7	135	12
13	30	12	23	21	23	41.694	0.000	0.00	29.08	30.15	5	151	5	19	135	10	112	13
14	32	13	23	19	22	42.388	0.000	0.00	29.06	30.12	3	289	4	24	292	10	292	14
15	18	-6	8	4	7	56.873	0.000	0.00	29.29	30.36	6	296	6	30	270	12	292	15
16	1	-11	-5	-11	-6	70.487	0.000	0.00	29.80	30.89	2	303	3	19	270	9	292	16
17	26	-2	15	11	14	49.594	0.000	0.01	29.31	30.39	9	145	9	23	135	13	135	17
18	26	-2	8	5	8	56.750	0.000	0.03	29.00	30.07	10	289	11	41	292	17	292	18
19	2	-4	-1	-5	-2	65.998	0.000	0.00	29.54	30.62	7	295	7	29	270	12	292	19
20	12	-5	1	-2	1	63.746	0.000	0.00	29.68	30.77	1	278	1	9	292	4	292	20
21	22	-3	9	5	8	56.113	0.000	0.00	29.29	30.37	9	178	9	35	202	18	180	21
22	35	22	32	30	31	33.013	0.000	0.03	28.88	29.94	7	178	7	21	202	10	180	22
23	33	30	31	30	31	33.654	0.000	0.00	28.96	30.03	1	74	1	9	45	3	180	23
24	31	28	29	27	28	35.723	0.000	0.00	29.00	30.06	4	349	3	14	338	6	338	24
25	32	26	29	25	27	36.248	0.000	0.00	28.96	30.03	4	306	4	15	292	7	338	25
26	29	22	26	24	25	38.729	0.000	0.00	28.92	29.98	2	212	2	10	270	5	202	26
27	28	16	23	21	22	41.983	0.000	0.00	29.06	30.13	3	324	3	13	292	6	292	27
28	17	13	15	12	14	50.250	0.000	0.00	29.16	30.23	2	302	2	13	292	6	292	28
29	20	15	18	16	17	47.096	0.000	0.00	29.21	30.28	1	185	1	11	225	5	202	29
30	28	17	22	20	21	42.829	0.000	0.00	29.10	30.17	5	160	5	11	225	7	158	30
31	32	28	30	28	29	35.194	0.000	0.00	29.00	30.06	4	168	4	13	202	7	158	31
	26	11	19	16	18	45.806	0.000		29.09	30.16	4	239.40	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 3		Greatest 24 - hr precipitation: 0.10 Date: 11-12										
		Maximum Temp ≤ 32: 21		Minimum Temp ≤ 0: 9		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.17										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.97		DATE: 16		TIME: 12:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.33		DATE: 1		TIME: 22:30		DEGREEE DAYS: >		HEATING: 1419.977		82.277						
										COOLING: 0.000		903.931						

JANUARY 2020  
Nicollet, MN USA

FEBRUARY 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	40	22	32	29	31	32.802	0.000	0.00	28.73	29.79	5	221	5	22	225	14	202	01
02	42	31	38	32	35	27.171	0.000	0.00	28.62	29.67	7	294	7	27	270	14	292	02
03	31	21	27	21	25	38.146	0.000	0.00	28.92	29.98	4	359	4	19	22	8	360	03
04	22	11	15	9	13	49.619	0.000	0.00	29.26	30.34	4	360	3	15	360	6	360	04
05	29	9	18	13	17	46.517	0.000	0.00	29.07	30.14	3	183	3	14	225	9	202	05
06	30	12	22	16	20	43.352	0.000	0.00	28.68	29.73	5	164	5	22	202	10	180	06
07	24	-1	16	13	15	49.175	0.000	0.00	28.83	29.89	3	294	4	19	338	8	292	07
08	20	-8	7	1	6	57.908	0.000	0.00	29.11	30.17	4	185	4	15	202	10	202	08
09	25	1	16	13	15	48.683	0.000	0.07	29.06	30.13	2	16	2	12	45	5	22	09
10	30	-1	13	10	12	51.640	0.000	0.03	29.11	30.18	3	215	3	22	202	12	202	10
11	28	12	22	18	21	42.927	0.000	0.00	29.08	30.14	5	235	6	20	225	10	180	11
12	33	-12	15	10	14	49.721	0.000	0.00	28.91	29.98	6	257	9	32	202	19	202	12
13	-3	-19	-12	-19	-13	77.229	0.000	0.00	29.45	30.53	4	308	3	16	292	7	338	13
14	17	-17	4	-2	3	61.031	0.000	0.00	29.26	30.33	9	166	9	29	158	16	180	14
15	36	17	26	21	24	38.644	0.000	0.00	28.94	30.00	4	238	6	26	202	13	202	15
16	27	17	23	17	21	42.392	0.000	0.00	29.05	30.11	2	99	2	9	45	5	135	16
17	35	17	27	24	26	37.721	0.000	0.00	28.89	29.95	1	137	4	14	360	7	158	17
18	20	-0	14	9	12	51.398	0.000	0.00	29.33	30.40	4	302	4	19	315	8	292	18
19	11	-8	1	-5	-0	63.919	0.000	0.00	29.70	30.79	2	301	2	12	292	5	315	19
20	14	-17	1	-5	-0	64.183	0.000	0.00	29.73	30.82	5	214	5	15	202	10	202	20
21	36	10	25	20	23	40.423	0.000	0.01	29.24	30.31	9	209	9	26	202	17	202	21
22	40	16	28	25	27	36.515	0.000	0.01	28.94	30.01	4	181	4	20	202	11	202	22
23	41	21	31	26	29	34.117	0.000	0.00	28.91	29.97	3	281	4	16	292	8	270	23
24	38	19	28	23	26	36.752	0.000	0.00	28.98	30.04	2	7	2	10	45	4	22	24
25	36	22	28	22	26	37.179	0.000	0.00	29.22	30.29	4	344	4	16	22	7	315	25
26	26	9	19	14	17	46.142	0.000	0.00	29.29	30.36	4	307	4	16	315	6	315	26
27	24	12	19	14	17	46.150	0.000	0.00	29.14	30.21	2	326	2	10	360	5	292	27
28	26	12	20	14	18	45.119	0.000	0.00	29.16	30.22	2	348	2	11	338	5	292	28
29	41	14	31	28	30	33.513	0.000	0.00	28.92	29.98	8	172	7	21	158	11	158	29
	28	8	19	14	18	45.865	0.000		29.09	30.15	4	231.79	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 18		Minimum Temp ≤ 32: 29 Minimum Temp ≤ 0: 9		Precipitation ≥ 0.01 in: 2 Precipitation ≥ 0.10 in: 0		Greatest 24 - hr precipitation: 0.07 Date: 8-9 Monthly Total Precipitation: 0.12										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.91 MINIMUM: 29.50		DATE: 20 TIME: 09:00 2 03:30		DEGREEE DAYS: >		HEATING: 1330.085 COOLING: 0.000		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931								

FEBRUARY 2020  
Nicollet, MN USA

MARCH 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	44	33	37	32	35	27.796	0.000	0.00	28.69	29.74	5	269	6	20	202	13	202	01
02	35	28	31	27	30	33.531	0.000	0.00	28.72	29.78	4	244	6	20	292	9	202	02
03	41	30	35	31	33	29.806	0.000	0.00	28.60	29.66	7	280	7	24	292	12	292	03
04	44	23	35	30	33	30.058	0.000	0.00	28.86	29.92	3	160	4	18	225	10	180	04
05	43	29	35	30	33	30.098	0.000	0.00	28.96	30.02	10	294	10	36	292	17	292	05
06	39	23	31	25	29	33.954	0.000	0.00	29.40	30.47	2	160	4	16	270	8	158	06
07	60	34	46	34	39	19.456	0.000	0.00	29.00	30.07	10	174	10	29	202	14	180	07
08	62	36	50	40	44	14.296	0.000	0.00	28.75	29.80	10	190	10	32	202	17	202	08
09	36	28	31	27	29	34.288	0.000	0.00	28.98	30.05	7	321	6	22	292	11	292	09
10	37	22	29	26	28	35.506	0.000	0.00	29.19	30.25	1	257	2	12	292	6	315	10
11	48	31	37	34	36	27.944	0.000	0.22	28.91	29.97	4	166	4	19	202	9	180	11
12	45	32	40	35	37	25.198	0.000	0.00	28.68	29.74	4	317	7	32	270	15	315	12
13	38	28	32	23	28	33.258	0.000	0.00	29.24	30.32	7	312	7	25	315	11	315	13
14	34	24	28	20	24	37.417	0.000	0.00	29.54	30.62	2	22	2	11	360	4	360	14
15	40	22	31	24	28	33.667	0.000	0.00	29.54	30.62	3	159	3	16	202	8	180	15
16	39	27	34	30	32	30.788	0.000	0.00	29.19	30.26	4	246	6	20	292	9	202	16
17	44	28	36	28	32	28.702	0.000	0.00	29.19	30.26	3	256	4	18	270	7	292	17
18	46	36	41	38	39	24.190	0.000	0.00	28.99	30.05	3	138	3	10	158	6	158	18
19	41	32	38	36	37	27.046	0.000	0.88	28.89	29.95	3	13	4	23	45	10	360	19
20	33	20	27	17	23	38.383	0.000	0.00	29.40	30.48	7	342	7	29	292	11	338	20
21	35	20	28	22	26	36.542	0.000	0.00	29.45	30.53	6	150	4	22	202	9	158	21
22	44	31	37	31	34	28.365	0.000	0.00	29.16	30.23	10	162	10	25	202	13	158	22
23	41	31	35	33	34	29.710	0.000	0.06	29.07	30.14	2	197	4	16	180	8	180	23
24	49	37	42	39	41	22.931	0.000	0.00	28.91	29.97	7	152	7	20	180	11	158	24
25	46	36	40	38	39	24.637	0.000	0.13	28.78	29.84	1	330	4	12	158	8	158	25
26	50	30	39	35	37	26.112	0.000	0.00	28.86	29.92	1	355	1	9	360	4	292	26
27	56	37	46	40	43	19.158	0.000	0.00	28.81	29.86	1	80	1	9	360	3	112	27
28	48	33	44	41	42	21.250	0.000	1.07	28.56	29.61	4	38	4	25	45	9	338	28
29	52	33	42	36	39	23.117	0.000	0.13	28.72	29.77	9	331	8	27	292	13	338	29
30	59	29	45	30	36	20.154	0.000	0.01	29.15	30.22	1	18	1	9	360	4	315	30
31	56	32	45	31	37	20.210	0.000	0.00	29.04	30.11	2	106	2	10	135	5	112	31
	45	30	37	31	34	27.986	0.000		29.01	30.07	5	201.27	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 20		Precipitation ≥ 0.01 in: 6		Greatest 24 - hr precipitation: 1.20 Date: 28-29										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 2.50										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.73		DATE: 15		TIME: 07:30		MONTHLY TOTAL: 867.569		SEASON TO DATE TOTAL: 82.277								
		MINIMUM: 29.40		DATE: 28		TIME: 20:30		DEGREEE DAYS: >		HEATING: 0.000		COOLING: 903.931						

MARCH 2020  
Nicollet, MN USA

APRIL 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	55	37	45	39	41	20.429	0.000	0.02	28.91	29.97	7	137	7	19	158	10	135	01
02	60	32	48	41	44	17.135	0.000	0.05	28.87	29.93	4	161	8	22	292	11	158	02
03	32	23	26	22	24	39.098	0.000	0.00	29.13	30.20	9	320	9	25	292	11	338	03
04	45	18	31	21	26	34.208	0.000	0.00	29.22	30.29	2	353	3	18	270	7	338	04
05	57	28	43	31	36	22.204	0.000	0.00	29.06	30.13	5	155	5	19	202	9	180	05
06	60	44	51	44	47	13.965	0.000	0.00	28.81	29.87	7	152	6	16	158	9	158	06
07	74	49	60	50	53	6.667	1.656	0.03	28.62	29.68	0	251	4	18	292	8	158	07
08	55	38	49	34	40	15.754	0.000	0.00	28.79	29.85	7	328	7	31	270	14	315	08
09	40	28	34	24	29	30.617	0.000	0.00	28.95	30.02	8	323	8	33	292	16	315	09
10	50	23	38	23	30	27.038	0.000	0.00	29.00	30.06	3	241	4	25	202	9	202	10
11	62	35	48	29	37	16.990	0.000	0.00	28.70	29.76	1	33	2	19	315	8	360	11
12	46	26	31	27	30	33.615	0.000	0.00	28.81	29.87	7	1	7	27	315	10	338	12
13	34	18	27	19	24	38.242	0.000	0.09	29.03	30.09	8	302	8	26	270	13	292	13
14	31	15	24	16	21	41.383	0.000	0.00	29.12	30.18	4	297	4	22	270	10	270	14
15	35	14	26	17	22	39.177	0.000	0.00	29.14	30.21	3	309	3	18	292	7	292	15
16	45	20	34	22	28	31.188	0.000	0.00	29.22	30.29	3	266	3	19	292	7	292	16
17	50	30	40	25	32	25.285	0.000	0.00	29.01	30.08	3	281	3	19	292	8	292	17
18	70	34	50	34	40	15.758	0.292	0.00	28.67	29.72	6	236	9	27	225	18	202	18
19	52	33	43	25	33	22.108	0.000	0.00	28.84	29.90	4	322	4	16	338	7	360	19
20	66	32	48	32	39	16.804	0.008	0.00	28.66	29.71	6	295	7	38	270	15	270	20
21	52	32	41	24	32	23.690	0.000	0.00	28.91	29.97	2	342	4	14	292	6	338	21
22	78	40	58	38	45	9.702	2.444	0.00	28.63	29.69	2	103	3	23	225	7	135	22
23	69	38	54	41	45	11.933	0.433	0.11	28.64	29.70	2	105	2	14	22	5	45	23
24	67	47	55	45	49	10.452	0.029	0.02	28.82	29.88	0	86	1	19	338	8	315	24
25	68	39	55	42	47	9.921	0.102	0.00	28.94	30.01	1	257	2	30	202	10	225	25
26	70	44	57	43	48	8.329	0.596	0.00	28.98	30.05	2	206	3	20	225	8	225	26
27	77	51	64	37	45	4.565	3.423	0.00	28.80	29.86	2	255	5	20	202	11	180	27
28	61	46	53	43	47	11.954	0.000	0.35	28.69	29.74	3	9	3	25	360	9	360	28
29	64	43	52	42	46	12.771	0.000	0.00	28.88	29.94	6	5	6	22	360	9	360	29
30	70	42	57	34	41	9.192	0.729	0.00	28.91	29.97	2	338	2	12	292	6	292	30
	57	33	45	32	37	20.672	0.971		28.89	29.95	4	215.66	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 2		Minimum Temp ≤ 32: 12 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 7 Precipitation ≥ 0.10 in: 2			Greatest 24 - hr precipitation: 0.35 Date: 27-28 Monthly Total Precipitation: 0.67					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.38 MINIMUM: 29.57		DATE: 4 TIME: 08:00 20 14:00		DEGREEE DAYS: >		HEATING: 620.173 COOLING: 9.712		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931				

APRIL 2020  
Nicollet, MN USA



MAY 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	87	50	67	43	50	4.504	6.535	0.00	28.69	29.75	5	187	8	38	202	16	158	01
02	76	49	64	41	48	3.735	2.971	0.00	28.84	29.89	6	305	6	27	270	11	292	02
03	73	42	59	36	44	7.890	1.804	0.00	28.94	30.00	3	336	3	21	292	8	338	03
04	62	40	52	34	41	13.033	0.000	0.00	28.99	30.06	3	122	3	14	135	6	135	04
05	56	46	50	42	45	14.998	0.000	0.13	28.96	30.03	1	168	3	13	180	6	135	05
06	66	42	54	41	46	10.775	0.008	0.00	29.10	30.17	5	304	5	19	292	8	292	06
07	65	39	53	28	38	11.862	0.000	0.00	29.00	30.06	4	334	4	22	315	7	315	07
08	55	34	45	20	31	19.967	0.000	0.00	29.13	30.20	5	347	5	25	315	9	338	08
09	66	30	46	32	38	18.623	0.012	0.05	29.01	30.07	4	252	6	30	202	15	202	09
10	47	38	43	34	38	22.152	0.000	0.08	29.13	30.20	7	336	6	21	360	9	315	10
11	57	40	47	26	35	17.506	0.000	0.00	29.19	30.26	5	318	5	18	292	8	315	11
12	61	34	48	21	33	16.765	0.000	0.00	29.14	30.21	1	328	2	14	180	5	202	12
13	64	47	53	38	44	11.552	0.000	0.00	28.91	29.98	6	153	6	28	225	13	158	13
14	76	52	62	51	54	5.462	2.054	0.00	28.75	29.81	2	258	3	16	315	7	180	14
15	73	44	59	41	47	7.565	1.544	0.00	28.91	29.97	3	337	3	14	360	6	338	15
16	66	52	57	48	51	8.260	0.000	0.89	28.96	30.03	3	26	3	21	360	7	360	16
17	54	49	52	50	51	13.340	0.000	2.56	28.84	29.90	5	36	5	21	360	7	22	17
18	63	48	57	49	52	8.425	0.000	0.00	28.94	30.01	3	37	2	16	45	6	45	18
19	65	52	59	53	55	6.254	0.000	0.00	28.99	30.06	2	130	1	12	112	7	135	19
20	74	58	64	57	59	3.283	1.946	0.00	29.00	30.07	4	145	4	16	135	8	135	20
21	65	56	60	55	57	5.177	0.000	0.00	28.96	30.02	4	148	4	13	135	7	135	21
22	67	56	61	56	58	3.858	0.177	0.00	28.88	29.94	3	142	2	8	158	4	135	22
23	74	59	65	60	61	2.135	1.775	0.03	28.79	29.84	1	116	1	7	22	3	135	23
24	76	58	66	62	63	2.200	3.194	0.22	28.74	29.80	2	190	3	21	22	8	202	24
25	79	61	69	64	65	0.619	4.342	0.18	28.77	29.83	1	260	1	10	180	4	248	25
26	74	64	67	65	65	0.023	2.085	0.25	28.75	29.81	1	268	3	12	338	7	202	26
27	78	62	69	62	64	0.431	4.056	0.02	28.81	29.87	1	19	1	10	360	4	135	27
28	80	60	69	50	55	0.821	5.240	0.00	28.88	29.94	5	345	4	24	360	10	338	28
29	71	53	61	46	51	4.863	1.146	0.00	29.04	30.10	4	345	4	18	315	7	338	29
30	73	51	62	44	50	4.746	1.848	0.00	29.17	30.24	2	343	1	13	22	5	315	30
31	78	50	65	45	52	4.256	4.696	0.00	29.12	30.19	4	155	4	23	202	9	158	31
	68	49	58	45	50	8.228	2.524		28.95	30.01	3	218.92	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 1		Precipitation ≥ 0.01 in: 10		Greatest 24 - hr precipitation: 3.43 Date: 16-17										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 6		Monthly Total Precipitation: 4.41										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.33		DATE: 11		TIME: 09:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.59		1		17:30		DEGREEE DAYS: >		HEATING: 255.081		82.277						
								COOLING: 45.433		903.931								

MAY 2020  
Nicollet, MN USA

**JUNE 2020**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	93	63	78	62	65	0.135	13.115	0.00	28.77	29.82	7	179	8	31	202	14	180	01
02	94	64	79	64	67	0.019	13.727	0.05	28.70	29.76	1	208	3	18	22	8	202	02
03	87	60	74	57	61	0.756	9.590	0.00	28.76	29.82	1	285	1	11	270	4	292	03
04	89	62	76	57	62	0.290	11.444	0.00	28.67	29.72	0	278	2	13	202	7	202	04
05	84	60	73	53	58	0.808	8.444	0.12	28.82	29.88	3	4	3	18	338	6	338	05
06	81	61	71	49	55	0.500	6.862	0.25	28.95	30.01	2	131	1	25	338	9	135	06
07	93	69	81	63	67	0.000	15.646	0.00	28.72	29.77	9	137	9	21	180	12	135	07
08	97	77	85	66	70	0.000	20.302	0.00	28.60	29.66	8	162	8	34	202	15	202	08
09	84	66	74	63	66	0.000	9.463	0.04	28.49	29.54	0	36	2	20	338	9	338	09
10	74	57	65	52	56	2.150	2.533	0.00	28.63	29.68	8	338	7	27	338	11	338	10
11	82	53	69	49	54	3.029	6.837	0.00	28.98	30.04	4	302	4	23	292	9	315	11
12	86	57	71	52	57	1.337	7.763	0.00	29.14	30.21	1	320	3	15	360	6	338	12
13	75	55	66	50	54	2.448	3.083	0.01	29.14	30.21	3	132	3	13	135	7	135	13
14	82	58	70	50	56	1.729	6.738	0.00	29.07	30.13	8	135	8	23	158	12	135	14
15	90	66	78	57	62	0.000	12.598	0.00	29.01	30.08	8	142	8	22	225	10	135	15
16	92	70	80	62	66	0.000	15.150	0.00	28.98	30.04	7	149	7	26	202	9	158	16
17	91	69	80	60	65	0.000	14.819	0.00	28.87	29.93	7	148	7	20	158	10	135	17
18	84	65	73	65	67	0.008	8.483	0.50	28.81	29.87	3	153	4	27	180	8	202	18
19	77	61	68	61	63	0.658	4.110	0.03	28.94	30.01	2	6	1	12	360	4	22	19
20	77	61	69	59	62	0.348	3.948	0.00	28.85	29.91	1	320	1	9	338	3	360	20
21	85	61	68	62	64	0.783	4.281	1.01	28.72	29.78	2	206	3	24	225	10	202	21
22	77	61	67	59	62	0.904	3.290	0.00	28.79	29.85	1	345	2	11	22	5	292	22
23	78	56	67	56	59	2.013	3.946	0.00	28.83	29.89	3	352	3	16	22	5	338	23
24	82	55	68	56	59	2.740	6.223	0.00	28.81	29.87	2	326	2	14	360	6	338	24
25	85	57	72	59	62	1.567	8.938	0.02	28.81	29.87	2	192	2	15	202	6	202	25
26	86	67	75	67	69	0.000	9.733	0.01	28.75	29.80	2	263	2	13	248	5	270	26
27	87	62	76	62	65	0.275	10.844	0.00	28.72	29.78	0	284	1	9	338	3	360	27
28	83	68	75	67	69	0.000	9.642	1.23	28.59	29.65	2	136	2	27	202	6	135	28
29	82	66	73	70	71	0.000	8.208	6.00	28.63	29.68	4	130	4	23	360	9	135	29
30	87	74	79	74	75	0.000	14.329	0.00	28.68	29.74	4	135	4	15	112	7	135	30
	85	63	73	59	63	1.125	9.136		28.81	29.87	4	197.71	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 7 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≥ 0: 0		Precipitation ≥ 0.01 in: 10 Precipitation ≥ 0.10 in: 6			Greatest 24 – hr precipitation: 7.23 Date: 28-29 Monthly Total Precipitation: 9.27					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.25 MINIMUM: 29.42		DATE: 12	TIME: 09:30	DEGREEE DAYS: >		HEATING: 22.498	COOLING: 274.088	MONTHLY TOTAL: 82.277	SEASON TO DATE TOTAL: 903.931			

**JUNE 2020  
Nicollet, MN USA**

**JULY 2020**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	86	68	77	71	73	0.000	12.442	0.65	28.81	29.86	2	151	2	20	338	6	338	01
02	89	71	80	73	74	0.000	14.579	0.00	28.94	30.01	1	163	0	9	202	3	202	02
03	89	70	79	71	73	0.000	13.833	0.00	28.97	30.03	1	156	0	8	225	3	225	03
04	89	71	81	72	74	0.000	15.652	0.00	28.93	30.00	1	152	0	8	45	2	180	04
05	89	73	81	71	73	0.000	15.738	0.00	28.87	29.93	2	221	2	12	180	6	202	05
06	84	70	76	69	71	0.000	11.485	0.01	28.87	29.93	1	271	2	13	270	6	270	06
07	87	70	78	71	72	0.000	13.306	0.00	28.83	29.88	1	267	1	14	202	6	225	07
08	92	72	81	73	74	0.000	16.306	0.00	28.71	29.77	4	175	4	24	202	12	202	08
09	81	68	74	70	71	0.000	9.479	0.04	28.73	29.79	2	204	2	19	248	7	202	09
10	84	63	75	66	68	0.058	10.106	0.00	28.88	29.94	2	284	2	14	248	5	270	10
11	85	64	73	66	68	0.031	8.042	1.68	28.83	29.89	1	336	1	34	360	9	22	11
12	83	62	73	64	66	0.231	8.090	0.00	28.87	29.93	2	355	1	10	360	4	22	12
13	85	63	75	67	69	0.202	10.558	0.00	28.77	29.83	5	145	4	21	180	10	135	13
14	77	62	71	64	66	0.123	6.569	0.09	28.80	29.86	1	339	3	16	202	6	158	14
15	79	56	68	60	62	1.848	5.119	0.00	28.94	30.00	0	164	0	9	315	3	202	15
16	85	57	72	62	65	1.619	8.696	0.00	28.92	29.98	5	198	5	20	202	11	202	16
17	87	70	79	73	74	0.000	14.071	0.00	28.85	29.91	5	167	5	14	180	8	202	17
18	92	68	81	75	76	0.000	15.842	0.02	28.65	29.70	4	184	6	26	338	13	202	18
19	84	65	75	63	66	0.000	9.987	0.00	28.81	29.87	4	315	4	20	315	8	315	19
20	82	63	72	63	65	0.294	7.492	0.02	28.91	29.98	1	178	1	11	202	5	202	20
21	82	66	72	66	67	0.000	7.362	0.03	28.84	29.90	1	283	3	13	360	7	338	21
22	76	58	66	57	60	2.358	2.919	0.00	28.96	30.02	2	2	2	12	360	5	338	22
23	83	56	70	63	65	2.321	7.623	0.00	29.01	30.07	3	137	2	11	248	5	158	23
24	91	70	81	73	75	0.000	15.602	0.00	28.91	29.97	5	158	5	22	225	8	180	24
25	87	69	80	74	76	0.000	14.650	1.74	28.81	29.87	4	165	5	21	202	8	158	25
26	85	67	74	69	70	0.000	8.846	4.33	28.87	29.94	2	317	3	14	338	6	338	26
27	84	60	73	63	65	0.838	8.567	0.00	28.93	29.99	2	300	2	15	360	5	292	27
28	85	65	75	66	68	0.000	9.948	0.00	28.81	29.87	1	273	2	15	270	7	202	28
29	83	61	73	64	66	0.408	8.267	0.00	28.85	29.91	1	5	1	9	360	3	360	29
30	80	63	71	62	64	0.160	6.331	0.00	28.94	30.00	1	22	1	12	360	5	22	30
31	83	59	72	61	64	0.717	7.488	0.00	28.94	30.01	1	4	0	10	360	3	360	31
	85	65	75	67	69	0.801	10.484		28.86	29.92	2	196.48	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 9			Greatest 24 - hr precipitation: 6.07 Date: 25-26									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 4			Monthly Total Precipitation: 8.61								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.12		DATE: 23		TIME: 09:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.63		18		19:30		DEGREEE DAYS: >		HEATING: 11.208		82.277						
								COOLING: 324.994		903.931								

**JULY 2020  
Nicollet, MN USA**

**AUGUST 2020**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	82	60	71	63	65	0.473	6.415	0.00	28.87	29.93	1	254	1	16	248	4	202	01
02	76	60	68	57	60	1.015	3.542	0.00	28.96	30.02	4	6	3	21	360	7	22	02
03	75	54	64	56	58	3.310	2.492	0.00	29.08	30.15	0	9	0	10	22	3	22	03
04	76	49	64	53	56	4.108	2.910	0.00	29.06	30.13	2	205	1	14	202	5	202	04
05	73	57	65	58	60	2.310	2.254	0.00	28.97	30.04	3	183	3	21	202	12	202	05
06	80	63	71	63	65	0.269	5.942	0.00	28.92	29.98	4	136	4	14	158	7	135	06
07	83	66	74	68	70	0.000	9.177	0.04	28.86	29.92	5	148	4	19	180	8	135	07
08	82	67	74	70	71	0.000	8.985	0.82	28.83	29.89	2	176	3	22	270	8	202	08
09	86	67	77	71	73	0.000	11.531	0.08	28.77	29.83	4	189	5	25	202	12	202	09
10	79	63	71	62	65	0.100	5.608	0.03	28.84	29.90	1	297	3	15	338	7	202	10
11	82	56	70	59	62	1.848	6.573	0.00	28.91	29.97	3	198	3	15	225	8	202	11
12	79	63	70	65	66	0.342	5.256	2.50	28.90	29.97	3	132	3	24	360	9	135	12
13	88	70	77	73	74	0.000	12.317	0.00	28.88	29.94	4	148	4	18	202	8	180	13
14	85	65	76	71	72	0.000	10.654	0.50	28.82	29.88	4	153	5	25	202	9	135	14
15	76	56	67	60	62	1.690	4.173	0.00	28.96	30.02	0	191	2	13	202	7	202	15
16	83	59	72	64	66	0.806	7.729	0.07	28.95	30.02	1	220	1	10	202	5	202	16
17	78	62	70	59	62	0.450	5.504	0.00	29.02	30.09	3	360	3	16	315	7	22	17
18	78	54	67	58	60	2.300	4.367	0.00	29.04	30.10	1	199	0	8	202	3	202	18
19	83	59	71	62	64	1.083	7.227	0.00	28.92	29.98	4	186	4	22	202	10	202	19
20	84	64	73	65	67	0.081	8.350	0.00	28.78	29.84	6	191	6	22	225	12	202	20
21	87	64	76	69	71	0.023	11.090	1.62	28.71	29.77	4	178	4	29	338	10	202	21
22	86	64	74	69	70	0.040	8.983	2.24	28.75	29.80	2	197	2	19	180	10	202	22
23	90	68	78	72	73	0.000	12.663	0.00	28.82	29.88	1	223	1	9	225	5	202	23
24	88	69	77	71	72	0.000	12.283	0.02	28.85	29.91	1	136	2	14	315	7	202	24
25	89	69	79	72	74	0.000	13.860	0.00	28.80	29.86	3	151	2	19	225	8	180	25
26	91	70	80	70	73	0.000	15.265	0.00	28.69	29.75	8	201	7	23	202	12	202	26
27	86	68	77	71	73	0.000	12.083	0.00	28.70	29.75	1	30	1	12	360	4	22	27
28	83	66	74	68	69	0.000	9.156	0.34	28.67	29.72	3	315	5	22	338	8	180	28
29	78	58	67	57	60	1.675	4.010	0.00	28.86	29.92	3	330	2	12	338	5	338	29
30	76	56	65	58	60	2.444	2.794	0.00	28.73	29.79	2	150	2	18	202	6	158	30
31	74	58	65	55	58	2.415	2.106	0.79	28.72	29.78	2	334	3	21	338	7	338	31
	82	62	72	64	66	1.339	7.590		28.86	29.92	3	187.86	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 12			Greatest 24 - hr precipitation: 3.86 Date: 21-22									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 7			Monthly Total Precipitation: 9.05								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.18		DATE: 4		TIME: 00:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.58		31		03:30		DEGREEE DAYS: >		HEATING: 26.781		82.277						
										COOLING: 235.300		903.931						

**AUGUST 2020  
Nicollet, MN USA**

**SEPTEMBER 2020**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	72	56	63	54	57	3.642	1.404	0.01	28.76	29.82	3	181	3	21	225	8	202	01
02	82	53	68	54	58	2.990	6.050	0.00	28.69	29.75	2	219	3	27	202	14	202	02
03	72	54	65	50	55	2.275	2.408	0.00	28.78	29.84	5	312	7	25	225	14	202	03
04	78	48	63	51	55	5.529	3.710	0.00	29.00	30.06	1	275	2	10	270	4	292	04
05	79	51	65	54	57	3.973	4.304	0.00	29.08	30.14	0	209	1	12	338	5	135	05
06	83	62	71	63	65	0.173	6.475	1.00	28.71	29.77	1	165	6	28	202	11	135	06
07	66	48	53	47	50	11.779	0.000	0.16	28.94	30.00	3	359	3	15	360	6	338	07
08	50	46	48	44	45	17.246	0.000	0.00	29.24	30.31	3	8	2	14	338	4	360	08
09	48	41	46	43	44	19.233	0.000	0.04	29.37	30.44	1	8	1	9	360	3	22	09
10	60	38	48	43	45	17.400	0.000	0.01	29.39	30.46	0	24	0	7	22	3	360	10
11	58	46	53	51	51	12.306	0.000	0.37	29.15	30.22	1	128	0	7	135	2	112	11
12	65	55	58	55	56	6.817	0.000	0.03	28.87	29.93	1	267	1	10	270	4	270	12
13	76	48	61	56	58	6.275	2.071	0.00	29.03	30.09	1	262	1	11	202	4	202	13
14	81	55	67	59	61	3.350	5.150	0.00	29.13	30.20	3	175	4	23	202	11	202	14
15	82	60	69	59	62	1.138	5.404	0.00	28.94	30.00	10	202	9	33	202	17	202	15
16	70	50	62	53	56	3.767	0.988	0.00	29.01	30.08	2	345	3	15	22	6	360	16
17	60	44	51	41	45	14.077	0.000	0.00	29.22	30.29	1	16	1	9	315	2	360	17
18	64	41	52	38	43	13.031	0.000	0.00	29.30	30.38	1	130	0	8	180	3	135	18
19	69	46	58	49	52	7.742	0.885	0.00	29.13	30.20	4	147	4	24	202	8	135	19
20	76	54	64	50	55	3.527	2.767	0.00	29.04	30.11	7	154	7	25	180	11	158	20
21	80	58	67	55	58	2.175	3.890	0.00	29.02	30.08	6	183	5	23	202	13	202	21
22	84	59	69	58	61	1.510	5.788	0.00	28.97	30.03	3	171	2	14	202	6	202	22
23	84	59	71	59	62	1.294	6.862	0.00	28.84	29.90	3	159	3	19	202	7	158	23
24	76	59	67	59	62	1.050	2.925	0.34	28.75	29.80	1	98	1	13	225	6	180	24
25	86	60	68	61	63	1.729	5.121	0.00	28.64	29.70	2	174	3	25	202	13	202	25
26	75	56	64	61	62	3.042	1.812	0.00	28.52	29.57	0	111	1	12	360	4	135	26
27	69	52	57	49	52	7.860	0.098	0.10	28.68	29.74	5	280	5	22	270	10	270	27
28	59	50	53	47	49	12.252	0.000	0.03	28.85	29.91	6	335	5	25	338	9	338	28
29	69	44	55	46	49	10.433	0.496	0.00	28.75	29.81	2	241	3	20	202	11	202	29
30	66	50	57	43	48	8.250	0.000	0.00	28.75	29.81	6	321	6	23	270	10	338	30
	71	51	60	52	55	6.862	3.430		28.95	30.01	3	188.66	3	< Monthly Avg				
NUMBER OF DAYS WITH:		> Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 8 Precipitation ≥ 0.10 in: 4		Greatest 24 – hr precipitation: 1.00 Date: 5-6 Monthly Total Precipitation: 2.09										
SEA LEVEL PRESSURE:		> MAXIMUM: 30.52 MINIMUM: 29.42		DATE 10	TIME 10:00	DEGREEE DAYS: >		HEATING: 205.865 COOLING: 68.608	MONTHLY TOTAL 82.277	SEASON TO DATE TOTAL 903.931								

**SEPTEMBER 2020**  
**Nicollet, MN USA**

OCTOBER 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	54	36	48	40	43	17.479	0.000	0.00	29.11	30.17	5	335	5	19	338	8	338	01
02	52	32	43	33	38	22.473	0.000	0.00	29.17	30.24	1	324	1	10	338	4	270	02
03	53	42	45	37	41	19.587	0.000	0.00	29.14	30.21	0	344	0	8	360	2	22	03
04	59	35	47	36	40	18.427	0.000	0.00	29.18	30.25	2	177	2	15	202	8	202	04
05	73	47	58	45	49	8.440	1.454	0.00	28.81	29.87	7	189	7	33	202	17	202	05
06	82	44	63	47	51	6.890	4.450	0.00	28.76	29.81	3	260	3	26	202	9	248	06
07	73	48	61	43	49	5.921	1.640	0.00	28.92	29.98	2	328	2	20	360	7	338	07
08	71	42	57	40	46	9.010	1.010	0.00	29.01	30.08	3	136	2	11	135	7	158	08
09	82	60	69	56	59	0.821	4.442	0.00	28.64	29.69	6	192	6	23	180	12	202	09
10	69	46	57	42	47	8.496	0.292	0.00	28.87	29.93	1	19	1	10	338	3	338	10
11	79	51	63	52	56	5.819	4.100	0.92	28.65	29.70	7	149	7	35	225	15	202	11
12	66	48	56	44	48	9.148	0.023	0.64	28.69	29.75	5	277	7	27	338	13	315	12
13	63	46	54	39	45	11.017	0.000	0.00	28.88	29.94	5	267	6	23	202	12	202	13
14	65	43	53	40	45	11.644	0.000	0.00	28.60	29.65	4	269	9	35	270	15	292	14
15	53	32	41	28	34	24.490	0.000	0.00	29.00	30.06	6	306	6	23	338	10	315	15
16	48	32	39	29	34	26.090	0.000	0.00	29.02	30.09	4	279	4	24	338	10	270	16
17	55	36	44	37	40	20.871	0.000	0.09	28.81	29.87	1	296	5	19	292	8	202	17
18	38	27	32	22	28	32.608	0.000	0.00	29.19	30.26	5	320	5	16	315	8	338	18
19	35	27	32	27	30	33.302	0.000	0.02	29.25	30.32	2	161	1	11	202	5	180	19
20	35	31	32	30	31	32.554	0.000	0.00	29.09	30.16	2	132	2	10	135	6	135	20
21	36	30	34	30	32	31.292	0.000	0.34	29.14	30.21	2	289	2	16	292	7	270	21
22	34	30	33	31	32	31.965	0.000	0.04	29.07	30.14	4	28	4	18	22	6	45	22
23	37	24	32	28	30	32.942	0.000	0.00	29.27	30.34	6	336	6	20	338	8	338	23
24	30	21	26	20	24	39.235	0.000	0.00	29.33	30.40	2	349	2	13	360	5	338	24
25	28	23	26	23	25	38.977	0.000	0.00	29.35	30.42	3	346	2	13	338	6	315	25
26	30	16	23	18	21	42.058	0.000	0.01	29.39	30.47	3	311	3	13	338	6	338	26
27	33	12	23	17	21	41.808	0.000	0.00	29.18	30.25	8	201	8	25	225	15	202	27
28	49	26	36	30	33	28.990	0.000	0.00	28.94	30.00	3	251	5	19	225	11	202	28
29	36	32	33	27	30	32.065	0.000	0.00	29.11	30.18	2	339	3	13	338	5	338	29
30	47	32	38	30	34	27.340	0.000	0.00	29.17	30.24	4	158	4	16	158	9	158	30
31	58	34	44	35	39	21.323	0.000	0.00	28.86	29.92	3	229	10	31	338	18	202	31
	52	35	43	34	38	22.357	2.176		29.02	30.08	4	245.17	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 14		Precipitation ≥ 0.01 in: 6		Greatest 24 - hr precipitation: 1.56 Date: 11-12										
		Maximum Temp ≤ 32: 3		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 3		Monthly Total Precipitation: 2.06										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.51		DATE: 26		TIME: 11:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.46		DATE: 14		TIME: 11:00		DEGREEE DAYS: >		HEATING: 693.079		82.277						
										COOLING: 17.410		903.931						

OCTOBER 2020  
Nicollet, MN USA

**NOVEMBER 2020**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	38	26	31	21	27	34.217	0.000	0.00	29.34	30.41	6	316	7	32	270	13	315	01
02	64	28	44	30	36	21.479	0.000	0.00	29.11	30.18	3	226	4	16	225	9	202	02
03	79	36	55	38	44	12.760	2.504	0.00	28.83	29.89	5	200	4	23	225	14	202	03
04	80	37	56	39	44	11.702	2.365	0.00	28.86	29.92	2	211	2	15	202	7	202	04
05	69	41	54	41	46	11.248	0.360	0.00	29.01	30.08	1	245	2	16	202	9	202	05
06	76	52	62	46	52	5.069	2.456	0.00	28.85	29.91	10	192	9	28	202	15	202	06
07	73	57	63	55	58	3.012	1.398	0.00	28.74	29.80	12	181	12	32	225	16	202	07
08	72	54	64	54	57	2.835	1.802	0.00	28.76	29.82	12	176	11	32	180	16	180	08
09	65	31	47	43	45	17.633	0.002	0.24	28.77	29.82	3	254	8	23	225	12	180	09
10	32	23	28	24	27	36.831	0.000	0.22	28.78	29.83	6	334	6	28	315	12	315	10
11	36	16	26	23	25	38.744	0.000	0.01	28.93	29.99	5	199	5	20	202	11	202	11
12	29	10	22	19	21	42.696	0.000	0.00	29.09	30.16	2	330	2	14	338	7	338	12
13	35	7	23	18	21	42.094	0.000	0.02	29.07	30.14	6	172	5	22	180	11	180	13
14	39	31	35	31	33	30.083	0.000	0.02	28.54	29.59	6	166	6	22	158	11	158	14
15	38	24	31	26	29	33.938	0.000	0.00	28.74	29.79	8	309	8	33	270	15	315	15
16	44	25	32	26	29	33.131	0.000	0.00	29.08	30.15	4	298	5	29	292	12	315	16
17	34	18	28	22	25	37.425	0.000	0.00	29.40	30.48	3	159	3	13	158	8	158	17
18	58	33	45	36	40	19.733	0.000	0.00	28.87	29.93	9	173	9	27	202	13	180	18
19	54	39	46	41	43	19.040	0.000	0.00	28.76	29.81	2	304	2	14	315	7	315	19
20	42	28	35	30	33	29.625	0.000	0.00	29.33	30.41	5	322	4	20	360	8	338	20
21	41	22	31	26	29	34.012	0.000	0.00	29.46	30.53	3	184	2	15	225	9	202	21
22	44	29	36	31	34	29.046	0.000	0.01	29.19	30.26	3	284	6	20	180	10	202	22
23	39	21	30	25	28	34.904	0.000	0.00	29.21	30.28	3	139	3	11	158	8	135	23
24	37	33	36	34	35	29.306	0.000	0.00	28.89	29.95	4	153	4	15	180	9	158	24
25	37	33	35	32	34	28.817	0.000	0.00	28.87	29.93	1	285	2	18	202	9	202	25
26	35	29	33	29	31	32.385	0.000	0.00	28.93	29.99	2	248	4	18	202	9	202	26
27	38	25	31	25	28	34.181	0.000	0.00	29.10	30.17	3	264	4	14	315	7	315	27
28	56	29	39	29	34	25.848	0.000	0.00	28.92	29.98	5	210	4	18	248	9	202	28
29	40	22	31	24	28	33.683	0.000	0.00	29.12	30.19	8	333	8	31	315	13	338	29
30	31	15	22	16	20	43.467	0.000	0.00	29.20	30.27	2	341	1	15	315	7	338	30
	48	29	38	31	34	26.965	1.555		28.99	30.06	5	240.22	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 3		Minimum Temp ≤ 32: 20 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 4 Precipitation ≥ 0.10 in: 2			Greatest 24 – hr precipitation: 0.24 Date: 8-9 Monthly Total Precipitation: 0.52					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.62 MINIMUM: 29.46		DATE: 21 TIME: 01:30 14 15:30		DEGREEE DAYS: >			HEATING: 808.946 COOLING: 10.887		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931			

NOVEMBER 2020  
Nicollet, MN USA

**DECEMBER 2020**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	42	16	26	17	22	38.558	0.000	0.00	29.11	30.18	3	152	3	12	180	7	158	01
02	40	18	28	22	26	36.871	0.000	0.00	29.31	30.39	3	292	2	15	270	7	292	02
03	44	23	32	24	28	33.440	0.000	0.00	29.06	30.12	3	268	2	14	248	6	270	03
04	46	24	34	26	30	31.458	0.000	0.00	28.97	30.03	2	304	1	8	292	4	315	04
05	44	21	32	27	29	33.127	0.000	0.00	29.10	30.17	2	306	1	11	270	4	270	05
06	34	26	32	29	30	33.354	0.000	0.00	29.08	30.15	2	312	2	10	292	5	292	06
07	32	26	31	29	30	34.419	0.000	0.00	29.04	30.11	1	178	1	9	158	4	180	07
08	47	26	35	29	32	30.452	0.000	0.00	28.91	29.97	2	210	2	12	225	6	180	08
09	53	30	39	30	35	26.277	0.000	0.00	28.89	29.95	2	302	2	10	315	6	315	09
10	48	34	39	32	35	25.900	0.000	0.00	28.87	29.93	1	275	5	23	202	11	202	10
11	37	26	32	28	30	32.742	0.000	0.00	29.04	30.10	3	21	3	14	22	5	45	11
12	30	24	28	23	26	37.196	0.000	0.00	29.07	30.13	3	3	3	14	22	6	360	12
13	29	17	25	19	23	40.250	0.000	0.00	29.14	30.21	5	299	5	24	360	11	338	13
14	19	10	15	6	12	50.465	0.000	0.00	29.34	30.42	4	321	4	20	315	9	292	14
15	26	14	20	9	17	44.612	0.000	0.00	29.28	30.35	4	161	3	13	202	7	180	15
16	31	15	23	13	20	41.662	0.000	0.00	29.04	30.11	4	165	4	16	202	7	158	16
17	29	22	26	21	24	39.304	0.000	0.00	29.05	30.11	5	161	5	15	135	8	158	17
18	41	23	33	28	30	32.465	0.000	0.00	28.95	30.01	5	173	7	24	202	12	158	18
19	27	18	21	17	20	44.335	0.000	0.00	29.00	30.06	2	257	5	22	338	10	338	19
20	40	16	31	23	27	34.410	0.000	0.00	28.74	29.80	3	213	4	18	202	10	202	20
21	40	17	32	25	29	32.604	0.000	0.00	28.77	29.82	8	306	8	42	292	17	338	21
22	50	16	35	25	30	30.198	0.000	0.00	28.78	29.83	9	168	8	30	202	16	180	22
23	45	2	25	20	23	40.369	0.000	0.04	28.40	29.44	7	312	12	43	292	20	315	23
24	6	-4	0	-3	-0	64.842	0.000	0.00	29.06	30.12	10	315	10	32	292	15	315	24
25	23	-5	10	7	9	55.444	0.000	0.00	29.02	30.09	3	208	3	22	202	14	202	25
26	26	10	18	16	17	46.881	0.000	0.00	28.94	30.01	1	144	0	7	135	4	135	26
27	25	12	21	19	20	43.879	0.000	0.00	28.89	29.95	2	360	2	15	22	5	360	27
28	25	6	15	12	14	50.333	0.000	0.00	29.34	30.41	3	292	3	18	270	9	270	28
29	23	4	17	15	17	47.762	0.000	0.03	29.19	30.26	5	156	5	15	158	10	202	29
30	25	18	21	19	21	43.590	0.000	0.00	28.96	30.02	8	289	7	26	292	13	292	30
31	25	14	20	17	19	45.058	0.000	0.00	29.16	30.23	5	170	5	16	180	9	158	31
	34	17	26	20	23	39.428	0.000		29.02	30.08	4	228.88	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 30		Precipitation ≥ 0.01 in: 2		Greatest 24 - hr precipitation: 0.04 Date: 22-23										
		Maximum Temp ≤ 32: 16		Minimum Temp ≤ 0: 2		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.07										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.55		DATE: 29		TIME: 02:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.24		DATE: 23		TIME: 11:00		DEGREEE DAYS: >		HEATING: 1222.258		82.277						
										COOLING: 0.000		903.931						

**DECEMBER 2020**  
**Nicollet, MN USA**



JANUARY 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	22	9	15	13	15	49.735	0.000	0.00	29.11	30.18	1	170	1	13	180	7	180	01
02	30	8	18	16	17	46.683	0.000	0.00	29.02	30.08	3	162	2	11	180	6	158	02
03	31	13	21	19	21	43.565	0.000	0.00	28.85	29.91	5	169	4	15	202	8	180	03
04	40	20	29	27	28	35.796	0.000	0.00	28.88	29.94	3	239	5	20	202	11	202	04
05	35	18	28	25	27	37.094	0.000	0.00	29.06	30.13	1	136	1	8	158	5	135	05
06	37	28	32	28	30	32.500	0.000	0.00	29.21	30.29	2	119	1	11	135	5	135	06
07	29	20	26	23	25	39.323	0.000	0.00	29.38	30.46	2	141	1	9	135	6	135	07
08	26	16	20	18	20	44.844	0.000	0.00	29.40	30.47	1	8	1	8	360	2	360	08
09	22	14	17	16	17	47.519	0.000	0.00	29.40	30.48	1	321	1	7	292	3	315	09
10	33	22	28	25	27	36.748	0.000	0.00	29.32	30.39	3	292	4	16	292	6	315	10
11	39	24	29	26	28	35.598	0.000	0.00	29.02	30.09	5	221	5	20	225	10	202	11
12	44	20	30	26	29	34.715	0.000	0.00	28.94	30.00	3	215	2	14	180	8	202	12
13	45	28	35	32	34	29.598	0.000	0.00	28.64	29.70	2	152	2	9	202	6	158	13
14	38	31	34	32	33	30.606	0.000	0.04	28.41	29.46	6	310	7	26	292	11	315	14
15	34	26	32	31	32	32.658	0.000	0.06	28.59	29.64	7	346	7	24	338	10	338	15
16	27	20	22	20	22	42.542	0.000	0.00	28.81	29.87	7	312	6	21	292	9	315	16
17	26	19	23	21	23	41.598	0.000	0.00	28.81	29.87	3	314	2	12	292	6	292	17
18	26	17	22	18	20	43.385	0.000	0.00	28.96	30.03	3	310	3	15	338	6	315	18
19	23	0	14	11	13	50.704	0.000	0.03	29.19	30.26	3	312	4	23	292	10	315	19
20	39	1	25	19	23	39.673	0.000	0.00	28.83	29.89	7	225	9	33	202	20	202	20
21	34	8	25	18	23	39.640	0.000	0.00	28.86	29.92	10	294	10	31	292	14	270	21
22	17	2	10	3	8	55.167	0.000	0.00	29.25	30.32	3	303	2	12	315	6	338	22
23	21	9	16	12	15	48.800	0.000	0.06	29.17	30.24	5	153	4	15	158	8	158	23
24	24	3	17	13	16	48.319	0.000	0.01	29.12	30.18	1	346	1	9	22	4	360	24
25	18	10	15	6	12	50.175	0.000	0.00	29.10	30.16	2	49	2	12	360	5	22	25
26	20	8	13	7	11	51.823	0.000	0.00	29.20	30.27	3	13	2	13	360	5	22	26
27	19	7	12	4	10	52.740	0.000	0.00	29.50	30.58	1	22	0	8	360	3	360	27
28	21	7	15	10	14	49.842	0.000	0.00	29.49	30.57	6	152	5	22	158	10	158	28
29	25	18	22	18	21	43.235	0.000	0.00	29.15	30.22	6	129	6	21	135	12	158	29
30	30	25	28	24	27	36.773	0.000	0.00	28.88	29.94	3	103	4	16	112	9	135	30
31	32	25	29	25	27	36.467	0.000	0.00	29.18	30.25	4	327	4	16	292	7	315	31
	29	15	23	19	21	42.189	0.000		29.06	30.12	4	205.35	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 4		Greatest 24 - hr precipitation: 0.10 Date: 14-15										
		Maximum Temp ≤ 32: 20		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.20										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.68		DATE: 28		TIME: 02:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.40		DATE: 15		TIME: 00:30		DEGREEE DAYS: >		HEATING: 1307.862		82.277						
										COOLING: 0.000		903.931						

JANUARY 2021  
Nicollet, MN USA

**FEBRUARY 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	26	21	23	20	22	41.660	0.000	0.00	29.35	30.43	3	308	3	13	292	6	315	01
02	22	19	20	18	20	44.702	0.000	0.00	29.26	30.33	5	143	4	12	180	7	135	02
03	33	18	26	22	24	39.398	0.000	0.00	28.84	29.90	8	164	7	19	158	12	158	03
04	33	6	17	14	16	47.738	0.000	0.00	28.65	29.70	9	299	8	29	360	13	315	04
05	11	2	6	1	5	58.729	0.000	0.00	28.81	29.86	9	293	9	25	315	12	292	05
06	2	-15	-3	-9	-4	68.150	0.000	0.00	29.18	30.25	7	298	6	24	270	10	292	06
07	-2	-18	-9	-15	-10	73.717	0.000	0.00	29.35	30.43	3	306	3	13	315	6	315	07
08	1	-12	-6	-13	-7	71.488	0.000	0.00	29.40	30.48	2	322	1	10	292	4	292	08
09	9	-10	0	-6	-1	64.544	0.000	0.00	29.42	30.50	3	254	3	18	248	8	270	09
10	10	-10	1	-7	-1	64.263	0.000	0.00	29.49	30.57	2	302	1	14	338	6	315	10
11	0	-10	-5	-11	-6	69.713	0.000	0.00	29.62	30.70	3	339	2	14	292	6	315	11
12	-3	-17	-9	-16	-10	73.587	0.000	0.00	29.64	30.72	3	320	3	15	292	7	315	12
13	0	-15	-6	-14	-7	70.775	0.000	0.00	29.57	30.65	3	315	3	16	292	7	292	13
14	-4	-18	-13	-20	-14	77.869	0.000	0.00	29.72	30.81	4	329	4	15	315	6	315	14
15	-2	-22	-12	-20	-13	77.415	0.000	0.00	29.56	30.64	1	335	1	10	135	4	158	15
16	7	-19	-6	-14	-7	71.046	0.000	0.00	29.29	30.36	1	224	0	8	202	3	158	16
17	10	-0	6	-0	4	59.450	0.000	0.00	29.32	30.40	4	161	4	14	180	7	158	17
18	14	3	10	6	9	54.781	0.000	0.00	29.37	30.45	1	239	1	13	202	5	225	18
19	16	-4	7	2	6	58.179	0.000	0.00	29.30	30.37	1	255	1	11	202	5	202	19
20	24	-3	12	8	11	52.869	0.000	0.00	29.19	30.26	5	155	5	15	202	8	158	20
21	28	22	25	22	24	39.737	0.000	0.06	28.92	29.98	1	126	2	11	180	7	158	21
22	41	20	33	27	30	32.490	0.000	0.00	28.62	29.67	5	243	5	21	270	9	270	22
23	39	28	35	30	33	30.167	0.000	0.00	28.67	29.73	2	232	4	20	292	9	270	23
24	36	25	31	28	30	33.792	0.000	0.00	29.03	30.10	4	306	4	22	292	9	315	24
25	37	22	30	26	28	35.250	0.000	0.00	29.24	30.31	4	216	4	18	225	9	180	25
26	40	29	34	29	32	31.119	0.000	0.00	28.82	29.87	11	186	10	32	180	16	202	26
27	47	28	36	31	34	28.527	0.000	0.00	28.83	29.89	2	207	3	12	180	7	202	27
28	37	20	27	23	26	37.969	0.000	0.09	28.89	29.95	5	315	6	27	292	12	292	28
	18	3	11	6	10	53.897	0.000		29.19	30.26	4	256.80	4	< Monthly Avg				
NUMBER OF DAYS WITH:	>	Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 28		Precipitation ≥ 0.01 in: 2		Greatest 24 - hr precipitation: 0.09 Date: 27-28										
		Maximum Temp ≤ 32: 19		Minimum Temp ≤ 0: 14		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.15										
SEA LEVEL PRESSURE:	>	MAXIMUM: 30.86		DATE	TIME	MONTHLY TOTAL		SEASON TO DATE TOTAL										
		MINIMUM: 29.57		14	12:00	1509.121		82.277										
				22	15:00	DEGREEE DAYS: >		COOLING: 0.000										
								903.931										

**FEBRUARY 2021  
Nicollet, MN USA**

MARCH 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	23	13	19	13	17	45.781	0.000	0.01	29.30	30.38	1	348	3	13	180	8	180	01
02	49	23	35	30	32	29.979	0.000	0.00	28.92	29.98	10	196	10	34	202	21	202	02
03	50	30	39	33	36	26.337	0.000	0.00	29.01	30.07	0	97	1	8	202	3	225	03
04	47	32	38	31	35	26.971	0.000	0.00	29.23	30.30	4	131	3	18	135	10	135	04
05	48	30	37	31	34	27.935	0.000	0.00	29.30	30.37	3	169	2	15	180	8	202	05
06	50	28	38	29	34	27.194	0.000	0.00	29.24	30.31	4	131	4	13	135	7	135	06
07	63	36	48	40	43	17.171	0.000	0.00	29.01	30.08	8	183	8	36	225	22	202	07
08	59	32	46	37	40	19.225	0.000	0.00	29.14	30.20	2	131	2	12	135	7	158	08
09	64	44	53	45	48	11.500	0.000	0.00	28.81	29.87	8	167	7	26	202	12	180	09
10	49	33	41	39	40	24.362	0.000	0.29	28.55	29.60	3	322	4	27	270	14	270	10
11	48	30	37	30	33	28.435	0.000	0.00	29.02	30.09	8	287	8	31	270	17	270	11
12	46	27	35	28	32	29.650	0.000	0.00	29.41	30.49	0	5	1	9	360	3	315	12
13	58	30	43	33	37	21.792	0.000	0.00	29.33	30.41	3	210	3	23	202	12	202	13
14	46	37	41	28	34	22.765	0.000	0.00	29.27	30.34	3	84	3	12	112	5	90	14
15	38	29	31	27	29	34.165	0.000	0.88	29.04	30.11	3	110	3	16	135	8	112	15
16	35	28	31	29	30	34.008	0.000	0.01	28.98	30.04	2	127	1	8	135	5	135	16
17	37	31	34	31	32	31.350	0.000	0.01	29.05	30.11	2	5	2	11	360	4	22	17
18	45	27	35	29	32	30.154	0.000	0.00	29.28	30.35	3	353	3	14	338	5	360	18
19	46	24	36	27	31	29.235	0.000	0.00	29.41	30.48	4	161	3	14	202	7	180	19
20	57	35	44	33	38	20.504	0.000	0.00	29.17	30.24	10	169	10	33	180	14	180	20
21	62	43	51	40	45	14.490	0.000	0.00	28.85	29.91	9	180	10	35	202	17	180	21
22	54	33	45	38	41	20.179	0.000	0.00	28.94	30.00	1	283	2	11	270	6	292	22
23	51	42	46	43	45	19.056	0.000	0.52	28.72	29.78	3	37	3	18	22	6	22	23
24	44	38	41	39	40	24.167	0.000	0.27	28.62	29.67	6	337	6	26	292	10	338	24
25	53	30	42	35	38	23.298	0.000	0.00	28.84	29.90	1	86	1	11	360	3	158	25
26	54	29	41	35	38	24.013	0.000	0.00	28.93	29.99	3	140	3	16	225	7	180	26
27	44	37	41	38	40	24.148	0.000	0.15	28.88	29.94	2	322	4	23	315	11	315	27
28	48	30	39	28	33	26.444	0.000	0.00	29.04	30.10	5	314	6	23	315	10	292	28
29	74	41	56	40	46	10.571	2.029	0.00	28.51	29.56	11	184	12	46	180	18	180	29
30	55	29	37	20	29	27.763	0.000	0.00	28.80	29.86	13	291	13	35	248	18	292	30
31	34	24	28	16	23	37.310	0.000	0.00	29.30	30.38	8	313	8	27	338	11	338	31
	49	31	40	32	36	25.482	2.029		29.03	30.09	5	189.55	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 19		Precipitation ≥ 0.01 in: 5		Greatest 24 - hr precipitation: 0.88 Date: 14-15										
		Maximum Temp ≤ 32: 1		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 2.14										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.56		DATE: 12 12:00		MONTHLY TOTAL		SEASON TO DATE TOTAL										
		MINIMUM: 29.32		DATE: 29 19:30		DEGREEE DAYS: >		HEATING: 789.952										
								COOLING: 2.029										
								903.931										

MARCH 2021  
Nicollet, MN USA

APRIL 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	47	16	32	16	25	32.550	0.000	0.00	29.45	30.53	4	175	3	18	158	8	180	01
02	67	34	50	25	35	15.600	0.183	0.00	29.06	30.12	11	174	11	37	202	18	180	02
03	72	35	55	30	39	11.367	1.315	0.00	28.99	30.05	1	13	3	19	202	10	202	03
04	76	45	60	34	43	7.992	3.331	0.00	28.87	29.93	2	187	4	21	202	10	202	04
05	86	48	69	47	53	4.567	8.246	0.00	28.59	29.64	8	189	8	33	248	19	202	05
06	78	48	61	50	54	5.796	2.181	0.09	28.61	29.66	1	31	3	19	22	7	135	06
07	73	53	60	57	58	5.485	0.969	0.41	28.52	29.57	0	194	3	19	202	8	158	07
08	62	49	53	50	51	11.790	0.000	0.13	28.39	29.44	2	102	4	15	135	9	158	08
09	50	45	47	44	46	17.979	0.000	0.05	28.54	29.59	4	305	5	24	292	10	292	09
10	50	41	45	40	43	19.529	0.000	0.00	28.69	29.74	5	346	5	19	315	7	338	10
11	53	39	46	40	43	19.050	0.000	0.00	28.58	29.63	4	330	4	19	292	8	292	11
12	46	37	42	37	40	22.573	0.000	0.10	28.76	29.82	10	286	9	29	270	15	292	12
13	38	30	34	27	31	30.946	0.000	0.00	29.03	30.09	9	285	9	25	292	14	270	13
14	44	29	36	31	34	29.296	0.000	0.00	29.15	30.22	8	306	7	23	292	9	292	14
15	46	34	40	34	37	24.827	0.000	0.00	29.14	30.21	5	323	5	18	315	8	338	15
16	60	40	49	37	42	16.225	0.000	0.00	29.02	30.08	3	337	3	12	338	5	292	16
17	61	36	47	33	39	17.540	0.000	0.00	28.98	30.04	3	332	3	19	292	7	292	17
18	68	33	48	32	38	16.692	0.071	0.00	28.85	29.91	4	306	5	32	225	10	292	18
19	42	31	36	22	29	29.200	0.000	0.00	28.99	30.05	8	338	8	26	292	11	338	19
20	46	30	36	18	27	28.735	0.000	0.00	29.10	30.16	5	337	5	20	292	8	338	20
21	46	26	36	21	29	28.565	0.000	0.00	29.12	30.19	4	318	5	19	338	8	292	21
22	63	34	50	26	36	15.002	0.000	0.00	28.94	30.00	5	239	5	33	292	11	202	22
23	55	45	49	39	43	15.660	0.000	0.00	28.82	29.87	4	174	4	28	202	10	180	23
24	53	36	43	30	36	22.115	0.000	0.00	28.94	30.00	5	335	5	22	292	8	338	24
25	44	31	39	29	34	26.398	0.000	0.01	28.96	30.02	5	135	5	20	135	11	135	25
26	60	42	51	41	45	14.402	0.000	0.00	28.63	29.68	4	110	4	14	112	8	135	26
27	54	42	47	43	45	18.450	0.000	0.52	28.72	29.78	4	24	4	19	360	7	360	27
28	64	40	49	42	45	15.885	0.000	0.00	28.91	29.97	2	16	2	11	22	4	360	28
29	70	41	56	39	45	9.725	0.756	0.00	28.93	29.99	4	332	4	26	360	10	338	29
30	65	42	55	30	39	9.650	0.000	0.00	29.07	30.14	1	67	3	13	22	9	158	30
	58	38	47	35	40	18.120	2.132		28.88	29.94	4	221.48	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 7		Precipitation ≥ 0.01 in: 6			Greatest 24 – hr precipitation: 0.52 Date: 26-27					
						Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 3			Monthly Total Precipitation: 1.31					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.64		DATE: 1		TIME: 09:30		MONTHLY TOTAL		SEASON TO DATE TOTAL				
						MINIMUM: 29.38		8		15:00		DEGREEE DAYS: >		HEATING: 543.590		82.277		
												COOLING: 17.052		903.931				

APRIL 2021  
Nicollet, MN USA

MAY 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	90	56	73	43	50	2.154	9.973	0.00	28.53	29.58	3	210	5	26	202	11	180	01
02	70	53	63	46	51	2.777	0.690	0.00	28.43	29.48	2	24	2	14	22	5	45	02
03	68	49	58	45	50	7.354	0.158	0.00	28.64	29.69	6	347	5	28	360	10	338	03
04	61	39	50	31	39	14.790	0.000	0.00	28.95	30.01	6	341	5	22	338	8	338	04
05	54	35	44	34	39	20.558	0.000	0.27	29.10	30.17	1	315	1	13	180	5	225	05
06	64	39	51	36	42	13.700	0.000	0.00	29.11	30.17	5	305	4	26	270	8	292	06
07	61	39	50	31	39	14.602	0.000	0.00	29.04	30.10	3	351	3	18	68	6	338	07
08	53	39	47	30	37	18.148	0.000	0.00	29.00	30.06	3	145	3	16	225	10	202	08
09	66	35	52	31	39	13.373	0.008	0.00	28.96	30.03	3	336	3	16	45	7	338	09
10	58	42	49	29	37	15.944	0.000	0.00	29.13	30.19	2	26	2	15	360	6	360	10
11	63	33	50	26	36	15.190	0.000	0.00	29.30	30.38	0	242	1	12	292	5	202	11
12	69	38	55	28	38	10.171	0.575	0.00	29.32	30.39	2	218	2	18	202	6	158	12
13	72	43	59	31	40	7.642	1.615	0.00	29.21	30.29	6	190	6	33	202	12	202	13
14	61	52	57	42	47	8.244	0.000	0.03	29.08	30.15	5	166	5	19	202	10	202	14
15	78	49	64	47	52	5.152	4.042	0.00	28.96	30.02	0	227	3	20	202	8	180	15
16	75	51	63	53	56	4.581	2.733	0.00	28.97	30.04	4	158	4	21	225	9	180	16
17	79	50	65	52	56	3.873	4.121	0.00	29.02	30.08	4	137	3	20	135	8	135	17
18	68	55	62	57	59	3.210	0.196	0.02	28.96	30.02	4	135	3	13	135	7	135	18
19	75	62	67	64	65	0.815	2.796	1.11	28.89	29.95	3	161	3	16	202	7	202	19
20	74	65	69	66	67	0.008	3.900	0.11	28.90	29.97	5	155	5	14	202	7	158	20
21	83	63	72	67	68	0.275	7.092	0.12	29.01	30.07	5	172	5	24	225	12	202	21
22	83	66	75	67	69	0.000	10.021	0.00	29.07	30.14	6	175	6	22	202	12	202	22
23	82	63	73	65	67	0.210	7.917	0.00	28.99	30.05	3	184	3	13	202	7	202	23
24	87	68	77	64	67	0.000	11.906	0.00	28.82	29.88	6	193	6	28	202	15	202	24
25	85	65	75	59	63	0.010	9.656	0.18	28.71	29.76	6	237	7	25	225	13	202	25
26	68	56	61	45	50	4.298	0.204	0.00	29.01	30.08	4	338	4	23	315	9	338	26
27	57	42	48	44	46	16.852	0.000	1.02	29.03	30.10	2	94	2	14	22	4	135	27
28	59	40	49	40	44	16.402	0.000	0.05	29.15	30.22	1	43	1	13	360	4	22	28
29	66	40	54	40	45	10.921	0.000	0.00	29.16	30.23	3	147	3	19	202	6	135	29
30	62	50	56	50	52	9.075	0.000	0.07	29.11	30.17	6	192	6	25	202	11	180	30
31	78	51	65	50	54	4.719	4.254	0.00	29.06	30.13	3	238	4	15	338	9	202	31
	70	49	60	46	50	8.450	4.308		28.99	30.05	4	199.99	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 10			Greatest 24 - hr precipitation: 1.21 Date: 19-20									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 6			Monthly Total Precipitation: 2.98								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.46		DATE: 12		TIME: 08:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.44		1		19:00		DEGREEE DAYS: >		HEATING: 245.048								
								COOLING: 81.856		903.931								

MAY 2021  
Nicollet, MN USA

**JUNE 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	80	50	66	46	52	3.798	5.185	0.00	29.02	30.08	1	302	1	12	360	5	338	01
02	86	58	72	48	54	1.635	8.208	0.00	28.84	29.90	2	227	3	19	225	6	248	02
03	92	66	79	51	57	0.000	13.792	0.00	28.71	29.77	5	241	5	19	225	9	202	03
04	96	71	84	57	62	0.000	18.871	0.00	28.66	29.72	8	204	8	25	202	12	202	04
05	99	71	87	61	66	0.000	21.950	0.00	28.57	29.62	9	199	9	30	225	14	202	05
06	92	72	82	62	66	0.000	17.340	0.00	28.58	29.63	12	193	11	33	180	19	202	06
07	94	72	83	66	70	0.000	18.112	0.00	28.67	29.72	5	188	5	22	202	11	202	07
08	94	72	84	66	69	0.000	19.048	0.00	28.83	29.89	2	169	2	13	225	6	202	08
09	95	71	84	66	70	0.000	18.908	0.00	28.86	29.92	2	159	2	15	202	6	135	09
10	98	72	86	67	71	0.000	21.069	0.00	28.74	29.80	2	187	2	15	180	6	202	10
11	85	67	79	67	69	0.000	13.577	0.49	28.71	29.76	2	245	4	23	360	8	202	11
12	87	64	76	53	58	0.040	10.617	0.00	28.90	29.96	3	325	3	16	360	6	315	12
13	96	60	79	54	60	0.598	14.623	0.00	28.90	29.97	3	252	4	25	248	11	202	13
14	88	63	76	52	58	0.150	10.652	0.00	28.97	30.03	2	5	2	14	22	5	360	14
15	84	61	73	56	60	0.367	8.237	0.00	29.03	30.09	1	33	1	12	338	3	360	15
16	89	61	77	58	62	0.500	12.027	0.00	28.91	29.97	3	136	3	15	202	6	135	16
17	88	68	79	65	68	0.000	14.473	0.00	28.70	29.76	1	178	3	18	180	9	202	17
18	91	59	76	55	60	0.871	11.967	0.00	28.72	29.78	1	296	1	13	225	6	338	18
19	81	60	72	52	57	0.494	7.144	0.00	28.73	29.79	2	330	2	15	22	5	360	19
20	80	61	69	59	62	0.338	4.615	0.02	28.55	29.61	1	264	5	26	338	10	202	20
21	68	51	60	42	48	5.348	0.337	0.00	28.85	29.91	6	342	5	20	292	8	360	21
22	79	51	65	46	51	4.235	4.177	0.00	28.82	29.88	1	165	1	12	225	4	202	22
23	90	57	74	62	65	1.650	11.021	0.00	28.68	29.74	3	152	2	16	202	7	202	23
24	87	66	78	67	70	0.000	13.473	0.00	28.67	29.73	1	258	3	16	202	8	180	24
25	86	63	74	59	63	0.225	9.575	0.00	28.76	29.81	1	78	0	15	22	2	22	25
26	73	66	69	65	66	0.000	3.810	2.29	28.68	29.73	2	2	1	11	360	4	22	26
27	80	64	71	65	67	0.040	6.258	0.01	28.84	29.90	1	283	1	9	202	3	202	27
28	81	64	69	66	67	0.110	4.413	0.58	28.96	30.02	1	161	1	13	338	4	202	28
29	83	66	73	67	68	0.000	8.058	0.07	29.01	30.08	1	267	1	11	202	4	270	29
30	85	61	74	62	65	0.408	9.621	0.00	29.01	30.07	1	353	1	10	360	3	360	30
	87	64	76	59	63	1.224	11.372		28.80	29.85	3	206.53	3	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 11 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 5 Precipitation ≥ 0.10 in: 3			Greatest 24 – hr precipitation: 2.30 Date: 26-27 Monthly Total Precipitation: 3.46					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.14 MINIMUM: 29.47		DATE	TIME	DEGREEE DAYS: >		MONTHLY TOTAL HEATING: 20.806 COOLING: 341.158		SEASON TO DATE TOTAL 82.277 903.931				
								15	11:30									
								20	16:30									

**JUNE 2021  
Nicollet, MN USA**

**JULY 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	89	62	76	65	67	0.294	10.831	0.00	28.98	30.04	1	296	1	10	202	4	270	01
02	83	63	73	59	63	0.169	8.144	0.00	29.01	30.08	1	102	0	9	360	2	112	02
03	86	62	75	64	67	0.394	10.052	0.00	28.91	29.98	3	189	3	13	202	7	202	03
04	91	71	81	69	72	0.000	15.781	0.00	28.73	29.79	9	200	9	30	202	18	202	04
05	94	69	81	71	73	0.000	16.369	0.00	28.80	29.86	1	247	2	11	360	5	202	05
06	82	64	74	70	71	0.008	8.883	0.76	28.85	29.92	1	351	2	21	248	7	270	06
07	72	56	64	58	59	3.206	1.842	0.18	28.93	29.99	3	12	3	14	360	5	360	07
08	73	53	64	57	59	3.354	2.038	0.00	28.92	29.98	0	327	0	9	360	3	315	08
09	71	61	67	64	64	0.515	2.150	1.31	28.91	29.97	1	132	1	7	112	3	135	09
10	75	63	68	64	65	0.335	2.856	0.06	28.91	29.97	0	110	0	9	22	2	135	10
11	81	60	71	62	64	0.975	6.521	0.01	28.96	30.02	1	16	1	10	338	3	360	11
12	80	58	70	61	63	1.025	6.069	0.01	28.97	30.03	1	163	1	10	202	4	135	12
13	83	60	72	64	66	0.813	7.827	0.01	28.92	29.98	3	201	3	14	202	8	202	13
14	71	62	67	65	65	0.165	2.160	0.36	28.88	29.94	0	351	1	10	22	4	22	14
15	79	58	68	61	63	1.490	4.915	0.00	28.94	30.00	1	33	0	9	360	3	360	15
16	81	58	70	60	63	1.285	6.413	0.00	28.95	30.02	1	138	0	9	180	2	135	16
17	83	61	72	64	66	0.752	7.919	0.00	29.04	30.10	1	131	0	7	22	2	135	17
18	83	64	74	65	67	0.029	8.727	0.00	29.12	30.18	1	151	1	11	202	4	180	18
19	87	63	74	66	68	0.235	9.523	0.00	29.09	30.16	1	248	1	10	202	4	248	19
20	88	63	76	69	70	0.123	11.267	0.00	29.02	30.08	2	298	1	10	360	4	270	20
21	85	69	76	69	71	0.000	10.992	0.00	28.98	30.04	1	170	1	13	202	5	202	21
22	86	68	77	69	70	0.000	11.729	0.00	28.91	29.98	4	168	4	23	202	9	202	22
23	90	71	80	72	74	0.000	15.223	0.00	28.82	29.88	6	184	6	20	225	8	202	23
24	90	69	79	69	71	0.000	14.000	0.18	28.81	29.86	2	290	3	16	338	9	202	24
25	88	61	76	64	67	0.406	11.485	0.00	28.90	29.96	1	222	1	11	225	4	225	25
26	87	71	78	71	73	0.000	13.333	0.00	28.87	29.93	5	201	4	22	225	11	202	26
27	92	70	81	74	76	0.000	16.060	0.00	28.84	29.89	3	199	3	18	248	8	202	27
28	94	70	82	76	77	0.000	16.944	0.09	28.82	29.88	3	188	4	21	202	10	202	28
29	84	69	77	69	71	0.000	11.798	0.00	28.93	30.00	3	360	3	12	360	5	315	29
30	74	61	68	62	64	0.242	3.465	0.05	29.06	30.12	1	242	0	13	180	5	248	30
31	85	55	70	61	63	2.392	7.056	0.00	28.98	30.04	2	319	3	14	292	6	338	31
	83	63	74	66	67	0.867	9.109		28.93	29.99	2	201.35	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 5		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 8		Greatest 24 - hr precipitation: 1.35 Date: 9-10										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 3.02										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.21		DATE: 18		TIME: 10:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.74		4		16:00		DEGREEE DAYS: >		HEATING: 18.206		82.277						
										COOLING: 282.371		903.931						

**JULY 2021  
Nicollet, MN USA**

**AUGUST 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	80	57	68	56	59	1.800	4.760	0.00	29.07	30.14	2	360	2	13	360	5	22	01
02	81	54	68	58	60	2.762	5.594	0.00	29.07	30.14	1	260	1	10	225	4	202	02
03	82	58	70	60	63	1.550	6.529	0.00	29.01	30.07	3	208	3	13	202	7	202	03
04	80	60	71	61	64	0.871	6.617	0.00	28.98	30.04	3	186	3	19	202	9	202	04
05	85	67	74	66	68	0.000	8.875	0.00	28.83	29.89	4	187	4	20	225	9	202	05
06	84	61	74	66	68	0.273	8.987	0.00	28.81	29.87	0	6	1	9	22	4	22	06
07	84	70	75	72	72	0.000	9.890	0.32	28.69	29.74	1	131	1	11	135	6	135	07
08	75	70	73	69	70	0.000	7.754	0.02	28.62	29.68	2	180	2	21	225	11	202	08
09	85	64	74	70	71	0.006	9.381	0.00	28.70	29.76	1	126	1	8	180	3	135	09
10	87	68	77	68	70	0.000	12.010	0.00	28.69	29.75	1	221	2	16	202	5	135	10
11	82	66	73	62	65	0.000	8.498	0.00	28.65	29.71	2	280	3	15	338	7	338	11
12	80	59	71	57	60	0.329	6.554	0.00	28.84	29.90	2	297	4	21	338	8	202	12
13	80	53	66	52	56	3.537	4.969	0.00	29.06	30.13	2	312	2	18	270	7	315	13
14	86	51	69	54	58	3.463	7.702	0.00	29.13	30.20	3	191	3	19	225	8	202	14
15	83	59	71	57	61	0.921	7.100	0.00	29.03	30.09	4	158	4	19	225	8	202	15
16	85	60	72	62	65	1.079	8.296	0.00	28.89	29.95	4	144	4	20	225	7	135	16
17	89	63	75	67	69	0.150	10.544	0.00	28.81	29.87	4	143	4	20	202	7	135	17
18	88	68	77	69	71	0.000	12.046	0.00	28.90	29.96	4	138	3	16	202	6	135	18
19	90	68	78	70	71	0.000	13.169	0.00	28.90	29.96	3	139	3	16	202	6	135	19
20	88	71	77	70	72	0.000	12.242	0.63	28.69	29.75	5	141	5	19	158	9	135	20
21	73	58	67	59	61	1.169	3.027	0.00	28.81	29.87	3	296	4	18	292	7	292	21
22	79	51	65	57	59	3.838	3.544	0.10	28.92	29.98	3	133	3	16	135	8	135	22
23	89	65	76	69	71	0.000	10.887	0.00	28.78	29.84	2	148	1	10	202	4	135	23
24	81	65	72	69	70	0.000	7.252	1.85	28.75	29.81	1	114	2	21	90	8	360	24
25	83	63	71	65	66	0.090	6.581	0.00	28.98	30.05	2	343	1	11	292	5	315	25
26	75	60	66	62	63	1.500	2.417	0.07	29.00	30.06	1	71	1	21	22	7	22	26
27	81	67	72	69	70	0.000	7.163	0.51	28.81	29.87	2	138	2	18	225	8	135	27
28	82	66	74	70	71	0.000	8.935	1.00	28.80	29.86	3	166	4	33	202	11	202	28
29	82	63	71	63	65	0.094	6.044	0.17	28.88	29.94	2	284	3	15	292	7	135	29
30	83	57	70	59	62	1.779	6.723	0.00	28.89	29.95	0	257	0	11	202	2	202	30
31	81	60	69	61	63	0.994	5.379	0.00	28.80	29.86	0	77	0	12	360	2	22	31
	83	62	72	63	66	1.379	7.725		28.87	29.93	2	188.25	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 9		Greatest 24 - hr precipitation: 1.85 Date: 23-24										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 6		Monthly Total Precipitation: 4.67										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.26		DATE: 14		TIME: 10:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.60		DATE: 11		TIME: 06:00		DEGREEE DAYS: >		HEATING: 26.204		82.277						
										COOLING: 239.469		903.931						

**AUGUST 2021**  
**Nicollet, MN USA**



**SEPTEMBER 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	78	58	67	59	62	1.915	4.275	0.00	28.92	29.98	3	133	1	10	180	5	135	01
02	68	60	63	59	60	2.108	0.396	0.26	28.95	30.01	2	135	2	9	135	4	135	02
03	67	61	64	62	63	1.444	0.292	0.34	28.85	29.91	1	126	1	11	112	6	135	03
04	79	60	67	59	61	1.625	3.983	0.01	28.87	29.93	2	316	2	15	360	6	338	04
05	81	54	66	56	59	3.744	4.860	0.00	28.84	29.90	2	314	2	15	248	6	292	05
06	83	52	68	57	60	3.750	6.496	0.00	28.79	29.85	3	154	2	16	202	6	135	06
07	79	57	71	58	62	0.781	6.290	0.00	28.70	29.75	3	316	4	22	292	9	202	07
08	76	55	64	53	56	4.102	3.127	0.00	28.87	29.93	3	325	3	21	338	7	338	08
09	77	49	63	52	55	5.377	3.037	0.00	28.96	30.02	0	305	0	10	338	3	270	09
10	83	54	68	58	61	3.088	6.315	0.00	28.85	29.92	3	171	3	19	202	8	180	10
11	81	62	70	62	64	0.383	4.885	0.00	28.78	29.84	1	4	2	12	338	4	202	11
12	72	56	62	51	55	3.567	1.067	0.00	28.96	30.03	2	9	1	21	22	5	22	12
13	77	50	64	58	60	4.858	3.856	0.38	28.86	29.92	1	145	2	22	248	7	270	13
14	73	55	62	56	58	4.142	1.162	0.00	28.82	29.88	3	308	3	15	338	7	338	14
15	80	48	65	52	56	5.175	4.731	0.00	28.89	29.95	3	162	3	20	202	9	202	15
16	90	65	77	62	66	0.000	11.810	0.00	28.71	29.76	9	171	8	37	225	14	180	16
17	77	50	63	52	55	4.073	2.437	0.24	29.01	30.07	2	307	3	56	202	12	202	17
18	80	46	64	52	55	6.383	5.390	0.00	29.04	30.10	4	142	3	18	202	7	135	18
19	90	69	79	65	68	0.000	13.546	0.00	28.76	29.82	7	164	7	30	225	13	180	19
20	76	56	66	61	63	2.406	3.623	0.27	28.65	29.71	2	218	6	22	22	9	202	20
21	69	47	57	48	51	8.540	0.560	0.00	29.13	30.20	4	323	3	19	360	7	315	21
22	71	42	56	44	48	10.288	0.871	0.00	29.21	30.28	0	332	0	12	315	3	225	22
23	76	45	60	44	49	7.302	2.454	0.00	28.97	30.03	3	153	3	20	225	8	135	23
24	68	45	56	45	49	8.727	0.100	0.06	28.84	29.90	1	351	3	21	22	8	22	24
25	74	39	56	37	43	11.052	1.683	0.00	28.89	29.95	2	275	2	19	180	7	270	25
26	89	53	69	53	57	3.677	7.535	0.00	28.66	29.71	3	189	3	18	180	9	202	26
27	82	57	67	55	58	2.669	4.681	0.00	28.74	29.79	1	19	1	10	22	4	22	27
28	86	55	69	55	59	2.750	6.565	0.00	28.82	29.88	5	138	4	16	158	8	135	28
29	87	61	72	60	63	0.638	7.956	0.00	28.86	29.92	4	146	4	16	158	9	135	29
30	78	63	68	63	65	0.275	3.573	0.10	28.98	30.05	2	160	2	18	202	8	202	30
	78	54	65	55	58	4.101	4.252		28.87	29.93	3	200.38	3	< Monthly Avg				
NUMBER OF DAYS WITH:		> Maximum Temp ≥ 90: 1 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 7 Precipitation ≥ 0.10 in: 5		Greatest 24 – hr precipitation: 0.59 Date: 2-3 Monthly Total Precipitation: 1.66										
SEA LEVEL PRESSURE:		> MAXIMUM: 30.36 MINIMUM: 29.58		DATE 22	TIME 10:30	MONTHLY TOTAL DEGREEE DAYS: >		HEATING: 114.838 COOLING: 127.558	SEASON TO DATE TOTAL 82.277 903.931									

**SEPTEMBER 2021**  
**Nicollet, MN USA**

OCTOBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	78	64	68	65	66	0.146	3.571	0.95	28.95	30.02	1	166	2	12	225	5	202	01
02	66	62	64	63	63	0.960	0.094	0.28	28.85	29.91	2	276	2	12	270	5	202	02
03	76	53	63	53	56	4.552	2.323	0.00	28.88	29.95	3	342	2	16	270	6	338	03
04	76	47	61	52	54	6.658	2.381	0.00	29.02	30.09	1	42	0	8	22	2	22	04
05	76	48	62	55	57	5.681	2.802	0.00	29.15	30.22	3	147	2	14	135	5	158	05
06	73	54	63	58	60	3.723	1.760	0.00	29.11	30.18	3	148	2	11	158	6	135	06
07	73	60	65	62	63	1.273	1.631	0.00	28.99	30.05	1	139	1	9	158	5	158	07
08	78	62	68	62	64	0.994	3.535	0.00	28.87	29.93	2	143	2	9	135	5	135	08
09	79	61	71	62	64	0.810	6.325	0.00	28.63	29.68	6	141	6	23	135	12	135	09
10	72	51	61	55	57	4.117	0.490	0.00	28.48	29.53	6	224	6	27	202	14	202	10
11	74	45	57	45	49	9.419	1.344	0.00	28.65	29.70	1	328	1	13	22	5	338	11
12	65	50	57	51	53	7.977	0.000	0.00	28.87	29.93	1	321	1	9	292	3	292	12
13	70	52	58	51	53	7.717	0.321	0.29	28.59	29.64	7	163	8	31	202	15	158	13
14	57	44	49	41	44	15.506	0.000	0.00	28.77	29.83	5	247	5	26	225	12	202	14
15	55	38	45	38	41	19.627	0.000	0.00	28.92	29.98	3	274	2	19	270	8	270	15
16	66	34	48	36	41	16.583	0.010	0.00	29.03	30.09	3	281	3	16	270	7	270	16
17	72	36	53	41	45	12.713	1.117	0.00	29.04	30.11	2	217	2	21	225	7	202	17
18	78	48	61	44	49	6.756	3.000	0.00	28.89	29.95	5	161	5	25	225	11	180	18
19	74	51	61	48	52	5.894	1.623	0.00	28.83	29.89	3	166	3	16	202	9	202	19
20	58	48	54	51	52	11.317	0.000	1.36	28.79	29.85	1	27	1	14	360	5	135	20
21	52	36	45	40	42	20.254	0.000	0.25	29.01	30.08	4	348	4	18	360	7	360	21
22	50	34	40	34	37	24.854	0.000	0.00	29.05	30.12	1	344	0	9	360	3	338	22
23	52	30	41	33	37	24.494	0.000	0.00	29.01	30.07	1	119	0	9	158	3	135	23
24	47	37	43	35	39	22.146	0.000	0.00	28.90	29.96	2	50	1	13	45	4	45	24
25	53	34	43	33	38	21.808	0.000	0.00	29.06	30.13	1	55	1	10	45	4	45	25
26	58	40	49	38	42	16.488	0.000	0.00	28.92	29.98	9	139	8	29	158	16	158	26
27	52	47	50	45	47	15.219	0.000	0.82	28.71	29.77	7	149	6	24	180	12	135	27
28	49	46	47	46	47	17.585	0.000	0.77	28.74	29.80	2	6	2	16	315	6	360	28
29	58	41	48	42	44	17.475	0.000	0.00	28.90	29.96	4	345	3	16	338	6	360	29
30	62	33	46	40	42	19.279	0.000	0.00	28.80	29.86	3	296	3	23	315	10	315	30
31	48	30	39	32	36	25.856	0.000	0.00	29.11	30.17	6	315	5	24	292	10	338	31
	65	46	54	47	49	11.867	2.020		28.89	29.95	3	197.37	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 2		Precipitation ≥ 0.01 in: 7		Greatest 24 - hr precipitation: 1.61 Date: 20-21										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 7		Monthly Total Precipitation: 4.72										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.29		DATE: 31		TIME: 23:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.43		DATE: 13		TIME: 16:30		DEGREEE DAYS: >		HEATING: 367.881		82.277						
										COOLING: 32.327		903.931						

OCTOBER 2021  
Nicollet, MN USA

**NOVEMBER 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	45	28	34	27	31	30.540	0.000	0.00	29.29	30.36	4	302	3	19	270	8	315	01
02	42	26	33	25	29	32.083	0.000	0.00	29.36	30.44	2	327	1	13	360	5	338	02
03	48	24	35	27	31	30.171	0.000	0.00	29.29	30.37	3	157	2	15	158	8	158	03
04	52	31	40	36	38	24.625	0.000	0.00	29.13	30.20	4	175	4	19	202	9	202	04
05	62	39	49	41	44	16.002	0.000	0.00	28.91	29.97	11	183	11	37	202	20	202	05
06	71	41	54	42	46	11.940	0.806	0.00	28.91	29.97	4	212	4	22	202	13	202	06
07	63	46	53	47	49	12.231	0.000	0.00	28.81	29.87	4	171	4	19	202	10	202	07
08	58	42	48	37	42	17.044	0.000	0.00	29.09	30.16	3	347	3	14	22	6	360	08
09	56	35	43	30	36	22.190	0.000	0.00	29.19	30.26	0	338	0	7	202	3	315	09
10	54	37	45	38	42	19.533	0.000	0.63	28.83	29.89	4	142	4	19	158	11	158	10
11	46	34	39	35	37	25.735	0.000	0.04	28.51	29.56	9	290	9	30	270	15	292	11
12	37	31	33	30	32	31.738	0.000	0.01	28.72	29.77	10	315	10	27	292	12	292	12
13	36	29	31	28	30	33.950	0.000	0.00	28.89	29.95	4	255	7	28	270	14	202	13
14	33	27	30	24	28	35.242	0.000	0.00	28.96	30.02	6	327	6	32	292	16	315	14
15	43	28	33	28	31	31.927	0.000	0.00	28.98	30.05	3	130	3	12	158	6	135	15
16	52	30	40	36	38	24.590	0.000	0.00	28.66	29.71	6	160	9	33	158	21	158	16
17	42	27	36	26	31	29.419	0.000	0.00	28.92	29.98	10	291	10	34	270	18	292	17
18	34	20	28	19	24	37.238	0.000	0.00	29.24	30.31	8	306	8	30	292	14	315	18
19	42	19	35	23	29	19.615	0.000	0.00	29.07	30.13	8	164	8	32	180	16	158	19
20	46	31	36	27	32	28.573	0.000	0.00	29.06	30.12	1	281	2	18	180	8	180	20
21	37	20	30	21	26	35.246	0.000	0.00	29.17	30.24	7	308	8	39	338	17	315	21
22	37	15	26	15	21	39.387	0.000	0.00	29.18	30.25	2	193	2	14	248	6	202	22
23	58	26	42	28	34	23.479	0.000	0.00	28.76	29.82	8	170	8	25	202	13	180	23
24	49	18	38	29	33	27.156	0.000	0.00	28.80	29.86	5	317	8	28	292	12	338	24
25	25	11	17	7	14	48.073	0.000	0.00	29.36	30.44	6	329	6	26	315	12	338	25
26	36	17	28	15	23	36.727	0.000	0.00	28.98	30.04	7	159	7	21	180	10	158	26
27	46	28	36	27	32	28.869	0.000	0.00	28.87	29.94	4	319	4	16	270	8	338	27
28	41	18	31	16	25	34.204	0.000	0.00	29.10	30.17	2	293	3	13	270	7	292	28
29	58	34	43	32	37	22.319	0.000	0.00	28.80	29.86	3	256	6	21	292	11	202	29
30	48	28	38	28	33	26.731	0.000	0.10	29.02	30.08	1	304	3	14	360	6	315	30
	47	28	37	28	33	27.886	0.806		29.00	30.06	5	250.59	6	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 1		Minimum Temp ≤ 32: 22 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 3 Precipitation ≥ 0.10 in: 1			Greatest 24 - hr precipitation: 0.67 Date: 10-11 Monthly Total Precipitation: 0.78					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.52 MINIMUM: 29.47		DATE: 25 TIME: 10:30 01:00		DEGREEE DAYS: >			MONTHLY TOTAL: 836.575 COOLING: 0.806		SEASON TO DATE TOTAL: 82.277 903.931			

**NOVEMBER 2021**  
**Nicollet, MN USA**

**DECEMBER 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	56	34	45	39	42	20.279	0.000	0.10	28.68	29.74	4	241	5	26	270	12	292	01
02	52	37	43	37	40	21.833	0.000	0.01	28.87	29.93	4	311	3	20	270	9	292	02
03	47	31	38	35	36	26.638	0.000	0.00	29.05	30.12	2	335	2	13	360	6	338	03
04	33	30	32	25	29	33.367	0.000	0.00	29.25	30.33	2	316	3	14	270	8	135	04
05	41	25	34	24	29	31.460	0.000	0.00	28.72	29.78	4	253	11	39	292	18	292	05
06	25	4	10	1	8	55.110	0.000	0.00	29.20	30.27	10	311	10	40	292	18	315	06
07	17	1	12	7	11	53.158	0.000	0.00	29.07	30.14	3	139	3	12	135	7	158	07
08	26	-4	10	6	9	54.644	0.000	0.00	28.95	30.02	3	145	3	19	135	11	158	08
09	42	26	33	27	30	32.192	0.000	0.00	28.64	29.70	3	188	6	25	158	14	158	09
10	30	25	28	25	27	37.131	0.000	0.44	28.77	29.82	3	19	3	23	338	10	360	10
11	28	14	23	19	22	41.746	0.000	0.00	28.76	29.82	4	263	5	20	315	8	360	11
12	35	20	28	21	25	37.400	0.000	0.00	28.82	29.88	7	199	7	22	202	13	202	12
13	40	17	29	23	27	35.754	0.000	0.00	29.08	30.15	1	171	1	8	248	4	202	13
14	40	29	35	31	33	30.133	0.000	0.00	28.99	30.05	5	137	5	15	135	10	135	14
15	61	33	48	46	47	16.725	0.000	0.14	28.36	29.40	8	175	9	60	270	29	270	15
16	33	16	22	17	20	42.956	0.000	0.00	28.82	29.88	12	276	12	57	248	29	270	16
17	22	14	19	13	17	46.262	0.000	0.00	29.21	30.28	2	60	1	11	68	5	45	17
18	23	8	17	12	15	48.354	0.000	0.00	29.30	30.37	4	337	3	16	338	7	338	18
19	32	8	22	16	19	43.279	0.000	0.00	29.10	30.17	8	180	7	29	180	13	180	19
20	26	11	18	12	16	46.913	0.000	0.00	29.15	30.22	5	322	5	27	292	11	315	20
21	27	8	15	10	13	50.040	0.000	0.00	28.93	29.99	3	258	7	31	270	14	202	21
22	34	8	22	15	20	42.810	0.000	0.00	28.92	29.98	5	157	4	18	180	9	158	22
23	43	25	33	26	30	31.819	0.000	0.00	28.64	29.69	3	169	3	12	202	7	158	23
24	46	25	38	33	35	27.415	0.000	0.00	28.42	29.46	2	192	7	24	270	12	180	24
25	25	15	20	13	18	45.113	0.000	0.00	28.85	29.91	2	1	2	16	292	7	338	25
26	33	12	22	18	20	43.446	0.000	0.06	28.90	29.96	2	98	2	16	68	8	112	26
27	34	10	21	16	19	44.373	0.000	0.00	28.72	29.77	6	257	8	33	270	17	270	27
28	23	-2	13	9	12	50.560	0.000	0.01	28.73	29.78	2	318	4	22	270	10	292	28
29	8	-6	1	-4	0	63.715	0.000	0.00	29.04	30.11	2	323	2	20	315	9	315	29
30	25	5	16	13	15	48.633	0.000	0.00	28.80	29.86	4	166	4	21	180	10	180	30
31	16	-6	9	5	8	55.706	0.000	0.00	28.88	29.94	5	350	4	19	292	9	338	31
	33	15	24	19	22	40.612	0.000		28.89	29.95	4	215.03	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 28		Precipitation ≥ 0.01 in: 4		Greatest 24 - hr precipitation: 0.44 Date: 10-11										
		Maximum Temp ≤ 32: 14		Minimum Temp ≤ 0: 4		Precipitation ≥ 0.10 in: 2		Monthly Total Precipitation: 0.76										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.44		DATE: 18		TIME: 21:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 28.96		DATE: 15		TIME: 22:00		DEGREEE DAYS: >		HEATING: 1258.965		82.277						
										COOLING: 0.000		903.931						

**DECEMBER 2021**  
**Nicollet, MN USA**

**JANUARY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	-6	-12	-9	-15	-10	74.179	0.000	0.00	29.25	30.32	6	339	5	21	360	8	338	01
02	11	-14	-2	-8	-3	66.698	0.000	0.00	29.31	30.39	3	188	4	16	202	7	202	02
03	31	9	19	13	17	46.027	0.000	0.00	29.09	30.16	4	175	4	19	202	10	202	03
04	34	11	26	22	24	39.096	0.000	0.00	28.61	29.66	2	225	7	33	338	16	292	04
05	11	-5	3	-0	3	61.560	0.000	0.00	28.93	29.99	13	302	13	39	270	16	292	05
06	-5	-14	-10	-15	-11	75.350	0.000	0.00	29.35	30.43	9	319	8	25	315	12	315	06
07	13	-16	-2	-7	-3	67.221	0.000	0.00	29.21	30.28	7	156	7	30	180	16	158	07
08	32	2	18	13	16	46.860	0.000	0.00	28.87	29.93	4	214	10	31	270	16	315	08
09	11	-2	4	-4	3	60.581	0.000	0.00	29.50	30.58	6	307	6	28	315	14	338	09
10	9	-5	3	-6	1	62.373	0.000	0.00	29.60	30.68	1	328	3	11	292	8	158	10
11	42	6	26	19	24	38.562	0.000	0.00	29.04	30.10	5	218	8	23	248	13	270	11
12	44	27	35	30	32	30.458	0.000	0.00	28.93	29.99	1	310	1	12	248	5	315	12
13	32	25	30	27	29	35.194	0.000	0.00	29.00	30.07	3	334	3	18	292	7	315	13
14	28	11	20	17	19	45.060	0.000	0.19	29.18	30.25	4	59	4	16	22	7	68	14
15	11	-7	3	-2	2	62.379	0.000	0.01	29.43	30.50	1	163	2	18	158	8	180	15
16	33	4	19	15	18	46.000	0.000	0.00	28.90	29.97	3	234	7	23	202	11	202	16
17	32	7	23	20	22	41.633	0.000	0.00	28.88	29.94	3	197	3	15	338	8	202	17
18	42	6	26	22	24	38.873	0.000	0.00	28.68	29.73	4	255	9	30	292	15	315	18
19	7	-8	1	-6	-1	64.392	0.000	0.00	29.41	30.48	9	319	9	29	292	13	315	19
20	2	-15	-7	-13	-8	72.112	0.000	0.00	29.69	30.78	1	280	2	10	315	6	315	20
21	29	-9	6	1	5	58.754	0.000	0.00	29.31	30.38	9	184	9	37	202	17	180	21
22	29	6	12	8	11	52.856	0.000	0.12	29.15	30.21	4	306	5	25	292	10	292	22
23	15	-13	1	-3	0	63.794	0.000	0.00	29.03	30.09	3	190	4	22	202	11	202	23
24	26	-9	7	3	6	57.777	0.000	0.00	28.95	30.01	5	332	6	20	292	10	202	24
25	1	-19	-10	-15	-11	74.858	0.000	0.00	29.45	30.53	3	309	3	14	292	7	315	25
26	33	-19	7	2	6	57.642	0.000	0.00	29.16	30.23	9	189	9	33	225	20	202	26
27	35	-2	21	16	20	43.562	0.000	0.00	29.18	30.25	6	317	6	25	292	10	315	27
28	13	-16	1	-5	-0	64.183	0.000	0.00	29.38	30.46	3	212	4	14	202	9	202	28
29	30	9	17	11	15	47.938	0.000	0.00	28.98	30.04	2	240	6	21	360	10	202	29
30	22	13	15	11	14	49.608	0.000	0.00	29.06	30.13	1	295	4	16	315	8	158	30
31	36	12	22	17	20	42.923	0.000	0.00	28.76	29.82	8	159	8	29	202	18	202	31
	22	-1	11	5	9	54.468	0.000		29.14	30.21	5	246.99	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 2		Greatest 24 - hr precipitation: 0.19 Date: 13-14										
		Maximum Temp ≤ 32: 22		Minimum Temp ≤ 0: 17		Precipitation ≥ 0.10 in: 2		Monthly Total Precipitation: 0.32										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.87		DATE: 20		TIME: 10:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.46		4		16:00		DEGREEE DAYS: >		HEATING: 1688.506		82.277						
								COOLING: 0.000		903.931								

**JANUARY 2022  
Nicollet, MN USA**

**FEBRUARY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	38	2	18	12	16	46.869	0.000	0.00	28.98	30.04	9	299	9	29	292	16	270	01
02	6	-9	-1	-7	-2	65.969	0.000	0.00	29.55	30.63	6	342	5	20	315	8	338	02
03	4	-13	-5	-12	-6	70.294	0.000	0.00	29.66	30.74	1	356	1	9	338	4	315	03
04	6	-9	-2	-7	-2	66.517	0.000	0.00	29.43	30.51	3	292	6	26	292	11	315	04
05	29	-5	13	7	11	52.221	0.000	0.00	29.12	30.18	6	168	6	25	180	13	158	05
06	26	1	15	11	14	49.515	0.000	0.00	29.14	30.20	5	318	5	25	315	12	315	06
07	21	-5	9	5	8	55.515	0.000	0.00	29.16	30.23	4	162	4	19	202	8	158	07
08	42	16	31	25	28	34.342	0.000	0.00	28.77	29.82	4	252	6	23	292	9	270	08
09	36	17	30	25	28	34.710	0.000	0.00	28.79	29.84	10	311	10	32	292	14	315	09
10	41	8	25	21	23	40.375	0.000	0.00	28.72	29.77	6	228	8	34	202	20	202	10
11	38	-1	17	12	16	47.517	0.000	0.00	28.83	29.89	12	310	12	38	338	17	315	11
12	7	-8	0	-6	-1	64.642	0.000	0.00	29.41	30.49	3	311	3	16	360	8	315	12
13	12	-6	3	-2	2	60.302	0.000	0.00	29.34	30.41	3	180	4	21	225	10	180	13
14	18	8	14	8	12	51.283	0.000	0.00	29.26	30.33	1	2	3	18	202	11	202	14
15	35	12	24	19	22	40.969	0.000	0.00	28.98	30.05	5	134	5	26	158	14	135	15
16	29	13	23	17	21	42.437	0.000	0.00	28.88	29.94	6	337	6	22	315	9	315	16
17	13	-0	6	-2	4	58.827	0.000	0.00	29.27	30.34	4	351	4	19	360	9	338	17
18	40	5	18	10	16	47.177	0.000	0.00	28.98	30.04	6	274	11	39	292	19	315	18
19	27	-0	14	5	11	50.592	0.000	0.00	29.20	30.27	6	203	8	32	202	16	180	19
20	46	26	32	24	29	33.210	0.000	0.00	28.73	29.79	4	251	8	29	225	17	202	20
21	27	15	23	17	21	41.975	0.000	0.00	28.93	29.99	6	44	5	20	22	7	45	21
22	15	-2	6	3	6	58.515	0.000	0.00	29.17	30.24	7	348	8	21	360	10	315	22
23	9	-9	-0	-6	-1	65.325	0.000	0.00	29.65	30.73	5	329	4	25	315	10	315	23
24	9	-4	4	-1	3	60.967	0.000	0.00	29.49	30.57	3	13	3	12	360	5	22	24
25	14	-5	5	-0	4	60.185	0.000	0.00	29.52	30.60	2	256	3	12	225	7	202	25
26	33	2	18	11	16	46.515	0.000	0.01	29.30	30.37	5	224	5	20	202	9	202	26
27	34	10	23	18	21	42.375	0.000	0.00	29.18	30.25	2	195	3	13	225	9	202	27
28	48	20	33	28	31	31.508	0.000	0.00	28.96	30.02	2	263	2	15	270	8	292	28
	25	3	14	8	13	50.737	0.000		29.16	30.23	5	241.08	6	< Monthly Avg				
NUMBER OF DAYS WITH:	>	Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 28		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: 0.01 Date: 25-26										
		Maximum Temp ≤ 32: 17		Minimum Temp ≤ 0: 14		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.01										
SEA LEVEL PRESSURE:	>	MAXIMUM: 30.82		DATE	TIME	DEGREEE DAYS: >		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.41		3	07:30			1420.646		82.277								
				10	19:30			0.000		903.931								

**FEBRUARY 2022  
Nicollet, MN USA**

MARCH 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	37	31	34	29	32	31.348	0.000	0.00	29.01	30.07	2	355	1	9	292	4	315	01
02	37	26	31	27	29	33.510	0.000	0.00	29.12	30.19	3	10	3	15	22	6	22	02
03	26	20	24	13	20	41.331	0.000	0.00	29.41	30.48	2	47	2	15	360	4	22	03
04	39	25	32	24	29	32.623	0.000	0.01	29.10	30.17	6	119	6	24	135	13	135	04
05	36	30	34	32	33	31.454	0.000	0.34	28.67	29.73	4	5	4	26	315	10	315	05
06	30	24	26	22	24	39.377	0.000	0.00	29.00	30.07	9	309	9	26	270	12	315	06
07	31	17	24	18	22	41.044	0.000	0.00	29.15	30.22	5	317	5	19	292	8	315	07
08	38	23	29	23	26	36.267	0.000	0.00	29.00	30.06	5	244	8	23	225	15	202	08
09	23	10	17	9	14	48.427	0.000	0.00	29.16	30.23	7	324	7	24	360	11	315	09
10	29	9	19	9	15	46.467	0.000	0.00	29.20	30.27	4	240	5	23	202	12	202	10
11	23	5	11	2	8	54.475	0.000	0.00	29.18	30.25	9	308	9	30	270	13	202	11
12	32	0	17	5	13	47.738	0.000	0.00	29.09	30.16	6	199	7	33	225	15	202	12
13	48	25	36	29	33	27.317	0.000	0.00	28.87	29.93	3	298	4	18	202	10	202	13
14	41	30	35	31	33	29.679	0.000	0.00	29.05	30.12	3	43	3	18	45	6	45	14
15	55	25	39	32	36	25.756	0.000	0.00	29.09	30.16	5	188	5	20	202	12	202	15
16	57	40	47	38	42	18.365	0.000	0.00	28.75	29.81	4	203	5	22	202	13	202	16
17	48	34	40	35	37	25.296	0.000	0.00	28.97	30.03	5	337	4	16	292	8	338	17
18	48	32	38	32	35	26.875	0.000	0.00	28.98	30.04	3	20	3	15	22	7	22	18
19	58	26	40	32	36	25.260	0.000	0.00	28.92	29.98	2	296	2	10	225	5	315	19
20	61	28	43	36	39	21.546	0.000	0.00	28.95	30.02	3	127	3	15	135	10	135	20
21	71	43	57	43	48	9.077	0.750	0.00	28.76	29.81	6	187	7	25	202	14	202	21
22	43	33	39	37	38	26.173	0.000	0.94	28.76	29.82	4	358	4	18	45	8	315	22
23	36	32	34	31	33	30.973	0.000	0.17	28.71	29.77	6	359	6	22	360	8	360	23
24	43	33	37	33	35	27.540	0.000	0.00	28.78	29.83	4	347	4	18	338	6	360	24
25	44	29	37	29	34	27.533	0.000	0.01	28.84	29.90	12	322	12	38	338	19	315	25
26	33	20	26	14	21	38.890	0.000	0.00	29.11	30.18	10	336	9	35	292	15	338	26
27	32	15	23	11	19	41.973	0.000	0.00	29.28	30.36	4	353	3	19	22	7	338	27
28	40	22	30	17	25	34.769	0.000	0.00	29.19	30.26	6	134	5	19	158	10	135	28
29	43	33	37	25	31	28.121	0.000	0.31	28.77	29.82	10	133	9	25	135	14	135	29
30	35	32	33	30	32	31.910	0.000	0.38	28.46	29.51	5	7	5	18	22	7	360	30
31	35	28	32	27	30	32.902	0.000	0.01	28.67	29.72	7	336	7	23	292	9	338	31
	40	25	32	25	29	32.710	0.750		28.97	30.03	5	221.30	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 23		Precipitation ≥ 0.01 in: 5		Greatest 24 - hr precipitation: 0.95 Date: 22-23										
		Maximum Temp ≤ 32: 8		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 2.17										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.56		DATE: 3		TIME: 12:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.43		30		06:30		DEGREEE DAYS: >		HEATING: 1014.015		82.277						
										COOLING: 0.750		903.931						

MARCH 2022  
Nicollet, MN USA

APRIL 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	44	24	33	28	31	31.502	0.000	0.03	28.97	30.03	2	235	3	16	202	9	202	01
02	51	33	40	34	37	24.633	0.000	0.01	28.95	30.01	4	316	5	26	315	12	315	02
03	42	26	35	31	33	30.071	0.000	0.00	28.89	29.95	3	110	3	21	360	9	360	03
04	48	31	38	32	35	26.781	0.000	0.00	28.84	29.90	3	342	5	22	338	9	338	04
05	48	38	41	38	39	23.975	0.000	0.25	28.42	29.47	9	164	11	30	158	16	158	05
06	41	33	38	34	36	27.362	0.000	0.14	28.35	29.40	11	293	12	40	270	17	315	06
07	38	31	34	31	33	30.698	0.000	0.01	28.64	29.69	9	330	10	29	292	13	292	07
08	46	33	38	28	33	26.775	0.000	0.00	28.89	29.95	8	345	7	29	292	11	338	08
09	55	26	41	28	34	24.142	0.000	0.00	28.83	29.89	2	158	3	13	158	8	158	09
10	65	37	48	35	41	16.581	0.000	0.00	28.51	29.56	5	151	8	30	248	14	135	10
11	61	34	48	34	40	17.494	0.000	0.00	28.72	29.77	6	273	6	34	270	18	270	11
12	58	39	48	39	43	17.308	0.000	0.19	28.55	29.60	4	106	5	27	135	12	112	12
13	48	31	39	31	35	26.208	0.000	0.00	28.54	29.59	9	274	9	31	270	18	270	13
14	36	27	31	21	27	34.033	0.000	0.00	28.63	29.69	15	264	14	47	315	22	270	14
15	37	24	30	19	26	34.917	0.000	0.00	28.94	30.00	10	303	10	32	270	16	292	15
16	41	24	32	20	27	33.015	0.000	0.00	29.20	30.27	8	319	7	25	270	11	315	16
17	42	25	33	25	29	32.446	0.000	0.03	29.18	30.25	6	172	5	26	202	14	202	17
18	37	28	31	25	29	33.640	0.000	0.00	29.19	30.26	10	309	11	40	292	16	315	18
19	43	21	35	24	30	30.204	0.000	0.00	29.15	30.22	4	144	5	18	225	10	135	19
20	47	36	44	37	40	21.398	0.000	0.40	28.77	29.83	6	152	7	26	158	14	135	20
21	56	34	45	38	41	20.194	0.000	0.01	29.11	30.18	3	305	4	18	360	8	315	21
22	62	44	51	47	49	14.396	0.000	0.78	28.92	29.98	9	128	8	27	135	13	135	22
23	76	50	66	58	60	1.731	2.721	0.14	28.41	29.46	13	169	13	44	202	20	180	23
24	50	35	44	35	40	20.727	0.000	0.00	28.59	29.64	11	241	13	35	202	22	202	24
25	36	30	32	25	29	32.594	0.000	0.00	29.12	30.18	10	316	10	29	338	12	315	25
26	44	27	34	25	30	31.073	0.000	0.00	29.32	30.40	4	323	4	20	292	8	315	26
27	50	32	40	27	33	24.902	0.000	0.00	29.18	30.25	4	103	4	16	112	8	112	27
28	59	36	47	37	41	18.479	0.000	0.42	28.98	30.05	6	121	6	23	112	11	135	28
29	59	48	53	50	51	12.175	0.000	0.17	28.75	29.81	6	121	6	23	135	11	135	29
30	60	50	53	50	51	11.979	0.000	0.58	28.43	29.48	4	122	5	21	202	10	202	30
	49	33	41	33	37	24.381	2.721		28.83	29.89	7	223.65	7	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 15 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 11 Precipitation ≥ 0.10 in: 9			Greatest 24 - hr precipitation: 0.78 Date: 21-22 Monthly Total Precipitation: 3.16					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.47 MINIMUM: 29.22		DATE: 26 TIME: 09:30 05:30		DEGREEE DAYS: >		HEATING: 731.433 COOLING: 2.721		MONTHLY TOTAL: 731.433 SEASON TO DATE TOTAL: 82.277 903.931				

APRIL 2022  
Nicollet, MN USA



MAY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	50	40	43	41	42	21.517	0.000	0.16	28.70	29.76	10	303	9	27	315	12	292	01
02	46	39	42	37	39	22.767	0.000	0.00	29.01	30.08	4	337	3	18	292	8	315	02
03	58	38	48	38	42	16.879	0.000	0.00	29.02	30.08	3	26	2	19	360	6	22	03
04	62	39	51	40	45	13.608	0.000	0.00	29.10	30.17	3	161	2	14	202	7	180	04
05	62	44	53	46	49	12.292	0.000	0.01	28.98	30.04	2	124	1	20	180	7	135	05
06	71	47	60	43	49	6.640	1.196	0.00	28.83	29.88	4	127	3	16	135	8	135	06
07	74	50	63	44	50	4.498	2.679	0.00	28.77	29.82	11	155	10	31	180	18	158	07
08	64	53	58	49	52	7.400	0.000	0.17	28.63	29.68	11	153	10	31	135	19	158	08
09	89	57	69	58	61	2.104	6.527	0.00	28.45	29.50	6	172	11	34	225	18	135	09
10	80	55	68	47	53	2.602	5.300	0.00	28.89	29.95	3	15	3	16	22	7	360	10
11	84	62	69	59	62	0.406	4.604	0.53	28.90	29.96	2	112	5	50	225	18	202	11
12	95	63	76	67	69	0.431	10.992	0.07	28.72	29.77	5	150	6	32	270	16	158	12
13	77	59	68	54	58	0.806	3.521	0.04	28.78	29.84	4	248	5	22	180	10	202	13
14	76	55	65	47	53	2.740	2.858	0.00	28.85	29.91	3	276	5	23	360	10	315	14
15	76	50	64	43	49	4.617	3.394	0.00	28.88	29.94	4	295	4	21	292	9	270	15
16	74	48	63	43	49	4.940	2.910	0.00	28.87	29.93	5	328	5	25	292	10	315	16
17	61	53	56	49	52	8.869	0.000	0.40	28.90	29.96	2	144	2	11	135	6	135	17
18	76	55	64	56	58	4.027	2.785	0.00	28.73	29.79	2	260	2	19	225	9	270	18
19	74	52	64	56	58	3.387	2.254	0.00	28.37	29.42	2	113	3	20	158	10	135	19
20	63	47	56	47	50	9.287	0.000	0.06	28.49	29.54	6	290	7	26	338	11	338	20
21	54	41	48	36	41	16.573	0.000	0.00	29.03	30.10	5	331	4	19	360	9	338	21
22	60	41	51	35	41	14.413	0.000	0.00	29.26	30.33	3	316	2	18	360	6	338	22
23	66	40	55	36	43	10.113	0.021	0.00	29.23	30.30	3	160	3	15	225	6	180	23
24	69	49	59	41	47	6.604	0.469	0.00	29.09	30.16	4	131	3	25	180	9	135	24
25	52	49	51	48	49	14.417	0.000	0.28	28.88	29.94	3	49	3	14	22	4	68	25
26	59	47	52	47	49	12.540	0.000	0.00	28.81	29.87	3	17	3	14	360	5	360	26
27	80	42	62	50	54	7.237	4.625	0.00	28.82	29.88	4	173	3	19	202	8	158	27
28	93	63	77	58	63	0.069	12.519	0.05	28.52	29.57	7	185	8	36	202	19	202	28
29	85	65	76	65	68	0.000	10.575	0.54	28.36	29.41	8	151	8	24	135	12	135	29
30	85	62	72	63	65	0.458	7.560	0.29	28.37	29.41	6	158	7	35	270	14	158	30
31	71	57	63	55	57	2.629	0.842	0.00	28.69	29.74	8	237	10	35	202	20	202	31
	71	50	60	48	52	7.829	4.507		28.80	29.86	5	183.74	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 2		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 11			Greatest 24 - hr precipitation: 0.69 Date: 0-1									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 7			Monthly Total Precipitation: 2.60								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.39		DATE: 22		TIME: 10:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.14		DATE: 19		TIME: 21:30		DEGREEE DAYS: >		HEATING: 234.869		82.277						
										COOLING: 85.631		903.931						

MAY 2022  
Nicollet, MN USA

**JUNE 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	70	48	59	46	51	6.308	0.783	0.00	28.98	30.04	2	314	2	15	338	5	292	01
02	79	50	65	42	49	4.908	4.719	0.00	28.86	29.92	5	281	5	24	270	10	270	02
03	74	50	62	38	46	4.806	2.235	0.00	28.91	29.97	3	330	2	14	315	6	292	03
04	68	55	61	53	55	4.506	0.333	0.10	28.85	29.91	4	150	3	15	158	9	135	04
05	67	58	61	58	59	3.746	0.094	0.25	28.72	29.78	2	121	1	12	158	6	135	05
06	76	59	66	57	60	2.383	3.073	0.30	28.68	29.74	2	34	2	14	22	4	45	06
07	71	59	64	53	57	2.350	0.994	0.00	28.83	29.89	0	85	0	9	202	4	225	07
08	79	55	67	49	54	2.429	4.460	0.00	28.85	29.91	2	346	2	14	360	6	338	08
09	81	51	68	47	53	3.350	6.088	0.00	28.89	29.95	2	254	2	16	202	6	248	09
10	79	63	71	58	61	0.150	5.750	0.00	28.78	29.84	2	235	2	19	202	6	202	10
11	79	65	71	64	66	0.002	5.775	0.01	28.63	29.69	4	200	4	18	202	10	202	11
12	91	64	76	67	69	0.065	11.548	0.00	28.63	29.68	3	152	3	14	158	8	158	12
13	85	70	76	71	73	0.000	10.937	0.20	28.55	29.60	6	137	6	22	135	11	135	13
14	93	74	84	71	73	0.000	18.542	0.00	28.47	29.52	7	189	8	35	202	18	202	14
15	80	65	71	59	62	0.000	6.090	0.02	28.68	29.74	2	222	3	22	248	10	202	15
16	84	65	74	57	61	0.000	9.083	0.00	28.81	29.87	7	270	7	30	270	14	270	16
17	85	58	73	56	60	1.019	9.006	0.00	28.99	30.06	2	2	1	12	22	5	338	17
18	86	62	75	58	62	0.308	10.740	0.00	29.01	30.08	8	134	7	23	135	12	135	18
19	97	70	84	67	71	0.000	18.638	0.00	28.87	29.93	10	171	10	29	202	15	202	19
20	99	77	88	73	76	0.000	22.750	0.00	28.75	29.81	10	185	10	32	202	15	202	20
21	89	68	80	63	67	0.000	14.777	0.00	28.87	29.93	4	282	5	26	202	13	202	21
22	87	60	75	58	62	0.508	10.456	0.00	29.01	30.08	3	307	2	22	248	6	338	22
23	94	66	81	61	65	0.000	15.740	0.00	28.83	29.89	8	191	8	38	202	18	202	23
24	91	69	80	68	70	0.000	15.217	0.00	28.76	29.82	6	159	6	22	180	10	180	24
25	82	63	74	63	66	0.035	9.027	0.05	28.82	29.88	2	294	5	21	292	9	338	25
26	77	53	65	49	54	3.321	3.544	0.00	29.09	30.15	5	326	5	23	360	9	338	26
27	85	53	70	50	55	3.081	8.435	0.00	29.13	30.20	2	275	2	14	315	6	270	27
28	87	64	74	57	62	0.021	9.435	0.01	28.97	30.04	4	208	5	27	202	14	202	28
29	95	58	78	61	64	1.006	13.979	0.00	28.89	29.95	6	164	7	31	202	15	202	29
30	91	72	80	62	66	0.000	15.223	0.01	28.73	29.79	4	201	6	27	202	16	202	30
	83	62	72	58	62	2.215	8.916		28.83	29.89	4	207.28	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 8 Minimum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 6 Precipitation ≥ 0.10 in: 3			Greatest 24 – hr precipitation: 0.53 Date: 5-6 Monthly Total Precipitation: 0.95					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.27 MINIMUM: 29.45		DATE: 27 TIME: 09:00 14 10:30		DEGREEE DAYS: >		HEATING: 44.304 COOLING: 267.471		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931				

**JUNE 2022  
Nicollet, MN USA**

**JULY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	85	60	73	56	61	0.427	8.392	0.00	28.91	29.97	2	322	2	16	22	6	315	01
02	75	64	68	61	63	0.115	2.800	0.22	28.94	30.00	0	130	1	9	135	5	135	02
03	86	62	75	65	68	0.435	10.144	0.00	28.92	29.99	5	164	4	24	202	12	202	03
04	87	70	78	72	73	0.000	13.000	0.48	28.75	29.80	5	163	4	21	202	8	158	04
05	90	72	79	74	75	0.000	13.965	0.09	28.74	29.80	2	49	2	19	360	8	135	05
06	81	68	74	70	71	0.000	9.300	0.00	28.88	29.94	1	43	1	9	338	3	45	06
07	86	70	76	71	72	0.000	10.796	1.06	28.88	29.94	1	126	2	12	202	5	202	07
08	84	68	74	70	71	0.000	9.115	0.47	28.97	30.03	1	40	1	15	22	4	360	08
09	82	65	73	68	69	0.000	8.273	0.01	29.07	30.14	3	161	2	15	180	7	135	09
10	87	67	77	72	73	0.000	12.417	0.00	28.81	29.87	6	170	6	28	202	14	202	10
11	84	66	76	66	69	0.000	11.263	0.00	28.74	29.80	4	310	4	23	315	9	292	11
12	85	61	73	62	65	0.850	8.904	0.05	28.85	29.91	3	302	3	16	360	6	292	12
13	82	63	72	63	65	0.133	7.308	0.01	28.94	30.00	2	16	1	11	360	4	22	13
14	88	61	75	67	69	0.642	10.713	0.00	28.93	29.99	5	135	4	20	135	9	135	14
15	86	72	78	72	73	0.000	13.137	0.03	28.87	29.93	2	112	2	14	135	7	158	15
16	82	68	75	70	71	0.000	9.908	0.00	28.89	29.95	1	179	1	10	180	5	202	16
17	88	63	76	68	70	0.035	11.137	0.00	28.84	29.90	1	246	1	9	158	4	202	17
18	92	68	80	71	73	0.000	15.456	0.00	28.76	29.81	5	198	5	21	202	11	202	18
19	88	70	78	68	70	0.000	13.408	0.16	28.53	29.58	6	193	7	31	202	16	202	19
20	89	70	78	65	68	0.000	12.879	0.00	28.60	29.65	6	309	6	25	292	10	338	20
21	85	64	75	63	66	0.012	9.925	0.08	28.75	29.81	3	328	3	16	360	7	338	21
22	92	68	78	67	69	0.000	12.929	0.00	28.77	29.83	1	209	2	14	202	7	202	22
23	83	68	74	70	71	0.000	9.215	0.81	28.70	29.75	2	103	2	23	22	6	22	23
24	78	60	71	61	64	0.248	6.056	0.00	28.88	29.94	4	335	3	20	270	7	338	24
25	74	56	65	59	61	2.231	2.198	0.06	28.99	30.05	1	251	1	11	225	4	202	25
26	79	63	70	65	66	0.385	5.713	0.00	28.84	29.90	4	201	4	19	202	10	202	26
27	83	59	71	62	64	0.804	7.060	0.00	28.80	29.86	2	297	2	15	315	7	270	27
28	78	57	67	57	60	2.060	3.938	0.00	28.91	29.97	4	333	3	21	292	7	338	28
29	81	57	68	58	61	2.090	5.369	0.00	29.01	30.08	2	320	2	12	360	5	338	29
30	86	60	73	62	65	1.100	8.854	0.00	28.99	30.06	6	199	5	21	202	11	202	30
31	85	61	73	66	68	0.435	8.223	0.14	28.79	29.85	6	199	7	31	202	17	202	31
	84	65	74	66	68	0.750	9.413		28.85	29.91	3	198.17	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 2		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 12			Greatest 24 - hr precipitation: 1.53 Date: 7-8									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 7				Monthly Total Precipitation: 3.67							
SEA LEVEL PRESSURE: >		MAXIMUM: 30.21		DATE: 9		TIME: 10:30		MONTHLY TOTAL		HEATING: 12.004		SEASON TO DATE TOTAL		82.277				
		MINIMUM: 29.52		DATE: 19		TIME: 14:30		DEGREEE DAYS: >		COOLING: 291.794		903.931						

**JULY 2022  
Nicollet, MN USA**

**AUGUST 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	82	62	71	63	65	0.248	6.415	0.00	28.82	29.88	3	311	2	13	338	5	292	01
02	95	64	80	72	74	0.006	14.956	0.01	28.63	29.68	7	175	7	30	270	15	202	02
03	85	62	75	65	68	0.121	9.852	0.13	28.69	29.74	2	322	4	20	360	7	338	03
04	82	58	70	61	63	1.583	6.594	0.00	28.95	30.01	1	135	2	10	158	5	158	04
05	89	64	76	67	70	0.042	11.444	0.00	28.87	29.93	7	157	6	20	158	11	135	05
06	76	68	73	70	71	0.000	7.767	2.34	28.85	29.91	1	124	2	12	180	6	158	06
07	73	63	68	66	67	0.119	3.523	0.68	28.91	29.97	2	21	2	14	360	6	360	07
08	76	58	66	60	62	1.775	3.233	0.00	28.99	30.05	2	351	2	10	360	5	360	08
09	80	57	69	62	64	1.988	5.825	0.00	29.02	30.08	3	202	3	16	180	7	202	09
10	88	62	74	66	68	0.506	9.246	0.00	29.06	30.13	1	320	1	10	360	4	22	10
11	73	65	68	62	64	0.000	3.442	0.02	29.09	30.16	2	138	2	15	158	7	135	11
12	74	65	69	64	65	0.000	4.460	0.00	28.96	30.02	8	139	8	26	158	15	135	12
13	72	63	68	63	65	0.131	3.508	0.00	28.88	29.94	2	6	3	13	360	6	158	13
14	77	56	67	61	63	1.519	3.629	0.00	28.96	30.03	1	52	1	9	68	4	360	14
15	74	57	66	62	63	1.829	2.923	0.00	29.00	30.07	3	149	2	12	158	6	158	15
16	80	60	70	64	66	0.881	6.050	0.00	29.05	30.11	1	172	1	10	202	5	158	16
17	81	61	72	65	66	0.454	7.077	0.00	29.03	30.10	3	204	3	14	225	8	202	17
18	83	61	70	64	65	0.669	5.210	0.35	28.83	29.89	5	207	5	25	360	10	202	18
19	73	59	65	62	63	1.975	1.990	0.64	28.72	29.78	2	208	3	16	202	8	202	19
20	76	60	67	63	64	1.479	3.006	0.00	28.89	29.95	3	13	2	14	22	6	22	20
21	81	56	69	62	64	1.915	5.565	0.01	29.01	30.07	1	352	1	10	270	4	292	21
22	81	58	70	64	65	1.463	6.387	0.00	28.98	30.05	1	206	1	10	202	4	225	22
23	82	65	73	65	67	0.000	7.848	0.00	28.90	29.96	4	146	4	16	158	9	135	23
24	82	66	73	67	69	0.000	8.140	0.00	28.86	29.92	1	182	3	14	202	8	202	24
25	75	61	69	65	66	0.185	4.346	0.00	28.98	30.04	2	359	2	11	338	5	360	25
26	78	55	67	61	63	2.560	4.696	0.00	28.97	30.03	3	142	2	15	158	8	135	26
27	82	66	72	67	69	0.000	7.385	0.13	28.72	29.77	5	161	6	33	180	17	202	27
28	85	68	75	71	72	0.000	9.762	0.02	28.56	29.61	6	159	6	19	225	11	202	28
29	80	59	70	60	63	0.985	5.775	0.00	28.74	29.79	4	284	3	23	270	10	270	29
30	80	53	67	57	60	3.323	5.215	0.00	28.97	30.03	2	317	2	18	360	6	338	30
31	88	58	72	63	65	1.512	8.829	0.00	28.93	29.99	2	225	2	16	248	8	202	31
	80	61	70	64	66	1.136	6.261		28.90	29.96	3	191.59	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 8			Greatest 24 - hr precipitation: 2.57 Date: 6-7									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 6			Monthly Total Precipitation: 4.33								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.21		DATE: 11		TIME: 11:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.54		2		22:30		DEGREEE DAYS: >		HEATING: 27.269		82.277						
										COOLING: 194.098		903.931						

**AUGUST 2022  
Nicollet, MN USA**

MARCH 2019

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES								
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date	
														INSTANT		ARCHIVE			
														SPEED	DIR	SPEED	DIR		
27	68	42	59	46	50	4.010	0.327	0.00	28.82	29.88	6	359	5	24	202	10	202	27	
28	69	34	49	38	42	16.633	0.983	0.00	29.06	30.13	6	309	4	15	338	9	315	28	
29	71	65	68	44	51	0.000	2.860	0.00	29.06	30.13		--	0	0	--	0	--	29	
30	67	64	65	40	48	0.640	0.175	0.00	29.11	30.18		--	0	0	--	0	--	30	
31	65	64	65	38	47	0.287	0.004	0.00	29.20	30.27		--	0	0	--	0	--	31	
	68	54	61	41	48	5.393	0.870		29.05	30.12	6	334.30	4	< Monthly Avg					
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: Date:											
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.00											
SEA LEVEL PRESSURE: >		MAXIMUM: 30.37		DATE 31		TIME 09:00		MONTHLY TOTAL		HEATING: 21.571		SEASON TO DATE TOTAL		82.277					
		MINIMUM: 29.82		DATE 27		TIME 15:30		DEGREEE DAYS: >		COOLING: 4.350		903.931							

MARCH 2019  
Nicollet, MN USA

APRIL 2019

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	70	65	68	42	49	0.006	2.619	0.00	28.95	30.01		--	0	0	--	0	--	01
02	70	64	68	42	50	0.058	2.656	0.00	28.88	29.94		--	0	0	--	0	--	02
03	70	64	67	42	49	0.092	2.342	0.00	29.09	30.16	0	0	0	1	202	0	--	03
04	69	65	67	42	50	0.008	2.440	0.00	29.11	30.18	0	0	0	9	202	0	--	04
05	70	64	68	43	50	0.031	2.785	0.00	28.91	29.98		--	0	0	--	0	--	05
06	67	65	66	44	50	0.000	0.800	0.00	28.81	29.87		--	0	0	--	0	--	06
07	67	64	65	45	51	0.177	0.435	0.00	28.71	29.77		--	0	0	--	0	--	07
08	71	64	68	48	54	0.108	3.371	0.00	28.75	29.81		--	0	0	--	0	--	08
09	70	67	69	48	54	0.000	3.629	0.00	28.87	29.93		--	0	0	--	0	--	09
10	70	66	68	45	51	0.000	3.158	0.00	28.85	29.91		--	0	0	--	0	--	10
11	71	64	68	41	49	0.108	2.835	0.00	28.46	29.51	0	0	0	8	202	0	--	11
12	71	64	68	42	50	0.123	2.819	0.00	28.45	29.50		--	0	0	--	0	--	12
13	65	64	65	40	48	0.508	0.037	0.00	28.94	30.01		--	0	0	--	0	--	13
14	66	64	65	39	48	0.163	0.250	0.00	28.86	29.92		--	0	0	--	0	--	14
15	71	46	62	41	48	4.560	1.329	0.00	28.73	29.79	6	137	3	24	135	13	135	15
16	68	35	53	37	43	11.933	0.194	0.00	28.84	29.90	2	244	3	13	360	5	292	16
17	54	41	48	43	45	16.644	0.000	1.80	28.63	29.69	2	245	5	24	315	10	338	17
18	55	40	46	40	43	19.367	0.000	0.00	28.82	29.88	6	287	6	21	360	10	338	18
19	61	34	50	37	42	15.437	0.000	0.00	28.96	30.03	3	326	2	13	315	7	292	19
20	80	44	61	41	48	7.642	4.004	0.00	28.73	29.79	6	91	7	26	202	14	202	20
21	85	53	66	49	54	2.669	3.940	0.00	28.67	29.73	4	151	6	21	158	9	180	21
22	53	43	47	43	45	18.319	0.000	0.46	28.90	29.96	6	248	6	30	360	13	22	22
23	65	37	50	40	44	14.517	0.000	0.00	29.05	30.12	1	342	3	13	360	6	202	23
24	75	46	61	44	49	6.567	2.117	0.00	28.77	29.82	6	80	6	29	202	18	202	24
25	70	51	60	42	48	5.927	0.846	0.19	28.78	29.84	7	301	7	30	315	15	338	25
26	58	41	50	32	39	14.596	0.000	0.00	28.96	30.02	8	309	8	25	315	12	315	26
27	50	35	42	34	38	23.458	0.000	0.26	28.93	29.99	2	171	2	20	112	8	112	27
28	49	32	42	33	37	23.108	0.000	0.00	29.04	30.10	7	132	7	31	112	16	135	28
29	59	43	50	39	43	15.027	0.000	0.00	28.95	30.01	2	325	6	21	292	11	292	29
30	48	40	44	40	42	21.475	0.000	0.39	29.08	30.15	2	202	2	16	112	6	112	30
	66	52	59	41	47	8.246	2.130		28.85	29.91	4	224.35	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 1 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 5 Precipitation ≥ 0.10 in: 5			Greatest 24 - hr precipitation: 1.80 Date: 16-17 Monthly Total Precipitation: 3.10					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.26 MINIMUM: 29.30		DATE: 3 TIME: 23:00 12 04:30		DEGREEE DAYS: >		HEATING: 222.629 COOLING: 42.606		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931				

APRIL 2019  
Nicollet, MN USA

MAY 2019

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	46	39	43	39	41	21.904	0.000	0.11	29.00	30.07	3	240	2	11	68	5	45	01
02	54	39	46	41	43	18.783	0.000	0.00	29.09	30.16	3	322	3	16	315	9	338	02
03	64	36	50	41	45	15.333	0.000	0.22	28.99	30.06	5	109	5	28	225	11	158	03
04	70	43	57	42	47	8.881	0.871	0.00	28.85	29.91	2	59	2	16	202	7	202	04
05	64	47	56	41	47	8.717	0.000	0.00	28.79	29.85	4	285	5	18	338	8	338	05
06	58	46	51	33	41	13.556	0.000	0.00	29.04	30.11	6	272	5	21	22	8	360	06
07	64	37	52	35	41	12.733	0.000	0.00	29.16	30.22	2	194	4	16	135	7	338	07
08	56	36	45	40	42	19.919	0.000	1.44	28.84	29.90	5	208	5	22	22	9	45	08
09	54	35	44	37	40	21.387	0.000	0.00	28.90	29.96	8	283	8	26	45	12	360	09
10	60	35	49	35	41	15.975	0.000	0.00	29.07	30.13	2	345	3	16	315	8	315	10
11	63	43	53	39	45	12.342	0.000	0.00	28.89	29.95	7	121	7	28	180	12	202	11
12	60	47	53	40	45	12.410	0.000	0.00	28.82	29.88	5	130	5	18	202	9	135	12
13	66	40	55	39	45	9.817	0.019	0.00	28.88	29.94	3	84	3	19	180	7	202	13
14	74	52	63	51	55	4.185	2.275	0.00	28.84	29.90	5	120	5	22	180	8	158	14
15	80	52	67	50	55	3.840	5.458	0.00	28.83	29.89	1	96	3	18	202	7	202	15
16	83	58	72	54	59	0.527	7.740	0.00	28.63	29.69	3	313	6	25	202	12	202	16
17	68	52	58	48	52	6.808	0.142	0.57	28.75	29.81	4	168	4	24	112	11	112	17
18	59	46	52	49	51	12.567	0.000	0.70	28.59	29.65	5	167	5	26	135	15	112	18
19	48	40	44	41	42	20.942	0.000	0.70	28.74	29.79	6	249	5	25	22	9	360	19
20	61	37	50	40	44	15.019	0.000	0.00	29.08	30.15	2	292	3	19	315	8	315	20
21	58	46	50	43	46	15.144	0.000	0.71	28.86	29.92	5	160	5	29	135	13	112	21
22	61	47	55	49	51	9.942	0.000	0.54	28.53	29.59	9	99	11	37	202	20	202	22
23	60	51	55	48	51	10.265	0.000	0.00	28.96	30.02	5	333	6	22	315	12	292	23
24	73	50	61	56	57	5.998	1.506	0.60	28.80	29.86	7	115	8	27	158	16	135	24
25	69	54	62	52	55	3.415	0.762	0.00	28.82	29.88	6	339	7	21	338	11	202	25
26	73	48	61	49	53	5.338	1.819	0.00	28.99	30.05	0	206	1	12	180	5	135	26
27	63	50	57	54	55	7.787	0.000	1.89	28.74	29.79	4	241	4	26	45	9	22	27
28	64	47	55	51	52	9.821	0.000	0.00	28.76	29.82	2	221	3	15	135	8	112	28
29	72	54	62	55	57	4.625	1.538	0.09	28.71	29.76	1	231	1	11	45	3	22	29
30	79	53	67	54	57	3.015	4.710	0.00	28.71	29.77	1	37	2	11	292	6	202	30
31	89	61	75	57	61	0.479	10.638	0.00	28.72	29.78	4	18	4	19	270	9	248	31
	65	46	56	45	49	10.693	3.123		28.85	29.91	4	195.35	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 11			Greatest 24 - hr precipitation: 1.89 Date: 26-27									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 10			Monthly Total Precipitation: 7.57								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.30		DATE: 7		TIME: 08:30		MONTHLY TOTAL		HEATING: 331.473		SEASON TO DATE TOTAL		82.277				
		MINIMUM: 29.44		DATE: 22		TIME: 07:30		DEGREEE DAYS: >		COOLING: 37.477		903.931						

MAY 2019  
Nicollet, MN USA

**JUNE 2019**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	74	57	66	51	55	1.679	2.642	0.43	28.77	29.83	5	290	5	23	248	10	315	01
02	78	48	65	47	52	4.602	4.140	0.00	28.92	29.98	3	332	3	18	292	9	292	02
03	81	57	69	53	58	1.898	6.142	0.00	28.88	29.94	5	98	5	24	180	12	202	03
04	89	62	70	61	63	0.542	5.431	0.39	28.68	29.73	4	123	6	40	315	17	338	04
05	82	61	72	63	65	0.500	7.454	0.00	28.72	29.77	2	288	3	13	135	6	338	05
06	88	61	75	58	62	0.610	10.419	0.00	28.79	29.85	2	125	2	12	202	5	135	06
07	90	68	80	59	63	0.000	14.915	0.00	28.79	29.85	8	134	8	24	135	12	135	07
08	88	68	78	55	60	0.000	13.333	0.00	28.82	29.87	10	135	9	24	135	13	135	08
09	73	58	65	51	55	1.675	1.381	0.02	28.98	30.04	6	300	8	25	315	13	315	09
10	79	49	65	43	50	4.271	4.742	0.00	29.11	30.18	5	327	5	27	292	12	315	10
11	65	57	60	52	55	4.540	0.000	0.21	28.99	30.05	2	109	3	16	292	10	135	11
12	70	54	61	46	51	4.702	0.896	0.01	28.94	30.00	6	286	6	25	315	11	338	12
13	74	47	62	39	47	5.198	2.544	0.00	28.94	30.01	1	53	3	15	202	8	135	13
14	84	62	74	56	61	0.406	9.006	0.00	28.62	29.68	8	77	9	30	180	13	202	14
15	81	64	69	63	65	0.071	4.254	0.67	28.61	29.66	1	130	3	20	22	9	202	15
16	76	61	67	62	63	1.040	3.254	0.03	28.79	29.85	2	152	2	14	135	8	135	16
17	72	60	65	59	61	1.394	1.390	0.00	28.90	29.96	0	294	3	12	135	8	135	17
18	75	57	67	56	59	1.717	3.252	0.00	28.88	29.94	3	309	2	14	315	6	315	18
19	78	58	68	55	59	1.767	4.785	0.00	28.73	29.78	1	155	1	13	135	6	135	19
20	71	62	66	60	62	0.398	1.348	0.06	28.69	29.74	4	146	3	20	202	8	135	20
21	74	62	67	58	61	0.690	2.546	0.00	28.79	29.85	9	144	9	33	135	18	135	21
22	72	60	67	56	59	0.658	2.190	0.00	28.88	29.94	5	145	5	19	135	10	135	22
23	72	64	68	64	65	0.158	2.694	1.21	28.70	29.75	3	284	2	19	292	9	315	23
24	76	62	67	59	61	1.056	3.467	0.07	28.58	29.64	5	314	5	19	315	10	292	24
25	82	59	71	57	60	0.906	6.944	0.00	28.72	29.77	5	336	6	23	292	12	292	25
26	86	60	73	59	62	0.654	8.996	0.00	28.91	29.97	3	132	3	15	135	7	135	26
27	79	65	72	66	67	0.002	6.783	0.63	28.92	29.99	3	142	4	32	225	14	248	27
28	83	69	76	71	73	0.000	11.048	0.00	28.95	30.01	2	152	2	14	135	8	112	28
29	90	70	80	73	74	0.000	15.340	0.00	28.95	30.02	4	140	4	14	135	8	135	29
30	85	72	79	71	73	0.000	13.933	0.03	28.85	29.91	5	152	6	31	315	14	112	30
	79	60	69	57	61	1.645	6.044		28.83	29.89	4	193.43	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 1 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 11 Precipitation ≥ 0.10 in: 6			Greatest 24 – hr precipitation: 1.27 Date: 23-24 Monthly Total Precipitation: 3.76					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.24 MINIMUM: 29.57		DATE: 10	TIME: 07:30	DEGREEE DAYS: >		HEATING: 41.133	MONTHLY TOTAL: 175.267	SEASON TO DATE TOTAL: 82.277	903.931			

**JUNE 2019  
Nicollet, MN USA**



**JULY 2019**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	76	68	70	68	69	0.000	5.398	2.99	28.87	29.93	1	194	3	30	315	10	315	01
02	81	69	74	70	71	0.000	8.827	0.00	28.79	29.85	1	291	1	10	315	5	338	02
03	86	68	77	71	72	0.000	12.223	0.00	28.76	29.82	3	133	3	14	202	7	135	03
04	84	69	76	70	71	0.000	11.223	0.00	28.79	29.85	1	28	4	16	202	8	202	04
05	81	67	73	69	70	0.000	7.715	0.65	28.93	29.99	2	228	2	20	360	8	360	05
06	80	65	73	65	67	0.000	8.025	0.00	29.04	30.11	3	264	3	12	360	5	360	06
07	83	65	74	65	67	0.000	9.360	0.00	28.99	30.05	2	93	2	12	202	7	202	07
08	85	65	76	66	68	0.000	10.829	0.00	28.90	29.96	6	133	6	20	202	11	135	08
09	83	70	75	68	70	0.000	9.967	0.40	28.74	29.80	6	119	7	22	202	12	135	09
10	79	66	71	64	66	0.000	6.431	0.00	28.80	29.86	7	344	8	32	338	15	315	10
11	81	62	72	64	66	0.229	7.421	0.00	28.96	30.02	2	302	3	15	292	7	338	11
12	86	65	75	68	70	0.000	10.306	0.00	28.83	29.89	4	55	4	19	225	10	202	12
13	84	66	76	69	70	0.000	11.085	0.00	28.91	29.97	2	136	3	14	202	7	202	13
14	91	71	81	73	75	0.000	15.533	0.00	28.91	29.97	5	117	5	18	202	8	202	14
15	91	69	81	73	75	0.000	15.656	0.95	28.75	29.81	7	91	8	27	180	15	202	15
16	84	68	75	70	71	0.000	9.515	0.00	28.78	29.84	3	100	3	21	202	8	202	16
17	83	68	74	70	71	0.000	8.871	0.04	28.75	29.80	4	120	4	24	135	14	135	17
18	89	71	78	74	74	0.000	12.813	0.65	28.60	29.65	2	121	3	21	202	8	202	18
19	94	72	83	78	79	0.000	17.867	0.01	28.58	29.63	3	106	5	23	112	12	135	19
20	78	60	69	65	66	0.606	4.540	1.63	28.77	29.83	3	265	4	40	315	18	315	20
21	80	60	70	62	64	0.858	5.892	0.00	29.00	30.06	3	273	2	12	22	6	360	21
22	77	57	67	56	59	1.710	4.102	0.00	29.14	30.20	4	282	3	14	22	7	338	22
23	80	57	70	60	62	1.137	6.108	0.00	29.14	30.21	3	329	2	11	292	5	315	23
24	81	60	71	61	64	0.848	7.081	0.00	29.07	30.14	3	76	3	19	202	8	202	24
25	74	62	67	62	64	0.344	2.579	0.28	28.97	30.04	6	121	7	24	202	12	135	25
26	86	65	75	69	70	0.000	10.060	0.01	28.88	29.94	6	81	6	19	180	10	202	26
27	85	65	76	67	69	0.008	10.754	0.08	28.92	29.98	2	331	2	19	248	5	338	27
28	77	68	71	68	69	0.000	6.385	0.22	28.80	29.86	4	97	4	22	180	12	202	28
29	75	59	68	62	64	0.538	3.854	0.00	28.87	29.93	7	308	6	25	315	11	315	29
30	75	54	65	55	58	2.900	3.010	0.00	29.05	30.11	1	252	1	10	360	4	360	30
31	79	58	68	59	62	1.754	5.138	0.00	29.07	30.13	4	142	4	14	202	8	135	31
	82	65	73	66	68	0.994	8.664		28.88	29.94	3	178.49	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 10			Greatest 24 - hr precipitation: 3.02 Date: 0-1									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 8			Monthly Total Precipitation: 7.91								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.26		DATE: 23		TIME: 09:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.56		19		18:00		DEGREEE DAYS: >		HEATING: 10.933		82.277						
										COOLING: 268.569		903.931						

**JULY 2019  
Nicollet, MN USA**

**AUGUST 2019**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	84	60	72	63	66	0.752	7.490	0.00	29.07	30.14	4	136	3	13	135	7	135	01
02	81	64	73	66	68	0.044	8.525	0.00	29.04	30.10	4	141	3	12	112	7	135	02
03	84	67	76	66	68	0.000	10.792	0.00	29.00	30.06	2	120	2	12	202	5	135	03
04	86	65	76	67	69	0.006	10.865	0.00	28.94	30.00	3	92	3	16	202	8	202	04
05	88	70	77	71	72	0.000	12.465	0.00	28.77	29.83	2	16	4	22	360	8	202	05
06	85	61	74	64	66	0.315	9.377	0.00	28.79	29.85	3	347	3	13	292	6	338	06
07	85	65	75	66	68	0.000	10.087	0.00	28.74	29.79	3	353	5	16	315	8	315	07
08	78	55	68	55	58	1.652	4.750	0.00	28.87	29.93	4	314	4	15	292	8	292	08
09	78	53	67	56	59	2.833	4.621	0.00	28.93	29.99	1	66	1	11	202	4	202	09
10	79	62	69	64	66	0.240	4.677	0.32	28.86	29.92	4	149	4	23	135	11	135	10
11	73	64	69	66	67	0.000	3.604	0.00	28.89	29.95	2	278	2	10	22	4	338	11
12	81	63	71	68	69	0.094	6.458	0.00	28.79	29.84	1	284	1	12	292	6	315	12
13	84	63	71	65	67	0.054	6.177	0.00	28.83	29.89	4	335	4	25	292	13	292	13
14	77	62	68	62	64	0.602	3.306	0.02	28.96	30.02	4	309	3	18	292	9	292	14
15	80	60	70	62	64	1.002	5.673	0.10	28.89	29.95	3	183	3	16	202	8	202	15
16	80	61	70	63	65	0.721	5.285	0.00	28.77	29.83	3	260	4	18	202	9	202	16
17	83	60	72	63	65	0.919	7.660	0.03	28.72	29.77	5	131	5	21	135	12	135	17
18	73	58	67	59	62	0.969	2.540	0.94	28.73	29.79	4	300	6	37	315	20	315	18
19	80	54	68	61	63	3.135	5.965	0.00	28.92	29.98	3	137	4	15	202	7	202	19
20	84	67	73	69	70	0.000	8.431	0.51	28.87	29.93	2	158	5	21	202	12	180	20
21	76	60	68	59	61	0.902	3.525	0.00	28.98	30.04	3	319	3	12	338	6	292	21
22	75	53	64	54	57	3.496	2.554	0.00	29.01	30.07	2	359	2	11	22	4	360	22
23	79	53	66	58	60	3.658	4.402	0.00	29.09	30.15	3	121	2	13	202	6	112	23
24	76	59	66	57	60	1.858	3.108	0.00	29.09	30.15	8	126	7	21	135	11	135	24
25	72	60	66	59	61	1.315	2.640	0.01	28.90	29.96	9	130	8	26	112	14	135	25
26	74	61	66	62	63	0.785	1.512	0.83	28.70	29.76	3	148	4	15	112	8	135	26
27	72	55	63	54	57	3.898	1.440	0.02	28.76	29.82	7	275	6	30	315	13	270	27
28	72	54	62	54	57	4.396	1.725	0.00	28.87	29.93	5	282	5	22	292	10	292	28
29	73	55	65	55	58	3.112	2.715	0.00	28.83	29.89	4	292	6	26	315	12	292	29
30	73	48	62	52	55	5.515	2.042	0.00	29.10	30.17	3	316	2	14	270	6	315	30
31	68	56	62	56	58	3.960	0.754	0.00	29.16	30.23	3	126	2	13	112	7	135	31
	79	60	69	61	63	1.778	5.328		28.90	29.96	4	213.11	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 8			Greatest 24 - hr precipitation: 0.97 Date: 17-18									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 4				Monthly Total Precipitation: 2.78							
SEA LEVEL PRESSURE: >		MAXIMUM: 30.28		DATE: 31		TIME: 10:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.53		18		01:30		DEGREEE DAYS: >		HEATING: 46.233		82.277						
								COOLING: 165.165		903.931								

**AUGUST 2019  
Nicollet, MN USA**

**SEPTEMBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	76	56	65	61	62	2.865	3.308	0.00	29.01	30.08	4	145	4	16	202	9	202	01
02	78	63	70	66	67	0.396	5.608	0.00	28.93	29.99	3	105	3	20	180	11	112	02
03	77	60	70	61	64	0.473	5.231	0.00	28.80	29.85	7	314	7	29	292	14	315	03
04	72	49	61	53	56	5.462	1.325	0.00	29.07	30.14	1	323	2	11	315	6	315	04
05	82	56	69	62	64	2.533	6.444	0.00	28.92	29.98	3	149	6	22	180	11	202	05
06	77	59	68	60	63	0.829	3.421	0.00	29.01	30.08	5	318	4	18	315	9	315	06
07	66	56	61	56	58	4.150	0.000	0.01	29.02	30.08	1	352	1	10	338	5	338	07
08	60	55	58	55	56	7.373	0.000	0.24	29.02	30.08	2	99	2	14	112	8	112	08
09	70	58	63	61	62	3.269	0.994	0.15	28.88	29.94	7	119	7	23	112	12	112	09
10	79	65	71	65	67	0.002	6.004	0.00	28.87	29.93	2	257	3	15	202	8	180	10
11	70	62	66	63	64	0.721	1.356	1.54	28.92	29.98	2	16	3	31	135	10	315	11
12	76	59	67	64	65	1.554	3.433	1.46	28.80	29.86	5	127	6	27	112	16	112	12
13	63	53	58	53	55	6.958	0.000	0.00	28.93	29.99	7	267	6	24	292	11	270	13
14	77	50	63	59	60	5.252	3.615	0.00	28.96	30.02	4	131	4	20	135	9	135	14
15	83	57	70	65	66	1.508	6.590	0.00	28.90	29.96	2	134	2	11	180	6	202	15
16	85	61	74	69	70	0.544	9.400	0.00	28.91	29.97	8	120	7	22	112	11	112	16
17	89	71	79	72	73	0.000	14.190	0.00	28.83	29.89	10	123	10	28	180	13	112	17
18	82	64	74	69	70	0.015	9.135	0.29	28.79	29.85	7	147	8	28	180	15	112	18
19	83	61	71	65	67	0.431	6.919	0.00	28.90	29.96	1	142	1	9	180	4	135	19
20	88	68	76	70	71	0.000	11.277	0.00	28.88	29.94	7	126	7	19	180	12	135	20
21	82	64	75	69	71	0.015	9.717	0.03	28.70	29.76	6	156	7	25	202	12	180	21
22	65	54	60	56	57	5.275	0.000	0.00	28.82	29.88	2	291	2	16	292	8	292	22
23	77	50	63	52	55	5.290	3.156	0.00	28.91	29.97	2	247	2	14	270	6	270	23
24	83	58	68	61	63	2.319	4.994	0.72	28.63	29.69	5	176	5	31	180	12	202	24
25	69	48	59	50	53	6.069	0.412	0.00	28.72	29.78	6	288	6	27	292	11	292	25
26	72	44	58	46	50	8.285	0.890	0.00	28.79	29.85	3	182	4	24	202	10	202	26
27	67	50	60	52	55	5.092	0.031	0.00	28.65	29.71	4	309	6	20	180	9	158	27
28	64	44	54	46	49	11.060	0.000	0.04	29.08	30.14	2	13	2	13	338	5	338	28
29	64	50	57	55	55	8.488	0.000	0.30	28.97	30.04	7	113	6	25	135	13	112	29
30	87	58	75	69	70	0.469	10.127	0.13	28.68	29.73	6	179	10	26	180	14	202	30
	75	57	66	60	62	3.453	5.316		28.88	29.94	4	182.26	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 10 Precipitation ≥ 0.10 in: 8			Greatest 24 – hr precipitation: 1.68 Date: 11-12 Monthly Total Precipitation: 4.91					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.21 MINIMUM: 29.52		DATE 28	TIME 11:30	DEGREEE DAYS: >		HEATING: 96.696 COOLING: 127.577	MONTHLY TOTAL	SEASON TO DATE TOTAL		82.277 903.931		

**SEPTEMBER 2019**  
**Nicollet, MN USA**

**OCTOBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	58	50	52	51	51	12.869	0.000	0.78	28.91	29.97	5	351	5	22	270	8	292	01
02	51	47	49	47	48	15.954	0.000	0.45	28.97	30.04	3	9	3	15	360	6	360	02
03	49	43	46	42	44	18.992	0.000	0.01	29.18	30.25	7	307	7	25	270	11	315	03
04	53	43	47	41	44	18.237	0.000	0.00	29.30	30.37	4	113	4	21	112	10	112	04
05	60	46	52	48	50	12.896	0.000	1.26	28.81	29.87	4	162	8	26	292	13	135	05
06	66	45	55	43	47	10.419	0.050	0.00	28.94	30.01	6	260	6	29	315	16	292	06
07	69	40	55	41	46	10.827	0.469	0.00	29.06	30.13	2	236	3	15	248	7	270	07
08	72	50	60	44	49	6.277	1.477	0.00	28.89	29.95	8	143	8	32	202	13	180	08
09	73	53	62	48	53	4.610	1.446	0.00	28.81	29.87	10	132	9	30	112	13	135	09
10	62	38	52	50	51	12.975	0.000	0.37	28.76	29.82	2	132	6	23	135	13	135	10
11	40	33	36	30	33	28.925	0.000	0.00	28.80	29.86	10	250	9	34	202	13	248	11
12	38	32	35	29	32	30.054	0.000	0.01	28.68	29.74	8	241	8	26	270	11	248	12
13	44	33	38	32	35	26.860	0.000	0.00	28.80	29.86	7	279	7	23	292	11	292	13
14	52	28	40	33	36	25.152	0.000	0.00	28.93	30.00	2	153	2	15	180	7	180	14
15	52	36	44	39	41	20.708	0.000	0.00	28.85	29.91	6	305	7	26	292	13	292	15
16	47	39	42	37	39	22.888	0.000	0.00	29.07	30.14	5	312	5	22	292	10	315	16
17	61	33	47	38	41	18.481	0.000	0.00	28.91	29.98	6	124	6	21	112	12	135	17
18	73	48	58	44	49	8.010	1.500	0.00	28.59	29.64	12	137	12	38	135	18	135	18
19	68	45	54	41	46	10.952	0.312	0.01	28.63	29.68	3	266	3	18	292	8	180	19
20	65	39	53	38	44	12.390	0.000	0.00	28.74	29.79	5	119	5	23	112	13	112	20
21	56	40	48	45	46	16.994	0.000	1.47	28.24	29.29	2	331	7	39	315	19	315	21
22	50	35	43	36	39	22.419	0.000	0.15	28.55	29.61	16	294	15	40	292	21	292	22
23	45	28	37	32	34	28.167	0.000	0.00	28.91	29.97	3	299	3	16	292	8	315	23
24	46	29	37	29	33	27.821	0.000	0.00	29.29	30.36	3	306	2	13	292	6	292	24
25	57	29	42	31	36	22.794	0.000	0.00	29.17	30.23	7	194	6	25	225	13	202	25
26	56	38	45	31	37	19.954	0.000	0.00	28.77	29.83	6	167	6	21	180	10	180	26
27	45	33	40	33	36	25.454	0.000	0.00	28.90	29.96	7	320	7	23	292	9	315	27
28	37	23	31	21	27	33.996	0.000	0.00	29.09	30.16	3	284	3	20	270	8	292	28
29	39	22	30	20	26	34.681	0.000	0.00	29.24	30.31	3	316	3	15	292	7	338	29
30	35	21	27	18	23	37.119	0.000	0.00	29.30	30.37	2	298	2	12	292	6	315	30
31	38	24	30	20	26	35.398	0.000	0.00	29.08	30.15	2	303	3	13	315	6	315	31
	53	37	45	36	40	20.428	0.876		28.91	29.97	5	230.43	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 8		Precipitation ≥ 0.01 in: 6		Greatest 24 - hr precipitation: 1.59 Date: 21-22										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 6		Monthly Total Precipitation: 4.51										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.49		DATE: 4		TIME: 08:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.11		DATE: 21		TIME: 15:00		DEGREEE DAYS: >		HEATING: 633.273		82.277						
										COOLING: 5.254		903.931						

**OCTOBER 2019**  
**Nicollet, MN USA**

**NOVEMBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	45	32	37	30	34	28.192	0.000	0.06	29.03	30.09	4	275	5	21	292	10	292	01
02	40	29	34	28	32	30.738	0.000	0.00	29.09	30.16	4	299	4	20	292	8	292	02
03	51	30	39	32	35	25.990	0.000	0.01	28.87	29.93	2	216	3	16	202	7	202	03
04	43	29	37	30	34	28.148	0.000	0.01	28.99	30.05	6	310	6	20	338	10	315	04
05	31	19	26	18	23	38.817	0.000	0.00	29.27	30.34	3	290	3	18	315	7	338	05
06	30	17	25	19	23	39.865	0.000	0.12	29.39	30.47	3	345	3	20	338	7	338	06
07	25	2	14	8	13	50.685	0.000	0.00	29.55	30.63	2	274	2	13	270	7	292	07
08	37	13	27	20	25	37.719	0.000	0.00	29.19	30.26	7	173	7	24	225	12	180	08
09	40	25	34	30	32	30.575	0.000	0.00	28.88	29.94	3	286	3	14	292	8	292	09
10	33	18	26	20	24	38.737	0.000	0.00	29.18	30.25	6	352	5	18	360	7	338	10
11	18	8	14	5	11	51.425	0.000	0.00	29.56	30.64	7	335	7	23	292	11	315	11
12	19	2	12	4	10	53.040	0.000	0.00	29.37	30.44	6	176	7	22	225	12	158	12
13	33	19	26	20	24	39.096	0.000	0.00	28.96	30.02	2	242	5	20	180	10	158	13
14	33	19	26	20	23	39.348	0.000	0.00	29.21	30.28	4	275	5	16	338	9	225	14
15	48	24	35	30	33	29.919	0.000	0.00	29.25	30.32	3	136	2	11	158	6	135	15
16	46	35	39	30	35	25.596	0.000	0.00	29.03	30.10	9	159	9	26	180	13	158	16
17	39	32	35	32	34	29.769	0.000	0.05	28.89	29.95	4	305	4	19	292	8	315	17
18	43	31	36	34	35	28.621	0.000	0.04	28.70	29.75	4	155	3	13	158	8	158	18
19	46	33	39	36	37	26.231	0.000	0.00	28.80	29.86	3	304	2	13	292	7	292	19
20	51	35	43	39	41	21.860	0.000	0.11	28.85	29.91	5	141	4	16	135	10	135	20
21	46	19	31	28	30	34.196	0.000	0.29	28.93	29.99	8	330	8	30	292	13	315	21
22	31	16	23	19	22	41.858	0.000	0.01	29.15	30.22	3	226	4	14	202	9	202	22
23	44	26	33	28	31	32.163	0.000	0.00	28.75	29.81	4	240	5	23	202	13	202	23
24	45	30	37	33	35	27.827	0.000	0.00	28.58	29.63	2	229	2	11	202	6	202	24
25	45	36	40	34	37	25.462	0.000	0.00	28.56	29.61	7	283	7	29	292	13	270	25
26	36	30	33	28	31	31.987	0.000	0.06	28.73	29.79	3	21	3	21	360	8	360	26
27	30	26	29	26	28	36.073	0.000	0.13	28.98	30.05	8	333	8	29	338	11	338	27
28	27	23	25	21	24	39.610	0.000	0.00	29.46	30.54	1	102	2	10	360	5	135	28
29	32	27	30	28	29	34.750	0.000	0.25	29.21	30.28	3	118	2	11	135	5	135	29
30	35	32	33	31	32	32.098	0.000	0.17	28.58	29.63	4	90	2	16	90	6	112	30
	37	24	31	25	29	34.346	0.000		29.03	30.10	4	234.03	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 8		Minimum Temp ≤ 32: 26 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 10 Precipitation ≥ 0.10 in: 6			Greatest 24 - hr precipitation: 0.42 Date: 29-30 Monthly Total Precipitation: 1.31					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.72 MINIMUM: 29.44		DATE	TIME	DEGREEE DAYS: >		MONTHLY TOTAL HEATING: 1030.394 COOLING: 0.000		SEASON TO DATE TOTAL 82.277 903.931				
								11	22:00									

**NOVEMBER 2019**  
**Nicollet, MN USA**

**DECEMBER 2019**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	32	14	27	24	26	38.196	0.000	0.00	28.77	29.83	6	353	6	21	338	8	360	01
02	27	4	17	13	16	47.925	0.000	0.00	29.06	30.12	3	199	4	14	202	8	225	02
03	35	18	29	24	27	36.487	0.000	0.00	28.72	29.78	5	273	5	21	292	11	292	03
04	38	22	30	26	29	34.600	0.000	0.00	28.81	29.86	4	281	4	18	292	9	270	04
05	38	20	28	26	27	36.581	0.000	0.00	28.92	29.99	2	296	4	19	270	8	202	05
06	29	14	20	16	19	44.740	0.000	0.00	29.32	30.39	2	272	4	18	292	9	315	06
07	40	24	31	26	29	33.667	0.000	0.00	28.98	30.04	9	181	8	32	202	16	202	07
08	36	25	30	28	29	34.525	0.000	0.00	28.74	29.79	1	277	3	24	225	15	202	08
09	31	-4	13	10	13	51.546	0.000	0.00	28.79	29.85	7	308	7	28	292	12	315	09
10	6	-5	1	-4	-0	64.179	0.000	0.00	29.25	30.32	4	279	4	23	292	9	292	10
11	10	-5	4	-2	3	60.919	0.000	0.00	29.41	30.49	0	306	2	16	360	6	338	11
12	18	4	14	10	13	51.025	0.000	0.00	29.09	30.15	2	349	3	11	338	5	338	12
13	24	3	14	11	13	51.481	0.000	0.00	28.93	29.99	2	237	2	20	338	8	338	13
14	20	-2	6	2	6	58.617	0.000	0.00	28.99	30.06	7	304	7	25	315	9	315	14
15	17	-6	5	1	4	59.890	0.000	0.00	29.13	30.20	3	203	4	16	202	10	202	15
16	27	16	21	17	20	43.894	0.000	0.00	29.19	30.26	4	233	4	14	225	9	225	16
17	25	1	17	13	16	48.023	0.000	0.00	29.16	30.22	4	296	4	16	315	9	292	17
18	22	-6	9	3	7	54.808	0.000	0.00	29.21	30.28	5	159	5	16	225	10	158	18
19	29	15	23	19	21	42.304	0.000	0.00	29.10	30.16	2	156	2	14	202	7	202	19
20	34	20	28	24	26	37.294	0.000	0.00	29.14	30.21	3	200	5	19	202	12	202	20
21	40	15	29	24	27	35.600	0.000	0.00	29.12	30.19	5	186	5	24	225	13	202	21
22	39	30	34	30	32	30.538	0.000	0.00	28.94	30.00	6	190	6	19	202	11	202	22
23	34	25	30	27	29	34.754	0.000	0.00	28.97	30.04	1	97	1	10	135	5	112	23
24	37	29	33	31	32	31.833	0.000	0.00	28.82	29.88	2	149	1	9	158	5	135	24
25	34	30	32	31	32	32.700	0.000	0.00	28.72	29.78	1	40	1	14	22	4	68	25
26	33	26	29	27	28	35.813	0.000	0.00	28.95	30.02	7	280	6	19	270	10	292	26
27	30	25	27	24	26	37.633	0.000	0.00	29.17	30.24	2	220	3	13	202	8	225	27
28	34	27	33	31	32	32.083	0.000	0.27	28.86	29.93	2	107	2	9	112	5	135	28
29	36	31	34	32	33	31.460	0.000	0.24	28.35	29.40	4	148	5	16	158	10	158	29
30	32	18	24	22	23	41.473	0.000	0.01	28.53	29.58	7	300	7	31	292	13	292	30
31	20	11	16	14	15	48.683	0.000	0.00	28.81	29.87	5	293	6	23	292	10	292	31
	29	14	22	19	21	42.686	0.000		28.97	30.03	4	231.43	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 2		Greatest 24 - hr precipitation: 0.49 Date: 28-29										
		Maximum Temp ≤ 32: 17		Minimum Temp ≤ 0: 6		Precipitation ≥ 0.10 in: 2		Monthly Total Precipitation: 0.52										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.59		DATE: 11		TIME: 10:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.35		DATE: 29		TIME: 08:00		DEGREEE DAYS: >		HEATING: 1323.271		82.277						
										COOLING: 0.000		903.931						

**DECEMBER 2019**  
**Nicollet, MN USA**

**JANUARY 2020**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	35	16	27	23	26	37.727	0.000	0.00	28.43	29.48	7	188	6	19	225	11	202	01
02	35	30	33	30	31	32.200	0.000	0.00	28.53	29.58	4	290	4	20	315	9	292	02
03	33	20	30	28	29	34.971	0.000	0.00	28.83	29.89	1	287	3	16	22	6	202	03
04	28	16	23	20	22	41.990	0.000	0.00	29.02	30.09	3	195	5	15	158	9	202	04
05	38	19	31	25	28	34.173	0.000	0.00	28.93	29.99	7	288	9	35	270	16	292	05
06	37	18	28	24	26	37.025	0.000	0.00	29.03	30.10	4	233	4	15	292	8	225	06
07	29	4	18	14	17	46.660	0.000	0.00	29.09	30.16	6	299	6	21	315	9	292	07
08	20	-2	8	2	6	57.290	0.000	0.00	29.25	30.33	4	123	4	20	135	11	135	08
09	36	20	27	22	25	37.625	0.000	0.00	28.78	29.84	2	207	7	21	315	12	158	09
10	22	5	15	9	13	50.290	0.000	0.00	29.23	30.30	6	341	6	23	338	8	338	10
11	9	-3	3	-2	2	61.637	0.000	0.00	29.24	30.31	4	359	3	15	360	5	360	11
12	22	3	15	11	14	50.029	0.000	0.10	29.19	30.26	3	131	2	11	135	7	135	12
13	30	12	23	21	23	41.694	0.000	0.00	29.08	30.15	5	151	5	19	135	10	112	13
14	32	13	23	19	22	42.388	0.000	0.00	29.06	30.12	3	289	4	24	292	10	292	14
15	18	-6	8	4	7	56.873	0.000	0.00	29.29	30.36	6	296	6	30	270	12	292	15
16	1	-11	-5	-11	-6	70.487	0.000	0.00	29.80	30.89	2	303	3	19	270	9	292	16
17	26	-2	15	11	14	49.594	0.000	0.01	29.31	30.39	9	145	9	23	135	13	135	17
18	26	-2	8	5	8	56.750	0.000	0.03	29.00	30.07	10	289	11	41	292	17	292	18
19	2	-4	-1	-5	-2	65.998	0.000	0.00	29.54	30.62	7	295	7	29	270	12	292	19
20	12	-5	1	-2	1	63.746	0.000	0.00	29.68	30.77	1	278	1	9	292	4	292	20
21	22	-3	9	5	8	56.113	0.000	0.00	29.29	30.37	9	178	9	35	202	18	180	21
22	35	22	32	30	31	33.013	0.000	0.03	28.88	29.94	7	178	7	21	202	10	180	22
23	33	30	31	30	31	33.654	0.000	0.00	28.96	30.03	1	74	1	9	45	3	180	23
24	31	28	29	27	28	35.723	0.000	0.00	29.00	30.06	4	349	3	14	338	6	338	24
25	32	26	29	25	27	36.248	0.000	0.00	28.96	30.03	4	306	4	15	292	7	338	25
26	29	22	26	24	25	38.729	0.000	0.00	28.92	29.98	2	212	2	10	270	5	202	26
27	28	16	23	21	22	41.983	0.000	0.00	29.06	30.13	3	324	3	13	292	6	292	27
28	17	13	15	12	14	50.250	0.000	0.00	29.16	30.23	2	302	2	13	292	6	292	28
29	20	15	18	16	17	47.096	0.000	0.00	29.21	30.28	1	185	1	11	225	5	202	29
30	28	17	22	20	21	42.829	0.000	0.00	29.10	30.17	5	160	5	11	225	7	158	30
31	32	28	30	28	29	35.194	0.000	0.00	29.00	30.06	4	168	4	13	202	7	158	31
	26	11	19	16	18	45.806	0.000		29.09	30.16	4	239.40	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 3		Greatest 24 - hr precipitation: 0.10 Date: 11-12										
		Maximum Temp ≤ 32: 21		Minimum Temp ≤ 0: 9		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.17										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.97		DATE: 16		TIME: 12:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.33		DATE: 1		TIME: 22:30		DEGREEE DAYS: >		HEATING: 1419.977		82.277						
										COOLING: 0.000		903.931						

**JANUARY 2020  
Nicollet, MN USA**

FEBRUARY 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	40	22	32	29	31	32.802	0.000	0.00	28.73	29.79	5	221	5	22	225	14	202	01
02	42	31	38	32	35	27.171	0.000	0.00	28.62	29.67	7	294	7	27	270	14	292	02
03	31	21	27	21	25	38.146	0.000	0.00	28.92	29.98	4	359	4	19	22	8	360	03
04	22	11	15	9	13	49.619	0.000	0.00	29.26	30.34	4	360	3	15	360	6	360	04
05	29	9	18	13	17	46.517	0.000	0.00	29.07	30.14	3	183	3	14	225	9	202	05
06	30	12	22	16	20	43.352	0.000	0.00	28.68	29.73	5	164	5	22	202	10	180	06
07	24	-1	16	13	15	49.175	0.000	0.00	28.83	29.89	3	294	4	19	338	8	292	07
08	20	-8	7	1	6	57.908	0.000	0.00	29.11	30.17	4	185	4	15	202	10	202	08
09	25	1	16	13	15	48.683	0.000	0.07	29.06	30.13	2	16	2	12	45	5	22	09
10	30	-1	13	10	12	51.640	0.000	0.03	29.11	30.18	3	215	3	22	202	12	202	10
11	28	12	22	18	21	42.927	0.000	0.00	29.08	30.14	5	235	6	20	225	10	180	11
12	33	-12	15	10	14	49.721	0.000	0.00	28.91	29.98	6	257	9	32	202	19	202	12
13	-3	-19	-12	-19	-13	77.229	0.000	0.00	29.45	30.53	4	308	3	16	292	7	338	13
14	17	-17	4	-2	3	61.031	0.000	0.00	29.26	30.33	9	166	9	29	158	16	180	14
15	36	17	26	21	24	38.644	0.000	0.00	28.94	30.00	4	238	6	26	202	13	202	15
16	27	17	23	17	21	42.392	0.000	0.00	29.05	30.11	2	99	2	9	45	5	135	16
17	35	17	27	24	26	37.721	0.000	0.00	28.89	29.95	1	137	4	14	360	7	158	17
18	20	-0	14	9	12	51.398	0.000	0.00	29.33	30.40	4	302	4	19	315	8	292	18
19	11	-8	1	-5	-0	63.919	0.000	0.00	29.70	30.79	2	301	2	12	292	5	315	19
20	14	-17	1	-5	-0	64.183	0.000	0.00	29.73	30.82	5	214	5	15	202	10	202	20
21	36	10	25	20	23	40.423	0.000	0.01	29.24	30.31	9	209	9	26	202	17	202	21
22	40	16	28	25	27	36.515	0.000	0.01	28.94	30.01	4	181	4	20	202	11	202	22
23	41	21	31	26	29	34.117	0.000	0.00	28.91	29.97	3	281	4	16	292	8	270	23
24	38	19	28	23	26	36.752	0.000	0.00	28.98	30.04	2	7	2	10	45	4	22	24
25	36	22	28	22	26	37.179	0.000	0.00	29.22	30.29	4	344	4	16	22	7	315	25
26	26	9	19	14	17	46.142	0.000	0.00	29.29	30.36	4	307	4	16	315	6	315	26
27	24	12	19	14	17	46.150	0.000	0.00	29.14	30.21	2	326	2	10	360	5	292	27
28	26	12	20	14	18	45.119	0.000	0.00	29.16	30.22	2	348	2	11	338	5	292	28
29	41	14	31	28	30	33.513	0.000	0.00	28.92	29.98	8	172	7	21	158	11	158	29
	28	8	19	14	18	45.865	0.000		29.09	30.15	4	231.79	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 18		Minimum Temp ≤ 32: 29 Minimum Temp ≤ 0: 9		Precipitation ≥ 0.01 in: 2 Precipitation ≥ 0.10 in: 0		Greatest 24 - hr precipitation: 0.07 Date: 8-9 Monthly Total Precipitation: 0.12										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.91 MINIMUM: 29.50		DATE: 20 TIME: 09:00 2 03:30		DEGREEE DAYS: >		HEATING: 1330.085 COOLING: 0.000		MONTHLY TOTAL 82.277		SEASON TO DATE TOTAL 903.931						

FEBRUARY 2020  
Nicollet, MN USA



MARCH 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	44	33	37	32	35	27.796	0.000	0.00	28.69	29.74	5	269	6	20	202	13	202	01
02	35	28	31	27	30	33.531	0.000	0.00	28.72	29.78	4	244	6	20	292	9	202	02
03	41	30	35	31	33	29.806	0.000	0.00	28.60	29.66	7	280	7	24	292	12	292	03
04	44	23	35	30	33	30.058	0.000	0.00	28.86	29.92	3	160	4	18	225	10	180	04
05	43	29	35	30	33	30.098	0.000	0.00	28.96	30.02	10	294	10	36	292	17	292	05
06	39	23	31	25	29	33.954	0.000	0.00	29.40	30.47	2	160	4	16	270	8	158	06
07	60	34	46	34	39	19.456	0.000	0.00	29.00	30.07	10	174	10	29	202	14	180	07
08	62	36	50	40	44	14.296	0.000	0.00	28.75	29.80	10	190	10	32	202	17	202	08
09	36	28	31	27	29	34.288	0.000	0.00	28.98	30.05	7	321	6	22	292	11	292	09
10	37	22	29	26	28	35.506	0.000	0.00	29.19	30.25	1	257	2	12	292	6	315	10
11	48	31	37	34	36	27.944	0.000	0.22	28.91	29.97	4	166	4	19	202	9	180	11
12	45	32	40	35	37	25.198	0.000	0.00	28.68	29.74	4	317	7	32	270	15	315	12
13	38	28	32	23	28	33.258	0.000	0.00	29.24	30.32	7	312	7	25	315	11	315	13
14	34	24	28	20	24	37.417	0.000	0.00	29.54	30.62	2	22	2	11	360	4	360	14
15	40	22	31	24	28	33.667	0.000	0.00	29.54	30.62	3	159	3	16	202	8	180	15
16	39	27	34	30	32	30.788	0.000	0.00	29.19	30.26	4	246	6	20	292	9	202	16
17	44	28	36	28	32	28.702	0.000	0.00	29.19	30.26	3	256	4	18	270	7	292	17
18	46	36	41	38	39	24.190	0.000	0.00	28.99	30.05	3	138	3	10	158	6	158	18
19	41	32	38	36	37	27.046	0.000	0.88	28.89	29.95	3	13	4	23	45	10	360	19
20	33	20	27	17	23	38.383	0.000	0.00	29.40	30.48	7	342	7	29	292	11	338	20
21	35	20	28	22	26	36.542	0.000	0.00	29.45	30.53	6	150	4	22	202	9	158	21
22	44	31	37	31	34	28.365	0.000	0.00	29.16	30.23	10	162	10	25	202	13	158	22
23	41	31	35	33	34	29.710	0.000	0.06	29.07	30.14	2	197	4	16	180	8	180	23
24	49	37	42	39	41	22.931	0.000	0.00	28.91	29.97	7	152	7	20	180	11	158	24
25	46	36	40	38	39	24.637	0.000	0.13	28.78	29.84	1	330	4	12	158	8	158	25
26	50	30	39	35	37	26.112	0.000	0.00	28.86	29.92	1	355	1	9	360	4	292	26
27	56	37	46	40	43	19.158	0.000	0.00	28.81	29.86	1	80	1	9	360	3	112	27
28	48	33	44	41	42	21.250	0.000	1.07	28.56	29.61	4	38	4	25	45	9	338	28
29	52	33	42	36	39	23.117	0.000	0.13	28.72	29.77	9	331	8	27	292	13	338	29
30	59	29	45	30	36	20.154	0.000	0.01	29.15	30.22	1	18	1	9	360	4	315	30
31	56	32	45	31	37	20.210	0.000	0.00	29.04	30.11	2	106	2	10	135	5	112	31
	45	30	37	31	34	27.986	0.000		29.01	30.07	5	201.27	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 20 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 6 Precipitation ≥ 0.10 in: 5		Greatest 24 - hr precipitation: 1.20 Date: 28-29 Monthly Total Precipitation: 2.50										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.73 MINIMUM: 29.40		DATE 15 07:30 28 20:30		DEGREEE DAYS: >		HEATING: 867.569 COOLING: 0.000		MONTHLY TOTAL 82.277 903.931		SEASON TO DATE TOTAL						

MARCH 2020  
Nicollet, MN USA

APRIL 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	55	37	45	39	41	20.429	0.000	0.02	28.91	29.97	7	137	7	19	158	10	135	01
02	60	32	48	41	44	17.135	0.000	0.05	28.87	29.93	4	161	8	22	292	11	158	02
03	32	23	26	22	24	39.098	0.000	0.00	29.13	30.20	9	320	9	25	292	11	338	03
04	45	18	31	21	26	34.208	0.000	0.00	29.22	30.29	2	353	3	18	270	7	338	04
05	57	28	43	31	36	22.204	0.000	0.00	29.06	30.13	5	155	5	19	202	9	180	05
06	60	44	51	44	47	13.965	0.000	0.00	28.81	29.87	7	152	6	16	158	9	158	06
07	74	49	60	50	53	6.667	1.656	0.03	28.62	29.68	0	251	4	18	292	8	158	07
08	55	38	49	34	40	15.754	0.000	0.00	28.79	29.85	7	328	7	31	270	14	315	08
09	40	28	34	24	29	30.617	0.000	0.00	28.95	30.02	8	323	8	33	292	16	315	09
10	50	23	38	23	30	27.038	0.000	0.00	29.00	30.06	3	241	4	25	202	9	202	10
11	62	35	48	29	37	16.990	0.000	0.00	28.70	29.76	1	33	2	19	315	8	360	11
12	46	26	31	27	30	33.615	0.000	0.00	28.81	29.87	7	1	7	27	315	10	338	12
13	34	18	27	19	24	38.242	0.000	0.09	29.03	30.09	8	302	8	26	270	13	292	13
14	31	15	24	16	21	41.383	0.000	0.00	29.12	30.18	4	297	4	22	270	10	270	14
15	35	14	26	17	22	39.177	0.000	0.00	29.14	30.21	3	309	3	18	292	7	292	15
16	45	20	34	22	28	31.188	0.000	0.00	29.22	30.29	3	266	3	19	292	7	292	16
17	50	30	40	25	32	25.285	0.000	0.00	29.01	30.08	3	281	3	19	292	8	292	17
18	70	34	50	34	40	15.758	0.292	0.00	28.67	29.72	6	236	9	27	225	18	202	18
19	52	33	43	25	33	22.108	0.000	0.00	28.84	29.90	4	322	4	16	338	7	360	19
20	66	32	48	32	39	16.804	0.008	0.00	28.66	29.71	6	295	7	38	270	15	270	20
21	52	32	41	24	32	23.690	0.000	0.00	28.91	29.97	2	342	4	14	292	6	338	21
22	78	40	58	38	45	9.702	2.444	0.00	28.63	29.69	2	103	3	23	225	7	135	22
23	69	38	54	41	45	11.933	0.433	0.11	28.64	29.70	2	105	2	14	22	5	45	23
24	67	47	55	45	49	10.452	0.029	0.02	28.82	29.88	0	86	1	19	338	8	315	24
25	68	39	55	42	47	9.921	0.102	0.00	28.94	30.01	1	257	2	30	202	10	225	25
26	70	44	57	43	48	8.329	0.596	0.00	28.98	30.05	2	206	3	20	225	8	225	26
27	77	51	64	37	45	4.565	3.423	0.00	28.80	29.86	2	255	5	20	202	11	180	27
28	61	46	53	43	47	11.954	0.000	0.35	28.69	29.74	3	9	3	25	360	9	360	28
29	64	43	52	42	46	12.771	0.000	0.00	28.88	29.94	6	5	6	22	360	9	360	29
30	70	42	57	34	41	9.192	0.729	0.00	28.91	29.97	2	338	2	12	292	6	292	30
	57	33	45	32	37	20.672	0.971		28.89	29.95	4	215.66	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 2		Minimum Temp ≤ 32: 12 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 7 Precipitation ≥ 0.10 in: 2			Greatest 24 - hr precipitation: 0.35 Date: 27-28 Monthly Total Precipitation: 0.67					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.38 MINIMUM: 29.57		DATE: 4 TIME: 08:00 20 14:00		DEGREEE DAYS: >			MONTHLY TOTAL: HEATING: 620.173 COOLING: 9.712		SEASON TO DATE TOTAL: 82.277 903.931			

APRIL 2020  
Nicollet, MN USA

MAY 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	87	50	67	43	50	4.504	6.535	0.00	28.69	29.75	5	187	8	38	202	16	158	01
02	76	49	64	41	48	3.735	2.971	0.00	28.84	29.89	6	305	6	27	270	11	292	02
03	73	42	59	36	44	7.890	1.804	0.00	28.94	30.00	3	336	3	21	292	8	338	03
04	62	40	52	34	41	13.033	0.000	0.00	28.99	30.06	3	122	3	14	135	6	135	04
05	56	46	50	42	45	14.998	0.000	0.13	28.96	30.03	1	168	3	13	180	6	135	05
06	66	42	54	41	46	10.775	0.008	0.00	29.10	30.17	5	304	5	19	292	8	292	06
07	65	39	53	28	38	11.862	0.000	0.00	29.00	30.06	4	334	4	22	315	7	315	07
08	55	34	45	20	31	19.967	0.000	0.00	29.13	30.20	5	347	5	25	315	9	338	08
09	66	30	46	32	38	18.623	0.012	0.05	29.01	30.07	4	252	6	30	202	15	202	09
10	47	38	43	34	38	22.152	0.000	0.08	29.13	30.20	7	336	6	21	360	9	315	10
11	57	40	47	26	35	17.506	0.000	0.00	29.19	30.26	5	318	5	18	292	8	315	11
12	61	34	48	21	33	16.765	0.000	0.00	29.14	30.21	1	328	2	14	180	5	202	12
13	64	47	53	38	44	11.552	0.000	0.00	28.91	29.98	6	153	6	28	225	13	158	13
14	76	52	62	51	54	5.462	2.054	0.00	28.75	29.81	2	258	3	16	315	7	180	14
15	73	44	59	41	47	7.565	1.544	0.00	28.91	29.97	3	337	3	14	360	6	338	15
16	66	52	57	48	51	8.260	0.000	0.89	28.96	30.03	3	26	3	21	360	7	360	16
17	54	49	52	50	51	13.340	0.000	2.56	28.84	29.90	5	36	5	21	360	7	22	17
18	63	48	57	49	52	8.425	0.000	0.00	28.94	30.01	3	37	2	16	45	6	45	18
19	65	52	59	53	55	6.254	0.000	0.00	28.99	30.06	2	130	1	12	112	7	135	19
20	74	58	64	57	59	3.283	1.946	0.00	29.00	30.07	4	145	4	16	135	8	135	20
21	65	56	60	55	57	5.177	0.000	0.00	28.96	30.02	4	148	4	13	135	7	135	21
22	67	56	61	56	58	3.858	0.177	0.00	28.88	29.94	3	142	2	8	158	4	135	22
23	74	59	65	60	61	2.135	1.775	0.03	28.79	29.84	1	116	1	7	22	3	135	23
24	76	58	66	62	63	2.200	3.194	0.22	28.74	29.80	2	190	3	21	22	8	202	24
25	79	61	69	64	65	0.619	4.342	0.18	28.77	29.83	1	260	1	10	180	4	248	25
26	74	64	67	65	65	0.023	2.085	0.25	28.75	29.81	1	268	3	12	338	7	202	26
27	78	62	69	62	64	0.431	4.056	0.02	28.81	29.87	1	19	1	10	360	4	135	27
28	80	60	69	50	55	0.821	5.240	0.00	28.88	29.94	5	345	4	24	360	10	338	28
29	71	53	61	46	51	4.863	1.146	0.00	29.04	30.10	4	345	4	18	315	7	338	29
30	73	51	62	44	50	4.746	1.848	0.00	29.17	30.24	2	343	1	13	22	5	315	30
31	78	50	65	45	52	4.256	4.696	0.00	29.12	30.19	4	155	4	23	202	9	158	31
	68	49	58	45	50	8.228	2.524		28.95	30.01	3	218.92	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 1		Precipitation ≥ 0.01 in: 10		Greatest 24 - hr precipitation: 3.43 Date: 16-17										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 6		Monthly Total Precipitation: 4.41										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.33		DATE: 11 TIME: 09:00		MONTHLY TOTAL		SEASON TO DATE TOTAL										
		MINIMUM: 29.59		DATE: 1 TIME: 17:30		DEGREEE DAYS: >		HEATING: 255.081										
								COOLING: 45.433										
								903.931										

MAY 2020  
Nicollet, MN USA

**JUNE 2020**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	93	63	78	62	65	0.135	13.115	0.00	28.77	29.82	7	179	8	31	202	14	180	01
02	94	64	79	64	67	0.019	13.727	0.05	28.70	29.76	1	208	3	18	22	8	202	02
03	87	60	74	57	61	0.756	9.590	0.00	28.76	29.82	1	285	1	11	270	4	292	03
04	89	62	76	57	62	0.290	11.444	0.00	28.67	29.72	0	278	2	13	202	7	202	04
05	84	60	73	53	58	0.808	8.444	0.12	28.82	29.88	3	4	3	18	338	6	338	05
06	81	61	71	49	55	0.500	6.862	0.25	28.95	30.01	2	131	1	25	338	9	135	06
07	93	69	81	63	67	0.000	15.646	0.00	28.72	29.77	9	137	9	21	180	12	135	07
08	97	77	85	66	70	0.000	20.302	0.00	28.60	29.66	8	162	8	34	202	15	202	08
09	84	66	74	63	66	0.000	9.463	0.04	28.49	29.54	0	36	2	20	338	9	338	09
10	74	57	65	52	56	2.150	2.533	0.00	28.63	29.68	8	338	7	27	338	11	338	10
11	82	53	69	49	54	3.029	6.837	0.00	28.98	30.04	4	302	4	23	292	9	315	11
12	86	57	71	52	57	1.337	7.763	0.00	29.14	30.21	1	320	3	15	360	6	338	12
13	75	55	66	50	54	2.448	3.083	0.01	29.14	30.21	3	132	3	13	135	7	135	13
14	82	58	70	50	56	1.729	6.738	0.00	29.07	30.13	8	135	8	23	158	12	135	14
15	90	66	78	57	62	0.000	12.598	0.00	29.01	30.08	8	142	8	22	225	10	135	15
16	92	70	80	62	66	0.000	15.150	0.00	28.98	30.04	7	149	7	26	202	9	158	16
17	91	69	80	60	65	0.000	14.819	0.00	28.87	29.93	7	148	7	20	158	10	135	17
18	84	65	73	65	67	0.008	8.483	0.50	28.81	29.87	3	153	4	27	180	8	202	18
19	77	61	68	61	63	0.658	4.110	0.03	28.94	30.01	2	6	1	12	360	4	22	19
20	77	61	69	59	62	0.348	3.948	0.00	28.85	29.91	1	320	1	9	338	3	360	20
21	85	61	68	62	64	0.783	4.281	1.01	28.72	29.78	2	206	3	24	225	10	202	21
22	77	61	67	59	62	0.904	3.290	0.00	28.79	29.85	1	345	2	11	22	5	292	22
23	78	56	67	56	59	2.013	3.946	0.00	28.83	29.89	3	352	3	16	22	5	338	23
24	82	55	68	56	59	2.740	6.223	0.00	28.81	29.87	2	326	2	14	360	6	338	24
25	85	57	72	59	62	1.567	8.938	0.02	28.81	29.87	2	192	2	15	202	6	202	25
26	86	67	75	67	69	0.000	9.733	0.01	28.75	29.80	2	263	2	13	248	5	270	26
27	87	62	76	62	65	0.275	10.844	0.00	28.72	29.78	0	284	1	9	338	3	360	27
28	83	68	75	67	69	0.000	9.642	1.23	28.59	29.65	2	136	2	27	202	6	135	28
29	82	66	73	70	71	0.000	8.208	6.00	28.63	29.68	4	130	4	23	360	9	135	29
30	87	74	79	74	75	0.000	14.329	0.00	28.68	29.74	4	135	4	15	112	7	135	30
	85	63	73	59	63	1.125	9.136		28.81	29.87	4	197.71	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 7 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≥ 0: 0		Precipitation ≥ 0.01 in: 10 Precipitation ≥ 0.10 in: 6			Greatest 24 – hr precipitation: 7.23 Date: 28-29 Monthly Total Precipitation: 9.27					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.25 MINIMUM: 29.42		DATE: 12	TIME: 09:30	DEGREEE DAYS: >		HEATING: 22.498	COOLING: 274.088	MONTHLY TOTAL: 82.277	SEASON TO DATE TOTAL: 903.931			

**JUNE 2020  
Nicollet, MN USA**

**JULY 2020**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	86	68	77	71	73	0.000	12.442	0.65	28.81	29.86	2	151	2	20	338	6	338	01
02	89	71	80	73	74	0.000	14.579	0.00	28.94	30.01	1	163	0	9	202	3	202	02
03	89	70	79	71	73	0.000	13.833	0.00	28.97	30.03	1	156	0	8	225	3	225	03
04	89	71	81	72	74	0.000	15.652	0.00	28.93	30.00	1	152	0	8	45	2	180	04
05	89	73	81	71	73	0.000	15.738	0.00	28.87	29.93	2	221	2	12	180	6	202	05
06	84	70	76	69	71	0.000	11.485	0.01	28.87	29.93	1	271	2	13	270	6	270	06
07	87	70	78	71	72	0.000	13.306	0.00	28.83	29.88	1	267	1	14	202	6	225	07
08	92	72	81	73	74	0.000	16.306	0.00	28.71	29.77	4	175	4	24	202	12	202	08
09	81	68	74	70	71	0.000	9.479	0.04	28.73	29.79	2	204	2	19	248	7	202	09
10	84	63	75	66	68	0.058	10.106	0.00	28.88	29.94	2	284	2	14	248	5	270	10
11	85	64	73	66	68	0.031	8.042	1.68	28.83	29.89	1	336	1	34	360	9	22	11
12	83	62	73	64	66	0.231	8.090	0.00	28.87	29.93	2	355	1	10	360	4	22	12
13	85	63	75	67	69	0.202	10.558	0.00	28.77	29.83	5	145	4	21	180	10	135	13
14	77	62	71	64	66	0.123	6.569	0.09	28.80	29.86	1	339	3	16	202	6	158	14
15	79	56	68	60	62	1.848	5.119	0.00	28.94	30.00	0	164	0	9	315	3	202	15
16	85	57	72	62	65	1.619	8.696	0.00	28.92	29.98	5	198	5	20	202	11	202	16
17	87	70	79	73	74	0.000	14.071	0.00	28.85	29.91	5	167	5	14	180	8	202	17
18	92	68	81	75	76	0.000	15.842	0.02	28.65	29.70	4	184	6	26	338	13	202	18
19	84	65	75	63	66	0.000	9.987	0.00	28.81	29.87	4	315	4	20	315	8	315	19
20	82	63	72	63	65	0.294	7.492	0.02	28.91	29.98	1	178	1	11	202	5	202	20
21	82	66	72	66	67	0.000	7.362	0.03	28.84	29.90	1	283	3	13	360	7	338	21
22	76	58	66	57	60	2.358	2.919	0.00	28.96	30.02	2	2	2	12	360	5	338	22
23	83	56	70	63	65	2.321	7.623	0.00	29.01	30.07	3	137	2	11	248	5	158	23
24	91	70	81	73	75	0.000	15.602	0.00	28.91	29.97	5	158	5	22	225	8	180	24
25	87	69	80	74	76	0.000	14.650	1.74	28.81	29.87	4	165	5	21	202	8	158	25
26	85	67	74	69	70	0.000	8.846	4.33	28.87	29.94	2	317	3	14	338	6	338	26
27	84	60	73	63	65	0.838	8.567	0.00	28.93	29.99	2	300	2	15	360	5	292	27
28	85	65	75	66	68	0.000	9.948	0.00	28.81	29.87	1	273	2	15	270	7	202	28
29	83	61	73	64	66	0.408	8.267	0.00	28.85	29.91	1	5	1	9	360	3	360	29
30	80	63	71	62	64	0.160	6.331	0.00	28.94	30.00	1	22	1	12	360	5	22	30
31	83	59	72	61	64	0.717	7.488	0.00	28.94	30.01	1	4	0	10	360	3	360	31
	85	65	75	67	69	0.801	10.484		28.86	29.92	2	196.48	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 9			Greatest 24 - hr precipitation: 6.07 Date: 25-26									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 4				Monthly Total Precipitation: 8.61							
SEA LEVEL PRESSURE: >		MAXIMUM: 30.12		DATE: 23		TIME: 09:00		MONTHLY TOTAL		HEATING: 11.208		SEASON TO DATE TOTAL		82.277				
		MINIMUM: 29.63		18		19:30		DEGREEE DAYS: >		COOLING: 324.994		903.931						

**JULY 2020  
Nicollet, MN USA**

**AUGUST 2020**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	82	60	71	63	65	0.473	6.415	0.00	28.87	29.93	1	254	1	16	248	4	202	01
02	76	60	68	57	60	1.015	3.542	0.00	28.96	30.02	4	6	3	21	360	7	22	02
03	75	54	64	56	58	3.310	2.492	0.00	29.08	30.15	0	9	0	10	22	3	22	03
04	76	49	64	53	56	4.108	2.910	0.00	29.06	30.13	2	205	1	14	202	5	202	04
05	73	57	65	58	60	2.310	2.254	0.00	28.97	30.04	3	183	3	21	202	12	202	05
06	80	63	71	63	65	0.269	5.942	0.00	28.92	29.98	4	136	4	14	158	7	135	06
07	83	66	74	68	70	0.000	9.177	0.04	28.86	29.92	5	148	4	19	180	8	135	07
08	82	67	74	70	71	0.000	8.985	0.82	28.83	29.89	2	176	3	22	270	8	202	08
09	86	67	77	71	73	0.000	11.531	0.08	28.77	29.83	4	189	5	25	202	12	202	09
10	79	63	71	62	65	0.100	5.608	0.03	28.84	29.90	1	297	3	15	338	7	202	10
11	82	56	70	59	62	1.848	6.573	0.00	28.91	29.97	3	198	3	15	225	8	202	11
12	79	63	70	65	66	0.342	5.256	2.50	28.90	29.97	3	132	3	24	360	9	135	12
13	88	70	77	73	74	0.000	12.317	0.00	28.88	29.94	4	148	4	18	202	8	180	13
14	85	65	76	71	72	0.000	10.654	0.50	28.82	29.88	4	153	5	25	202	9	135	14
15	76	56	67	60	62	1.690	4.173	0.00	28.96	30.02	0	191	2	13	202	7	202	15
16	83	59	72	64	66	0.806	7.729	0.07	28.95	30.02	1	220	1	10	202	5	202	16
17	78	62	70	59	62	0.450	5.504	0.00	29.02	30.09	3	360	3	16	315	7	22	17
18	78	54	67	58	60	2.300	4.367	0.00	29.04	30.10	1	199	0	8	202	3	202	18
19	83	59	71	62	64	1.083	7.227	0.00	28.92	29.98	4	186	4	22	202	10	202	19
20	84	64	73	65	67	0.081	8.350	0.00	28.78	29.84	6	191	6	22	225	12	202	20
21	87	64	76	69	71	0.023	11.090	1.62	28.71	29.77	4	178	4	29	338	10	202	21
22	86	64	74	69	70	0.040	8.983	2.24	28.75	29.80	2	197	2	19	180	10	202	22
23	90	68	78	72	73	0.000	12.663	0.00	28.82	29.88	1	223	1	9	225	5	202	23
24	88	69	77	71	72	0.000	12.283	0.02	28.85	29.91	1	136	2	14	315	7	202	24
25	89	69	79	72	74	0.000	13.860	0.00	28.80	29.86	3	151	2	19	225	8	180	25
26	91	70	80	70	73	0.000	15.265	0.00	28.69	29.75	8	201	7	23	202	12	202	26
27	86	68	77	71	73	0.000	12.083	0.00	28.70	29.75	1	30	1	12	360	4	22	27
28	83	66	74	68	69	0.000	9.156	0.34	28.67	29.72	3	315	5	22	338	8	180	28
29	78	58	67	57	60	1.675	4.010	0.00	28.86	29.92	3	330	2	12	338	5	338	29
30	76	56	65	58	60	2.444	2.794	0.00	28.73	29.79	2	150	2	18	202	6	158	30
31	74	58	65	55	58	2.415	2.106	0.79	28.72	29.78	2	334	3	21	338	7	338	31
	82	62	72	64	66	1.339	7.590		28.86	29.92	3	187.86	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 12			Greatest 24 - hr precipitation: 3.86 Date: 21-22									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 7			Monthly Total Precipitation: 9.05								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.18		DATE: 4		TIME: 00:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.58		31		03:30		DEGREEE DAYS: >		HEATING: 26.781		82.277						
										COOLING: 235.300		903.931						

**AUGUST 2020  
Nicollet, MN USA**

**SEPTEMBER 2020**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	72	56	63	54	57	3.642	1.404	0.01	28.76	29.82	3	181	3	21	225	8	202	01
02	82	53	68	54	58	2.990	6.050	0.00	28.69	29.75	2	219	3	27	202	14	202	02
03	72	54	65	50	55	2.275	2.408	0.00	28.78	29.84	5	312	7	25	225	14	202	03
04	78	48	63	51	55	5.529	3.710	0.00	29.00	30.06	1	275	2	10	270	4	292	04
05	79	51	65	54	57	3.973	4.304	0.00	29.08	30.14	0	209	1	12	338	5	135	05
06	83	62	71	63	65	0.173	6.475	1.00	28.71	29.77	1	165	6	28	202	11	135	06
07	66	48	53	47	50	11.779	0.000	0.16	28.94	30.00	3	359	3	15	360	6	338	07
08	50	46	48	44	45	17.246	0.000	0.00	29.24	30.31	3	8	2	14	338	4	360	08
09	48	41	46	43	44	19.233	0.000	0.04	29.37	30.44	1	8	1	9	360	3	22	09
10	60	38	48	43	45	17.400	0.000	0.01	29.39	30.46	0	24	0	7	22	3	360	10
11	58	46	53	51	51	12.306	0.000	0.37	29.15	30.22	1	128	0	7	135	2	112	11
12	65	55	58	55	56	6.817	0.000	0.03	28.87	29.93	1	267	1	10	270	4	270	12
13	76	48	61	56	58	6.275	2.071	0.00	29.03	30.09	1	262	1	11	202	4	202	13
14	81	55	67	59	61	3.350	5.150	0.00	29.13	30.20	3	175	4	23	202	11	202	14
15	82	60	69	59	62	1.138	5.404	0.00	28.94	30.00	10	202	9	33	202	17	202	15
16	70	50	62	53	56	3.767	0.988	0.00	29.01	30.08	2	345	3	15	22	6	360	16
17	60	44	51	41	45	14.077	0.000	0.00	29.22	30.29	1	16	1	9	315	2	360	17
18	64	41	52	38	43	13.031	0.000	0.00	29.30	30.38	1	130	0	8	180	3	135	18
19	69	46	58	49	52	7.742	0.885	0.00	29.13	30.20	4	147	4	24	202	8	135	19
20	76	54	64	50	55	3.527	2.767	0.00	29.04	30.11	7	154	7	25	180	11	158	20
21	80	58	67	55	58	2.175	3.890	0.00	29.02	30.08	6	183	5	23	202	13	202	21
22	84	59	69	58	61	1.510	5.788	0.00	28.97	30.03	3	171	2	14	202	6	202	22
23	84	59	71	59	62	1.294	6.862	0.00	28.84	29.90	3	159	3	19	202	7	158	23
24	76	59	67	59	62	1.050	2.925	0.34	28.75	29.80	1	98	1	13	225	6	180	24
25	86	60	68	61	63	1.729	5.121	0.00	28.64	29.70	2	174	3	25	202	13	202	25
26	75	56	64	61	62	3.042	1.812	0.00	28.52	29.57	0	111	1	12	360	4	135	26
27	69	52	57	49	52	7.860	0.098	0.10	28.68	29.74	5	280	5	22	270	10	270	27
28	59	50	53	47	49	12.252	0.000	0.03	28.85	29.91	6	335	5	25	338	9	338	28
29	69	44	55	46	49	10.433	0.496	0.00	28.75	29.81	2	241	3	20	202	11	202	29
30	66	50	57	43	48	8.250	0.000	0.00	28.75	29.81	6	321	6	23	270	10	338	30
	71	51	60	52	55	6.862	3.430		28.95	30.01	3	188.66	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 8		Greatest 24 – hr precipitation: 1.00		Date: 5-6		Monthly Total Precipitation: 2.09						
SEA LEVEL PRESSURE: >		MAXIMUM: 30.52		DATE: 10		TIME: 10:00		MONTHLY TOTAL		SEASON TO DATE TOTAL		HEATING: 205.865		82.277				
		MINIMUM: 29.42		DATE: 26		TIME: 15:00		DEGREEE DAYS: >		COOLING: 68.608		903.931						

**SEPTEMBER 2020**  
**Nicollet, MN USA**

OCTOBER 2020

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	54	36	48	40	43	17.479	0.000	0.00	29.11	30.17	5	335	5	19	338	8	338	01
02	52	32	43	33	38	22.473	0.000	0.00	29.17	30.24	1	324	1	10	338	4	270	02
03	53	42	45	37	41	19.587	0.000	0.00	29.14	30.21	0	344	0	8	360	2	22	03
04	59	35	47	36	40	18.427	0.000	0.00	29.18	30.25	2	177	2	15	202	8	202	04
05	73	47	58	45	49	8.440	1.454	0.00	28.81	29.87	7	189	7	33	202	17	202	05
06	82	44	63	47	51	6.890	4.450	0.00	28.76	29.81	3	260	3	26	202	9	248	06
07	73	48	61	43	49	5.921	1.640	0.00	28.92	29.98	2	328	2	20	360	7	338	07
08	71	42	57	40	46	9.010	1.010	0.00	29.01	30.08	3	136	2	11	135	7	158	08
09	82	60	69	56	59	0.821	4.442	0.00	28.64	29.69	6	192	6	23	180	12	202	09
10	69	46	57	42	47	8.496	0.292	0.00	28.87	29.93	1	19	1	10	338	3	338	10
11	79	51	63	52	56	5.819	4.100	0.92	28.65	29.70	7	149	7	35	225	15	202	11
12	66	48	56	44	48	9.148	0.023	0.64	28.69	29.75	5	277	7	27	338	13	315	12
13	63	46	54	39	45	11.017	0.000	0.00	28.88	29.94	5	267	6	23	202	12	202	13
14	65	43	53	40	45	11.644	0.000	0.00	28.60	29.65	4	269	9	35	270	15	292	14
15	53	32	41	28	34	24.490	0.000	0.00	29.00	30.06	6	306	6	23	338	10	315	15
16	48	32	39	29	34	26.090	0.000	0.00	29.02	30.09	4	279	4	24	338	10	270	16
17	55	36	44	37	40	20.871	0.000	0.09	28.81	29.87	1	296	5	19	292	8	202	17
18	38	27	32	22	28	32.608	0.000	0.00	29.19	30.26	5	320	5	16	315	8	338	18
19	35	27	32	27	30	33.302	0.000	0.02	29.25	30.32	2	161	1	11	202	5	180	19
20	35	31	32	30	31	32.554	0.000	0.00	29.09	30.16	2	132	2	10	135	6	135	20
21	36	30	34	30	32	31.292	0.000	0.34	29.14	30.21	2	289	2	16	292	7	270	21
22	34	30	33	31	32	31.965	0.000	0.04	29.07	30.14	4	28	4	18	22	6	45	22
23	37	24	32	28	30	32.942	0.000	0.00	29.27	30.34	6	336	6	20	338	8	338	23
24	30	21	26	20	24	39.235	0.000	0.00	29.33	30.40	2	349	2	13	360	5	338	24
25	28	23	26	23	25	38.977	0.000	0.00	29.35	30.42	3	346	2	13	338	6	315	25
26	30	16	23	18	21	42.058	0.000	0.01	29.39	30.47	3	311	3	13	338	6	338	26
27	33	12	23	17	21	41.808	0.000	0.00	29.18	30.25	8	201	8	25	225	15	202	27
28	49	26	36	30	33	28.990	0.000	0.00	28.94	30.00	3	251	5	19	225	11	202	28
29	36	32	33	27	30	32.065	0.000	0.00	29.11	30.18	2	339	3	13	338	5	338	29
30	47	32	38	30	34	27.340	0.000	0.00	29.17	30.24	4	158	4	16	158	9	158	30
31	58	34	44	35	39	21.323	0.000	0.00	28.86	29.92	3	229	10	31	338	18	202	31
	52	35	43	34	38	22.357	2.176		29.02	30.08	4	245.17	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 14		Precipitation ≥ 0.01 in: 6		Greatest 24 - hr precipitation: 1.56 Date: 11-12										
		Maximum Temp ≤ 32: 3		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 3		Monthly Total Precipitation: 2.06										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.51		DATE: 26		TIME: 11:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.46		DATE: 14		TIME: 11:00		DEGREEE DAYS: >		HEATING: 693.079		82.277						
										COOLING: 17.410		903.931						

OCTOBER 2020  
Nicollet, MN USA



**NOVEMBER 2020**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	38	26	31	21	27	34.217	0.000	0.00	29.34	30.41	6	316	7	32	270	13	315	01
02	64	28	44	30	36	21.479	0.000	0.00	29.11	30.18	3	226	4	16	225	9	202	02
03	79	36	55	38	44	12.760	2.504	0.00	28.83	29.89	5	200	4	23	225	14	202	03
04	80	37	56	39	44	11.702	2.365	0.00	28.86	29.92	2	211	2	15	202	7	202	04
05	69	41	54	41	46	11.248	0.360	0.00	29.01	30.08	1	245	2	16	202	9	202	05
06	76	52	62	46	52	5.069	2.456	0.00	28.85	29.91	10	192	9	28	202	15	202	06
07	73	57	63	55	58	3.012	1.398	0.00	28.74	29.80	12	181	12	32	225	16	202	07
08	72	54	64	54	57	2.835	1.802	0.00	28.76	29.82	12	176	11	32	180	16	180	08
09	65	31	47	43	45	17.633	0.002	0.24	28.77	29.82	3	254	8	23	225	12	180	09
10	32	23	28	24	27	36.831	0.000	0.22	28.78	29.83	6	334	6	28	315	12	315	10
11	36	16	26	23	25	38.744	0.000	0.01	28.93	29.99	5	199	5	20	202	11	202	11
12	29	10	22	19	21	42.696	0.000	0.00	29.09	30.16	2	330	2	14	338	7	338	12
13	35	7	23	18	21	42.094	0.000	0.02	29.07	30.14	6	172	5	22	180	11	180	13
14	39	31	35	31	33	30.083	0.000	0.02	28.54	29.59	6	166	6	22	158	11	158	14
15	38	24	31	26	29	33.938	0.000	0.00	28.74	29.79	8	309	8	33	270	15	315	15
16	44	25	32	26	29	33.131	0.000	0.00	29.08	30.15	4	298	5	29	292	12	315	16
17	34	18	28	22	25	37.425	0.000	0.00	29.40	30.48	3	159	3	13	158	8	158	17
18	58	33	45	36	40	19.733	0.000	0.00	28.87	29.93	9	173	9	27	202	13	180	18
19	54	39	46	41	43	19.040	0.000	0.00	28.76	29.81	2	304	2	14	315	7	315	19
20	42	28	35	30	33	29.625	0.000	0.00	29.33	30.41	5	322	4	20	360	8	338	20
21	41	22	31	26	29	34.012	0.000	0.00	29.46	30.53	3	184	2	15	225	9	202	21
22	44	29	36	31	34	29.046	0.000	0.01	29.19	30.26	3	284	6	20	180	10	202	22
23	39	21	30	25	28	34.904	0.000	0.00	29.21	30.28	3	139	3	11	158	8	135	23
24	37	33	36	34	35	29.306	0.000	0.00	28.89	29.95	4	153	4	15	180	9	158	24
25	37	33	35	32	34	28.817	0.000	0.00	28.87	29.93	1	285	2	18	202	9	202	25
26	35	29	33	29	31	32.385	0.000	0.00	28.93	29.99	2	248	4	18	202	9	202	26
27	38	25	31	25	28	34.181	0.000	0.00	29.10	30.17	3	264	4	14	315	7	315	27
28	56	29	39	29	34	25.848	0.000	0.00	28.92	29.98	5	210	4	18	248	9	202	28
29	40	22	31	24	28	33.683	0.000	0.00	29.12	30.19	8	333	8	31	315	13	338	29
30	31	15	22	16	20	43.467	0.000	0.00	29.20	30.27	2	341	1	15	315	7	338	30
	48	29	38	31	34	26.965	1.555		28.99	30.06	5	240.22	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 3		Minimum Temp ≤ 32: 20 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 4 Precipitation ≥ 0.10 in: 2			Greatest 24 – hr precipitation: 0.24 Date: 8-9 Monthly Total Precipitation: 0.52					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.62 MINIMUM: 29.46		DATE: 21	TIME: 01:30	DEGREEE DAYS: >		HEATING: 808.946 COOLING: 10.887		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931				

NOVEMBER 2020  
Nicollet, MN USA

**DECEMBER 2020**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	42	16	26	17	22	38.558	0.000	0.00	29.11	30.18	3	152	3	12	180	7	158	01
02	40	18	28	22	26	36.871	0.000	0.00	29.31	30.39	3	292	2	15	270	7	292	02
03	44	23	32	24	28	33.440	0.000	0.00	29.06	30.12	3	268	2	14	248	6	270	03
04	46	24	34	26	30	31.458	0.000	0.00	28.97	30.03	2	304	1	8	292	4	315	04
05	44	21	32	27	29	33.127	0.000	0.00	29.10	30.17	2	306	1	11	270	4	270	05
06	34	26	32	29	30	33.354	0.000	0.00	29.08	30.15	2	312	2	10	292	5	292	06
07	32	26	31	29	30	34.419	0.000	0.00	29.04	30.11	1	178	1	9	158	4	180	07
08	47	26	35	29	32	30.452	0.000	0.00	28.91	29.97	2	210	2	12	225	6	180	08
09	53	30	39	30	35	26.277	0.000	0.00	28.89	29.95	2	302	2	10	315	6	315	09
10	48	34	39	32	35	25.900	0.000	0.00	28.87	29.93	1	275	5	23	202	11	202	10
11	37	26	32	28	30	32.742	0.000	0.00	29.04	30.10	3	21	3	14	22	5	45	11
12	30	24	28	23	26	37.196	0.000	0.00	29.07	30.13	3	3	3	14	22	6	360	12
13	29	17	25	19	23	40.250	0.000	0.00	29.14	30.21	5	299	5	24	360	11	338	13
14	19	10	15	6	12	50.465	0.000	0.00	29.34	30.42	4	321	4	20	315	9	292	14
15	26	14	20	9	17	44.612	0.000	0.00	29.28	30.35	4	161	3	13	202	7	180	15
16	31	15	23	13	20	41.662	0.000	0.00	29.04	30.11	4	165	4	16	202	7	158	16
17	29	22	26	21	24	39.304	0.000	0.00	29.05	30.11	5	161	5	15	135	8	158	17
18	41	23	33	28	30	32.465	0.000	0.00	28.95	30.01	5	173	7	24	202	12	158	18
19	27	18	21	17	20	44.335	0.000	0.00	29.00	30.06	2	257	5	22	338	10	338	19
20	40	16	31	23	27	34.410	0.000	0.00	28.74	29.80	3	213	4	18	202	10	202	20
21	40	17	32	25	29	32.604	0.000	0.00	28.77	29.82	8	306	8	42	292	17	338	21
22	50	16	35	25	30	30.198	0.000	0.00	28.78	29.83	9	168	8	30	202	16	180	22
23	45	2	25	20	23	40.369	0.000	0.04	28.40	29.44	7	312	12	43	292	20	315	23
24	6	-4	0	-3	-0	64.842	0.000	0.00	29.06	30.12	10	315	10	32	292	15	315	24
25	23	-5	10	7	9	55.444	0.000	0.00	29.02	30.09	3	208	3	22	202	14	202	25
26	26	10	18	16	17	46.881	0.000	0.00	28.94	30.01	1	144	0	7	135	4	135	26
27	25	12	21	19	20	43.879	0.000	0.00	28.89	29.95	2	360	2	15	22	5	360	27
28	25	6	15	12	14	50.333	0.000	0.00	29.34	30.41	3	292	3	18	270	9	270	28
29	23	4	17	15	17	47.762	0.000	0.03	29.19	30.26	5	156	5	15	158	10	202	29
30	25	18	21	19	21	43.590	0.000	0.00	28.96	30.02	8	289	7	26	292	13	292	30
31	25	14	20	17	19	45.058	0.000	0.00	29.16	30.23	5	170	5	16	180	9	158	31
	34	17	26	20	23	39.428	0.000		29.02	30.08	4	228.88	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Minimum Temp ≤ 32: 16		Minimum Temp ≤ 32: 30 Minimum Temp ≤ 0: 2		Precipitation ≥ 0.01 in: 2 Precipitation ≥ 0.10 in: 0			Greatest 24 - hr precipitation: 0.04 Date: 22-23 Monthly Total Precipitation: 0.07					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.55 MINIMUM: 29.24		DATE: 29 TIME: 02:30 23 11:00		DEGREEE DAYS: >		HEATING: 1222.258 COOLING: 0.000		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931				

**DECEMBER 2020**  
**Nicollet, MN USA**

**JANUARY 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	22	9	15	13	15	49.735	0.000	0.00	29.11	30.18	1	170	1	13	180	7	180	01
02	30	8	18	16	17	46.683	0.000	0.00	29.02	30.08	3	162	2	11	180	6	158	02
03	31	13	21	19	21	43.565	0.000	0.00	28.85	29.91	5	169	4	15	202	8	180	03
04	40	20	29	27	28	35.796	0.000	0.00	28.88	29.94	3	239	5	20	202	11	202	04
05	35	18	28	25	27	37.094	0.000	0.00	29.06	30.13	1	136	1	8	158	5	135	05
06	37	28	32	28	30	32.500	0.000	0.00	29.21	30.29	2	119	1	11	135	5	135	06
07	29	20	26	23	25	39.323	0.000	0.00	29.38	30.46	2	141	1	9	135	6	135	07
08	26	16	20	18	20	44.844	0.000	0.00	29.40	30.47	1	8	1	8	360	2	360	08
09	22	14	17	16	17	47.519	0.000	0.00	29.40	30.48	1	321	1	7	292	3	315	09
10	33	22	28	25	27	36.748	0.000	0.00	29.32	30.39	3	292	4	16	292	6	315	10
11	39	24	29	26	28	35.598	0.000	0.00	29.02	30.09	5	221	5	20	225	10	202	11
12	44	20	30	26	29	34.715	0.000	0.00	28.94	30.00	3	215	2	14	180	8	202	12
13	45	28	35	32	34	29.598	0.000	0.00	28.64	29.70	2	152	2	9	202	6	158	13
14	38	31	34	32	33	30.606	0.000	0.04	28.41	29.46	6	310	7	26	292	11	315	14
15	34	26	32	31	32	32.658	0.000	0.06	28.59	29.64	7	346	7	24	338	10	338	15
16	27	20	22	20	22	42.542	0.000	0.00	28.81	29.87	7	312	6	21	292	9	315	16
17	26	19	23	21	23	41.598	0.000	0.00	28.81	29.87	3	314	2	12	292	6	292	17
18	26	17	22	18	20	43.385	0.000	0.00	28.96	30.03	3	310	3	15	338	6	315	18
19	23	0	14	11	13	50.704	0.000	0.03	29.19	30.26	3	312	4	23	292	10	315	19
20	39	1	25	19	23	39.673	0.000	0.00	28.83	29.89	7	225	9	33	202	20	202	20
21	34	8	25	18	23	39.640	0.000	0.00	28.86	29.92	10	294	10	31	292	14	270	21
22	17	2	10	3	8	55.167	0.000	0.00	29.25	30.32	3	303	2	12	315	6	338	22
23	21	9	16	12	15	48.800	0.000	0.06	29.17	30.24	5	153	4	15	158	8	158	23
24	24	3	17	13	16	48.319	0.000	0.01	29.12	30.18	1	346	1	9	22	4	360	24
25	18	10	15	6	12	50.175	0.000	0.00	29.10	30.16	2	49	2	12	360	5	22	25
26	20	8	13	7	11	51.823	0.000	0.00	29.20	30.27	3	13	2	13	360	5	22	26
27	19	7	12	4	10	52.740	0.000	0.00	29.50	30.58	1	22	0	8	360	3	360	27
28	21	7	15	10	14	49.842	0.000	0.00	29.49	30.57	6	152	5	22	158	10	158	28
29	25	18	22	18	21	43.235	0.000	0.00	29.15	30.22	6	129	6	21	135	12	158	29
30	30	25	28	24	27	36.773	0.000	0.00	28.88	29.94	3	103	4	16	112	9	135	30
31	32	25	29	25	27	36.467	0.000	0.00	29.18	30.25	4	327	4	16	292	7	315	31
	29	15	23	19	21	42.189	0.000		29.06	30.12	4	205.35	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 20		Minimum Temp ≤ 32: 31 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 4 Precipitation ≥ 0.10 in: 0		Greatest 24 - hr precipitation: 0.10 Date: 14-15 Monthly Total Precipitation: 0.20										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.68 MINIMUM: 29.40		DATE: 28 TIME: 02:30		DEGREEE DAYS: >		HEATING: 1307.862 COOLING: 0.000		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931								

**JANUARY 2021  
Nicollet, MN USA**

**FEBRUARY 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	26	21	23	20	22	41.660	0.000	0.00	29.35	30.43	3	308	3	13	292	6	315	01
02	22	19	20	18	20	44.702	0.000	0.00	29.26	30.33	5	143	4	12	180	7	135	02
03	33	18	26	22	24	39.398	0.000	0.00	28.84	29.90	8	164	7	19	158	12	158	03
04	33	6	17	14	16	47.738	0.000	0.00	28.65	29.70	9	299	8	29	360	13	315	04
05	11	2	6	1	5	58.729	0.000	0.00	28.81	29.86	9	293	9	25	315	12	292	05
06	2	-15	-3	-9	-4	68.150	0.000	0.00	29.18	30.25	7	298	6	24	270	10	292	06
07	-2	-18	-9	-15	-10	73.717	0.000	0.00	29.35	30.43	3	306	3	13	315	6	315	07
08	1	-12	-6	-13	-7	71.488	0.000	0.00	29.40	30.48	2	322	1	10	292	4	292	08
09	9	-10	0	-6	-1	64.544	0.000	0.00	29.42	30.50	3	254	3	18	248	8	270	09
10	10	-10	1	-7	-1	64.263	0.000	0.00	29.49	30.57	2	302	1	14	338	6	315	10
11	0	-10	-5	-11	-6	69.713	0.000	0.00	29.62	30.70	3	339	2	14	292	6	315	11
12	-3	-17	-9	-16	-10	73.587	0.000	0.00	29.64	30.72	3	320	3	15	292	7	315	12
13	0	-15	-6	-14	-7	70.775	0.000	0.00	29.57	30.65	3	315	3	16	292	7	292	13
14	-4	-18	-13	-20	-14	77.869	0.000	0.00	29.72	30.81	4	329	4	15	315	6	315	14
15	-2	-22	-12	-20	-13	77.415	0.000	0.00	29.56	30.64	1	335	1	10	135	4	158	15
16	7	-19	-6	-14	-7	71.046	0.000	0.00	29.29	30.36	1	224	0	8	202	3	158	16
17	10	-0	6	-0	4	59.450	0.000	0.00	29.32	30.40	4	161	4	14	180	7	158	17
18	14	3	10	6	9	54.781	0.000	0.00	29.37	30.45	1	239	1	13	202	5	225	18
19	16	-4	7	2	6	58.179	0.000	0.00	29.30	30.37	1	255	1	11	202	5	202	19
20	24	-3	12	8	11	52.869	0.000	0.00	29.19	30.26	5	155	5	15	202	8	158	20
21	28	22	25	22	24	39.737	0.000	0.06	28.92	29.98	1	126	2	11	180	7	158	21
22	41	20	33	27	30	32.490	0.000	0.00	28.62	29.67	5	243	5	21	270	9	270	22
23	39	28	35	30	33	30.167	0.000	0.00	28.67	29.73	2	232	4	20	292	9	270	23
24	36	25	31	28	30	33.792	0.000	0.00	29.03	30.10	4	306	4	22	292	9	315	24
25	37	22	30	26	28	35.250	0.000	0.00	29.24	30.31	4	216	4	18	225	9	180	25
26	40	29	34	29	32	31.119	0.000	0.00	28.82	29.87	11	186	10	32	180	16	202	26
27	47	28	36	31	34	28.527	0.000	0.00	28.83	29.89	2	207	3	12	180	7	202	27
28	37	20	27	23	26	37.969	0.000	0.09	28.89	29.95	5	315	6	27	292	12	292	28
	18	3	11	6	10	53.897	0.000		29.19	30.26	4	256.80	4	< Monthly Avg				
NUMBER OF DAYS WITH:	>	Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 28		Precipitation ≥ 0.01 in: 2		Greatest 24 – hr precipitation: 0.09 Date: 27-28										
		Maximum Temp ≤ 32: 19		Minimum Temp ≤ 0: 14		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.15										
SEA LEVEL PRESSURE:	>	MAXIMUM: 30.86		DATE	TIME	MONTHLY TOTAL		SEASON TO DATE TOTAL										
		MINIMUM: 29.57		14	12:00	1509.121		82.277										
				22	15:00	DEGREEE DAYS: >		COOLING: 0.000										
								903.931										

**FEBRUARY 2021  
Nicollet, MN USA**

MARCH 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	23	13	19	13	17	45.781	0.000	0.01	29.30	30.38	1	348	3	13	180	8	180	01
02	49	23	35	30	32	29.979	0.000	0.00	28.92	29.98	10	196	10	34	202	21	202	02
03	50	30	39	33	36	26.337	0.000	0.00	29.01	30.07	0	97	1	8	202	3	225	03
04	47	32	38	31	35	26.971	0.000	0.00	29.23	30.30	4	131	3	18	135	10	135	04
05	48	30	37	31	34	27.935	0.000	0.00	29.30	30.37	3	169	2	15	180	8	202	05
06	50	28	38	29	34	27.194	0.000	0.00	29.24	30.31	4	131	4	13	135	7	135	06
07	63	36	48	40	43	17.171	0.000	0.00	29.01	30.08	8	183	8	36	225	22	202	07
08	59	32	46	37	40	19.225	0.000	0.00	29.14	30.20	2	131	2	12	135	7	158	08
09	64	44	53	45	48	11.500	0.000	0.00	28.81	29.87	8	167	7	26	202	12	180	09
10	49	33	41	39	40	24.362	0.000	0.29	28.55	29.60	3	322	4	27	270	14	270	10
11	48	30	37	30	33	28.435	0.000	0.00	29.02	30.09	8	287	8	31	270	17	270	11
12	46	27	35	28	32	29.650	0.000	0.00	29.41	30.49	0	5	1	9	360	3	315	12
13	58	30	43	33	37	21.792	0.000	0.00	29.33	30.41	3	210	3	23	202	12	202	13
14	46	37	41	28	34	22.765	0.000	0.00	29.27	30.34	3	84	3	12	112	5	90	14
15	38	29	31	27	29	34.165	0.000	0.88	29.04	30.11	3	110	3	16	135	8	112	15
16	35	28	31	29	30	34.008	0.000	0.01	28.98	30.04	2	127	1	8	135	5	135	16
17	37	31	34	31	32	31.350	0.000	0.01	29.05	30.11	2	5	2	11	360	4	22	17
18	45	27	35	29	32	30.154	0.000	0.00	29.28	30.35	3	353	3	14	338	5	360	18
19	46	24	36	27	31	29.235	0.000	0.00	29.41	30.48	4	161	3	14	202	7	180	19
20	57	35	44	33	38	20.504	0.000	0.00	29.17	30.24	10	169	10	33	180	14	180	20
21	62	43	51	40	45	14.490	0.000	0.00	28.85	29.91	9	180	10	35	202	17	180	21
22	54	33	45	38	41	20.179	0.000	0.00	28.94	30.00	1	283	2	11	270	6	292	22
23	51	42	46	43	45	19.056	0.000	0.52	28.72	29.78	3	37	3	18	22	6	22	23
24	44	38	41	39	40	24.167	0.000	0.27	28.62	29.67	6	337	6	26	292	10	338	24
25	53	30	42	35	38	23.298	0.000	0.00	28.84	29.90	1	86	1	11	360	3	158	25
26	54	29	41	35	38	24.013	0.000	0.00	28.93	29.99	3	140	3	16	225	7	180	26
27	44	37	41	38	40	24.148	0.000	0.15	28.88	29.94	2	322	4	23	315	11	315	27
28	48	30	39	28	33	26.444	0.000	0.00	29.04	30.10	5	314	6	23	315	10	292	28
29	74	41	56	40	46	10.571	2.029	0.00	28.51	29.56	11	184	12	46	180	18	180	29
30	55	29	37	20	29	27.763	0.000	0.00	28.80	29.86	13	291	13	35	248	18	292	30
31	34	24	28	16	23	37.310	0.000	0.00	29.30	30.38	8	313	8	27	338	11	338	31
	49	31	40	32	36	25.482	2.029		29.03	30.09	5	189.55	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 19		Precipitation ≥ 0.01 in: 5		Greatest 24 - hr precipitation: 0.88 Date: 14-15										
		Maximum Temp ≤ 32: 1		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 2.14										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.56		DATE: 12		TIME: 12:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.32		DATE: 29		TIME: 19:30		DEGREEE DAYS: >		HEATING: 789.952		82.277						
										COOLING: 2.029		903.931						

MARCH 2021  
Nicollet, MN USA

APRIL 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	47	16	32	16	25	32.550	0.000	0.00	29.45	30.53	4	175	3	18	158	8	180	01
02	67	34	50	25	35	15.600	0.183	0.00	29.06	30.12	11	174	11	37	202	18	180	02
03	72	35	55	30	39	11.367	1.315	0.00	28.99	30.05	1	13	3	19	202	10	202	03
04	76	45	60	34	43	7.992	3.331	0.00	28.87	29.93	2	187	4	21	202	10	202	04
05	86	48	69	47	53	4.567	8.246	0.00	28.59	29.64	8	189	8	33	248	19	202	05
06	78	48	61	50	54	5.796	2.181	0.09	28.61	29.66	1	31	3	19	22	7	135	06
07	73	53	60	57	58	5.485	0.969	0.41	28.52	29.57	0	194	3	19	202	8	158	07
08	62	49	53	50	51	11.790	0.000	0.13	28.39	29.44	2	102	4	15	135	9	158	08
09	50	45	47	44	46	17.979	0.000	0.05	28.54	29.59	4	305	5	24	292	10	292	09
10	50	41	45	40	43	19.529	0.000	0.00	28.69	29.74	5	346	5	19	315	7	338	10
11	53	39	46	40	43	19.050	0.000	0.00	28.58	29.63	4	330	4	19	292	8	292	11
12	46	37	42	37	40	22.573	0.000	0.10	28.76	29.82	10	286	9	29	270	15	292	12
13	38	30	34	27	31	30.946	0.000	0.00	29.03	30.09	9	285	9	25	292	14	270	13
14	44	29	36	31	34	29.296	0.000	0.00	29.15	30.22	8	306	7	23	292	9	292	14
15	46	34	40	34	37	24.827	0.000	0.00	29.14	30.21	5	323	5	18	315	8	338	15
16	60	40	49	37	42	16.225	0.000	0.00	29.02	30.08	3	337	3	12	338	5	292	16
17	61	36	47	33	39	17.540	0.000	0.00	28.98	30.04	3	332	3	19	292	7	292	17
18	68	33	48	32	38	16.692	0.071	0.00	28.85	29.91	4	306	5	32	225	10	292	18
19	42	31	36	22	29	29.200	0.000	0.00	28.99	30.05	8	338	8	26	292	11	338	19
20	46	30	36	18	27	28.735	0.000	0.00	29.10	30.16	5	337	5	20	292	8	338	20
21	46	26	36	21	29	28.565	0.000	0.00	29.12	30.19	4	318	5	19	338	8	292	21
22	63	34	50	26	36	15.002	0.000	0.00	28.94	30.00	5	239	5	33	292	11	202	22
23	55	45	49	39	43	15.660	0.000	0.00	28.82	29.87	4	174	4	28	202	10	180	23
24	53	36	43	30	36	22.115	0.000	0.00	28.94	30.00	5	335	5	22	292	8	338	24
25	44	31	39	29	34	26.398	0.000	0.01	28.96	30.02	5	135	5	20	135	11	135	25
26	60	42	51	41	45	14.402	0.000	0.00	28.63	29.68	4	110	4	14	112	8	135	26
27	54	42	47	43	45	18.450	0.000	0.52	28.72	29.78	4	24	4	19	360	7	360	27
28	64	40	49	42	45	15.885	0.000	0.00	28.91	29.97	2	16	2	11	22	4	360	28
29	70	41	56	39	45	9.725	0.756	0.00	28.93	29.99	4	332	4	26	360	10	338	29
30	65	42	55	30	39	9.650	0.000	0.00	29.07	30.14	1	67	3	13	22	9	158	30
	58	38	47	35	40	18.120	2.132		28.88	29.94	4	221.48	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 7		Precipitation ≥ 0.01 in: 6		Greatest 24 – hr precipitation: 0.52 Date: 26-27										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 3		Monthly Total Precipitation: 1.31										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.64		DATE: 1		TIME: 09:30		MONTHLY TOTAL: 543.590		SEASON TO DATE TOTAL: 82.277								
		MINIMUM: 29.38		DATE: 8		TIME: 15:00		DEGREEE DAYS: >		HEATING: 17.052		COOLING: 903.931						

APRIL 2021  
Nicollet, MN USA

MAY 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	90	56	73	43	50	2.154	9.973	0.00	28.53	29.58	3	210	5	26	202	11	180	01
02	70	53	63	46	51	2.777	0.690	0.00	28.43	29.48	2	24	2	14	22	5	45	02
03	68	49	58	45	50	7.354	0.158	0.00	28.64	29.69	6	347	5	28	360	10	338	03
04	61	39	50	31	39	14.790	0.000	0.00	28.95	30.01	6	341	5	22	338	8	338	04
05	54	35	44	34	39	20.558	0.000	0.27	29.10	30.17	1	315	1	13	180	5	225	05
06	64	39	51	36	42	13.700	0.000	0.00	29.11	30.17	5	305	4	26	270	8	292	06
07	61	39	50	31	39	14.602	0.000	0.00	29.04	30.10	3	351	3	18	68	6	338	07
08	53	39	47	30	37	18.148	0.000	0.00	29.00	30.06	3	145	3	16	225	10	202	08
09	66	35	52	31	39	13.373	0.008	0.00	28.96	30.03	3	336	3	16	45	7	338	09
10	58	42	49	29	37	15.944	0.000	0.00	29.13	30.19	2	26	2	15	360	6	360	10
11	63	33	50	26	36	15.190	0.000	0.00	29.30	30.38	0	242	1	12	292	5	202	11
12	69	38	55	28	38	10.171	0.575	0.00	29.32	30.39	2	218	2	18	202	6	158	12
13	72	43	59	31	40	7.642	1.615	0.00	29.21	30.29	6	190	6	33	202	12	202	13
14	61	52	57	42	47	8.244	0.000	0.03	29.08	30.15	5	166	5	19	202	10	202	14
15	78	49	64	47	52	5.152	4.042	0.00	28.96	30.02	0	227	3	20	202	8	180	15
16	75	51	63	53	56	4.581	2.733	0.00	28.97	30.04	4	158	4	21	225	9	180	16
17	79	50	65	52	56	3.873	4.121	0.00	29.02	30.08	4	137	3	20	135	8	135	17
18	68	55	62	57	59	3.210	0.196	0.02	28.96	30.02	4	135	3	13	135	7	135	18
19	75	62	67	64	65	0.815	2.796	1.11	28.89	29.95	3	161	3	16	202	7	202	19
20	74	65	69	66	67	0.008	3.900	0.11	28.90	29.97	5	155	5	14	202	7	158	20
21	83	63	72	67	68	0.275	7.092	0.12	29.01	30.07	5	172	5	24	225	12	202	21
22	83	66	75	67	69	0.000	10.021	0.00	29.07	30.14	6	175	6	22	202	12	202	22
23	82	63	73	65	67	0.210	7.917	0.00	28.99	30.05	3	184	3	13	202	7	202	23
24	87	68	77	64	67	0.000	11.906	0.00	28.82	29.88	6	193	6	28	202	15	202	24
25	85	65	75	59	63	0.010	9.656	0.18	28.71	29.76	6	237	7	25	225	13	202	25
26	68	56	61	45	50	4.298	0.204	0.00	29.01	30.08	4	338	4	23	315	9	338	26
27	57	42	48	44	46	16.852	0.000	1.02	29.03	30.10	2	94	2	14	22	4	135	27
28	59	40	49	40	44	16.402	0.000	0.05	29.15	30.22	1	43	1	13	360	4	22	28
29	66	40	54	40	45	10.921	0.000	0.00	29.16	30.23	3	147	3	19	202	6	135	29
30	62	50	56	50	52	9.075	0.000	0.07	29.11	30.17	6	192	6	25	202	11	180	30
31	78	51	65	50	54	4.719	4.254	0.00	29.06	30.13	3	238	4	15	338	9	202	31
	70	49	60	46	50	8.450	4.308		28.99	30.05	4	199.99	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 10			Greatest 24 - hr precipitation: 1.21 Date: 19-20									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 6			Monthly Total Precipitation: 2.98								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.46		DATE: 12		TIME: 08:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.44		1		19:00		DEGREEE DAYS: >		HEATING: 245.048		82.277						
								COOLING: 81.856		903.931								

MAY 2021  
Nicollet, MN USA

**JUNE 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES								
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date	
														INSTANT		ARCHIVE			
														SPEED	DIR	SPEED	DIR		
01	80	50	66	46	52	3.798	5.185	0.00	29.02	30.08	1	302	1	12	360	5	338	01	
02	86	58	72	48	54	1.635	8.208	0.00	28.84	29.90	2	227	3	19	225	6	248	02	
03	92	66	79	51	57	0.000	13.792	0.00	28.71	29.77	5	241	5	19	225	9	202	03	
04	96	71	84	57	62	0.000	18.871	0.00	28.66	29.72	8	204	8	25	202	12	202	04	
05	99	71	87	61	66	0.000	21.950	0.00	28.57	29.62	9	199	9	30	225	14	202	05	
06	92	72	82	62	66	0.000	17.340	0.00	28.58	29.63	12	193	11	33	180	19	202	06	
07	94	72	83	66	70	0.000	18.112	0.00	28.67	29.72	5	188	5	22	202	11	202	07	
08	94	72	84	66	69	0.000	19.048	0.00	28.83	29.89	2	169	2	13	225	6	202	08	
09	95	71	84	66	70	0.000	18.908	0.00	28.86	29.92	2	159	2	15	202	6	135	09	
10	98	72	86	67	71	0.000	21.069	0.00	28.74	29.80	2	187	2	15	180	6	202	10	
11	85	67	79	67	69	0.000	13.577	0.49	28.71	29.76	2	245	4	23	360	8	202	11	
12	87	64	76	53	58	0.040	10.617	0.00	28.90	29.96	3	325	3	16	360	6	315	12	
13	96	60	79	54	60	0.598	14.623	0.00	28.90	29.97	3	252	4	25	248	11	202	13	
14	88	63	76	52	58	0.150	10.652	0.00	28.97	30.03	2	5	2	14	22	5	360	14	
15	84	61	73	56	60	0.367	8.237	0.00	29.03	30.09	1	33	1	12	338	3	360	15	
16	89	61	77	58	62	0.500	12.027	0.00	28.91	29.97	3	136	3	15	202	6	135	16	
17	88	68	79	65	68	0.000	14.473	0.00	28.70	29.76	1	178	3	18	180	9	202	17	
18	91	59	76	55	60	0.871	11.967	0.00	28.72	29.78	1	296	1	13	225	6	338	18	
19	81	60	72	52	57	0.494	7.144	0.00	28.73	29.79	2	330	2	15	22	5	360	19	
20	80	61	69	59	62	0.338	4.615	0.02	28.55	29.61	1	264	5	26	338	10	202	20	
21	68	51	60	42	48	5.348	0.337	0.00	28.85	29.91	6	342	5	20	292	8	360	21	
22	79	51	65	46	51	4.235	4.177	0.00	28.82	29.88	1	165	1	12	225	4	202	22	
23	90	57	74	62	65	1.650	11.021	0.00	28.68	29.74	3	152	2	16	202	7	202	23	
24	87	66	78	67	70	0.000	13.473	0.00	28.67	29.73	1	258	3	16	202	8	180	24	
25	86	63	74	59	63	0.225	9.575	0.00	28.76	29.81	1	78	0	15	22	2	22	25	
26	73	66	69	65	66	0.000	3.810	2.29	28.68	29.73	2	2	1	11	360	4	22	26	
27	80	64	71	65	67	0.040	6.258	0.01	28.84	29.90	1	283	1	9	202	3	202	27	
28	81	64	69	66	67	0.110	4.413	0.58	28.96	30.02	1	161	1	13	338	4	202	28	
29	83	66	73	67	68	0.000	8.058	0.07	29.01	30.08	1	267	1	11	202	4	270	29	
30	85	61	74	62	65	0.408	9.621	0.00	29.01	30.07	1	353	1	10	360	3	360	30	
	87	64	76	59	63	1.224	11.372		28.80	29.85	3	206.53	3	< Monthly Avg					
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 11 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 5 Precipitation ≥ 0.10 in: 3			Greatest 24 – hr precipitation: 2.30 Date: 26-27 Monthly Total Precipitation: 3.46						
SEA LEVEL PRESSURE: >						MAXIMUM: 30.14 MINIMUM: 29.47		DATE	TIME	MONTHLY TOTAL		SEASON TO DATE TOTAL							
								15	11:30	20.806		82.277							
								20	16:30	DEGREEE DAYS: >		HEATING: 341.158		COOLING: 903.931					

**JUNE 2021  
Nicollet, MN USA**



**JULY 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	89	62	76	65	67	0.294	10.831	0.00	28.98	30.04	1	296	1	10	202	4	270	01
02	83	63	73	59	63	0.169	8.144	0.00	29.01	30.08	1	102	0	9	360	2	112	02
03	86	62	75	64	67	0.394	10.052	0.00	28.91	29.98	3	189	3	13	202	7	202	03
04	91	71	81	69	72	0.000	15.781	0.00	28.73	29.79	9	200	9	30	202	18	202	04
05	94	69	81	71	73	0.000	16.369	0.00	28.80	29.86	1	247	2	11	360	5	202	05
06	82	64	74	70	71	0.008	8.883	0.76	28.85	29.92	1	351	2	21	248	7	270	06
07	72	56	64	58	59	3.206	1.842	0.18	28.93	29.99	3	12	3	14	360	5	360	07
08	73	53	64	57	59	3.354	2.038	0.00	28.92	29.98	0	327	0	9	360	3	315	08
09	71	61	67	64	64	0.515	2.150	1.31	28.91	29.97	1	132	1	7	112	3	135	09
10	75	63	68	64	65	0.335	2.856	0.06	28.91	29.97	0	110	0	9	22	2	135	10
11	81	60	71	62	64	0.975	6.521	0.01	28.96	30.02	1	16	1	10	338	3	360	11
12	80	58	70	61	63	1.025	6.069	0.01	28.97	30.03	1	163	1	10	202	4	135	12
13	83	60	72	64	66	0.813	7.827	0.01	28.92	29.98	3	201	3	14	202	8	202	13
14	71	62	67	65	65	0.165	2.160	0.36	28.88	29.94	0	351	1	10	22	4	22	14
15	79	58	68	61	63	1.490	4.915	0.00	28.94	30.00	1	33	0	9	360	3	360	15
16	81	58	70	60	63	1.285	6.413	0.00	28.95	30.02	1	138	0	9	180	2	135	16
17	83	61	72	64	66	0.752	7.919	0.00	29.04	30.10	1	131	0	7	22	2	135	17
18	83	64	74	65	67	0.029	8.727	0.00	29.12	30.18	1	151	1	11	202	4	180	18
19	87	63	74	66	68	0.235	9.523	0.00	29.09	30.16	1	248	1	10	202	4	248	19
20	88	63	76	69	70	0.123	11.267	0.00	29.02	30.08	2	298	1	10	360	4	270	20
21	85	69	76	69	71	0.000	10.992	0.00	28.98	30.04	1	170	1	13	202	5	202	21
22	86	68	77	69	70	0.000	11.729	0.00	28.91	29.98	4	168	4	23	202	9	202	22
23	90	71	80	72	74	0.000	15.223	0.00	28.82	29.88	6	184	6	20	225	8	202	23
24	90	69	79	69	71	0.000	14.000	0.18	28.81	29.86	2	290	3	16	338	9	202	24
25	88	61	76	64	67	0.406	11.485	0.00	28.90	29.96	1	222	1	11	225	4	225	25
26	87	71	78	71	73	0.000	13.333	0.00	28.87	29.93	5	201	4	22	225	11	202	26
27	92	70	81	74	76	0.000	16.060	0.00	28.84	29.89	3	199	3	18	248	8	202	27
28	94	70	82	76	77	0.000	16.944	0.09	28.82	29.88	3	188	4	21	202	10	202	28
29	84	69	77	69	71	0.000	11.798	0.00	28.93	30.00	3	360	3	12	360	5	315	29
30	74	61	68	62	64	0.242	3.465	0.05	29.06	30.12	1	242	0	13	180	5	248	30
31	85	55	70	61	63	2.392	7.056	0.00	28.98	30.04	2	319	3	14	292	6	338	31
	83	63	74	66	67	0.867	9.109		28.93	29.99	2	201.35	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 5		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 8		Greatest 24 - hr precipitation: 1.35 Date: 9-10										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 3.02										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.21		DATE: 18		TIME: 10:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.74		4		16:00		DEGREEE DAYS: >		HEATING: 18.206		82.277						
										COOLING: 282.371		903.931						

**JULY 2021  
Nicollet, MN USA**

**AUGUST 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	80	57	68	56	59	1.800	4.760	0.00	29.07	30.14	2	360	2	13	360	5	22	01
02	81	54	68	58	60	2.762	5.594	0.00	29.07	30.14	1	260	1	10	225	4	202	02
03	82	58	70	60	63	1.550	6.529	0.00	29.01	30.07	3	208	3	13	202	7	202	03
04	80	60	71	61	64	0.871	6.617	0.00	28.98	30.04	3	186	3	19	202	9	202	04
05	85	67	74	66	68	0.000	8.875	0.00	28.83	29.89	4	187	4	20	225	9	202	05
06	84	61	74	66	68	0.273	8.987	0.00	28.81	29.87	0	6	1	9	22	4	22	06
07	84	70	75	72	72	0.000	9.890	0.32	28.69	29.74	1	131	1	11	135	6	135	07
08	75	70	73	69	70	0.000	7.754	0.02	28.62	29.68	2	180	2	21	225	11	202	08
09	85	64	74	70	71	0.006	9.381	0.00	28.70	29.76	1	126	1	8	180	3	135	09
10	87	68	77	68	70	0.000	12.010	0.00	28.69	29.75	1	221	2	16	202	5	135	10
11	82	66	73	62	65	0.000	8.498	0.00	28.65	29.71	2	280	3	15	338	7	338	11
12	80	59	71	57	60	0.329	6.554	0.00	28.84	29.90	2	297	4	21	338	8	202	12
13	80	53	66	52	56	3.537	4.969	0.00	29.06	30.13	2	312	2	18	270	7	315	13
14	86	51	69	54	58	3.463	7.702	0.00	29.13	30.20	3	191	3	19	225	8	202	14
15	83	59	71	57	61	0.921	7.100	0.00	29.03	30.09	4	158	4	19	225	8	202	15
16	85	60	72	62	65	1.079	8.296	0.00	28.89	29.95	4	144	4	20	225	7	135	16
17	89	63	75	67	69	0.150	10.544	0.00	28.81	29.87	4	143	4	20	202	7	135	17
18	88	68	77	69	71	0.000	12.046	0.00	28.90	29.96	4	138	3	16	202	6	135	18
19	90	68	78	70	71	0.000	13.169	0.00	28.90	29.96	3	139	3	16	202	6	135	19
20	88	71	77	70	72	0.000	12.242	0.63	28.69	29.75	5	141	5	19	158	9	135	20
21	73	58	67	59	61	1.169	3.027	0.00	28.81	29.87	3	296	4	18	292	7	292	21
22	79	51	65	57	59	3.838	3.544	0.10	28.92	29.98	3	133	3	16	135	8	135	22
23	89	65	76	69	71	0.000	10.887	0.00	28.78	29.84	2	148	1	10	202	4	135	23
24	81	65	72	69	70	0.000	7.252	1.85	28.75	29.81	1	114	2	21	90	8	360	24
25	83	63	71	65	66	0.090	6.581	0.00	28.98	30.05	2	343	1	11	292	5	315	25
26	75	60	66	62	63	1.500	2.417	0.07	29.00	30.06	1	71	1	21	22	7	22	26
27	81	67	72	69	70	0.000	7.163	0.51	28.81	29.87	2	138	2	18	225	8	135	27
28	82	66	74	70	71	0.000	8.935	1.00	28.80	29.86	3	166	4	33	202	11	202	28
29	82	63	71	63	65	0.094	6.044	0.17	28.88	29.94	2	284	3	15	292	7	135	29
30	83	57	70	59	62	1.779	6.723	0.00	28.89	29.95	0	257	0	11	202	2	202	30
31	81	60	69	61	63	0.994	5.379	0.00	28.80	29.86	0	77	0	12	360	2	22	31
	83	62	72	63	66	1.379	7.725		28.87	29.93	2	188.25	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 9			Greatest 24 - hr precipitation: 1.85 Date: 23-24									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 6			Monthly Total Precipitation: 4.67								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.26		DATE: 14		TIME: 10:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.60		DATE: 11		TIME: 06:00		DEGREEE DAYS: >		HEATING: 26.204		82.277						
								COOLING: 239.469		903.931								

**AUGUST 2021**  
**Nicollet, MN USA**

**SEPTEMBER 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	78	58	67	59	62	1.915	4.275	0.00	28.92	29.98	3	133	1	10	180	5	135	01
02	68	60	63	59	60	2.108	0.396	0.26	28.95	30.01	2	135	2	9	135	4	135	02
03	67	61	64	62	63	1.444	0.292	0.34	28.85	29.91	1	126	1	11	112	6	135	03
04	79	60	67	59	61	1.625	3.983	0.01	28.87	29.93	2	316	2	15	360	6	338	04
05	81	54	66	56	59	3.744	4.860	0.00	28.84	29.90	2	314	2	15	248	6	292	05
06	83	52	68	57	60	3.750	6.496	0.00	28.79	29.85	3	154	2	16	202	6	135	06
07	79	57	71	58	62	0.781	6.290	0.00	28.70	29.75	3	316	4	22	292	9	202	07
08	76	55	64	53	56	4.102	3.127	0.00	28.87	29.93	3	325	3	21	338	7	338	08
09	77	49	63	52	55	5.377	3.037	0.00	28.96	30.02	0	305	0	10	338	3	270	09
10	83	54	68	58	61	3.088	6.315	0.00	28.85	29.92	3	171	3	19	202	8	180	10
11	81	62	70	62	64	0.383	4.885	0.00	28.78	29.84	1	4	2	12	338	4	202	11
12	72	56	62	51	55	3.567	1.067	0.00	28.96	30.03	2	9	1	21	22	5	22	12
13	77	50	64	58	60	4.858	3.856	0.38	28.86	29.92	1	145	2	22	248	7	270	13
14	73	55	62	56	58	4.142	1.162	0.00	28.82	29.88	3	308	3	15	338	7	338	14
15	80	48	65	52	56	5.175	4.731	0.00	28.89	29.95	3	162	3	20	202	9	202	15
16	90	65	77	62	66	0.000	11.810	0.00	28.71	29.76	9	171	8	37	225	14	180	16
17	77	50	63	52	55	4.073	2.437	0.24	29.01	30.07	2	307	3	56	202	12	202	17
18	80	46	64	52	55	6.383	5.390	0.00	29.04	30.10	4	142	3	18	202	7	135	18
19	90	69	79	65	68	0.000	13.546	0.00	28.76	29.82	7	164	7	30	225	13	180	19
20	76	56	66	61	63	2.406	3.623	0.27	28.65	29.71	2	218	6	22	22	9	202	20
21	69	47	57	48	51	8.540	0.560	0.00	29.13	30.20	4	323	3	19	360	7	315	21
22	71	42	56	44	48	10.288	0.871	0.00	29.21	30.28	0	332	0	12	315	3	225	22
23	76	45	60	44	49	7.302	2.454	0.00	28.97	30.03	3	153	3	20	225	8	135	23
24	68	45	56	45	49	8.727	0.100	0.06	28.84	29.90	1	351	3	21	22	8	22	24
25	74	39	56	37	43	11.052	1.683	0.00	28.89	29.95	2	275	2	19	180	7	270	25
26	89	53	69	53	57	3.677	7.535	0.00	28.66	29.71	3	189	3	18	180	9	202	26
27	82	57	67	55	58	2.669	4.681	0.00	28.74	29.79	1	19	1	10	22	4	22	27
28	86	55	69	55	59	2.750	6.565	0.00	28.82	29.88	5	138	4	16	158	8	135	28
29	87	61	72	60	63	0.638	7.956	0.00	28.86	29.92	4	146	4	16	158	9	135	29
30	78	63	68	63	65	0.275	3.573	0.10	28.98	30.05	2	160	2	18	202	8	202	30
	78	54	65	55	58	4.101	4.252		28.87	29.93	3	200.38	3	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 1 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 7 Precipitation ≥ 0.10 in: 5			Greatest 24 – hr precipitation: 0.59 Date: 2-3 Monthly Total Precipitation: 1.66					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.36 MINIMUM: 29.58		DATE: 22 TIME: 10:30 13:00		DEGREEE DAYS: >			HEATING: 114.838 COOLING: 127.558		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931			

**SEPTEMBER 2021**  
**Nicollet, MN USA**

OCTOBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	78	64	68	65	66	0.146	3.571	0.95	28.95	30.02	1	166	2	12	225	5	202	01
02	66	62	64	63	63	0.960	0.094	0.28	28.85	29.91	2	276	2	12	270	5	202	02
03	76	53	63	53	56	4.552	2.323	0.00	28.88	29.95	3	342	2	16	270	6	338	03
04	76	47	61	52	54	6.658	2.381	0.00	29.02	30.09	1	42	0	8	22	2	22	04
05	76	48	62	55	57	5.681	2.802	0.00	29.15	30.22	3	147	2	14	135	5	158	05
06	73	54	63	58	60	3.723	1.760	0.00	29.11	30.18	3	148	2	11	158	6	135	06
07	73	60	65	62	63	1.273	1.631	0.00	28.99	30.05	1	139	1	9	158	5	158	07
08	78	62	68	62	64	0.994	3.535	0.00	28.87	29.93	2	143	2	9	135	5	135	08
09	79	61	71	62	64	0.810	6.325	0.00	28.63	29.68	6	141	6	23	135	12	135	09
10	72	51	61	55	57	4.117	0.490	0.00	28.48	29.53	6	224	6	27	202	14	202	10
11	74	45	57	45	49	9.419	1.344	0.00	28.65	29.70	1	328	1	13	22	5	338	11
12	65	50	57	51	53	7.977	0.000	0.00	28.87	29.93	1	321	1	9	292	3	292	12
13	70	52	58	51	53	7.717	0.321	0.29	28.59	29.64	7	163	8	31	202	15	158	13
14	57	44	49	41	44	15.506	0.000	0.00	28.77	29.83	5	247	5	26	225	12	202	14
15	55	38	45	38	41	19.627	0.000	0.00	28.92	29.98	3	274	2	19	270	8	270	15
16	66	34	48	36	41	16.583	0.010	0.00	29.03	30.09	3	281	3	16	270	7	270	16
17	72	36	53	41	45	12.713	1.117	0.00	29.04	30.11	2	217	2	21	225	7	202	17
18	78	48	61	44	49	6.756	3.000	0.00	28.89	29.95	5	161	5	25	225	11	180	18
19	74	51	61	48	52	5.894	1.623	0.00	28.83	29.89	3	166	3	16	202	9	202	19
20	58	48	54	51	52	11.317	0.000	1.36	28.79	29.85	1	27	1	14	360	5	135	20
21	52	36	45	40	42	20.254	0.000	0.25	29.01	30.08	4	348	4	18	360	7	360	21
22	50	34	40	34	37	24.854	0.000	0.00	29.05	30.12	1	344	0	9	360	3	338	22
23	52	30	41	33	37	24.494	0.000	0.00	29.01	30.07	1	119	0	9	158	3	135	23
24	47	37	43	35	39	22.146	0.000	0.00	28.90	29.96	2	50	1	13	45	4	45	24
25	53	34	43	33	38	21.808	0.000	0.00	29.06	30.13	1	55	1	10	45	4	45	25
26	58	40	49	38	42	16.488	0.000	0.00	28.92	29.98	9	139	8	29	158	16	158	26
27	52	47	50	45	47	15.219	0.000	0.82	28.71	29.77	7	149	6	24	180	12	135	27
28	49	46	47	46	47	17.585	0.000	0.77	28.74	29.80	2	6	2	16	315	6	360	28
29	58	41	48	42	44	17.475	0.000	0.00	28.90	29.96	4	345	3	16	338	6	360	29
30	62	33	46	40	42	19.279	0.000	0.00	28.80	29.86	3	296	3	23	315	10	315	30
31	48	30	39	32	36	25.856	0.000	0.00	29.11	30.17	6	315	5	24	292	10	338	31
	65	46	54	47	49	11.867	2.020		28.89	29.95	3	197.37	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 2		Precipitation ≥ 0.01 in: 7		Greatest 24 - hr precipitation: 1.61 Date: 20-21										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 7		Monthly Total Precipitation: 4.72										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.29		DATE: 31		TIME: 23:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.43		DATE: 13		TIME: 16:30		DEGREEE DAYS: >		HEATING: 367.881		82.277						
										COOLING: 32.327		903.931						

OCTOBER 2021  
Nicollet, MN USA

**NOVEMBER 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA**  
**SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	45	28	34	27	31	30.540	0.000	0.00	29.29	30.36	4	302	3	19	270	8	315	01
02	42	26	33	25	29	32.083	0.000	0.00	29.36	30.44	2	327	1	13	360	5	338	02
03	48	24	35	27	31	30.171	0.000	0.00	29.29	30.37	3	157	2	15	158	8	158	03
04	52	31	40	36	38	24.625	0.000	0.00	29.13	30.20	4	175	4	19	202	9	202	04
05	62	39	49	41	44	16.002	0.000	0.00	28.91	29.97	11	183	11	37	202	20	202	05
06	71	41	54	42	46	11.940	0.806	0.00	28.91	29.97	4	212	4	22	202	13	202	06
07	63	46	53	47	49	12.231	0.000	0.00	28.81	29.87	4	171	4	19	202	10	202	07
08	58	42	48	37	42	17.044	0.000	0.00	29.09	30.16	3	347	3	14	22	6	360	08
09	56	35	43	30	36	22.190	0.000	0.00	29.19	30.26	0	338	0	7	202	3	315	09
10	54	37	45	38	42	19.533	0.000	0.63	28.83	29.89	4	142	4	19	158	11	158	10
11	46	34	39	35	37	25.735	0.000	0.04	28.51	29.56	9	290	9	30	270	15	292	11
12	37	31	33	30	32	31.738	0.000	0.01	28.72	29.77	10	315	10	27	292	12	292	12
13	36	29	31	28	30	33.950	0.000	0.00	28.89	29.95	4	255	7	28	270	14	202	13
14	33	27	30	24	28	35.242	0.000	0.00	28.96	30.02	6	327	6	32	292	16	315	14
15	43	28	33	28	31	31.927	0.000	0.00	28.98	30.05	3	130	3	12	158	6	135	15
16	52	30	40	36	38	24.590	0.000	0.00	28.66	29.71	6	160	9	33	158	21	158	16
17	42	27	36	26	31	29.419	0.000	0.00	28.92	29.98	10	291	10	34	270	18	292	17
18	34	20	28	19	24	37.238	0.000	0.00	29.24	30.31	8	306	8	30	292	14	315	18
19	42	19	35	23	29	19.615	0.000	0.00	29.07	30.13	8	164	8	32	180	16	158	19
20	46	31	36	27	32	28.573	0.000	0.00	29.06	30.12	1	281	2	18	180	8	180	20
21	37	20	30	21	26	35.246	0.000	0.00	29.17	30.24	7	308	8	39	338	17	315	21
22	37	15	26	15	21	39.387	0.000	0.00	29.18	30.25	2	193	2	14	248	6	202	22
23	58	26	42	28	34	23.479	0.000	0.00	28.76	29.82	8	170	8	25	202	13	180	23
24	49	18	38	29	33	27.156	0.000	0.00	28.80	29.86	5	317	8	28	292	12	338	24
25	25	11	17	7	14	48.073	0.000	0.00	29.36	30.44	6	329	6	26	315	12	338	25
26	36	17	28	15	23	36.727	0.000	0.00	28.98	30.04	7	159	7	21	180	10	158	26
27	46	28	36	27	32	28.869	0.000	0.00	28.87	29.94	4	319	4	16	270	8	338	27
28	41	18	31	16	25	34.204	0.000	0.00	29.10	30.17	2	293	3	13	270	7	292	28
29	58	34	43	32	37	22.319	0.000	0.00	28.80	29.86	3	256	6	21	292	11	202	29
30	48	28	38	28	33	26.731	0.000	0.10	29.02	30.08	1	304	3	14	360	6	315	30
	47	28	37	28	33	27.886	0.806		29.00	30.06	5	250.59	6	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 1		Minimum Temp ≤ 32: 22 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 3 Precipitation ≥ 0.10 in: 1			Greatest 24 - hr precipitation: 0.67 Date: 10-11 Monthly Total Precipitation: 0.78					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.52 MINIMUM: 29.47		DATE 25 10:30 12 01:00		DEGREEE DAYS: >		MONTHLY TOTAL HEATING: 836.575 COOLING: 0.806		SEASON TO DATE TOTAL 82.277 903.931				

**NOVEMBER 2021**  
**Nicollet, MN USA**

DECEMBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	56	34	45	39	42	20.279	0.000	0.10	28.68	29.74	4	241	5	26	270	12	292	01
02	52	37	43	37	40	21.833	0.000	0.01	28.87	29.93	4	311	3	20	270	9	292	02
03	47	31	38	35	36	26.638	0.000	0.00	29.05	30.12	2	335	2	13	360	6	338	03
04	33	30	32	25	29	33.367	0.000	0.00	29.25	30.33	2	316	3	14	270	8	135	04
05	41	25	34	24	29	31.460	0.000	0.00	28.72	29.78	4	253	11	39	292	18	292	05
06	25	4	10	1	8	55.110	0.000	0.00	29.20	30.27	10	311	10	40	292	18	315	06
07	17	1	12	7	11	53.158	0.000	0.00	29.07	30.14	3	139	3	12	135	7	158	07
08	26	-4	10	6	9	54.644	0.000	0.00	28.95	30.02	3	145	3	19	135	11	158	08
09	42	26	33	27	30	32.192	0.000	0.00	28.64	29.70	3	188	6	25	158	14	158	09
10	30	25	28	25	27	37.131	0.000	0.44	28.77	29.82	3	19	3	23	338	10	360	10
11	28	14	23	19	22	41.746	0.000	0.00	28.76	29.82	4	263	5	20	315	8	360	11
12	35	20	28	21	25	37.400	0.000	0.00	28.82	29.88	7	199	7	22	202	13	202	12
13	40	17	29	23	27	35.754	0.000	0.00	29.08	30.15	1	171	1	8	248	4	202	13
14	40	29	35	31	33	30.133	0.000	0.00	28.99	30.05	5	137	5	15	135	10	135	14
15	61	33	48	46	47	16.725	0.000	0.14	28.36	29.40	8	175	9	60	270	29	270	15
16	33	16	22	17	20	42.956	0.000	0.00	28.82	29.88	12	276	12	57	248	29	270	16
17	22	14	19	13	17	46.262	0.000	0.00	29.21	30.28	2	60	1	11	68	5	45	17
18	23	8	17	12	15	48.354	0.000	0.00	29.30	30.37	4	337	3	16	338	7	338	18
19	32	8	22	16	19	43.279	0.000	0.00	29.10	30.17	8	180	7	29	180	13	180	19
20	26	11	18	12	16	46.913	0.000	0.00	29.15	30.22	5	322	5	27	292	11	315	20
21	27	8	15	10	13	50.040	0.000	0.00	28.93	29.99	3	258	7	31	270	14	202	21
22	34	8	22	15	20	42.810	0.000	0.00	28.92	29.98	5	157	4	18	180	9	158	22
23	43	25	33	26	30	31.819	0.000	0.00	28.64	29.69	3	169	3	12	202	7	158	23
24	46	25	38	33	35	27.415	0.000	0.00	28.42	29.46	2	192	7	24	270	12	180	24
25	25	15	20	13	18	45.113	0.000	0.00	28.85	29.91	2	1	2	16	292	7	338	25
26	33	12	22	18	20	43.446	0.000	0.06	28.90	29.96	2	98	2	16	68	8	112	26
27	34	10	21	16	19	44.373	0.000	0.00	28.72	29.77	6	257	8	33	270	17	270	27
28	23	-2	13	9	12	50.560	0.000	0.01	28.73	29.78	2	318	4	22	270	10	292	28
29	8	-6	1	-4	0	63.715	0.000	0.00	29.04	30.11	2	323	2	20	315	9	315	29
30	25	5	16	13	15	48.633	0.000	0.00	28.80	29.86	4	166	4	21	180	10	180	30
31	16	-6	9	5	8	55.706	0.000	0.00	28.88	29.94	5	350	4	19	292	9	338	31
	33	15	24	19	22	40.612	0.000		28.89	29.95	4	215.03	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 28		Precipitation ≥ 0.01 in: 4		Greatest 24 - hr precipitation: 0.44 Date: 10-11										
		Maximum Temp ≤ 32: 14		Minimum Temp ≤ 0: 4		Precipitation ≥ 0.10 in: 2		Monthly Total Precipitation: 0.76										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.44		DATE: 18		TIME: 21:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 28.96		DATE: 15		TIME: 22:00		DEGREEE DAYS: >		HEATING: 1258.965		82.277						
										COOLING: 0.000		903.931						

DECEMBER 2021  
Nicollet, MN USA

**JANUARY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	-6	-12	-9	-15	-10	74.179	0.000	0.00	29.25	30.32	6	339	5	21	360	8	338	01
02	11	-14	-2	-8	-3	66.698	0.000	0.00	29.31	30.39	3	188	4	16	202	7	202	02
03	31	9	19	13	17	46.027	0.000	0.00	29.09	30.16	4	175	4	19	202	10	202	03
04	34	11	26	22	24	39.096	0.000	0.00	28.61	29.66	2	225	7	33	338	16	292	04
05	11	-5	3	-0	3	61.560	0.000	0.00	28.93	29.99	13	302	13	39	270	16	292	05
06	-5	-14	-10	-15	-11	75.350	0.000	0.00	29.35	30.43	9	319	8	25	315	12	315	06
07	13	-16	-2	-7	-3	67.221	0.000	0.00	29.21	30.28	7	156	7	30	180	16	158	07
08	32	2	18	13	16	46.860	0.000	0.00	28.87	29.93	4	214	10	31	270	16	315	08
09	11	-2	4	-4	3	60.581	0.000	0.00	29.50	30.58	6	307	6	28	315	14	338	09
10	9	-5	3	-6	1	62.373	0.000	0.00	29.60	30.68	1	328	3	11	292	8	158	10
11	42	6	26	19	24	38.562	0.000	0.00	29.04	30.10	5	218	8	23	248	13	270	11
12	44	27	35	30	32	30.458	0.000	0.00	28.93	29.99	1	310	1	12	248	5	315	12
13	32	25	30	27	29	35.194	0.000	0.00	29.00	30.07	3	334	3	18	292	7	315	13
14	28	11	20	17	19	45.060	0.000	0.19	29.18	30.25	4	59	4	16	22	7	68	14
15	11	-7	3	-2	2	62.379	0.000	0.01	29.43	30.50	1	163	2	18	158	8	180	15
16	33	4	19	15	18	46.000	0.000	0.00	28.90	29.97	3	234	7	23	202	11	202	16
17	32	7	23	20	22	41.633	0.000	0.00	28.88	29.94	3	197	3	15	338	8	202	17
18	42	6	26	22	24	38.873	0.000	0.00	28.68	29.73	4	255	9	30	292	15	315	18
19	7	-8	1	-6	-1	64.392	0.000	0.00	29.41	30.48	9	319	9	29	292	13	315	19
20	2	-15	-7	-13	-8	72.112	0.000	0.00	29.69	30.78	1	280	2	10	315	6	315	20
21	29	-9	6	1	5	58.754	0.000	0.00	29.31	30.38	9	184	9	37	202	17	180	21
22	29	6	12	8	11	52.856	0.000	0.12	29.15	30.21	4	306	5	25	292	10	292	22
23	15	-13	1	-3	0	63.794	0.000	0.00	29.03	30.09	3	190	4	22	202	11	202	23
24	26	-9	7	3	6	57.777	0.000	0.00	28.95	30.01	5	332	6	20	292	10	202	24
25	1	-19	-10	-15	-11	74.858	0.000	0.00	29.45	30.53	3	309	3	14	292	7	315	25
26	33	-19	7	2	6	57.642	0.000	0.00	29.16	30.23	9	189	9	33	225	20	202	26
27	35	-2	21	16	20	43.562	0.000	0.00	29.18	30.25	6	317	6	25	292	10	315	27
28	13	-16	1	-5	-0	64.183	0.000	0.00	29.38	30.46	3	212	4	14	202	9	202	28
29	30	9	17	11	15	47.938	0.000	0.00	28.98	30.04	2	240	6	21	360	10	202	29
30	22	13	15	11	14	49.608	0.000	0.00	29.06	30.13	1	295	4	16	315	8	158	30
31	36	12	22	17	20	42.923	0.000	0.00	28.76	29.82	8	159	8	29	202	18	202	31
	22	-1	11	5	9	54.468	0.000		29.14	30.21	5	246.99	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 2		Greatest 24 - hr precipitation: 0.19 Date: 13-14										
		Maximum Temp ≤ 32: 22		Minimum Temp ≤ 0: 17		Precipitation ≥ 0.10 in: 2		Monthly Total Precipitation: 0.32										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.87		DATE: 20		TIME: 10:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.46		4		16:00		DEGREEE DAYS: >		HEATING: 1688.506		82.277						
								COOLING: 0.000		903.931								

**JANUARY 2022  
Nicollet, MN USA**

FEBRUARY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	38	2	18	12	16	46.869	0.000	0.00	28.98	30.04	9	299	9	29	292	16	270	01
02	6	-9	-1	-7	-2	65.969	0.000	0.00	29.55	30.63	6	342	5	20	315	8	338	02
03	4	-13	-5	-12	-6	70.294	0.000	0.00	29.66	30.74	1	356	1	9	338	4	315	03
04	6	-9	-2	-7	-2	66.517	0.000	0.00	29.43	30.51	3	292	6	26	292	11	315	04
05	29	-5	13	7	11	52.221	0.000	0.00	29.12	30.18	6	168	6	25	180	13	158	05
06	26	1	15	11	14	49.515	0.000	0.00	29.14	30.20	5	318	5	25	315	12	315	06
07	21	-5	9	5	8	55.515	0.000	0.00	29.16	30.23	4	162	4	19	202	8	158	07
08	42	16	31	25	28	34.342	0.000	0.00	28.77	29.82	4	252	6	23	292	9	270	08
09	36	17	30	25	28	34.710	0.000	0.00	28.79	29.84	10	311	10	32	292	14	315	09
10	41	8	25	21	23	40.375	0.000	0.00	28.72	29.77	6	228	8	34	202	20	202	10
11	38	-1	17	12	16	47.517	0.000	0.00	28.83	29.89	12	310	12	38	338	17	315	11
12	7	-8	0	-6	-1	64.642	0.000	0.00	29.41	30.49	3	311	3	16	360	8	315	12
13	12	-6	3	-2	2	60.302	0.000	0.00	29.34	30.41	3	180	4	21	225	10	180	13
14	18	8	14	8	12	51.283	0.000	0.00	29.26	30.33	1	2	3	18	202	11	202	14
15	35	12	24	19	22	40.969	0.000	0.00	28.98	30.05	5	134	5	26	158	14	135	15
16	29	13	23	17	21	42.437	0.000	0.00	28.88	29.94	6	337	6	22	315	9	315	16
17	13	-0	6	-2	4	58.827	0.000	0.00	29.27	30.34	4	351	4	19	360	9	338	17
18	40	5	18	10	16	47.177	0.000	0.00	28.98	30.04	6	274	11	39	292	19	315	18
19	27	-0	14	5	11	50.592	0.000	0.00	29.20	30.27	6	203	8	32	202	16	180	19
20	46	26	32	24	29	33.210	0.000	0.00	28.73	29.79	4	251	8	29	225	17	202	20
21	27	15	23	17	21	41.975	0.000	0.00	28.93	29.99	6	44	5	20	22	7	45	21
22	15	-2	6	3	6	58.515	0.000	0.00	29.17	30.24	7	348	8	21	360	10	315	22
23	9	-9	-0	-6	-1	65.325	0.000	0.00	29.65	30.73	5	329	4	25	315	10	315	23
24	9	-4	4	-1	3	60.967	0.000	0.00	29.49	30.57	3	13	3	12	360	5	22	24
25	14	-5	5	-0	4	60.185	0.000	0.00	29.52	30.60	2	256	3	12	225	7	202	25
26	33	2	18	11	16	46.515	0.000	0.01	29.30	30.37	5	224	5	20	202	9	202	26
27	34	10	23	18	21	42.375	0.000	0.00	29.18	30.25	2	195	3	13	225	9	202	27
28	48	20	33	28	31	31.508	0.000	0.00	28.96	30.02	2	263	2	15	270	8	292	28
	25	3	14	8	13	50.737	0.000		29.16	30.23	5	241.08	6	< Monthly Avg				
NUMBER OF DAYS WITH:		> Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 17		Minimum Temp ≤ 32: 28 Minimum Temp ≤ 0: 14		Precipitation ≥ 0.01 in: 0 Precipitation ≥ 0.10 in: 0		Greatest 24 - hr precipitation: 0.01 Date: 25-26 Monthly Total Precipitation: 0.01										
SEA LEVEL PRESSURE:		> MAXIMUM: 30.82 MINIMUM: 29.41		DATE 3 07:30 10 19:30		DEGREEE DAYS: >		MONTHLY TOTAL HEATING: 1420.646 COOLING: 0.000		SEASON TO DATE TOTAL 82.277 903.931								

FEBRUARY 2022  
Nicollet, MN USA



MARCH 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	37	31	34	29	32	31.348	0.000	0.00	29.01	30.07	2	355	1	9	292	4	315	01
02	37	26	31	27	29	33.510	0.000	0.00	29.12	30.19	3	10	3	15	22	6	22	02
03	26	20	24	13	20	41.331	0.000	0.00	29.41	30.48	2	47	2	15	360	4	22	03
04	39	25	32	24	29	32.623	0.000	0.01	29.10	30.17	6	119	6	24	135	13	135	04
05	36	30	34	32	33	31.454	0.000	0.34	28.67	29.73	4	5	4	26	315	10	315	05
06	30	24	26	22	24	39.377	0.000	0.00	29.00	30.07	9	309	9	26	270	12	315	06
07	31	17	24	18	22	41.044	0.000	0.00	29.15	30.22	5	317	5	19	292	8	315	07
08	38	23	29	23	26	36.267	0.000	0.00	29.00	30.06	5	244	8	23	225	15	202	08
09	23	10	17	9	14	48.427	0.000	0.00	29.16	30.23	7	324	7	24	360	11	315	09
10	29	9	19	9	15	46.467	0.000	0.00	29.20	30.27	4	240	5	23	202	12	202	10
11	23	5	11	2	8	54.475	0.000	0.00	29.18	30.25	9	308	9	30	270	13	202	11
12	32	0	17	5	13	47.738	0.000	0.00	29.09	30.16	6	199	7	33	225	15	202	12
13	48	25	36	29	33	27.317	0.000	0.00	28.87	29.93	3	298	4	18	202	10	202	13
14	41	30	35	31	33	29.679	0.000	0.00	29.05	30.12	3	43	3	18	45	6	45	14
15	55	25	39	32	36	25.756	0.000	0.00	29.09	30.16	5	188	5	20	202	12	202	15
16	57	40	47	38	42	18.365	0.000	0.00	28.75	29.81	4	203	5	22	202	13	202	16
17	48	34	40	35	37	25.296	0.000	0.00	28.97	30.03	5	337	4	16	292	8	338	17
18	48	32	38	32	35	26.875	0.000	0.00	28.98	30.04	3	20	3	15	22	7	22	18
19	58	26	40	32	36	25.260	0.000	0.00	28.92	29.98	2	296	2	10	225	5	315	19
20	61	28	43	36	39	21.546	0.000	0.00	28.95	30.02	3	127	3	15	135	10	135	20
21	71	43	57	43	48	9.077	0.750	0.00	28.76	29.81	6	187	7	25	202	14	202	21
22	43	33	39	37	38	26.173	0.000	0.94	28.76	29.82	4	358	4	18	45	8	315	22
23	36	32	34	31	33	30.973	0.000	0.17	28.71	29.77	6	359	6	22	360	8	360	23
24	43	33	37	33	35	27.540	0.000	0.00	28.78	29.83	4	347	4	18	338	6	360	24
25	44	29	37	29	34	27.533	0.000	0.01	28.84	29.90	12	322	12	38	338	19	315	25
26	33	20	26	14	21	38.890	0.000	0.00	29.11	30.18	10	336	9	35	292	15	338	26
27	32	15	23	11	19	41.973	0.000	0.00	29.28	30.36	4	353	3	19	22	7	338	27
28	40	22	30	17	25	34.769	0.000	0.00	29.19	30.26	6	134	5	19	158	10	135	28
29	43	33	37	25	31	28.121	0.000	0.31	28.77	29.82	10	133	9	25	135	14	135	29
30	35	32	33	30	32	31.910	0.000	0.38	28.46	29.51	5	7	5	18	22	7	360	30
31	35	28	32	27	30	32.902	0.000	0.01	28.67	29.72	7	336	7	23	292	9	338	31
	40	25	32	25	29	32.710	0.750		28.97	30.03	5	221.30	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 23		Precipitation ≥ 0.01 in: 5		Greatest 24 - hr precipitation: 0.95 Date: 22-23										
		Maximum Temp ≤ 32: 8		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 2.17										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.56		DATE: 3		TIME: 12:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.43		30		06:30		DEGREEE DAYS: >		HEATING: 1014.015		82.277						
										COOLING: 0.750		903.931						

MARCH 2022  
Nicollet, MN USA

APRIL 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date				
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX							
														INSTANT		ARCHIVE					
														SPEED	DIR	SPEED		DIR			
01	44	24	33	28	31	31.502	0.000	0.03	28.97	30.03	2	235	3	16	202	9	202	01			
02	51	33	40	34	37	24.633	0.000	0.01	28.95	30.01	4	316	5	26	315	12	315	02			
03	42	26	35	31	33	30.071	0.000	0.00	28.89	29.95	3	110	3	21	360	9	360	03			
04	48	31	38	32	35	26.781	0.000	0.00	28.84	29.90	3	342	5	22	338	9	338	04			
05	48	38	41	38	39	23.975	0.000	0.25	28.42	29.47	9	164	11	30	158	16	158	05			
06	41	33	38	34	36	27.362	0.000	0.14	28.35	29.40	11	293	12	40	270	17	315	06			
07	38	31	34	31	33	30.698	0.000	0.01	28.64	29.69	9	330	10	29	292	13	292	07			
08	46	33	38	28	33	26.775	0.000	0.00	28.89	29.95	8	345	7	29	292	11	338	08			
09	55	26	41	28	34	24.142	0.000	0.00	28.83	29.89	2	158	3	13	158	8	158	09			
10	65	37	48	35	41	16.581	0.000	0.00	28.51	29.56	5	151	8	30	248	14	135	10			
11	61	34	48	34	40	17.494	0.000	0.00	28.72	29.77	6	273	6	34	270	18	270	11			
12	58	39	48	39	43	17.308	0.000	0.19	28.55	29.60	4	106	5	27	135	12	112	12			
13	48	31	39	31	35	26.208	0.000	0.00	28.54	29.59	9	274	9	31	270	18	270	13			
14	36	27	31	21	27	34.033	0.000	0.00	28.63	29.69	15	264	14	47	315	22	270	14			
15	37	24	30	19	26	34.917	0.000	0.00	28.94	30.00	10	303	10	32	270	16	292	15			
16	41	24	32	20	27	33.015	0.000	0.00	29.20	30.27	8	319	7	25	270	11	315	16			
17	42	25	33	25	29	32.446	0.000	0.03	29.18	30.25	6	172	5	26	202	14	202	17			
18	37	28	31	25	29	33.640	0.000	0.00	29.19	30.26	10	309	11	40	292	16	315	18			
19	43	21	35	24	30	30.204	0.000	0.00	29.15	30.22	4	144	5	18	225	10	135	19			
20	47	36	44	37	40	21.398	0.000	0.40	28.77	29.83	6	152	7	26	158	14	135	20			
21	56	34	45	38	41	20.194	0.000	0.01	29.11	30.18	3	305	4	18	360	8	315	21			
22	62	44	51	47	49	14.396	0.000	0.78	28.92	29.98	9	128	8	27	135	13	135	22			
23	76	50	66	58	60	1.731	2.721	0.14	28.41	29.46	13	169	13	44	202	20	180	23			
24	50	35	44	35	40	20.727	0.000	0.00	28.59	29.64	11	241	13	35	202	22	202	24			
25	36	30	32	25	29	32.594	0.000	0.00	29.12	30.18	10	316	10	29	338	12	315	25			
26	44	27	34	25	30	31.073	0.000	0.00	29.32	30.40	4	323	4	20	292	8	315	26			
27	50	32	40	27	33	24.902	0.000	0.00	29.18	30.25	4	103	4	16	112	8	112	27			
28	59	36	47	37	41	18.479	0.000	0.42	28.98	30.05	6	121	6	23	112	11	135	28			
29	59	48	53	50	51	12.175	0.000	0.17	28.75	29.81	6	121	6	23	135	11	135	29			
30	60	50	53	50	51	11.979	0.000	0.58	28.43	29.48	4	122	5	21	202	10	202	30			
	49	33	41	33	37	24.381	2.721		28.83	29.89	7	223.65	7	< Monthly Avg							
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 15		Precipitation ≥ 0.01 in: 11			Greatest 24 – hr precipitation: 0.78 Date: 21-22								
						Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 9			Monthly Total Precipitation: 3.16								
SEA LEVEL PRESSURE: >						MAXIMUM: 30.47		DATE: 26		TIME: 09:30		MONTHLY TOTAL		SEASON TO DATE TOTAL							
						MINIMUM: 29.22		DATE: 6		TIME: 05:30		DEGREEE DAYS: >		HEATING: 731.433		COOLING: 2.721		82.277		903.931	

APRIL 2022  
Nicollet, MN USA

MAY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Nicollet, MN USA  
SWCD Office



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	50	40	43	41	42	21.517	0.000	0.16	28.70	29.76	10	303	9	27	315	12	292	01
02	46	39	42	37	39	22.767	0.000	0.00	29.01	30.08	4	337	3	18	292	8	315	02
03	58	38	48	38	42	16.879	0.000	0.00	29.02	30.08	3	26	2	19	360	6	22	03
04	62	39	51	40	45	13.608	0.000	0.00	29.10	30.17	3	161	2	14	202	7	180	04
05	62	44	53	46	49	12.292	0.000	0.01	28.98	30.04	2	124	1	20	180	7	135	05
06	71	47	60	43	49	6.640	1.196	0.00	28.83	29.88	4	127	3	16	135	8	135	06
07	74	50	63	44	50	4.498	2.679	0.00	28.77	29.82	11	155	10	31	180	18	158	07
08	64	53	58	49	52	7.400	0.000	0.17	28.63	29.68	11	153	10	31	135	19	158	08
09	89	57	69	58	61	2.104	6.527	0.00	28.45	29.50	6	172	11	34	225	18	135	09
10	80	55	68	47	53	2.602	5.300	0.00	28.89	29.95	3	15	3	16	22	7	360	10
11	84	62	69	59	62	0.406	4.604	0.53	28.90	29.96	2	112	5	50	225	18	202	11
12	95	63	76	67	69	0.431	10.992	0.07	28.72	29.77	5	150	6	32	270	16	158	12
13	77	59	68	54	58	0.806	3.521	0.04	28.78	29.84	4	248	5	22	180	10	202	13
14	76	55	65	47	53	2.740	2.858	0.00	28.85	29.91	3	276	5	23	360	10	315	14
15	76	50	64	43	49	4.617	3.394	0.00	28.88	29.94	4	295	4	21	292	9	270	15
16	74	48	63	43	49	4.940	2.910	0.00	28.87	29.93	5	328	5	25	292	10	315	16
17	61	53	56	49	52	8.869	0.000	0.40	28.90	29.96	2	144	2	11	135	6	135	17
18	76	55	64	56	58	4.027	2.785	0.00	28.73	29.79	2	260	2	19	225	9	270	18
19	74	52	64	56	58	3.387	2.254	0.00	28.37	29.42	2	113	3	20	158	10	135	19
20	63	47	56	47	50	9.287	0.000	0.06	28.49	29.54	6	290	7	26	338	11	338	20
21	54	41	48	36	41	16.573	0.000	0.00	29.03	30.10	5	331	4	19	360	9	338	21
22	60	41	51	35	41	14.413	0.000	0.00	29.26	30.33	3	316	2	18	360	6	338	22
23	66	40	55	36	43	10.113	0.021	0.00	29.23	30.30	3	160	3	15	225	6	180	23
24	69	49	59	41	47	6.604	0.469	0.00	29.09	30.16	4	131	3	25	180	9	135	24
25	52	49	51	48	49	14.417	0.000	0.28	28.88	29.94	3	49	3	14	22	4	68	25
26	59	47	52	47	49	12.540	0.000	0.00	28.81	29.87	3	17	3	14	360	5	360	26
27	80	42	62	50	54	7.237	4.625	0.00	28.82	29.88	4	173	3	19	202	8	158	27
28	93	63	77	58	63	0.069	12.519	0.05	28.52	29.57	7	185	8	36	202	19	202	28
29	85	65	76	65	68	0.000	10.575	0.54	28.36	29.41	8	151	8	24	135	12	135	29
30	85	62	72	63	65	0.458	7.560	0.29	28.37	29.41	6	158	7	35	270	14	158	30
31	71	57	63	55	57	2.629	0.842	0.00	28.69	29.74	8	237	10	35	202	20	202	31
	71	50	60	48	52	7.829	4.507		28.80	29.86	5	183.74	5	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 2		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 11			Greatest 24 - hr precipitation: 0.69 Date: 0-1									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 7				Monthly Total Precipitation: 2.60							
SEA LEVEL PRESSURE: >		MAXIMUM: 30.39		DATE: 22		TIME: 10:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.14		DATE: 19		TIME: 21:30		DEGREEE DAYS: >		HEATING: 234.869		COOLING: 85.631		82.277		903.931		

MAY 2022  
Nicollet, MN USA

**JUNE 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	70	48	59	46	51	6.308	0.783	0.00	28.98	30.04	2	314	2	15	338	5	292	01
02	79	50	65	42	49	4.908	4.719	0.00	28.86	29.92	5	281	5	24	270	10	270	02
03	74	50	62	38	46	4.806	2.235	0.00	28.91	29.97	3	330	2	14	315	6	292	03
04	68	55	61	53	55	4.506	0.333	0.10	28.85	29.91	4	150	3	15	158	9	135	04
05	67	58	61	58	59	3.746	0.094	0.25	28.72	29.78	2	121	1	12	158	6	135	05
06	76	59	66	57	60	2.383	3.073	0.30	28.68	29.74	2	34	2	14	22	4	45	06
07	71	59	64	53	57	2.350	0.994	0.00	28.83	29.89	0	85	0	9	202	4	225	07
08	79	55	67	49	54	2.429	4.460	0.00	28.85	29.91	2	346	2	14	360	6	338	08
09	81	51	68	47	53	3.350	6.088	0.00	28.89	29.95	2	254	2	16	202	6	248	09
10	79	63	71	58	61	0.150	5.750	0.00	28.78	29.84	2	235	2	19	202	6	202	10
11	79	65	71	64	66	0.002	5.775	0.01	28.63	29.69	4	200	4	18	202	10	202	11
12	91	64	76	67	69	0.065	11.548	0.00	28.63	29.68	3	152	3	14	158	8	158	12
13	85	70	76	71	73	0.000	10.937	0.20	28.55	29.60	6	137	6	22	135	11	135	13
14	93	74	84	71	73	0.000	18.542	0.00	28.47	29.52	7	189	8	35	202	18	202	14
15	80	65	71	59	62	0.000	6.090	0.02	28.68	29.74	2	222	3	22	248	10	202	15
16	84	65	74	57	61	0.000	9.083	0.00	28.81	29.87	7	270	7	30	270	14	270	16
17	85	58	73	56	60	1.019	9.006	0.00	28.99	30.06	2	2	1	12	22	5	338	17
18	86	62	75	58	62	0.308	10.740	0.00	29.01	30.08	8	134	7	23	135	12	135	18
19	97	70	84	67	71	0.000	18.638	0.00	28.87	29.93	10	171	10	29	202	15	202	19
20	99	77	88	73	76	0.000	22.750	0.00	28.75	29.81	10	185	10	32	202	15	202	20
21	89	68	80	63	67	0.000	14.777	0.00	28.87	29.93	4	282	5	26	202	13	202	21
22	87	60	75	58	62	0.508	10.456	0.00	29.01	30.08	3	307	2	22	248	6	338	22
23	94	66	81	61	65	0.000	15.740	0.00	28.83	29.89	8	191	8	38	202	18	202	23
24	91	69	80	68	70	0.000	15.217	0.00	28.76	29.82	6	159	6	22	180	10	180	24
25	82	63	74	63	66	0.035	9.027	0.05	28.82	29.88	2	294	5	21	292	9	338	25
26	77	53	65	49	54	3.321	3.544	0.00	29.09	30.15	5	326	5	23	360	9	338	26
27	85	53	70	50	55	3.081	8.435	0.00	29.13	30.20	2	275	2	14	315	6	270	27
28	87	64	74	57	62	0.021	9.435	0.01	28.97	30.04	4	208	5	27	202	14	202	28
29	95	58	78	61	64	1.006	13.979	0.00	28.89	29.95	6	164	7	31	202	15	202	29
30	91	72	80	62	66	0.000	15.223	0.01	28.73	29.79	4	201	6	27	202	16	202	30
	83	62	72	58	62	2.215	8.916		28.83	29.89	4	207.28	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 8 Minimum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 6 Precipitation ≥ 0.10 in: 3			Greatest 24 – hr precipitation: 0.53 Date: 5-6 Monthly Total Precipitation: 0.95					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.27 MINIMUM: 29.45		DATE: 27 TIME: 09:00 14 10:30		DEGREEE DAYS: >		HEATING: 44.304 COOLING: 267.471		MONTHLY TOTAL: 82.277 SEASON TO DATE TOTAL: 903.931				

**JUNE 2022  
Nicollet, MN USA**

**JULY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	85	60	73	56	61	0.427	8.392	0.00	28.91	29.97	2	322	2	16	22	6	315	01
02	75	64	68	61	63	0.115	2.800	0.22	28.94	30.00	0	130	1	9	135	5	135	02
03	86	62	75	65	68	0.435	10.144	0.00	28.92	29.99	5	164	4	24	202	12	202	03
04	87	70	78	72	73	0.000	13.000	0.48	28.75	29.80	5	163	4	21	202	8	158	04
05	90	72	79	74	75	0.000	13.965	0.09	28.74	29.80	2	49	2	19	360	8	135	05
06	81	68	74	70	71	0.000	9.300	0.00	28.88	29.94	1	43	1	9	338	3	45	06
07	86	70	76	71	72	0.000	10.796	1.06	28.88	29.94	1	126	2	12	202	5	202	07
08	84	68	74	70	71	0.000	9.115	0.47	28.97	30.03	1	40	1	15	22	4	360	08
09	82	65	73	68	69	0.000	8.273	0.01	29.07	30.14	3	161	2	15	180	7	135	09
10	87	67	77	72	73	0.000	12.417	0.00	28.81	29.87	6	170	6	28	202	14	202	10
11	84	66	76	66	69	0.000	11.263	0.00	28.74	29.80	4	310	4	23	315	9	292	11
12	85	61	73	62	65	0.850	8.904	0.05	28.85	29.91	3	302	3	16	360	6	292	12
13	82	63	72	63	65	0.133	7.308	0.01	28.94	30.00	2	16	1	11	360	4	22	13
14	88	61	75	67	69	0.642	10.713	0.00	28.93	29.99	5	135	4	20	135	9	135	14
15	86	72	78	72	73	0.000	13.137	0.03	28.87	29.93	2	112	2	14	135	7	158	15
16	82	68	75	70	71	0.000	9.908	0.00	28.89	29.95	1	179	1	10	180	5	202	16
17	88	63	76	68	70	0.035	11.137	0.00	28.84	29.90	1	246	1	9	158	4	202	17
18	92	68	80	71	73	0.000	15.456	0.00	28.76	29.81	5	198	5	21	202	11	202	18
19	88	70	78	68	70	0.000	13.408	0.16	28.53	29.58	6	193	7	31	202	16	202	19
20	89	70	78	65	68	0.000	12.879	0.00	28.60	29.65	6	309	6	25	292	10	338	20
21	85	64	75	63	66	0.012	9.925	0.08	28.75	29.81	3	328	3	16	360	7	338	21
22	92	68	78	67	69	0.000	12.929	0.00	28.77	29.83	1	209	2	14	202	7	202	22
23	83	68	74	70	71	0.000	9.215	0.81	28.70	29.75	2	103	2	23	22	6	22	23
24	78	60	71	61	64	0.248	6.056	0.00	28.88	29.94	4	335	3	20	270	7	338	24
25	74	56	65	59	61	2.231	2.198	0.06	28.99	30.05	1	251	1	11	225	4	202	25
26	79	63	70	65	66	0.385	5.713	0.00	28.84	29.90	4	201	4	19	202	10	202	26
27	83	59	71	62	64	0.804	7.060	0.00	28.80	29.86	2	297	2	15	315	7	270	27
28	78	57	67	57	60	2.060	3.938	0.00	28.91	29.97	4	333	3	21	292	7	338	28
29	81	57	68	58	61	2.090	5.369	0.00	29.01	30.08	2	320	2	12	360	5	338	29
30	86	60	73	62	65	1.100	8.854	0.00	28.99	30.06	6	199	5	21	202	11	202	30
31	85	61	73	66	68	0.435	8.223	0.14	28.79	29.85	6	199	7	31	202	17	202	31
	84	65	74	66	68	0.750	9.413		28.85	29.91	3	198.17	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 2		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 12			Greatest 24 - hr precipitation: 1.53 Date: 7-8									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 7			Monthly Total Precipitation: 3.67								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.21		DATE: 9		TIME: 10:30		MONTHLY TOTAL		HEATING: 12.004		SEASON TO DATE TOTAL						
		MINIMUM: 29.52		DATE: 19		TIME: 14:30		DEGREEE DAYS: >		COOLING: 291.794		903.931						

**JULY 2022  
Nicollet, MN USA**

**AUGUST 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Nicollet, MN USA  
SWCD Office**



Lat: 44.2714 Long: -94.1902 Elev (ground): 995 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	82	62	71	63	65	0.248	6.415	0.00	28.82	29.88	3	311	2	13	338	5	292	01
02	95	64	80	72	74	0.006	14.956	0.01	28.63	29.68	7	175	7	30	270	15	202	02
03	85	62	75	65	68	0.121	9.852	0.13	28.69	29.74	2	322	4	20	360	7	338	03
04	82	58	70	61	63	1.583	6.594	0.00	28.95	30.01	1	135	2	10	158	5	158	04
05	89	64	76	67	70	0.042	11.444	0.00	28.87	29.93	7	157	6	20	158	11	135	05
06	76	68	73	70	71	0.000	7.767	2.34	28.85	29.91	1	124	2	12	180	6	158	06
07	73	63	68	66	67	0.119	3.523	0.68	28.91	29.97	2	21	2	14	360	6	360	07
08	76	58	66	60	62	1.775	3.233	0.00	28.99	30.05	2	351	2	10	360	5	360	08
09	80	57	69	62	64	1.988	5.825	0.00	29.02	30.08	3	202	3	16	180	7	202	09
10	88	62	74	66	68	0.506	9.246	0.00	29.06	30.13	1	320	1	10	360	4	22	10
11	73	65	68	62	64	0.000	3.442	0.02	29.09	30.16	2	138	2	15	158	7	135	11
12	74	65	69	64	65	0.000	4.460	0.00	28.96	30.02	8	139	8	26	158	15	135	12
13	72	63	68	63	65	0.131	3.508	0.00	28.88	29.94	2	6	3	13	360	6	158	13
14	77	56	67	61	63	1.519	3.629	0.00	28.96	30.03	1	52	1	9	68	4	360	14
15	74	57	66	62	63	1.829	2.923	0.00	29.00	30.07	3	149	2	12	158	6	158	15
16	80	60	70	64	66	0.881	6.050	0.00	29.05	30.11	1	172	1	10	202	5	158	16
17	81	61	72	65	66	0.454	7.077	0.00	29.03	30.10	3	204	3	14	225	8	202	17
18	83	61	70	64	65	0.669	5.210	0.35	28.83	29.89	5	207	5	25	360	10	202	18
19	73	59	65	62	63	1.975	1.990	0.64	28.72	29.78	2	208	3	16	202	8	202	19
20	76	60	67	63	64	1.479	3.006	0.00	28.89	29.95	3	13	2	14	22	6	22	20
21	81	56	69	62	64	1.915	5.565	0.01	29.01	30.07	1	352	1	10	270	4	292	21
22	81	58	70	64	65	1.463	6.387	0.00	28.98	30.05	1	206	1	10	202	4	225	22
23	82	65	73	65	67	0.000	7.848	0.00	28.90	29.96	4	146	4	16	158	9	135	23
24	82	66	73	67	69	0.000	8.140	0.00	28.86	29.92	1	182	3	14	202	8	202	24
25	75	61	69	65	66	0.185	4.346	0.00	28.98	30.04	2	359	2	11	338	5	360	25
26	78	55	67	61	63	2.560	4.696	0.00	28.97	30.03	3	142	2	15	158	8	135	26
27	82	66	72	67	69	0.000	7.385	0.13	28.72	29.77	5	161	6	33	180	17	202	27
28	85	68	75	71	72	0.000	9.762	0.02	28.56	29.61	6	159	6	19	225	11	202	28
29	80	59	70	60	63	0.985	5.775	0.00	28.74	29.79	4	284	3	23	270	10	270	29
30	80	53	67	57	60	3.323	5.215	0.00	28.97	30.03	2	317	2	18	360	6	338	30
31	88	58	72	63	65	1.512	8.829	0.00	28.93	29.99	2	225	2	16	248	8	202	31
	80	61	70	64	66	1.136	6.261		28.90	29.96	3	191.59	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 8			Greatest 24 - hr precipitation: 2.57 Date: 6-7									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 6			Monthly Total Precipitation: 4.33								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.21		DATE: 11		TIME: 11:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.54		2		22:30		DEGREEE DAYS: >		HEATING: 27.269		82.277						
										COOLING: 194.098		903.931						

**AUGUST 2022  
Nicollet, MN USA**

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Nicollet SWCD Belgrade 109-27-16 CITY: Saint Peter STATE: MN  
 ELEV: 991 ft LAT: 44° 15' 06" N LONG: 94° 04' 22" W

TEMPERATURE (°F), HEAT BASE 65.0, COOL BASE 65.0

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=90	MAX <=32	MIN <=32	MIN <=0
18	1														
18	2														
18	3														
18	4														
18	5														
18	6														
18	7														
18	8	77.9	60.2	69.0	0.0	21	75	83.9	27	49.5	29	0	0	0	0
18	9	73.5	55.5	63.8	0.0	156	120	91.7	15	34.6	29	2	0	0	0
18	10	53.6	36.0	44.6	0.0	638	6	85.2	3	24.6	12	0	0	11	0
18	11	47.2	35.1	39.6	0.0	139	0	54.6	6	29.7	1	0	0	1	0
18	12														
		64.9	47.5	55.7	0.0	955	200	91.7	SEP	24.6	OCT	2	0	12	0

PRECIPITATION (in)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DATE	DAYS OF RAIN OVER		
						.01	.1	1
18	1							
18	2							
18	3							
18	4							
18	5							
18	6							
18	7							
18	8	1.27	0.00	0.72	27	5	3	0
18	9	8.24	0.00	2.73	3	10	6	3
18	10	2.58	0.00	0.74	9	11	5	0
18	11	0.65	0.00	0.31	3	4	2	0
18	12							
		12.74	0.00	2.73	SEP	30	16	3

WIND SPEED (mph)

YR	MO	AVG.	HI	DATE	DOM
					DIR
18	1				
18	2				
18	3				
18	4				
18	5				
18	6				
18	7				
18	8	4.2	27.0	26	SE
18	9	4.6	37.0	17	SE
18	10	5.1	38.0	3	NW
18	11	3.8	29.0	6	ENE
18	12				
		4.7	38.0	OCT	SE

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Nicollet SWCD Belgrade 109-27-16 CITY: Saint Peter STATE: MN  
 ELEV: 991 ft LAT: 44° 15' 06" N LONG: 94° 04' 22" W

TEMPERATURE (°F), HEAT BASE 65.0, COOL BASE 65.0

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=90	MAX <=32	MIN <=32	MIN <=0
19	1														
19	2														
19	3	52.9	45.1	49.2	0.0	2	0	52.9	18	45.1	18	0	0	0	0
19	4														
19	5	67.6	44.3	56.0	0.0	268	39	90.1	31	29.8	10	1	0	1	0
19	6	79.2	54.7	67.1	0.0	50	94	92.5	7	41.5	13	3	0	0	0
19	7														
19	8	77.3	52.9	65.3	0.0	86	89	84.6	20	41.8	23	0	0	0	0
19	9	77.1	52.8	65.2	0.0	122	127	90.5	30	41.6	28	2	0	0	0
19	10	56.1	39.7	47.5	0.0	254	5	75.2	9	24.2	14	0	0	3	0
19	11														
19	12	27.2	11.3	20.3	0.0	926	0	39.8	21	-10.4	15	0	13	22	7
		65.2	43.4	54.5	0.0	1708	353	92.5	JUN	-10.4	DEC	6	13	26	7

PRECIPITATION (in)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DATE	DAYS OF RAIN OVER		
						.01	.1	1
19	1							
19	2							
19	3	0.00	0.00	0.00	1	0	0	0
19	4							
19	5	1.23	0.00	0.59	30	8	3	0
19	6	1.15	0.00	0.32	15	6	4	0
19	7							
19	8	1.61	0.00	0.40	10	7	4	0
19	9	4.81	0.00	2.17	11	9	8	2
19	10	2.76	0.00	1.28	5	6	4	1
19	11							
19	12	0.00	0.00	0.00	1	0	0	0
		11.56	0.00	2.17	SEP	36	23	3

WIND SPEED (mph)

YR	MO	AVG.	HI	DATE	DOM
					DIR
19	1				
19	2				
19	3	0.0	0.0	18	---
19	4				
19	5	8.1	38.0	21	E
19	6	6.5	52.0	4	SE
19	7				
19	8	3.4	34.0	18	SE
19	9	4.8	36.0	24	SSE
19	10	6.5	32.0	11	WSW
19	11				
19	12	5.5	32.0	30	WNW
		5.7	52.0	JUN	SSE



ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Nicollet SWCD Belgrade 109-27-16 CITY: Saint Peter STATE: MN  
 ELEV: 991 ft LAT: 44° 15' 06" N LONG: 94° 04' 22" W

TEMPERATURE (°F), HEAT BASE 65.0, COOL BASE 65.0

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP.	HEAT	COOL	HI	DATE	LOW	DATE	MAX >=90	MAX <=32	MIN <=32	MIN <=0
					FROM NORM	DEG DAYS	DEG DAYS								
20	1	27.9	10.6	20.6	0.0	640	0	37.0	5	-5.7	8	0	9	15	3
20	2														
20	3														
20	4														
20	5														
20	6														
20	7														
20	8														
20	9	71.7	46.5	58.4	0.0	190	45	90.6	25	31.5	18	1	0	1	0
20	10	68.1	39.1	53.9	0.0	170	20	83.6	6	24.7	2	0	0	4	0
20	11														
20	12														
		57.8	33.9	46.1	0.0	1000	65	90.6	SEP	-5.7	JAN	1	9	20	3

PRECIPITATION (in)

YR	MO	TOTAL	DEP.	MAX	DAYS OF RAIN			
			FROM NORM	OBS. DAY	DATE	.01	.1	1
20	1	0.00	0.00	0.00	1	0	0	0
20	2							
20	3							
20	4							
20	5							
20	6							
20	7							
20	8							
20	9	0.82	0.00	0.32	24	5	3	0
20	10	1.73	0.00	1.15	11	2	2	1
20	11							
20	12							
		2.55	0.00	1.15	OCT	7	5	1

WIND SPEED (mph)

YR	MO	AVG.	HI	DATE	DOM
					DIR
20	1	7.4	43.0	5	WNW
20	2				
20	3				
20	4				
20	5				
20	6				
20	7				
20	8				
20	9	4.5	33.0	30	SSE
20	10	5.5	35.0	12	WNW
20	11				
20	12				
		5.6	43.0	JAN	WNW

APRIL 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
05	88	62	77	53	58	0.027	6.178	0.20	28.56	29.62	10	190	8	32	158	18	202	05
06	82	42	62	51	54	6.481	3.063	0.05	28.64	29.70	3	53	5	23	360	15	360	06
07	75	52	61	57	58	5.518	1.264	0.21	28.55	29.60	2	95	6	20	158	13	158	07
08	62	49	53	51	52	11.903	0.000	0.17	28.41	29.46	3	83	5	19	135	13	158	08
09	50	42	46	45	45	18.655	0.000	0.05	28.54	29.59	6	298	6	24	315	15	315	09
10	50	40	45	41	43	20.148	0.000	0.00	28.68	29.73	8	338	8	19	315	13	338	10
11	55	36	46	41	43	19.360	0.000	0.00	28.57	29.62	7	330	7	19	292	12	338	11
12	46	36	42	38	40	23.095	0.000	0.08	28.74	29.80	10	276	10	27	270	16	270	12
13	39	30	34	28	31	31.166	0.000	0.00	29.00	30.06	10	275	9	25	270	15	270	13
14	45	29	35	32	34	29.616	0.000	0.01	29.11	30.18	10	300	10	25	270	15	292	14
15	48	33	40	35	37	24.753	0.000	0.00	29.11	30.17	7	319	7	17	315	12	292	15
16	62	37	48	37	42	16.659	0.000	0.00	29.00	30.07	4	337	4	18	360	12	360	16
17	63	29	46	32	37	19.466	0.000	0.00	28.98	30.04	5	322	5	20	292	14	315	17
18	68	32	48	31	38	16.932	0.090	0.00	28.85	29.91	8	302	8	33	338	25	338	18
19	43	29	36	21	29	29.430	0.000	0.00	28.97	30.03	14	322	13	30	338	20	338	19
20	47	24	35	17	26	30.147	0.000	0.00	29.06	30.13	8	326	8	28	315	19	338	20
21	47	22	35	20	28	30.048	0.000	0.00	29.09	30.15	8	308	8	24	292	15	315	21
22	65	28	49	25	34	16.182	0.000	0.00	28.92	29.99	7	237	7	29	225	16	225	22
23	58	42	48	39	43	16.545	0.000	0.01	28.82	29.88	4	171	6	26	180	15	202	23
24	53	28	42	31	36	23.143	0.000	0.00	28.93	29.99	9	327	9	23	315	16	338	24
25	46	26	37	29	33	27.748	0.000	0.02	28.94	30.01	7	119	8	25	158	16	112	25
26	61	43	51	40	45	14.353	0.000	0.00	28.62	29.68	7	92	8	21	112	13	112	26
27	56	42	46	43	45	18.685	0.000	0.37	28.71	29.77	8	26	8	29	68	19	68	27
28	64	38	48	43	45	16.926	0.000	0.00	28.90	29.96	4	18	4	15	360	10	22	28
29	71	37	55	39	45	10.776	1.068	0.00	28.93	29.99	8	322	8	30	338	21	338	29
30	66	40	55	30	39	10.166	0.001	0.00	29.08	30.15	3	59	5	18	360	12	360	30
	58	36	47	36	41	18.766	1.944		28.84	29.90	7	224.91	7	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 10		Precipitation ≥ 0.01 in: 8		Greatest 24 - hr precipitation: 0.37		Date: 26-27		Monthly Total Precipitation: 1.17						
SEA LEVEL PRESSURE: >		MAXIMUM: 30.26		DATE: 30		TIME: 09:40		MONTHLY TOTAL: 487.928		SEASON TO DATE TOTAL: 76.101		DEGREEE DAYS: >		HEATING: 11.665		COOLING: 719.809		
		MINIMUM: 29.40		8		15:25												

APRIL 2021  
Mankato, MN USA

APRIL 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES										
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date			
														INSTANT		ARCHIVE					
														SPEED	DIR	SPEED	DIR				
01	46	23	34	29	31	31.009	0.000	0.00	28.94	30.00	2	238	3	15	225	8	202	01			
02	53	29	40	35	37	25.309	0.000	0.00	28.94	30.00	6	294	7	29	292	19	292	02			
03	42	24	34	31	32	31.020	0.000	0.00	28.88	29.94	6	93	6	26	360	17	338	03			
04	49	31	38	33	35	27.224	0.000	0.00	28.83	29.89	5	331	8	25	338	17	338	04			
05	47	36	40	38	39	24.724	0.000	0.00	28.42	29.47	12	148	15	32	135	23	135	05			
06	41	33	37	35	36	27.851	0.000	0.02	28.34	29.39	15	277	16	39	292	25	292	06			
07	38	30	34	32	33	31.296	0.000	0.01	28.61	29.67	16	319	16	33	315	23	315	07			
08	46	29	37	29	33	27.817	0.000	0.00	28.86	29.92	14	331	14	28	338	20	338	08			
09	56	22	40	28	33	25.305	0.000	0.00	28.82	29.88	2	137	4	17	158	11	135	09			
10	65	36	48	35	41	16.540	0.000	0.00	28.52	29.57	8	129	11	31	158	20	112	10			
11	64	31	47	35	40	17.877	0.000	0.00	28.72	29.78	7	264	8	30	248	18	270	11			
12	58	37	47	39	43	17.931	0.000	0.30	28.56	29.61	10	112	10	38	112	24	135	12			
13	48	30	39	33	36	26.333	0.000	0.21	28.54	29.59	9	294	10	29	315	18	292	13			
14	36	27	30	21	27	34.504	0.000	0.00	28.61	29.67	17	268	17	43	292	25	270	14			
15	38	24	30	20	26	35.051	0.000	0.00	28.90	29.96	13	311	13	32	292	21	315	15			
16	43	23	31	21	26	33.832	0.000	0.00	29.17	30.24	11	321	10	27	338	17	338	16			
17	43	20	31	25	29	33.698	0.000	0.03	29.16	30.23	7	180	6	23	158	14	158	17			
18	36	27	31	25	28	34.298	0.000	0.00	29.16	30.23	14	312	15	39	292	25	315	18			
19	44	17	34	24	29	31.311	0.000	0.00	29.13	30.20	5	144	6	25	135	15	135	19			
20	47	31	43	37	40	22.284	0.000	0.33	28.76	29.82	9	156	10	31	158	19	135	20			
21	58	32	44	38	41	20.647	0.000	0.01	29.10	30.17	4	316	5	21	315	13	315	21			
22	62	43	50	47	49	14.905	0.000	0.53	28.93	29.99	13	126	13	34	135	22	135	22			
23	77	49	65	59	61	2.156	2.555	0.06	28.46	29.51	18	180	19	48	158	28	180	23			
24	50	35	44	36	40	20.868	0.000	0.00	28.61	29.66	13	250	16	37	270	23	225	24			
25	36	29	32	25	29	32.918	0.000	0.00	29.10	30.16	15	316	14	31	338	19	315	25			
26	45	27	34	25	30	31.056	0.000	0.00	29.29	30.36	6	332	6	23	22	12	315	26			
27	50	31	40	27	33	24.924	0.000	0.00	29.17	30.24	10	98	9	27	112	15	135	27			
28	59	36	46	37	41	18.561	0.000	0.43	28.98	30.04	11	121	11	32	158	22	135	28			
29	59	48	52	50	51	12.628	0.000	0.14	28.77	29.83	10	120	10	29	112	18	158	29			
30	58	49	52	51	51	12.590	0.000	0.54	28.46	29.51	9	119	9	29	90	17	112	30			
	50	31	40	33	37	24.882	2.555		28.82	29.88	10	221.26	11	< Monthly Avg							
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 19		Precipitation ≥ 0.01 in: 10			Greatest 24 - hr precipitation: 0.59 Date: 29-30								
						Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 7			Monthly Total Precipitation: 2.61								
SEA LEVEL PRESSURE: >						MAXIMUM: 30.43		DATE: 26		TIME: 09:40		MONTHLY TOTAL		SEASON TO DATE TOTAL							
						MINIMUM: 29.22		DATE: 6		TIME: 06:00		DEGREEE DAYS: >		HEATING: 746.465		76.095		COOLING: 2.555		719.809	

APRIL 2022  
Mankato, MN USA

**AUGUST 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Mankato, MN USA**

**New SWCD Belgrade 109-27-16**

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	79	48	64	56	58	5.165	4.583	0.00	29.12	30.19	3	351	3	16	338	9	360	01
02	81	43	63	56	57	7.474	5.365	0.00	29.12	30.18	2	275	1	10	338	5	292	02
03	82	46	67	60	62	4.054	6.059	0.00	29.05	30.12	2	214	2	11	225	5	202	03
04	82	56	69	61	63	2.022	5.687	0.00	29.03	30.09	3	181	3	17	180	9	202	04
05	84	65	73	67	69	0.000	7.655	0.00	28.88	29.95	5	183	4	17	225	9	225	05
06	85	56	73	67	68	0.923	8.437	0.00	28.87	29.93	1	357	1	11	338	6	338	06
07	86	67	74	72	73	0.000	9.378	0.24	28.76	29.81	3	99	3	15	135	10	112	07
08	80	62	72	70	70	0.019	7.313	0.00	28.69	29.74	3	180	3	21	225	11	202	08
09	85	59	73	69	70	0.388	8.456	0.00	28.76	29.82	3	93	2	13	90	7	112	09
10	86	58	75	69	70	0.300	10.676	0.00	28.76	29.82	1	206	3	16	112	11	338	10
11	81	56	71	63	65	1.129	7.207	0.00	28.71	29.77	3	276	4	18	270	10	315	11
12	80	53	69	58	61	1.556	5.687	0.00	28.89	29.96	4	295	4	20	338	11	315	12
13	79	47	64	53	56	5.999	4.702	0.00	29.10	30.17	3	308	3	19	338	11	338	13
14	86	39	65	54	57	6.702	7.135	0.00	29.17	30.25	3	190	2	14	180	7	180	14
15	84	49	68	57	60	3.448	6.614	0.00	29.08	30.15	5	170	5	20	158	12	158	15
16	87	52	70	62	64	2.669	8.165	0.00	28.95	30.01	6	162	6	19	158	12	135	16
17	89	61	74	67	69	0.533	9.979	0.00	28.88	29.94	7	161	7	20	158	12	158	17
18	89	66	76	69	71	0.000	11.133	0.00	28.96	30.03	6	156	6	20	158	12	158	18
19	91	65	77	70	71	0.000	11.858	0.00	28.97	30.03	4	161	4	20	180	11	158	19
20	90	69	77	71	72	0.000	11.939	0.50	28.77	29.83	9	148	8	28	158	17	158	20
21	74	44	64	59	60	3.226	2.667	0.01	28.86	29.92	6	291	5	21	292	12	315	21
22	80	41	62	55	57	7.402	4.127	0.23	28.96	30.02	7	133	5	22	158	14	135	22
23	90	60	75	69	70	0.351	10.470	0.00	28.84	29.90	2	144	2	17	158	10	135	23
24	81	60	71	69	70	0.123	6.532	1.31	28.82	29.88	4	107	4	27	315	15	360	24
25	82	53	68	64	65	2.559	5.909	0.00	29.03	30.10	3	325	2	14	315	8	315	25
26	76	51	64	62	62	3.402	2.741	0.00	29.04	30.11	3	69	4	28	338	18	315	26
27	82	67	73	70	71	0.000	7.516	0.42	28.86	29.92	5	135	5	22	158	14	135	27
28	83	66	73	70	71	0.000	8.493	0.77	28.87	29.93	5	169	5	26	158	14	158	28
29	82	52	70	63	65	0.783	5.660	0.16	28.93	29.99	3	278	4	21	112	14	112	29
30	84	46	66	58	60	5.388	6.486	0.00	28.94	30.00	1	328	1	8	292	4	315	30
31	84	53	67	60	62	3.345	5.562	0.00	28.85	29.91	3	76	2	13	68	8	90	31
	83	55	70	64	65	2.873	7.232		28.92	29.98	4	200.71	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 7		Greatest 24 - hr precipitation: 1.31 Date: 23-24										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 7		Monthly Total Precipitation: 3.64										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.31		DATE: 14		TIME: 10:45		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.67		DATE: 11		TIME: 06:15		DEGREEE DAYS: >		HEATING: 68.960		76.101						
										COOLING: 224.192		719.809						

**AUGUST 2021  
Mankato, MN USA**

DECEMBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	54	32	43	39	41	21.744	0.000	0.00	28.67	29.73	5	226	6	25	292	14	270	01
02	51	35	42	38	40	22.652	0.000	0.00	28.86	29.92	5	304	5	19	270	12	292	02
03	49	27	37	34	36	27.805	0.000	0.00	29.04	30.10	2	338	3	16	360	10	338	03
04	33	26	30	25	28	34.422	0.000	0.00	29.23	30.30	1	321	3	16	112	11	112	04
05	42	24	33	24	29	31.787	0.000	0.00	28.70	29.75	3	229	13	41	315	26	292	05
06	24	-3	8	1	7	56.362	0.000	0.00	29.16	30.23	13	300	12	39	292	25	292	06
07	17	-4	11	7	10	54.177	0.000	0.00	29.01	30.08	4	111	5	14	158	10	135	07
08	26	-10	10	6	9	55.417	0.000	0.00	28.90	29.96	6	131	4	28	158	17	135	08
09	42	26	32	27	30	32.758	0.000	0.00	28.60	29.66	3	168	9	31	135	19	135	09
10	30	22	27	26	27	37.782	0.000	0.00	28.74	29.80	7	15	7	33	338	23	338	10
11	28	11	22	19	21	43.079	0.000	0.00	28.73	29.79	4	272	7	27	338	20	338	11
12	34	15	26	20	24	39.402	0.000	0.00	28.79	29.84	6	183	6	17	180	11	180	12
13	41	10	28	22	25	37.299	0.000	0.00	29.05	30.12	1	146	2	11	112	7	112	13
14	38	28	35	31	33	30.352	0.000	0.00	28.97	30.03	8	120	8	22	135	16	135	14
15	61	33	48	46	47	17.016	0.000	0.00	28.37	29.41	9	160	11	47	270	28	270	15
16	33	14	21	17	20	43.528	0.000	0.00	28.80	29.86	13	271	12	53	248	32	270	16
17	22	12	18	13	16	47.254	0.000	0.00	29.16	30.23	4	52	4	15	68	9	22	17
18	22	4	16	12	15	49.072	0.000	0.00	29.26	30.33	6	321	5	16	338	11	315	18
19	33	2	21	15	19	44.475	0.000	0.00	29.06	30.13	10	170	9	33	158	20	158	19
20	26	8	17	12	16	47.508	0.000	0.00	29.11	30.18	7	304	7	26	315	17	315	20
21	26	4	14	10	13	51.005	0.000	0.00	28.88	29.95	4	259	9	35	292	20	292	21
22	34	2	21	15	19	43.802	0.000	0.00	28.87	29.93	6	146	5	20	158	13	135	22
23	46	20	31	25	29	33.675	0.000	0.00	28.62	29.67	3	159	4	13	135	10	135	23
24	48	24	37	33	36	27.509	0.000	0.00	28.41	29.46	3	193	9	25	180	16	158	24
25	24	9	18	14	17	46.706	0.000	0.00	28.82	29.88	4	352	4	20	315	14	338	25
26	33	6	20	17	19	44.753	0.000	0.00	28.86	29.92	6	82	6	29	68	16	90	26
27	34	7	20	16	19	44.544	0.000	0.00	28.69	29.74	6	250	8	28	270	18	270	27
28	22	-4	13	9	12	51.733	0.000	0.00	28.68	29.74	2	12	6	27	270	17	292	28
29	8	-8	0	-4	-1	64.782	0.000	0.00	28.98	30.05	3	317	3	16	315	10	315	29
30	25	4	15	12	14	50.224	0.000	0.00	28.74	29.80	6	154	5	22	158	15	158	30
31	16	-5	9	5	8	56.109	0.000	0.00	28.83	29.89	9	335	8	23	338	16	338	31
	33	12	23	19	22	41.572	0.000		28.86	29.92	5	206.50	7	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 29		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: Date:										
		Maximum Temp ≤ 32: 14		Minimum Temp ≤ 0: 6		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.00										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.41		DATE: 18		TIME: 21:00		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 28.97		DATE: 15		TIME: 22:00		DEGREEE DAYS: >		HEATING: 1288.733		76.095						
								COOLING: 0.000		719.809								

DECEMBER 2021  
Mankato, MN USA

**FEBRUARY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Mankato, MN USA**

**New SWCD Belgrade 109-27-16**

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	36	1	18	12	16	47.306	0.000	0.00	28.94	30.00	12	293	12	35	292	21	292	01
02	4	-13	-2	-7	-3	67.154	0.000	0.00	29.49	30.57	11	323	10	25	315	18	338	02
03	4	-19	-9	-15	-10	73.698	0.000	0.00	29.58	30.66	2	334	2	10	338	7	338	03
04	6	-12	-3	-7	-3	67.761	0.000	0.00	29.35	30.43	5	278	9	28	315	19	292	04
05	27	-6	11	7	10	53.603	0.000	0.00	29.05	30.11	10	156	9	30	158	22	158	05
06	25	-3	15	11	14	50.339	0.000	0.00	29.09	30.16	8	299	8	31	292	20	292	06
07	21	-10	7	3	6	58.034	0.000	0.00	29.11	30.18	6	147	5	17	158	12	135	07
08	43	15	30	25	28	35.252	0.000	0.00	28.72	29.78	4	229	7	23	292	13	158	08
09	35	15	30	26	28	34.999	0.000	0.00	28.76	29.82	14	299	14	33	315	22	315	09
10	40	2	23	20	22	42.151	0.000	0.00	28.69	29.75	6	223	9	34	158	18	180	10
11	37	-2	18	13	16	47.349	0.000	0.00	28.80	29.86	15	300	15	44	315	28	292	11
12	6	-10	-0	-6	-1	65.149	0.000	0.00	29.35	30.43	4	296	4	23	315	15	315	12
13	10	-9	3	-3	2	62.295	0.000	0.00	29.27	30.34	3	178	6	21	158	15	158	13
14	18	6	13	8	11	52.410	0.000	0.00	29.19	30.26	2	345	4	16	180	10	338	14
15	34	11	23	19	22	41.746	0.000	0.00	28.94	30.00	9	115	9	30	135	22	135	15
16	27	12	22	18	20	43.221	0.000	0.00	28.83	29.89	11	322	11	27	315	19	338	16
17	12	-1	5	-2	3	60.202	0.000	0.00	29.22	30.29	9	331	9	29	292	20	315	17
18	40	4	17	11	15	47.929	0.000	0.00	28.92	29.98	7	268	15	45	315	28	292	18
19	27	-4	13	5	11	51.657	0.000	0.00	29.15	30.22	6	195	10	30	158	20	158	19
20	47	26	32	25	29	33.370	0.000	0.00	28.70	29.75	5	262	10	35	180	19	180	20
21	28	15	23	18	21	41.950	0.000	0.00	28.90	29.96	11	43	11	25	68	15	68	21
22	15	-2	7	3	6	58.483	0.000	0.00	29.12	30.19	13	338	14	27	338	21	338	22
23	6	-10	-2	-7	-3	66.655	0.000	0.00	29.57	30.65	7	316	7	23	292	15	315	23
24	9	-9	3	-1	2	62.197	0.000	0.00	29.41	30.49	6	1	5	14	360	10	360	24
25	16	-9	4	-1	3	60.868	0.000	0.00	29.45	30.53	2	261	4	15	338	11	338	25
26	33	0	17	12	15	47.681	0.000	0.00	29.23	30.30	6	219	6	18	248	13	225	26
27	36	5	19	15	18	45.565	0.000	0.00	29.14	30.21	2	167	2	10	202	6	158	27
28	47	14	31	27	29	33.561	0.000	0.00	28.93	29.99	2	223	1	10	202	6	225	28
	25	0	13	8	12	51.878	0.000		29.10	30.17	7	241.42	8	< Monthly Avg				
NUMBER OF DAYS WITH:	>	Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 28		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: Date:										
		Maximum Temp ≤ 32: 17		Minimum Temp ≤ 0: 15		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.00										
SEA LEVEL PRESSURE:	>	MAXIMUM: 30.78		DATE	TIME	DEGREEE DAYS: >		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.37		3	07:05			1452.586		76.095								
				10	20:30			0.000		719.809								

**FEBRUARY 2022  
Mankato, MN USA**

JANUARY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	-5	-13	-10	-15	-10	74.532	0.000	0.00	29.18	30.25	9	324	9	22	315	15	315	01
02	9	-16	-3	-8	-4	67.873	0.000	0.00	29.22	30.29	2	174	3	12	158	8	135	02
03	30	5	18	13	16	47.453	0.000	0.00	29.03	30.09	4	147	5	13	180	8	158	03
04	33	10	25	22	24	39.633	0.000	0.00	28.58	29.63	3	195	9	36	292	23	292	04
05	10	-5	4	0	3	61.393	0.000	0.00	28.88	29.94	17	292	16	36	292	22	292	05
06	-5	-16	-11	-15	-11	75.898	0.000	0.00	29.28	30.35	10	304	10	26	292	16	292	06
07	12	-19	-4	-8	-4	68.720	0.000	0.00	29.13	30.20	10	143	9	39	158	26	158	07
08	32	1	18	13	17	46.708	0.000	0.00	28.81	29.87	7	196	14	36	292	23	158	08
09	11	-3	4	-3	2	61.210	0.000	0.00	29.44	30.52	8	297	8	30	292	17	315	09
10	9	-9	1	-6	-0	63.942	0.000	0.00	29.53	30.61	2	330	3	14	338	9	338	10
11	44	5	26	19	23	39.488	0.000	0.00	28.98	30.04	5	200	9	28	158	18	158	11
12	46	23	33	29	31	31.816	0.000	0.00	28.91	29.97	1	303	2	11	315	7	315	12
13	34	23	29	27	28	35.827	0.000	0.00	28.98	30.04	5	321	5	19	315	13	315	13
14	27	12	20	17	19	45.272	0.000	0.00	29.15	30.22	9	53	8	26	22	14	68	14
15	13	-15	-0	-5	-1	65.122	0.000	0.00	29.37	30.45	0	236	3	17	158	12	158	15
16	32	3	18	15	17	46.799	0.000	0.00	28.84	29.90	4	233	9	26	158	18	158	16
17	33	3	22	19	21	43.228	0.000	0.00	28.84	29.90	3	183	4	22	315	16	315	17
18	43	5	26	22	24	39.481	0.000	0.00	28.65	29.70	5	252	12	43	292	24	292	18
19	6	-9	-0	-6	-1	65.306	0.000	0.00	29.35	30.43	14	305	13	33	292	21	315	19
20	3	-20	-10	-16	-11	75.471	0.000	0.00	29.62	30.70	1	265	2	11	315	7	292	20
21	28	-14	4	0	3	60.726	0.000	0.00	29.23	30.30	11	169	12	33	158	22	158	21
22	28	5	12	8	11	52.906	0.000	0.00	29.09	30.16	5	305	8	27	292	17	292	22
23	14	-19	-0	-4	-1	65.310	0.000	0.00	28.97	30.04	2	183	6	19	202	13	158	23
24	25	-10	6	3	5	58.948	0.000	0.00	28.88	29.94	10	320	11	24	360	18	338	24
25	-0	-23	-12	-16	-12	76.548	0.000	0.00	29.38	30.46	4	292	4	16	315	10	292	25
26	31	-28	5	0	4	60.084	0.000	0.00	29.08	30.15	11	177	11	30	158	19	158	26
27	34	-3	21	17	20	44.044	0.000	0.00	29.13	30.20	10	303	10	29	292	20	315	27
28	12	-21	-2	-7	-3	67.258	0.000	0.00	29.33	30.41	3	190	3	12	225	9	225	28
29	29	4	16	11	15	48.939	0.000	0.00	28.92	29.98	3	238	8	25	315	15	315	29
30	23	8	15	10	13	50.314	0.000	0.00	29.01	30.08	3	302	6	19	315	14	315	30
31	37	10	21	17	20	44.175	0.000	0.00	28.72	29.78	12	145	12	33	158	21	135	31
	22	-4	9	5	8	55.627	0.000		29.08	30.15	6	237.98	8	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: Date:										
		Maximum Temp ≤ 32: 22		Minimum Temp ≤ 0: 17		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.00										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.81		DATE: 20		TIME: 07:20		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.43		4		15:30		DEGREEE DAYS: >		HEATING: 1724.425		76.095						
								COOLING: 0.000		719.809								

JANUARY 2022  
Mankato, MN USA

**JULY 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Mankato, MN USA**

**New SWCD Belgrade 109-27-16**

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	88	51	72	64	65	3.111	9.783	0.00	29.03	30.10	1	327	1	10	270	6	315	01
02	82	54	71	60	62	1.370	7.073	0.00	29.07	30.13	3	80	2	13	68	8	68	02
03	86	52	71	63	65	3.227	9.377	0.00	28.97	30.03	3	181	3	14	158	7	158	03
04	91	68	80	70	72	0.000	14.806	0.00	28.81	29.87	8	205	8	29	225	17	202	04
05	92	66	79	71	73	0.000	14.332	0.00	28.88	29.94	2	265	2	11	225	7	225	05
06	83	64	73	71	71	0.005	8.078	0.38	28.92	29.98	2	9	3	21	248	12	270	06
07	73	49	63	58	60	4.077	1.790	0.07	28.96	30.02	6	17	6	20	338	11	360	07
08	73	42	61	55	57	5.952	1.989	0.00	28.95	30.01	1	51	1	9	68	5	292	08
09	72	61	66	64	65	0.758	2.208	0.61	28.95	30.01	3	106	3	16	112	9	112	09
10	75	55	67	64	64	1.011	2.645	0.05	28.94	30.01	3	79	3	14	90	8	90	10
11	81	49	67	61	62	4.045	5.957	0.00	29.00	30.06	2	39	1	12	22	6	45	11
12	80	46	64	58	60	5.954	5.425	0.00	29.01	30.08	2	158	1	11	135	6	135	12
13	84	48	69	63	65	3.384	6.893	0.00	28.97	30.03	3	200	2	15	225	7	225	13
14	70	58	65	64	64	1.227	1.180	0.83	28.92	29.99	1	8	2	15	68	9	22	14
15	80	51	65	60	61	4.084	4.529	0.00	28.98	30.04	2	58	1	12	45	7	45	15
16	81	46	65	58	60	6.007	5.907	0.00	28.99	30.06	3	111	1	13	158	8	135	16
17	83	48	68	62	63	4.394	7.166	0.00	29.09	30.15	2	84	1	12	68	6	135	17
18	84	54	70	63	65	2.998	7.573	0.00	29.17	30.24	2	147	1	13	158	7	158	18
19	85	51	70	64	65	3.350	8.330	0.00	29.15	30.22	1	249	1	10	225	5	338	19
20	86	58	73	69	70	0.659	8.889	0.00	29.08	30.14	2	288	2	14	338	7	315	20
21	86	67	75	70	71	0.000	9.901	0.00	29.04	30.11	2	149	2	12	158	6	158	21
22	85	66	76	69	71	0.000	10.583	0.00	28.98	30.04	6	178	6	19	158	11	180	22
23	91	70	80	73	74	0.000	14.626	0.00	28.89	29.95	6	184	6	18	225	11	180	23
24	87	59	77	71	72	0.286	12.123	0.17	28.87	29.94	3	292	3	20	292	11	315	24
25	87	49	72	64	66	2.564	9.246	0.00	28.96	30.02	1	250	1	8	248	4	225	25
26	86	65	76	71	72	0.000	11.286	0.00	28.94	30.00	4	207	4	19	225	11	180	26
27	92	70	80	75	76	0.000	14.808	0.00	28.91	29.97	3	199	3	14	202	7	202	27
28	93	69	80	76	77	0.000	15.127	0.20	28.90	29.96	3	189	5	21	22	13	360	28
29	83	62	75	70	71	0.125	10.084	0.00	29.00	30.07	4	352	4	14	338	8	360	29
30	73	52	66	62	63	1.799	2.534	0.05	29.11	30.17	0	272	1	10	248	5	315	30
31	84	52	67	62	63	3.492	5.800	0.00	29.02	30.09	3	306	3	16	338	9	292	31
	83	57	71	65	67	2.777	8.066		28.98	30.05	3	169.01	3	< Monthly Avg				

NUMBER OF DAYS WITH: > Maximum Temp ≥ 90: 5 Minimum Temp ≤ 32: 0 Precipitation ≥ 0.01 in: 8 Greatest 24 - hr precipitation: 0.83 Date: 13-14  
 Maximum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0 Precipitation ≥ 0.10 in: 5 Monthly Total Precipitation: 2.36

SEA LEVEL PRESSURE: > MAXIMUM: 30.28 18 09:20 MONTHLY TOTAL: 63.880 HEATING: 76.101  
 MINIMUM: 29.82 4 20:10 COOLING: 250.047 SEASON TO DATE TOTAL: 719.809

**JULY 2021  
Mankato, MN USA**



**JULY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Mankato, MN USA**

**New SWCD Belgrade 109-27-16**

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	84	55	70	58	61	1.881	6.572	0.00	28.97	30.04	3	328	2	18	338	11	315	01
02	75	58	65	61	62	1.613	1.897	0.18	28.99	30.06	1	50	1	11	45	6	360	02
03	86	58	73	66	68	1.437	9.433	0.00	28.98	30.05	5	185	4	18	225	11	180	03
04	87	69	77	72	73	0.000	11.564	0.91	28.83	29.89	4	177	5	29	225	19	225	04
05	91	67	77	74	75	0.000	12.227	0.11	28.82	29.88	3	50	3	23	338	16	338	05
06	81	67	74	71	71	0.000	8.800	0.00	28.95	30.01	3	75	3	13	22	7	68	06
07	87	67	76	72	73	0.000	10.816	0.21	28.94	30.01	1	109	2	13	45	9	360	07
08	83	68	74	71	72	0.000	8.550	0.13	29.03	30.10	2	35	3	16	68	10	68	08
09	83	61	72	68	69	0.173	7.319	0.01	29.14	30.21	0	323	3	13	180	9	180	09
10	86	66	76	72	73	0.000	11.486	0.00	28.88	29.94	2	321	7	27	158	17	180	10
11	82	61	75	67	69	0.128	9.760	0.00	28.81	29.87	7	312	6	31	315	16	315	11
12	84	60	72	63	65	1.109	8.137	0.01	28.91	29.97	5	304	5	21	338	11	315	12
13	82	55	70	63	65	1.727	6.775	0.00	29.00	30.07	2	34	2	13	45	8	68	13
14	87	58	74	68	69	1.297	10.392	0.00	29.00	30.06	6	141	6	22	158	12	158	14
15	86	70	77	72	73	0.000	12.106	0.03	28.94	30.00	4	112	4	17	112	10	158	15
16	83	62	73	69	70	0.219	7.888	0.00	28.96	30.03	2	174	1	9	202	5	202	16
17	88	58	74	68	69	0.613	10.101	0.00	28.91	29.97	1	257	1	9	270	4	270	17
18	92	63	79	72	73	0.083	13.657	0.00	28.84	29.90	5	216	4	18	225	11	225	18
19	89	66	77	69	71	0.000	12.194	0.25	28.62	29.67	7	215	8	31	180	17	180	19
20	86	68	76	66	69	0.000	11.497	0.00	28.67	29.72	9	309	9	30	338	17	338	20
21	83	60	73	64	66	0.293	8.105	0.06	28.82	29.88	5	323	5	21	315	13	315	21
22	92	61	75	67	69	0.225	10.394	0.00	28.84	29.90	1	249	2	17	225	10	225	22
23	83	60	72	69	70	0.774	7.544	1.12	28.77	29.83	3	87	3	26	360	15	22	23
24	77	59	69	62	64	0.698	4.838	0.00	28.94	30.00	6	328	6	21	360	13	338	24
25	74	47	63	59	60	4.559	2.341	0.09	29.03	30.10	1	261	1	8	315	4	158	25
26	80	62	70	66	67	0.888	5.425	0.16	28.90	29.96	4	222	3	20	22	13	360	26
27	82	56	69	63	64	1.733	6.043	0.00	28.85	29.92	4	313	3	16	315	9	315	27
28	77	54	66	58	60	2.700	3.235	0.00	28.96	30.02	6	322	6	21	315	13	338	28
29	79	53	66	59	61	4.134	4.644	0.00	29.06	30.12	4	332	3	14	315	8	338	29
30	85	53	70	63	64	3.121	7.647	0.00	29.05	30.12	5	209	5	19	180	11	225	30
31	84	57	71	67	68	1.450	7.288	0.21	28.86	29.92	6	213	6	30	225	16	180	31
	84	61	72	66	68	1.403	8.344		28.91	29.97	4	212.49	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 12		Greatest 24 - hr precipitation: 1.12 Date: 22-23										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 9		Monthly Total Precipitation: 3.48										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.28		DATE: 9		TIME: 10:55		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.60		19		10:25		DEGREEE DAYS: >		HEATING: 30.855		76.095						
								COOLING: 258.674		719.809								

**JULY 2022  
Mankato, MN USA**

**JUNE 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Mankato, MN USA**

**New SWCD Belgrade 109-27-16**

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	81	44	65	47	52	5.707	5.226	0.00	29.05	30.11	1	156	2	18	225	11	360	01
02	86	54	70	48	54	2.774	7.759	0.00	28.88	29.94	4	217	4	18	225	11	225	02
03	92	63	78	51	57	0.147	13.405	0.00	28.77	29.83	7	243	7	43	270	15	225	03
04	97	69	84	57	62	0.000	18.771	0.00	28.74	29.80	10	217	10	25	225	15	225	04
05	99	72	87	61	66	0.000	21.613	0.00	28.66	29.71	11	201	11	28	225	18	202	05
06	93	71	82	63	67	0.000	17.233	0.00	28.66	29.72	13	196	13	32	225	21	202	06
07	95	71	83	67	70	0.000	17.937	0.00	28.75	29.80	7	191	7	26	225	13	180	07
08	94	68	83	67	70	0.000	17.604	0.00	28.90	29.96	3	153	3	17	158	9	112	08
09	95	66	82	67	70	0.000	17.000	0.00	28.94	30.01	4	169	4	26	202	12	135	09
10	97	68	84	68	71	0.000	19.248	0.00	28.83	29.89	3	194	3	15	225	8	225	10
11	84	67	78	67	70	0.000	12.948	0.33	28.78	29.84	3	252	6	36	292	20	315	11
12	85	55	72	54	59	1.492	8.691	0.00	28.95	30.01	6	319	5	21	292	12	292	12
13	94	50	75	56	60	2.947	13.121	0.00	28.96	30.02	5	259	6	23	248	15	225	13
14	86	52	71	54	58	2.634	8.786	0.00	29.03	30.09	4	346	4	22	315	12	338	14
15	83	54	70	57	60	2.135	7.208	0.00	29.08	30.15	3	62	3	14	90	8	68	15
16	89	55	75	59	63	1.498	11.433	0.00	28.96	30.03	6	151	5	20	158	13	135	16
17	88	60	79	66	69	0.093	13.698	0.00	28.77	29.83	1	210	6	21	338	13	338	17
18	88	52	73	57	60	2.765	10.552	0.00	28.78	29.84	2	321	2	24	338	12	270	18
19	80	50	69	53	58	2.115	5.954	0.00	28.79	29.85	4	327	4	16	338	11	338	19
20	79	56	68	60	62	1.408	3.922	0.03	28.60	29.66	3	285	8	31	292	22	315	20
21	69	40	58	43	48	7.399	0.242	0.00	28.87	29.93	10	323	9	26	338	17	338	21
22	77	40	63	48	52	5.543	3.861	0.00	28.85	29.91	3	110	3	15	68	7	158	22
23	89	50	73	63	65	2.777	10.817	0.00	28.73	29.79	5	159	5	17	158	10	158	23
24	88	57	77	68	70	0.514	12.293	0.00	28.74	29.79	2	261	5	16	180	11	248	24
25	84	56	71	60	62	1.950	8.109	0.00	28.81	29.87	3	64	3	15	90	9	45	25
26	74	59	67	65	65	0.569	2.546	1.02	28.73	29.78	3	4	3	17	68	10	338	26
27	81	58	70	66	67	0.731	5.672	0.00	28.88	29.95	1	286	1	10	248	5	90	27
28	83	55	68	65	66	1.337	4.399	0.06	29.00	30.07	1	180	2	19	315	13	338	28
29	82	61	72	67	68	0.119	6.871	0.02	29.06	30.13	3	271	2	12	248	6	225	29
30	85	55	71	63	65	1.877	8.141	0.00	29.06	30.12	2	336	2	14	22	6	338	30
	87	58	74	60	63	2.206	10.502		28.85	29.91	4	215.42	5	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 9 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 5 Precipitation ≥ 0.10 in: 2			Greatest 24 - hr precipitation: 1.02 Date: 25-26 Monthly Total Precipitation: 1.46					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.21 MINIMUM: 29.52		DATE: 15 TIME: 11:20	DEGREEE DAYS: >		HEATING: 48.529 COOLING: 315.062		MONTHLY TOTAL: 76.101 SEASON TO DATE TOTAL: 719.809					

**JUNE 2021  
Mankato, MN USA**

**JUNE 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Mankato, MN USA**

**New SWCD Belgrade 109-27-16**

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES								
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date	
														INSTANT		ARCHIVE			
														SPEED	DIR	SPEED	DIR		
01	73	49	60	46	51	6.438	1.316	0.00	29.01	30.07	5	317	5	20	292	12	338	01	
02	80	45	64	41	47	5.969	5.192	0.00	28.89	29.95	7	295	7	29	292	18	315	02	
03	76	43	62	38	46	5.718	2.753	0.00	28.94	30.01	5	336	5	21	338	13	360	03	
04	69	54	60	53	55	5.136	0.251	0.11	28.88	29.95	6	154	5	22	158	14	158	04	
05	68	56	61	58	59	4.253	0.131	0.10	28.76	29.82	4	105	4	15	90	9	158	05	
06	77	58	66	58	60	2.464	3.430	0.09	28.72	29.78	4	60	4	16	68	11	68	06	
07	71	57	63	54	57	3.143	0.996	0.00	28.88	29.94	1	85	2	12	112	6	22	07	
08	80	52	66	49	54	4.264	5.014	0.00	28.88	29.95	5	351	5	20	360	13	338	08	
09	82	46	67	46	52	4.359	6.843	0.00	28.93	29.99	3	279	3	16	292	9	248	09	
10	82	63	70	58	61	0.184	5.554	0.00	28.84	29.90	2	262	3	17	225	10	202	10	
11	81	64	70	64	66	0.049	5.411	0.01	28.69	29.75	4	208	4	17	225	10	225	11	
12	90	64	76	68	69	0.202	10.752	0.00	28.70	29.75	6	136	6	19	135	13	135	12	
13	86	69	75	72	73	0.000	10.116	0.15	28.63	29.68	9	140	9	27	180	16	158	13	
14	95	74	84	71	74	0.000	18.574	0.00	28.56	29.61	8	207	11	35	225	21	202	14	
15	77	63	69	61	63	0.105	3.757	0.19	28.75	29.81	2	239	4	17	225	10	338	15	
16	84	62	73	57	61	0.184	8.170	0.00	28.86	29.92	9	284	11	33	248	20	315	16	
17	86	56	72	57	61	1.449	8.687	0.00	29.05	30.12	3	14	4	25	315	11	338	17	
18	86	57	74	59	63	1.025	9.946	0.00	29.08	30.15	9	148	9	28	158	17	158	18	
19	96	69	83	68	71	0.000	17.977	0.00	28.95	30.02	12	191	12	29	225	18	225	19	
20	99	76	87	74	76	0.000	22.342	0.00	28.85	29.91	13	203	13	32	202	18	202	20	
21	87	70	79	64	68	0.000	14.361	0.00	28.95	30.01	6	292	8	25	225	14	202	21	
22	86	62	74	59	63	0.421	9.110	0.00	29.08	30.14	4	297	4	19	292	12	315	22	
23	94	58	78	61	65	1.227	14.330	0.00	28.90	29.97	8	206	8	27	248	18	225	23	
24	91	67	79	68	71	0.000	14.384	0.00	28.85	29.91	8	181	8	23	158	14	180	24	
25	81	60	73	64	66	0.076	7.982	0.05	28.89	29.96	4	292	7	26	338	16	315	25	
26	76	51	64	50	54	4.162	2.929	0.00	29.13	30.20	8	317	8	28	338	16	315	26	
27	84	47	69	51	56	3.831	7.447	0.00	29.17	30.24	3	281	3	24	248	10	315	27	
28	86	63	73	58	62	0.062	8.481	0.00	29.03	30.10	3	236	6	23	180	14	225	28	
29	94	53	77	62	65	1.335	13.319	0.00	28.96	30.03	7	182	9	31	180	18	180	29	
30	88	66	78	64	67	0.000	13.165	0.00	28.81	29.87	5	222	6	25	225	15	225	30	
	84	59	72	59	62	2.437	8.424		28.89	29.95	6	217.45	6	< Monthly Avg					
NUMBER OF DAYS WITH:		> Maximum Temp ≥ 90: 7		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 6		Greatest 24 – hr precipitation: 0.19		Date: 5-6		Monthly Total Precipitation: 0.70							
SEA LEVEL PRESSURE:		> MAXIMUM: 30.31		DATE: 27		TIME: 08:50		MONTHLY TOTAL: 56.056		SEASON TO DATE TOTAL: 76.095		DEGREEE DAYS: >		HEATING: 56.056		719.809			
		MINIMUM: 29.53		DATE: 14		TIME: 10:45		MONTHLY TOTAL: 252.723		SEASON TO DATE TOTAL: 719.809				COOLING: 252.723					

**JUNE 2022  
Mankato, MN USA**

MARCH 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	36	28	33	30	31	32.257	0.000	0.00	28.99	30.05	3	337	2	11	292	7	315	01
02	37	26	31	28	30	33.977	0.000	0.00	29.09	30.16	6	360	5	19	360	14	338	02
03	26	20	23	14	20	41.570	0.000	0.00	29.37	30.45	4	49	4	14	360	9	360	03
04	40	24	32	25	29	32.883	0.000	0.00	29.07	30.13	10	106	10	31	112	20	112	04
05	37	30	34	32	33	31.352	0.000	0.01	28.65	29.70	6	352	7	25	315	17	315	05
06	30	23	26	23	25	39.428	0.000	0.00	28.97	30.03	13	300	13	30	270	20	292	06
07	30	17	24	18	22	41.281	0.000	0.00	29.11	30.18	8	308	9	23	315	15	338	07
08	41	23	29	23	27	36.081	0.000	0.00	28.96	30.02	6	252	9	25	315	15	315	08
09	23	8	16	10	14	48.583	0.000	0.00	29.12	30.19	11	307	11	27	292	18	315	09
10	29	6	18	9	15	47.145	0.000	0.00	29.15	30.22	5	232	5	26	270	13	225	10
11	22	3	10	2	8	54.731	0.000	0.00	29.13	30.20	13	296	13	32	315	20	315	11
12	32	-3	17	5	13	48.277	0.000	0.00	29.04	30.10	6	190	7	28	158	14	180	12
13	50	21	36	28	32	28.076	0.000	0.00	28.83	29.89	3	288	5	16	315	11	292	13
14	41	27	35	31	33	30.232	0.000	0.00	29.03	30.10	7	37	7	23	45	13	45	14
15	56	20	37	31	34	27.547	0.000	0.00	29.08	30.15	5	178	4	21	158	11	202	15
16	60	33	46	38	42	18.836	0.000	0.00	28.76	29.82	6	191	6	28	158	15	180	16
17	49	33	39	36	37	26.319	0.000	0.00	28.96	30.02	7	323	7	19	315	12	315	17
18	49	28	37	32	35	27.949	0.000	0.00	28.96	30.03	5	11	5	20	45	13	360	18
19	58	22	39	32	35	26.387	0.000	0.00	28.91	29.97	2	288	2	11	248	6	225	19
20	61	25	42	35	38	22.837	0.000	0.00	28.95	30.02	6	106	5	27	90	16	112	20
21	73	43	57	44	48	9.466	1.010	0.00	28.78	29.84	6	171	8	27	112	16	112	21
22	43	33	39	38	38	26.240	0.000	0.02	28.76	29.82	7	351	7	21	360	14	338	22
23	35	32	33	32	32	31.964	0.000	0.00	28.68	29.74	13	344	12	25	338	18	338	23
24	44	32	37	34	35	28.242	0.000	0.00	28.75	29.81	7	336	7	21	360	15	338	24
25	44	28	37	30	34	28.137	0.000	0.00	28.81	29.87	17	304	17	44	315	30	315	25
26	33	19	26	16	22	39.128	0.000	0.00	29.07	30.14	17	319	16	35	315	24	315	26
27	31	14	22	12	19	42.509	0.000	0.00	29.24	30.31	7	343	7	21	315	15	315	27
28	41	19	29	17	24	35.561	0.000	0.00	29.16	30.23	8	116	7	21	135	14	135	28
29	43	32	37	25	31	28.484	0.000	0.00	28.76	29.81	14	118	13	34	112	23	135	29
30	34	32	33	31	32	32.406	0.000	0.00	28.44	29.49	9	353	9	24	338	15	338	30
31	35	28	32	28	30	33.295	0.000	0.00	28.64	29.69	12	326	12	26	315	19	315	31
	41	23	32	25	29	33.264	1.010		28.94	30.01	8	244.91	8	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 25		Precipitation ≥ 0.01 in: 1		Greatest 24 - hr precipitation: 0.02 Date: 21-22										
		Maximum Temp ≤ 32: 8		Minimum Temp ≤ 0: 1		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.03										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.52		DATE: 3		TIME: 09:45		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.41		30		06:35		DEGREEE DAYS: >		HEATING: 1031.181		76.095						
								COOLING: 1.010		719.809								

MARCH 2022  
Mankato, MN USA

MAY 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	93	55	72	42	50	2.588	10.019	0.00	28.57	29.62	4	214	7	25	180	14	158	01
02	71	50	62	46	51	4.191	1.067	0.00	28.48	29.52	4	33	5	21	90	13	45	02
03	71	48	58	46	50	7.081	0.553	0.00	28.65	29.70	12	341	12	32	338	23	338	03
04	62	38	49	31	38	15.524	0.000	0.00	28.94	30.01	11	332	10	27	338	18	338	04
05	56	30	43	34	38	22.390	0.000	0.21	29.09	30.16	1	350	3	19	225	9	202	05
06	64	36	50	35	41	14.764	0.000	0.00	29.10	30.16	7	305	7	28	292	19	292	06
07	62	33	49	30	38	15.694	0.000	0.00	29.04	30.11	5	356	6	25	338	14	338	07
08	54	37	46	30	37	18.548	0.000	0.00	29.00	30.06	5	121	6	17	135	11	135	08
09	67	33	51	30	38	13.628	0.080	0.00	28.96	30.02	5	333	6	23	338	15	338	09
10	60	31	49	28	37	16.422	0.000	0.00	29.12	30.19	6	36	7	25	22	13	45	10
11	64	27	47	25	34	17.518	0.000	0.00	29.29	30.37	2	75	2	17	68	9	22	11
12	71	32	54	26	36	11.831	0.821	0.00	29.32	30.40	3	203	3	17	180	11	180	12
13	73	38	58	29	39	8.494	1.979	0.00	29.23	30.30	8	193	7	31	180	16	202	13
14	63	51	56	41	47	8.844	0.000	0.01	29.10	30.17	6	168	7	22	202	13	202	14
15	80	46	64	46	51	5.752	4.271	0.00	28.98	30.05	0	255	5	19	158	11	180	15
16	78	45	63	53	56	5.464	3.337	0.00	29.01	30.07	6	156	6	26	158	13	158	16
17	81	43	64	51	55	5.223	4.561	0.00	29.05	30.11	6	124	6	25	158	16	135	17
18	69	54	61	57	58	4.011	0.272	0.04	28.99	30.05	7	118	6	21	90	12	158	18
19	75	61	67	65	65	0.909	2.914	0.72	28.92	29.98	6	155	6	21	158	13	158	19
20	76	64	69	66	67	0.044	3.685	0.13	28.94	30.01	9	163	9	23	158	15	158	20
21	84	62	72	67	68	0.442	7.107	0.33	29.05	30.12	8	175	8	25	225	17	202	21
22	85	66	75	67	69	0.000	10.210	0.00	29.13	30.20	9	183	8	22	225	14	202	22
23	86	63	73	66	68	0.111	8.278	0.00	29.04	30.11	3	172	5	17	158	10	135	23
24	89	67	77	64	67	0.000	11.759	0.00	28.88	29.95	8	199	9	28	225	18	202	24
25	88	64	75	59	63	0.026	10.242	0.11	28.77	29.82	9	246	11	28	292	18	225	25
26	69	56	61	45	51	4.112	0.486	0.00	29.04	30.11	7	330	8	27	292	19	315	26
27	56	42	48	44	46	16.895	0.000	0.85	29.04	30.11	9	61	9	25	68	16	68	27
28	60	40	48	41	44	16.794	0.000	0.04	29.14	30.21	6	54	6	21	45	13	68	28
29	67	36	54	40	45	11.319	0.092	0.00	29.17	30.24	6	154	5	23	180	14	158	29
30	60	50	55	50	52	10.016	0.000	0.04	29.12	30.19	7	190	7	19	180	12	202	30
31	80	49	64	50	54	5.411	4.440	0.00	29.09	30.15	4	250	5	22	315	14	315	31
	71	47	59	45	50	9.105	4.309		29.01	30.07	6	195.02	7	< Monthly Avg				

MAY 2021  
Mankato, MN USA

NUMBER OF DAYS WITH: > Maximum Temp ≥ 90: 1 Minimum Temp ≤ 32: 3 Precipitation ≥ 0.01 in: 9 Greatest 24 - hr precipitation: 0.89 Date: 27-28  
 Maximum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0 Precipitation ≥ 0.10 in: 6 Monthly Total Precipitation: 2.48

SEA LEVEL PRESSURE: >	MAXIMUM: 30.47	DATE: 12	TIME: 08:35	DEGREEE DAYS: >	HEATING: 264.045	MONTHLY TOTAL: 264.045	SEASON TO DATE TOTAL: 76.101
	MINIMUM: 29.49	DATE: 1	TIME: 18:55		COOLING: 86.174	MONTHLY TOTAL: 86.174	SEASON TO DATE TOTAL: 719.809

MAY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	49	40	43	41	42	21.860	0.000	0.10	28.70	29.76	13	313	13	33	338	19	315	01
02	46	38	42	38	40	23.248	0.000	0.00	29.00	30.07	6	344	6	20	292	13	360	02
03	61	36	48	39	42	17.224	0.000	0.00	29.01	30.07	5	34	5	23	22	13	45	03
04	64	38	51	40	45	13.702	0.000	0.00	29.11	30.18	3	151	4	19	158	12	158	04
05	63	40	51	46	48	14.197	0.000	0.03	28.99	30.06	4	106	3	17	135	11	112	05
06	72	40	58	44	48	8.768	1.344	0.00	28.85	29.91	6	127	4	22	158	13	158	06
07	76	46	63	44	50	5.401	3.074	0.00	28.81	29.87	14	165	14	36	158	25	158	07
08	65	52	57	50	52	7.961	0.000	0.15	28.67	29.73	14	158	14	41	158	26	158	08
09	92	56	70	58	61	2.392	7.033	0.00	28.49	29.54	9	172	16	40	158	28	135	09
10	83	53	67	47	53	3.437	5.747	0.00	28.94	30.00	6	28	6	23	360	14	45	10
11	85	58	69	59	62	0.890	4.974	0.68	28.95	30.02	5	101	8	56	248	42	248	11
12	96	60	76	68	69	0.679	11.559	0.05	28.78	29.84	8	155	8	39	158	27	158	12
13	79	56	67	55	58	1.511	3.982	0.07	28.84	29.90	5	249	6	23	270	15	225	13
14	78	50	64	47	52	4.655	3.853	0.00	28.89	29.95	4	303	7	25	360	17	338	14
15	79	46	63	41	48	5.631	4.018	0.00	28.92	29.98	6	302	6	25	315	15	315	15
16	77	49	64	43	49	4.676	3.624	0.00	28.90	29.96	8	327	9	32	315	20	338	16
17	62	51	55	50	52	9.809	0.000	0.33	28.93	29.99	3	130	3	16	158	11	158	17
18	78	54	64	56	58	4.381	3.185	0.00	28.76	29.82	1	275	4	20	292	12	292	18
19	74	46	62	56	58	5.204	2.019	0.02	28.42	29.46	6	107	6	25	112	15	158	19
20	64	46	55	48	51	9.522	0.000	0.09	28.52	29.57	8	293	9	31	292	18	315	20
21	56	39	49	36	41	16.331	0.000	0.00	29.04	30.10	8	326	8	22	315	14	315	21
22	63	39	50	35	41	14.900	0.000	0.00	29.26	30.33	5	318	5	23	315	13	360	22
23	67	32	53	36	42	11.908	0.133	0.00	29.25	30.32	4	150	4	17	135	10	135	23
24	71	46	58	42	47	7.345	0.655	0.01	29.11	30.18	7	128	6	23	158	13	158	24
25	52	48	50	49	49	14.845	0.000	0.38	28.90	29.96	7	58	7	19	22	12	90	25
26	59	44	52	48	49	13.460	0.000	0.00	28.82	29.88	7	19	7	19	22	12	360	26
27	81	38	61	50	53	8.159	4.644	0.00	28.85	29.91	6	189	4	21	180	13	180	27
28	95	61	77	58	63	0.421	12.438	0.09	28.58	29.64	10	203	11	33	225	24	225	28
29	87	64	75	66	68	0.019	9.926	0.43	28.44	29.49	11	169	11	26	158	18	135	29
30	87	62	72	64	66	0.560	7.214	0.33	28.44	29.49	9	177	11	44	180	25	180	30
31	72	56	63	55	58	2.712	1.205	0.00	28.74	29.79	11	258	14	32	225	22	225	31
	72	48	60	49	52	8.252	4.770		28.84	29.90	7	188.26	8	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 13			Greatest 24 - hr precipitation: 0.68 Date: 10-11									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 6			Monthly Total Precipitation: 2.76								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.40		DATE: 23		TIME: 08:20		DEGREEE DAYS: >		HEATING: 255.807		MONTHLY TOTAL: 76.095		SEASON TO DATE TOTAL: 719.809				
		MINIMUM: 29.18		DATE: 19		TIME: 21:15				COOLING: 90.629								

MAY 2022  
Mankato, MN USA

**NOVEMBER 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Mankato, MN USA**  
**New SWCD Belgrade 109-27-16**



Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	46	24	33	26	30	31.585	0.000	0.00	29.25	30.33	5	285	4	22	248	13	292	01
02	45	18	30	24	27	35.043	0.000	0.00	29.33	30.41	3	320	2	15	338	9	315	02
03	48	14	30	24	27	34.793	0.000	0.00	29.27	30.34	3	147	3	16	135	11	135	03
04	55	24	38	34	36	27.160	0.000	0.00	29.11	30.18	4	168	4	17	158	10	180	04
05	63	37	49	41	44	16.422	0.000	0.00	28.92	29.98	12	171	12	36	158	21	180	05
06	72	38	52	41	45	14.013	1.078	0.00	28.92	29.98	4	210	4	18	180	11	202	06
07	64	41	51	47	48	14.492	0.000	0.00	28.83	29.89	5	166	5	16	225	10	180	07
08	61	37	46	36	40	19.098	0.000	0.00	29.09	30.16	4	348	4	18	338	12	360	08
09	57	28	39	29	34	26.117	0.000	0.00	29.19	30.26	1	22	1	8	270	4	270	09
10	56	33	45	39	42	19.958	0.000	0.00	28.83	29.89	7	123	7	23	135	16	135	10
11	46	34	39	35	37	26.097	0.000	0.00	28.50	29.55	11	281	11	30	315	18	292	11
12	37	30	33	31	32	32.294	0.000	0.00	28.69	29.74	13	302	13	28	338	18	315	12
13	36	29	31	28	30	34.216	0.000	0.00	28.86	29.92	5	254	7	32	292	20	292	13
14	32	22	29	25	27	35.824	0.000	0.00	28.92	29.98	10	312	9	37	292	20	292	14
15	42	26	32	28	30	32.701	0.000	0.00	28.95	30.01	6	109	5	14	135	9	112	15
16	51	30	40	36	38	25.220	0.000	0.00	28.64	29.70	8	145	12	37	158	26	135	16
17	42	26	35	26	31	30.201	0.000	0.00	28.90	29.96	10	275	10	34	292	21	270	17
18	34	12	26	19	23	38.711	0.000	0.00	29.20	30.28	11	296	10	34	292	20	292	18
19	43	10	31	21	26	25.728	0.000	0.00	29.08	30.15	10	156	10	38	158	22	158	19
20	48	24	35	26	31	30.255	0.000	0.00	29.03	30.10	2	297	3	17	315	11	315	20
21	37	16	29	20	25	36.149	0.000	0.00	29.14	30.21	9	299	9	40	315	23	292	21
22	38	11	23	14	20	41.894	0.000	0.00	29.14	30.21	2	195	3	16	248	7	225	22
23	58	22	40	28	33	24.828	0.000	0.00	28.74	29.80	11	163	11	29	158	19	158	23
24	50	17	39	30	34	26.413	0.000	0.00	28.79	29.85	8	305	12	31	338	21	315	24
25	25	5	15	6	12	49.811	0.000	0.00	29.32	30.40	9	314	8	32	315	19	315	25
26	36	14	27	15	23	37.610	0.000	0.00	28.93	29.99	9	147	8	23	135	15	158	26
27	46	21	34	26	31	30.860	0.000	0.00	28.84	29.90	5	310	6	22	338	15	338	27
28	41	14	29	17	23	36.438	0.000	0.00	29.07	30.14	3	282	3	15	292	9	292	28
29	59	31	42	31	37	22.728	0.000	0.00	28.78	29.84	4	253	8	28	315	16	315	29
30	49	24	36	28	32	28.728	0.000	0.00	29.00	30.07	2	320	3	15	315	9	315	30
	47	24	35	28	32	29.513	1.078		28.98	30.04	6	232.50	7	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 1		Minimum Temp ≤ 32: 24 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 0 Precipitation ≥ 0.10 in: 0			Greatest 24 – hr precipitation: Date: Monthly Total Precipitation: 0.00					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.47 MINIMUM: 29.46		DATE 25 11	TIME 10:15 23:50	DEGREEE DAYS: >		MONTHLY TOTAL HEATING: 885.386 COOLING: 1.078		SEASON TO DATE TOTAL 76.101 719.809				

**NOVEMBER 2021**  
**Mankato, MN USA**

OCTOBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	81	63	68	66	66	0.382	3.800	0.64	29.00	30.07	2	156	2	13	135	8	158	01
02	67	60	64	63	63	1.402	0.128	0.06	28.89	29.95	3	267	3	14	292	8	292	02
03	77	43	60	52	54	7.750	2.608	0.00	28.91	29.97	5	331	4	19	338	11	338	03
04	77	36	57	49	51	11.035	2.789	0.00	29.05	30.11	2	49	1	11	68	6	22	04
05	78	39	59	52	54	9.538	3.038	0.00	29.18	30.25	4	133	2	19	158	9	135	05
06	75	47	61	57	58	6.003	1.914	0.00	29.14	30.21	3	127	2	13	135	8	112	06
07	75	59	65	62	63	1.748	1.817	0.00	29.03	30.09	3	111	3	12	90	8	112	07
08	79	62	67	62	64	1.138	3.437	0.00	28.91	29.97	3	118	3	11	112	6	112	08
09	80	58	70	62	64	1.350	6.570	0.00	28.68	29.74	9	130	8	30	158	16	135	09
10	71	49	62	55	57	3.895	0.722	0.00	28.53	29.58	7	223	7	25	225	15	225	10
11	74	40	55	44	48	11.523	1.591	0.00	28.67	29.72	2	327	2	15	338	9	338	11
12	66	44	55	51	52	9.572	0.002	0.00	28.88	29.95	1	325	2	10	338	5	338	12
13	70	51	57	52	54	8.173	0.313	0.31	28.62	29.67	8	140	10	36	158	22	112	13
14	59	40	49	41	44	16.200	0.000	0.00	28.78	29.84	7	238	7	26	248	14	225	14
15	56	29	43	37	39	22.239	0.000	0.00	28.91	29.98	4	270	3	20	270	11	270	15
16	66	30	47	36	40	17.620	0.071	0.00	29.02	30.08	4	274	4	19	270	10	270	16
17	74	26	48	38	41	18.434	1.507	0.00	29.05	30.12	3	233	1	13	248	8	248	17
18	80	39	58	43	47	10.592	3.311	0.00	28.91	29.97	5	163	5	23	158	14	180	18
19	75	47	59	48	51	7.666	1.941	0.00	28.86	29.92	5	163	4	18	202	10	158	19
20	58	44	53	51	52	12.290	0.000	0.82	28.81	29.87	2	46	3	17	22	10	360	20
21	52	27	43	40	41	21.622	0.000	0.06	29.00	30.07	8	332	7	23	338	14	338	21
22	51	23	36	32	34	29.069	0.000	0.00	29.04	30.10	1	327	1	10	338	6	22	22
23	53	20	37	31	34	27.944	0.000	0.00	28.99	30.06	3	89	2	14	135	8	135	23
24	48	36	43	35	39	22.083	0.000	0.00	28.89	29.95	5	61	5	19	45	11	68	24
25	54	32	42	33	37	22.657	0.000	0.00	29.05	30.12	3	62	3	16	22	7	45	25
26	59	39	48	37	42	16.583	0.000	0.00	28.91	29.98	12	124	11	31	112	20	135	26
27	53	47	50	45	47	15.336	0.000	0.43	28.72	29.77	9	131	9	29	112	17	135	27
28	48	45	47	46	46	18.282	0.000	0.44	28.74	29.79	4	11	4	19	338	11	338	28
29	59	27	45	41	43	19.618	0.000	0.00	28.90	29.96	7	340	6	19	292	13	338	29
30	63	24	43	37	39	22.434	0.000	0.00	28.80	29.86	4	289	4	25	315	14	292	30
31	49	26	38	32	35	26.703	0.000	0.00	29.09	30.16	8	300	7	27	270	16	292	31
	65	40	53	46	48	13.577	2.092		28.90	29.96	5	190.08	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 10		Precipitation ≥ 0.01 in: 7		Greatest 24 - hr precipitation: 0.88 Date: 20-21										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 2.76										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.31		DATE: 5		TIME: 10:25		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.46		13		16:30		DEGREEE DAYS: >		HEATING: 420.882		76.101						
								COOLING: 35.561		719.809								

OCTOBER 2021  
Mankato, MN USA



SEPTEMBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Mankato, MN USA

New SWCD Belgrade 109-27-16

Lat: 44.2518 Long: -94.0732 Elev (ground): 996 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	81	48	65	58	60	4.755	4.736	0.00	28.96	30.02	5	132	3	17	158	11	135	01
02	70	58	63	59	60	2.549	0.532	0.18	28.99	30.06	6	132	6	16	158	10	158	02
03	67	60	63	62	63	1.774	0.170	0.14	28.88	29.95	4	130	4	23	158	14	135	03
04	79	55	66	60	62	2.423	3.891	0.01	28.91	29.97	4	316	3	19	315	10	315	04
05	82	44	63	55	57	6.703	4.694	0.00	28.88	29.94	4	306	3	19	315	11	315	05
06	84	39	64	55	57	7.438	6.474	0.00	28.83	29.89	5	177	4	17	158	11	158	06
07	79	56	70	59	62	0.908	5.951	0.00	28.75	29.81	6	319	6	24	292	15	338	07
08	77	46	62	53	56	6.065	3.078	0.00	28.90	29.97	6	325	5	25	360	13	338	08
09	78	40	59	51	53	9.361	3.343	0.00	28.99	30.05	1	353	1	12	360	5	315	09
10	84	45	64	57	59	6.382	5.670	0.00	28.90	29.96	4	218	3	17	225	9	225	10
11	83	56	68	62	64	2.061	4.952	0.00	28.83	29.89	2	66	3	14	68	7	68	11
12	73	44	61	51	54	5.645	1.292	0.00	29.00	30.06	4	52	3	27	68	17	45	12
13	80	40	62	57	58	7.454	4.090	0.42	28.89	29.95	3	163	3	26	22	15	338	13
14	72	42	60	56	57	6.117	1.068	0.00	28.85	29.91	7	334	5	18	338	12	338	14
15	81	37	62	51	54	8.051	4.783	0.00	28.92	29.98	6	209	4	18	158	10	225	15
16	90	64	76	62	66	0.065	11.119	0.00	28.77	29.83	12	224	12	36	248	19	225	16
17	77	37	61	52	54	6.869	2.612	0.24	29.05	30.12	4	348	5	39	338	26	338	17
18	82	34	61	49	52	10.000	5.607	0.00	29.07	30.14	7	196	5	20	225	11	202	18
19	92	68	79	66	69	0.000	13.528	0.00	28.83	29.89	10	219	10	32	225	18	225	19
20	75	53	66	62	63	2.667	3.499	0.14	28.71	29.77	4	268	9	25	338	14	338	20
21	71	35	55	47	50	10.941	0.681	0.00	29.14	30.21	6	331	5	21	315	12	315	21
22	72	30	50	41	43	16.613	1.199	0.00	29.22	30.30	0	41	0	12	248	4	112	22
23	77	32	54	42	46	13.383	2.767	0.00	28.99	30.06	3	158	3	17	158	11	135	23
24	67	41	53	45	48	11.705	0.045	0.04	28.86	29.92	3	325	3	24	338	14	338	24
25	75	36	53	37	42	13.905	1.761	0.00	28.90	29.97	3	266	3	19	248	10	270	25
26	90	45	66	52	56	6.084	6.730	0.00	28.70	29.75	4	181	3	15	225	8	158	26
27	84	46	64	54	56	6.030	5.050	0.00	28.78	29.84	3	37	2	14	68	8	22	27
28	87	50	68	55	59	3.667	6.829	0.00	28.86	29.92	6	134	6	25	158	12	135	28
29	89	57	72	60	63	1.343	8.259	0.00	28.91	29.97	5	134	5	20	158	13	135	29
30	80	59	68	63	65	1.069	3.981	0.10	29.04	30.10	2	144	3	20	158	11	158	30
	79	47	63	54	57	6.277	4.280		28.91	29.97	5	208.00	4	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 1		Precipitation ≥ 0.01 in: 7		Greatest 24 – hr precipitation: 0.42 Date: 12-13										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 1.27										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.37		DATE 22		TIME 10:25		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.64		DATE 20		TIME 13:20		DEGREEE DAYS: >		HEATING: 182.028		76.101						
										COOLING: 128.390		719.809						

SEPTEMBER 2021  
Mankato, MN USA

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Oshawa 110-27-24 CITY: STATE:  
 ELEV: 0 ft LAT: 44° 19' 09" N LONG: 94° 01' 40" W

TEMPERATURE (°F), HEAT BASE 65.0, COOL BASE 65.0

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=90	MAX <=32	MIN <=32	MIN <=0
18	1														
18	2														
18	3														
18	4														
18	5														
18	6														
18	7														
18	8	76.9	59.2	68.2	0.0	19	47	85.1	27	48.2	29	0	0	0	0
18	9	73.8	54.7	63.5	0.0	165	120	93.1	15	32.4	29	2	0	0	0
18	10	53.6	35.1	44.1	0.0	653	6	84.0	3	23.5	21	0	0	13	0
18	11	53.8	34.5	40.2	0.0	137	1	95.0	6	28.4	1	1	0	1	0
18	12														
		64.7	46.0	54.7	0.0	975	173	95.0	NOV	23.5	OCT	3	0	14	0

PRECIPITATION (in)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DAYS OF RAIN OVER			
					DATE	.01	.1	1
18	1							
18	2							
18	3							
18	4							
18	5							
18	6							
18	7							
18	8	1.62	0.00	1.36	27	4	2	1
18	9	6.56	0.00	2.22	20	10	6	3
18	10	2.12	0.00	0.77	9	10	4	0
18	11	0.63	0.00	0.29	3	4	3	0
18	12							
		10.93	0.00	2.22	SEP	28	15	4

WIND SPEED (mph)

YR	MO	AVG.	HI	DATE	DOM
					DIR
18	1				
18	2				
18	3				
18	4				
18	5				
18	6				
18	7				
18	8	4.8	43.0	27	SSE
18	9	5.9	46.0	17	SSE
18	10	5.7	38.0	3	W
18	11	4.6	25.0	6	E
18	12				
		5.5	46.0	SEP	SSE

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Oshawa 110-27-24 CITY: STATE:  
 ELEV: 0 ft LAT: 44° 19' 09" N LONG: 94° 01' 40" W

TEMPERATURE (°F), HEAT BASE 65.0, COOL BASE 65.0

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=90	MAX <=32	MIN <=32	MIN <=0
19	1														
19	2														
19	3	58.3	46.0	49.5	0.0	2	0	58.3	18	46.0	18	0	0	0	0
19	4														
19	5	66.4	46.7	56.8	0.0	250	36	87.3	31	33.3	10	0	0	0	0
19	6	83.1	57.2	69.3	0.0	14	40	92.3	4	44.6	2	1	0	0	0
19	7														
19	8														
19	9	76.1	55.6	65.6	0.0	80	92	88.4	17	42.3	28	0	0	0	0
19	10	55.1	40.7	47.5	0.0	253	3	74.4	9	26.6	14	0	0	2	0
19	11														
19	12														
		68.5	49.2	58.7	0.0	598	171	92.3	JUN	26.6	OCT	1	0	2	0

PRECIPITATION (in)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DATE	DAYS OF RAIN OVER		
						.01	.1	1
19	1							
19	2							
19	3	0.00	0.00	0.00	1	0	0	0
19	4							
19	5	5.73	0.00	1.54	8	10	8	2
19	6	0.53	0.00	0.30	4	3	2	0
19	7							
19	8							
19	9	4.83	0.00	2.29	11	7	5	2
19	10	2.06	0.00	0.89	5	6	4	0
19	11							
19	12							
		13.15	0.00	2.29	SEP	26	19	4

WIND SPEED (mph)

YR	MO	AVG.	HI	DATE	DOM
					DIR
19	1				
19	2				
19	3	0.0	0.0	18	---
19	4				
19	5	6.5	37.0	21	ESE
19	6	5.2	35.0	4	S
19	7				
19	8				
19	9	4.1	28.0	29	S
19	10	8.2	36.0	6	W
19	11				
19	12				
		5.9	37.0	MAY	S

ANNUAL CLIMATOLOGICAL SUMMARY

NAME: Oshawa 110-27-24 CITY: STATE:  
 ELEV: 0 ft LAT: 44° 19' 09" N LONG: 94° 01' 40" W

TEMPERATURE (°F), HEAT BASE 65.0, COOL BASE 65.0

YR	MO	MEAN MAX	MEAN MIN	MEAN	DEP. FROM NORM	HEAT DEG DAYS	COOL DEG DAYS	HI	DATE	LOW	DATE	MAX >=90	MAX <=32	MIN <=32	MIN <=0
20	1														
20	2														
20	3														
20	4														
20	5														
20	6														
20	7	82.0	61.2	72.2	0.0	24	196	90.3	8	50.9	15	1	0	0	0
20	8	77.0	57.1	67.2	0.0	25	54	84.6	9	45.0	4	0	0	0	0
20	9														
20	10														
20	11														
20	12														
		80.4	59.9	70.6	0.0	49	249	90.3	JUL	45.0	AUG	1	0	0	0

PRECIPITATION (in)

YR	MO	TOTAL	DEP. FROM NORM	MAX OBS. DAY	DAYS OF RAIN OVER DATE	.01	.1	1
20	1							
20	2							
20	3							
20	4							
20	5							
20	6							
20	7	5.46	0.00	2.35	26	6	3	2
20	8	0.76	0.00	0.34	12	3	2	0
20	9							
20	10							
20	11							
20	12							
		6.22	0.00	2.35	JUL	9	5	2

WIND SPEED (mph)

YR	MO	AVG.	HI	DATE	DOM
					DIR
20	1				
20	2				
20	3				
20	4				
20	5				
20	6				
20	7	3.7	38.0	18	SSW
20	8	3.7	27.0	8	S
20	9				
20	10				
20	11				
20	12				
		3.7	38.0	JUL	S

APRIL 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA

New SWCD Oshawa 110-27-24

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
05	88	60	79	53	59	0.036	7.433	0.09	28.58	29.63	14	187	13	35	180	24	180	05
06	80	44	62	50	54	5.991	2.715	0.05	28.67	29.72	3	41	5	23	338	15	360	06
07	72	52	60	56	57	5.832	0.968	0.42	28.58	29.63	2	119	5	21	180	15	158	07
08	62	49	53	50	51	12.014	0.000	0.09	28.44	29.48	5	91	7	20	135	15	135	08
09	50	43	47	44	45	18.243	0.000	0.05	28.56	29.60	4	273	5	24	292	14	292	09
10	49	41	45	40	42	20.301	0.000	0.00	28.70	29.75	5	352	5	18	22	10	338	10
11	54	39	46	40	42	19.495	0.000	0.00	28.59	29.64	4	328	4	19	270	12	292	11
12	45	36	42	36	39	23.349	0.000	0.04	28.76	29.81	10	268	10	27	270	16	248	12
13	37	29	33	27	30	31.715	0.000	0.00	29.01	30.07	10	267	10	27	248	18	248	13
14	45	29	35	31	33	29.753	0.000	0.00	29.13	30.19	8	278	8	23	292	13	270	14
15	46	33	40	34	37	25.083	0.000	0.00	29.13	30.19	3	299	4	15	22	8	270	15
16	60	36	47	36	41	17.559	0.000	0.00	29.03	30.09	2	340	2	16	360	9	360	16
17	60	32	45	32	38	19.556	0.000	0.00	29.00	30.05	2	318	2	18	22	9	270	17
18	67	33	48	32	38	17.006	0.031	0.00	28.87	29.92	5	274	5	28	248	16	225	18
19	41	26	35	22	29	29.793	0.000	0.00	28.99	30.04	5	317	5	21	270	12	360	19
20	45	23	34	17	26	31.252	0.000	0.00	29.08	30.14	4	319	4	21	360	12	360	20
21	44	21	34	20	28	30.660	0.000	0.00	29.11	30.17	4	283	4	21	270	13	292	21
22	65	31	49	25	35	15.919	0.000	0.00	28.95	30.00	7	231	7	24	225	15	225	22
23	55	42	48	38	43	16.591	0.000	0.00	28.84	29.90	5	157	7	25	180	17	225	23
24	51	32	42	31	36	23.302	0.000	0.00	28.95	30.01	4	331	4	18	360	10	360	24
25	46	27	38	28	33	26.772	0.000	0.00	28.97	30.03	9	115	9	30	112	19	112	25
26	61	44	50	40	44	14.530	0.000	0.00	28.65	29.70	8	87	8	24	90	15	112	26
27	54	42	46	42	44	18.959	0.000	0.36	28.74	29.79	8	22	8	27	68	14	22	27
28	63	39	48	42	45	16.772	0.000	0.00	28.93	29.98	4	21	3	14	360	9	22	28
29	69	39	55	40	45	10.284	0.499	0.00	28.96	30.01	3	311	4	23	292	12	360	29
30	65	39	54	30	39	10.705	0.000	0.00	29.11	30.17	3	73	5	17	158	13	135	30
	57	37	47	36	41	18.903	2.329		28.86	29.91	5	219.31	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 8		Precipitation ≥ 0.01 in: 7		Greatest 24 - hr precipitation: 0.47 Date: 6-7										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 2		Monthly Total Precipitation: 1.10										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.28		DATE 30 TIME 09:15		DEGREEE DAYS: >		MONTHLY TOTAL HEATING: 491.469										
		MINIMUM: 29.40		8 15:25				SEASON TO DATE TOTAL COOLING: 11.645										
								708.515										

APRIL 2021  
Saint Peter, MN USA

APRIL 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA

New SWCD Oshawa 110-27-24

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES									
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date		
														INSTANT		ARCHIVE				
														SPEED	DIR	SPEED	DIR			
01	42	25	34	29	31	31.376	0.000	0.00	28.97	30.03	3	269	4	14	248	11	248	01		
02	51	30	39	34	36	25.837	0.000	0.00	28.96	30.02	4	320	5	28	338	18	315	02		
03	41	27	34	30	32	30.886	0.000	0.00	28.91	29.97	7	122	6	25	135	17	135	03		
04	48	31	37	32	35	27.831	0.000	0.00	28.86	29.91	2	49	4	24	158	15	158	04		
05	47	36	40	36	38	24.981	0.000	0.00	28.45	29.49	12	177	16	38	158	24	158	05		
06	41	33	37	33	35	27.897	0.000	0.01	28.36	29.40	14	299	15	35	315	21	248	06		
07	38	30	34	30	32	31.365	0.000	0.00	28.64	29.69	8	357	9	27	315	17	315	07		
08	46	31	37	28	33	27.973	0.000	0.01	28.89	29.94	6	31	5	21	22	12	22	08		
09	54	26	40	28	34	25.076	0.000	0.00	28.85	29.91	3	169	3	18	112	11	158	09		
10	64	38	48	36	41	16.635	0.000	0.00	28.55	29.60	8	161	13	31	158	22	135	10		
11	61	34	47	35	40	18.397	0.000	0.00	28.75	29.80	9	276	8	35	292	21	292	11		
12	57	33	46	38	41	19.171	0.000	0.32	28.60	29.65	9	90	9	41	112	29	90	12		
13	48	30	38	32	35	26.552	0.000	0.01	28.57	29.62	9	273	10	28	270	19	270	13		
14	36	27	30	22	27	34.826	0.000	0.00	28.63	29.68	19	276	20	46	315	30	292	14		
15	35	23	29	20	25	36.278	0.000	0.00	28.93	29.98	9	322	9	32	315	18	292	15		
16	41	24	31	21	27	34.195	0.000	0.00	29.19	30.26	6	331	6	25	315	13	315	16		
17	44	22	32	25	29	33.327	0.000	0.04	29.19	30.26	8	200	6	23	180	16	248	17		
18	36	27	31	25	28	34.281	0.000	0.00	29.18	30.24	9	320	10	35	315	21	315	18		
19	44	19	34	24	29	31.078	0.000	0.00	29.16	30.22	7	163	6	22	158	15	158	19		
20	46	33	43	36	39	22.414	0.000	0.30	28.79	29.85	9	177	10	30	158	21	180	20		
21	55	32	44	37	40	21.495	0.000	0.01	29.13	30.19	3	321	5	21	315	11	292	21		
22	60	43	50	46	47	15.342	0.000	0.46	28.97	30.02	14	145	14	36	180	21	158	22		
23	76	50	65	57	60	2.119	2.240	0.05	28.49	29.54	14	231	19	49	292	33	270	23		
24	50	35	44	35	39	21.123	0.000	0.00	28.64	29.68	14	336	16	36	315	25	315	24		
25	36	29	32	25	29	33.165	0.000	0.00	29.12	30.18	10	34	10	29	45	17	22	25		
26	43	27	33	25	29	31.984	0.000	0.00	29.32	30.39	4	59	4	18	22	11	22	26		
27	50	31	40	26	33	25.290	0.000	0.00	29.20	30.26	10	186	9	29	158	19	202	27		
28	59	36	46	36	41	18.603	0.000	0.11	29.01	30.07	11	201	11	29	158	19	202	28		
29	58	47	52	48	50	12.877	0.000	0.07	28.81	29.86	11	205	11	28	180	18	202	29		
30	59	49	52	49	50	12.679	0.000	0.87	28.50	29.55	8	203	9	29	180	19	180	30		
	49	32	40	33	36	25.168	2.240		28.85	29.91	9	210.23	9	< Monthly Avg						
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 17		Precipitation ≥ 0.01 in: 8			Greatest 24 - hr precipitation: 0.90 Date: 29-30							
						Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5			Monthly Total Precipitation: 2.26							
SEA LEVEL PRESSURE: >						MAXIMUM: 30.46		DATE: 26		TIME: 09:45		MONTHLY TOTAL		SEASON TO DATE TOTAL						
						MINIMUM: 29.24		DATE: 6		TIME: 06:15		DEGREEE DAYS: >		HEATING: 755.053		60.959				
												COOLING: 2.240		708.512						

APRIL 2022  
Saint Peter, MN USA

**AUGUST 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Saint Peter, MN USA**

**New SWCD Oshawa 110-27-24**

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	78	54	66	56	59	3.476	4.077	0.00	29.15	30.21	2	9	1	13	338	6	22	01
02	80	50	65	57	59	4.791	4.953	0.00	29.15	30.21	2	278	1	11	270	5	292	02
03	82	52	67	60	62	3.512	5.773	0.00	29.09	30.15	1	238	1	10	180	5	270	03
04	81	56	68	60	62	2.288	5.666	0.00	29.06	30.12	2	174	1	11	158	5	180	04
05	84	65	73	66	67	0.006	7.804	0.00	28.92	29.98	2	180	2	13	158	5	202	05
06	85	60	72	65	67	0.602	7.848	0.03	28.90	29.96	1	4	1	9	270	5	270	06
07	85	69	74	70	71	0.000	8.922	0.50	28.79	29.84	2	107	2	14	90	8	90	07
08	77	67	72	68	69	0.000	7.075	0.11	28.72	29.77	1	176	1	14	225	6	202	08
09	84	65	74	69	70	0.000	8.555	0.00	28.79	29.85	2	89	1	15	90	7	90	09
10	83	64	75	68	70	0.004	10.256	0.00	28.80	29.85	1	252	2	18	270	8	270	10
11	80	61	71	62	64	0.641	6.397	0.00	28.74	29.80	4	270	3	20	292	10	292	11
12	78	56	69	57	61	1.250	5.212	0.00	28.92	29.98	3	275	3	19	292	10	270	12
13	78	51	64	52	55	5.016	4.042	0.00	29.13	30.19	4	278	3	19	270	10	270	13
14	85	47	67	54	58	5.163	7.085	0.00	29.21	30.27	2	198	1	11	158	4	248	14
15	84	53	69	57	60	2.779	6.884	0.00	29.11	30.18	2	166	2	16	158	7	158	15
16	85	56	71	61	64	2.332	8.258	0.00	28.98	30.04	3	153	2	13	90	6	158	16
17	88	62	75	66	68	0.357	10.288	0.00	28.91	29.97	3	145	3	16	158	6	135	17
18	90	66	77	68	70	0.000	11.669	0.00	29.00	30.06	3	145	2	13	112	6	135	18
19	90	66	78	69	71	0.000	12.532	0.00	29.00	30.06	2	151	2	13	112	6	112	19
20	88	69	77	69	71	0.000	11.781	0.21	28.80	29.86	4	130	4	19	112	10	112	20
21	72	50	65	58	60	2.167	2.402	0.00	28.88	29.94	5	273	4	23	270	12	292	21
22	79	46	63	55	57	5.833	3.761	0.29	28.99	30.05	4	110	3	17	158	9	90	22
23	89	62	75	68	70	0.240	10.281	0.02	28.87	29.93	1	131	1	12	158	5	112	23
24	80	64	71	67	68	0.017	5.922	1.18	28.85	29.90	2	92	2	32	360	14	22	24
25	81	58	69	64	65	1.239	5.508	0.00	29.06	30.13	2	311	1	16	292	7	270	25
26	75	56	64	61	62	3.011	2.215	0.03	29.08	30.14	2	68	1	25	292	10	292	26
27	81	66	72	68	69	0.000	6.704	0.40	28.90	29.95	3	116	2	16	248	8	90	27
28	83	65	74	69	70	0.000	8.673	1.00	28.90	29.95	2	168	3	34	270	18	270	28
29	80	59	70	62	64	0.408	5.062	0.15	28.96	30.02	4	272	4	19	270	11	90	29
30	84	52	67	59	61	3.507	5.801	0.00	28.97	30.03	1	273	0	9	270	5	270	30
31	84	56	67	60	62	3.223	5.123	0.00	28.88	29.94	2	82	0	12	90	7	90	31
	82	59	70	63	65	2.255	6.985		28.95	30.01	2	171.40	2	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 1		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 11		Greatest 24 - hr precipitation: 1.18 Date: 23-24										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 8		Monthly Total Precipitation: 3.92										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.34		DATE: 14		TIME: 11:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.69		DATE: 11		TIME: 06:25		DEGREEE DAYS: >		HEATING: 51.861		60.959						
										COOLING: 216.527		708.515						

**AUGUST 2021  
Saint Peter, MN USA**

DECEMBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA

New SWCD Oshawa 110-27-24

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	53	33	43	38	41	21.649	0.000	0.00	28.69	29.74	6	226	7	24	292	15	292	01
02	51	35	42	36	39	23.067	0.000	0.00	28.88	29.94	3	301	3	20	292	11	292	02
03	46	28	37	33	35	28.093	0.000	0.00	29.06	30.12	1	30	2	12	360	7	112	03
04	32	28	30	25	28	34.930	0.000	0.00	29.25	30.32	0	22	3	24	112	14	112	04
05	40	24	33	24	29	32.062	0.000	0.00	28.71	29.76	3	201	14	39	270	22	158	05
06	24	0	9	1	7	56.198	0.000	0.00	29.17	30.23	9	294	9	35	270	22	292	06
07	17	-3	10	6	9	54.609	0.000	0.00	29.03	30.09	5	118	5	16	135	12	135	07
08	25	-10	9	5	8	56.172	0.000	0.00	28.92	29.97	6	126	5	23	135	16	135	08
09	40	25	32	26	29	33.206	0.000	0.00	28.62	29.67	4	158	8	28	112	20	135	09
10	29	23	27	24	26	37.992	0.000	0.00	28.76	29.81	7	25	6	26	22	16	360	10
11	28	17	22	19	21	42.931	0.000	0.00	28.75	29.80	6	249	8	23	360	14	360	11
12	33	20	26	20	23	39.190	0.000	0.00	28.80	29.86	9	193	9	21	202	15	202	12
13	38	13	26	20	24	38.793	0.000	0.00	29.07	30.13	1	169	2	11	225	9	225	13
14	39	26	34	29	32	30.719	0.000	0.00	28.99	30.05	9	123	9	24	135	19	135	14
15	60	33	48	44	46	17.494	0.000	0.00	28.39	29.43	9	162	12	50	270	35	270	15
16	33	16	22	16	20	43.202	0.000	0.00	28.81	29.87	12	298	12	55	292	33	292	16
17	23	14	18	12	16	46.888	0.000	0.00	29.18	30.25	3	80	3	15	112	11	112	17
18	22	6	16	12	15	48.382	0.000	0.00	29.27	30.34	2	6	2	14	360	9	315	18
19	32	5	20	14	18	44.600	0.000	0.00	29.08	30.14	11	205	10	32	158	20	202	19
20	26	10	18	12	16	47.133	0.000	0.00	29.13	30.19	4	312	4	22	315	12	315	20
21	26	5	14	9	13	50.760	0.000	0.00	28.90	29.96	4	263	7	30	338	17	315	21
22	33	4	21	14	18	44.055	0.000	0.00	28.89	29.95	6	179	6	21	180	14	180	22
23	42	23	32	25	29	33.451	0.000	0.00	28.64	29.68	4	196	4	14	158	10	202	23
24	45	26	37	32	35	27.845	0.000	0.00	28.43	29.47	5	201	8	26	158	18	202	24
25	26	12	19	13	17	45.728	0.000	0.00	28.84	29.90	2	44	2	19	68	12	68	25
26	33	9	20	16	19	44.552	0.000	0.00	28.88	29.94	6	110	6	34	112	23	112	26
27	34	7	20	15	19	44.627	0.000	0.00	28.70	29.75	7	282	10	31	292	21	292	27
28	22	-4	13	8	12	52.189	0.000	0.00	28.70	29.75	1	19	5	25	315	16	315	28
29	6	-7	-0	-5	-1	65.118	0.000	0.00	29.00	30.06	2	338	2	15	315	10	315	29
30	25	4	15	12	14	49.764	0.000	0.00	28.76	29.81	6	188	6	25	180	16	180	30
31	15	-5	9	5	8	55.851	0.000	0.00	28.85	29.91	5	23	4	19	68	12	22	31
	32	13	23	18	21	41.653	0.000		28.88	29.93	5	165.81	6	< Monthly Avg				

NUMBER OF DAYS WITH: >	Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 16	Minimum Temp ≤ 32: 28 Minimum Temp ≤ 0: 5	Precipitation ≥ 0.01 in: 0 Precipitation ≥ 0.10 in: 0	Greatest 24 - hr precipitation: Date: Monthly Total Precipitation: 0.00
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SEA LEVEL PRESSURE: >	MAXIMUM: 30.42 MINIMUM: 28.99	DATE: 18 TIME: 20:55	DEGREEE DAYS: >	HEATING: 1291.250 COOLING: 0.000	MONTHLY TOTAL: 60.959 SEASON TO DATE TOTAL: 708.515
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DECEMBER 2021  
 Saint Peter, MN USA



FEBRUARY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA

New SWCD Oshawa 110-27-24

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	37	-0	17	11	15	47.884	0.000	0.00	28.96	30.02	10	309	10	31	360	19	315	01
02	5	-12	-2	-8	-3	66.890	0.000	0.00	29.51	30.58	3	21	3	15	315	8	45	02
03	2	-17	-8	-14	-9	72.863	0.000	0.00	29.60	30.68	2	52	1	8	360	6	158	03
04	4	-12	-3	-8	-3	67.729	0.000	0.00	29.37	30.44	5	281	7	27	315	15	315	04
05	26	-6	11	6	10	53.458	0.000	0.00	29.07	30.13	9	198	10	31	180	20	202	05
06	26	-3	15	10	13	50.322	0.000	0.00	29.11	30.18	4	316	4	27	315	16	315	06
07	20	-8	7	2	6	57.774	0.000	0.00	29.13	30.20	6	186	6	19	158	14	158	07
08	41	14	29	23	27	36.116	0.000	0.00	28.75	29.80	5	263	7	21	292	13	202	08
09	35	17	30	24	28	35.144	0.000	0.00	28.78	29.84	10	316	9	30	315	16	315	09
10	40	6	23	19	21	41.905	0.000	0.00	28.71	29.76	7	244	9	33	225	23	225	10
11	37	-1	18	13	17	46.696	0.000	0.00	28.82	29.87	9	328	9	37	338	23	315	11
12	6	-9	-1	-7	-2	65.584	0.000	0.00	29.37	30.44	2	315	3	15	338	7	22	12
13	10	-8	2	-4	1	63.024	0.000	0.00	29.29	30.36	4	207	5	21	202	16	202	13
14	16	5	12	6	10	53.002	0.000	0.00	29.22	30.28	1	43	3	15	202	11	225	14
15	34	12	23	17	21	42.159	0.000	0.00	28.97	30.02	8	149	8	34	158	24	180	15
16	28	12	22	16	20	42.983	0.000	0.00	28.86	29.91	4	11	4	18	360	7	360	16
17	12	-2	4	-3	3	60.549	0.000	0.00	29.24	30.31	4	33	4	18	360	10	22	17
18	39	4	17	10	15	48.445	0.000	0.00	28.94	29.99	7	265	12	37	315	20	292	18
19	26	-1	13	5	11	51.981	0.000	0.00	29.17	30.24	8	221	10	32	225	21	202	19
20	45	25	31	24	28	33.725	0.000	0.00	28.72	29.77	5	257	8	30	225	19	202	20
21	27	15	23	17	21	42.421	0.000	0.00	28.93	29.99	8	71	7	25	22	16	68	21
22	15	-2	6	2	5	58.693	0.000	0.00	29.14	30.21	8	29	9	25	45	16	68	22
23	6	-11	-2	-8	-3	66.976	0.000	0.00	29.59	30.67	3	353	3	16	338	7	315	23
24	9	-8	3	-2	2	62.095	0.000	0.00	29.44	30.51	4	48	4	16	68	10	68	24
25	12	-8	2	-3	1	62.578	0.000	0.00	29.47	30.55	2	280	3	11	315	8	248	25
26	32	-0	17	11	15	47.600	0.000	0.00	29.25	30.32	9	251	9	18	248	15	248	26
27	33	7	21	16	19	44.268	0.000	0.00	29.16	30.22	2	234	3	11	248	8	248	27
28	44	16	32	26	29	33.333	0.000	0.00	28.95	30.01	3	273	3	13	270	9	248	28
	24	1	13	7	11	52.007	0.000		29.13	30.19	5	198.40	6	< Monthly Avg				
NUMBER OF DAYS WITH:		> Maximum Temp ≥ 90: 0 Maximum Temp ≤ 32: 18		Minimum Temp ≤ 32: 28 Minimum Temp ≤ 0: 17		Precipitation ≥ 0.01 in: 0 Precipitation ≥ 0.10 in: 0		Greatest 24 - hr precipitation: Date: Monthly Total Precipitation: 0.00										
SEA LEVEL PRESSURE:		> MAXIMUM: 30.79 MINIMUM: 29.38		DATE 3 07:55 10 20:20		DEGREEE DAYS: >		MONTHLY TOTAL 1456.196 COOLING: 0.000		SEASON TO DATE TOTAL 60.959 708.512								

FEBRUARY 2022  
Saint Peter, MN USA

JANUARY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA

New SWCD Oshawa 110-27-24

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	-4	-13	-10	-16	-10	74.644	0.000	0.00	29.20	30.27	4	14	4	16	45	9	22	01
02	8	-15	-4	-9	-5	68.570	0.000	0.00	29.24	30.31	3	209	4	14	158	10	158	02
03	29	7	17	12	15	47.866	0.000	0.00	29.05	30.11	5	189	6	17	225	11	225	03
04	32	10	25	21	24	39.664	0.000	0.00	28.60	29.65	4	216	9	36	292	22	315	04
05	10	-4	4	-0	3	61.330	0.000	0.00	28.89	29.95	14	315	14	39	315	21	315	05
06	-4	-16	-11	-16	-11	75.839	0.000	0.00	29.29	30.36	6	320	6	23	315	11	315	06
07	12	-18	-4	-9	-5	68.746	0.000	0.00	29.15	30.21	11	172	9	39	180	26	180	07
08	31	1	18	12	16	46.883	0.000	0.00	28.83	29.89	9	224	13	40	180	25	180	08
09	9	-3	3	-4	2	61.850	0.000	0.00	29.46	30.54	7	319	6	24	338	13	315	09
10	7	-6	1	-6	-0	63.981	0.000	0.00	29.55	30.63	1	38	3	16	180	10	180	10
11	41	5	25	18	23	39.913	0.000	0.00	29.00	30.06	7	240	10	25	292	17	180	11
12	42	26	33	29	31	31.704	0.000	0.00	28.93	29.99	2	288	1	15	248	10	270	12
13	33	27	30	27	29	35.211	0.000	0.00	29.00	30.06	2	2	3	15	315	9	315	13
14	27	11	19	16	18	45.517	0.000	0.00	29.18	30.24	5	73	5	24	68	15	68	14
15	11	-11	1	-4	0	64.095	0.000	0.00	29.40	30.47	0	75	3	21	225	14	225	15
16	31	4	18	13	16	47.367	0.000	0.00	28.86	29.92	5	228	8	24	225	17	202	16
17	30	6	22	18	20	43.152	0.000	0.00	28.86	29.92	3	223	4	14	315	10	202	17
18	41	5	25	21	23	39.777	0.000	0.00	28.67	29.72	6	252	11	36	315	18	315	18
19	6	-10	-0	-7	-1	65.133	0.000	0.00	29.37	30.44	7	329	6	28	315	16	315	19
20	-1	-18	-11	-16	-11	75.572	0.000	0.00	29.64	30.72	1	269	2	9	338	7	202	20
21	28	-13	4	-1	3	60.701	0.000	0.00	29.25	30.32	13	205	13	32	202	21	202	21
22	28	5	11	6	10	53.792	0.000	0.00	29.12	30.18	4	324	6	27	338	16	315	22
23	14	-17	-1	-5	-1	65.730	0.000	0.00	28.99	30.05	4	219	6	22	225	15	202	23
24	23	-14	5	1	4	59.661	0.000	0.00	28.90	29.96	4	353	5	20	22	12	22	24
25	-3	-23	-13	-18	-13	77.686	0.000	0.00	29.41	30.48	4	317	3	15	315	10	315	25
26	31	-25	4	-1	3	60.651	0.000	0.00	29.10	30.16	12	217	12	33	202	23	225	26
27	34	-4	21	15	19	44.335	0.000	0.00	29.16	30.22	5	327	5	22	360	13	315	27
28	11	-18	-1	-7	-2	66.109	0.000	0.00	29.35	30.42	4	230	4	15	248	12	248	28
29	28	7	16	10	14	49.342	0.000	0.00	28.94	30.00	4	233	7	21	315	14	225	29
30	19	9	15	10	13	50.352	0.000	0.00	29.04	30.10	0	272	3	13	180	9	158	30
31	37	10	21	16	19	44.353	0.000	0.00	28.75	29.80	12	181	12	33	180	23	180	31
	21	-3	9	4	8	55.791	0.000		29.10	30.17	5	221.75	7	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 31		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: Date:										
		Maximum Temp ≤ 32: 24		Minimum Temp ≤ 0: 17		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.00										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.82		DATE: 20		TIME: 07:25		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.45		4		15:45		DEGREEE DAYS: >		HEATING: 1729.530		60.959						
										COOLING: 0.000		708.515						

JANUARY 2022  
Saint Peter, MN USA

**JULY 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Saint Peter, MN USA**

**New SWCD Oshawa 110-27-24**

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES						Date	
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED		DIR
01	87	58	73	65	66	1.513	9.163	0.00	29.06	30.13	1	316	1	10	270	5	292	01
02	83	59	71	62	64	1.046	6.818	0.00	29.10	30.16	2	94	0	12	112	6	90	02
03	85	56	72	64	66	2.065	8.886	0.00	29.00	30.06	2	178	1	10	112	5	158	03
04	90	67	79	69	71	0.000	14.411	0.00	28.83	29.89	5	205	4	22	158	11	225	04
05	92	66	80	71	72	0.000	14.565	0.00	28.90	29.96	1	264	1	10	292	5	292	05
06	83	64	73	69	70	0.015	7.882	0.31	28.95	30.01	1	12	2	21	270	13	270	06
07	74	55	62	58	59	4.104	1.474	0.13	28.99	30.05	4	23	3	15	22	8	22	07
08	74	50	62	56	58	4.561	1.688	0.00	28.98	30.04	0	50	1	8	270	4	292	08
09	73	59	66	63	64	1.127	2.522	0.24	28.98	30.04	3	95	2	15	90	9	90	09
10	76	61	67	63	64	0.710	3.032	0.00	28.98	30.04	2	89	1	13	90	7	90	10
11	82	54	68	62	64	2.794	5.894	0.00	29.03	30.09	1	29	0	9	90	3	22	11
12	82	52	67	60	62	3.270	5.448	0.00	29.05	30.11	1	114	0	9	90	5	112	12
13	83	54	69	63	65	2.686	7.024	0.00	29.00	30.06	2	210	1	10	270	5	270	13
14	70	60	65	63	64	0.857	1.202	0.47	28.96	30.02	1	39	1	12	22	6	90	14
15	80	55	67	62	63	2.725	4.712	0.01	29.01	30.07	1	60	0	10	90	5	90	15
16	81	54	68	61	62	3.258	5.938	0.00	29.03	30.09	2	100	0	11	90	6	90	16
17	84	54	69	63	64	2.700	7.186	0.00	29.12	30.19	1	94	0	10	90	5	90	17
18	84	60	71	64	66	1.187	7.672	0.00	29.20	30.27	1	120	0	9	112	4	112	18
19	85	58	72	64	66	1.715	8.299	0.00	29.18	30.25	1	265	0	8	270	4	270	19
20	86	62	74	68	69	0.324	8.909	0.00	29.11	30.18	3	280	2	15	270	7	270	20
21	86	66	74	68	70	0.000	9.430	0.00	29.08	30.14	1	146	0	11	158	3	90	21
22	85	66	76	68	70	0.000	11.178	0.01	29.02	30.08	3	169	3	16	180	6	135	22
23	90	71	80	71	73	0.000	14.768	0.00	28.93	29.98	3	177	3	13	248	6	158	23
24	88	65	77	69	71	0.000	12.236	0.08	28.91	29.97	3	273	3	17	270	8	270	24
25	88	56	73	63	66	1.093	9.492	0.00	29.00	30.06	1	258	1	9	270	5	270	25
26	86	66	76	70	71	0.000	11.103	0.01	28.97	30.03	2	213	2	15	248	8	270	26
27	92	69	80	73	75	0.000	14.980	0.00	28.94	30.00	1	183	1	11	90	7	90	27
28	93	68	80	74	76	0.000	15.235	0.70	28.93	29.99	1	175	3	25	315	11	292	28
29	82	65	75	68	70	0.000	9.899	0.00	29.04	30.10	2	5	2	13	360	6	270	29
30	74	58	67	62	63	0.945	2.595	0.03	29.14	30.20	1	263	0	10	270	6	270	30
31	83	55	68	61	63	2.877	5.681	0.00	29.05	30.11	2	293	2	15	292	8	292	31
	83	60	72	65	67	1.980	8.043		29.02	30.08	2	154.62	2	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 5		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 7		Greatest 24 - hr precipitation: 0.70 Date: 27-28										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 1.99										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.31		DATE: 18		TIME: 10:30		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.83		4		19:25		DEGREEE DAYS: >		HEATING: 41.573		60.959						
										COOLING: 249.325		708.515						

**JULY 2021  
Saint Peter, MN USA**

**JULY 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Saint Peter, MN USA**

**New SWCD Oshawa 110-27-24**

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	84	59	71	57	61	1.039	6.862	0.00	29.00	30.06	2	51	1	18	45	10	45	01
02	75	60	66	60	62	1.156	2.003	0.09	29.02	30.08	1	215	1	11	248	6	202	02
03	86	59	73	65	67	1.089	9.462	0.00	29.02	30.08	5	265	5	18	315	13	270	03
04	87	69	77	71	73	0.000	11.823	0.70	28.86	29.92	6	261	5	28	315	17	292	04
05	91	69	78	73	74	0.000	12.617	0.06	28.86	29.91	2	137	2	21	225	13	225	05
06	82	66	74	70	71	0.000	8.899	0.01	28.98	30.04	1	154	0	10	180	5	202	06
07	87	68	76	71	72	0.000	10.645	0.37	28.98	30.04	2	241	2	13	135	7	248	07
08	85	67	74	70	71	0.000	8.530	0.09	29.07	30.13	1	155	1	13	202	7	202	08
09	82	63	72	67	68	0.193	7.560	0.00	29.17	30.24	4	252	3	14	248	9	248	09
10	85	65	76	71	72	0.000	10.879	0.07	28.92	29.97	7	272	7	30	270	17	270	10
11	82	64	75	66	68	0.010	9.740	0.00	28.84	29.90	6	41	5	27	68	15	45	11
12	83	60	72	62	65	0.977	7.817	0.08	28.94	30.00	5	35	4	19	68	10	22	12
13	83	58	70	63	64	1.233	6.166	0.00	29.04	30.10	2	101	1	11	68	6	90	13
14	86	58	74	67	68	1.514	10.058	0.00	29.03	30.09	7	228	6	19	225	13	225	14
15	88	71	78	71	73	0.000	12.531	0.00	28.98	30.04	4	216	3	18	225	13	248	15
16	83	64	74	69	70	0.014	8.877	0.00	29.00	30.06	2	251	1	9	225	6	225	16
17	87	61	75	68	69	0.245	10.503	0.00	28.95	30.00	1	29	1	8	22	4	22	17
18	91	65	79	71	73	0.003	13.712	0.00	28.87	29.93	5	304	5	16	292	9	315	18
19	87	67	77	68	70	0.000	11.804	0.21	28.65	29.70	7	301	9	29	270	18	270	19
20	86	68	77	65	68	0.000	11.648	0.00	28.70	29.75	8	37	8	28	22	15	45	20
21	82	63	73	63	65	0.117	8.322	0.02	28.85	29.91	4	43	3	23	45	12	22	21
22	92	63	76	67	69	0.097	10.856	0.00	28.88	29.93	1	334	2	15	292	10	292	22
23	84	62	72	69	70	0.129	7.350	0.49	28.81	29.86	2	190	2	24	112	13	202	23
24	77	59	69	61	63	0.673	4.795	0.00	28.97	30.03	4	48	3	20	22	11	45	24
25	75	51	64	59	60	3.617	2.333	0.02	29.06	30.13	1	353	1	9	360	5	22	25
26	80	62	69	65	66	0.810	5.010	0.02	28.93	29.99	4	304	3	14	292	9	292	26
27	81	59	70	62	64	1.133	5.930	0.01	28.89	29.94	4	34	3	20	45	10	45	27
28	76	53	65	56	59	3.053	2.877	0.00	28.98	30.04	5	44	4	20	22	11	45	28
29	78	53	66	57	60	3.569	4.418	0.00	29.09	30.15	3	55	2	14	68	7	22	29
30	84	53	69	61	63	3.137	7.436	0.00	29.08	30.15	5	294	4	17	292	10	315	30
31	83	57	70	65	66	1.677	6.998	0.17	28.89	29.94	5	297	6	24	270	16	248	31
	84	62	73	65	67	1.158	8.337		28.95	30.00	4	178.78	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 13			Greatest 24 - hr precipitation: 0.70 Date: 3-4									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 5			Monthly Total Precipitation: 2.41								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.31		DATE: 9		TIME: 11:45		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.63		DATE: 19		TIME: 15:00		DEGREEE DAYS: >		HEATING: 25.487		60.959						
										COOLING: 258.461		708.512						

**JULY 2022  
Saint Peter, MN USA**

**JUNE 2021**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Saint Peter, MN USA**

**New SWCD Oshawa 110-27-24**

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	80	46	65	47	52	4.822	5.132	0.00	29.08	30.14	1	111	1	15	112	8	158	01
02	86	55	71	49	54	2.404	8.141	0.00	28.90	29.96	4	203	5	19	158	11	225	02
03	93	64	79	51	58	0.008	13.807	0.00	28.80	29.85	8	235	7	23	248	15	248	03
04	99	71	85	56	62	0.000	19.523	0.00	28.77	29.82	9	209	9	25	202	13	225	04
05	101	72	88	61	66	0.000	22.720	0.00	28.69	29.74	10	193	10	29	158	17	180	05
06	94	72	83	62	67	0.000	18.257	0.00	28.69	29.74	13	189	13	35	158	20	180	06
07	96	72	83	67	70	0.000	18.407	0.00	28.78	29.83	6	176	6	24	158	12	180	07
08	96	69	84	67	70	0.000	18.559	0.03	28.94	29.99	3	140	3	14	112	9	112	08
09	96	67	83	68	71	0.000	17.882	0.00	28.98	30.03	4	148	3	18	158	12	112	09
10	98	70	85	68	71	0.000	20.005	0.00	28.86	29.91	3	167	3	15	158	9	135	10
11	84	67	78	67	70	0.000	13.101	0.34	28.81	29.86	3	220	4	28	270	17	270	11
12	85	61	73	53	58	0.488	8.423	0.00	28.98	30.04	3	307	2	18	360	8	292	12
13	94	56	77	56	60	1.920	13.514	0.00	28.99	30.05	4	242	4	25	270	14	270	13
14	86	55	73	53	58	1.352	9.153	0.00	29.06	30.12	3	350	2	17	292	9	22	14
15	85	56	71	57	60	1.643	7.628	0.00	29.11	30.17	2	59	1	17	45	7	90	15
16	89	58	75	59	63	1.177	11.260	0.00	29.00	30.06	5	137	4	17	158	10	158	16
17	87	65	78	65	68	0.000	13.310	0.00	28.80	29.85	1	167	4	17	248	10	270	17
18	89	55	74	56	60	1.861	10.939	0.00	28.81	29.86	2	291	2	16	315	9	270	18
19	80	54	70	53	57	1.212	6.087	0.00	28.81	29.87	2	333	2	17	292	7	360	19
20	80	58	68	60	62	1.173	3.952	0.03	28.63	29.68	1	240	5	25	360	14	270	20
21	68	45	58	44	49	7.172	0.053	0.00	28.90	29.95	3	308	4	21	270	10	270	21
22	80	47	64	48	52	5.323	4.022	0.00	28.87	29.93	2	115	2	14	112	8	90	22
23	88	54	73	62	65	2.345	10.652	0.00	28.76	29.81	4	140	4	16	180	8	135	23
24	87	63	78	67	70	0.030	12.632	0.00	28.77	29.82	1	224	4	17	180	10	270	24
25	88	58	73	60	63	1.191	9.439	0.00	28.84	29.90	2	73	1	14	90	8	90	25
26	74	63	67	64	65	0.198	2.658	1.67	28.75	29.81	2	20	2	13	338	7	90	26
27	80	61	70	65	66	0.372	5.530	0.03	28.91	29.97	1	267	1	9	270	4	270	27
28	82	60	69	65	66	0.812	4.315	0.02	29.03	30.09	1	157	1	16	292	9	248	28
29	82	66	72	66	68	0.000	7.274	0.01	29.09	30.15	2	265	2	14	292	7	270	29
30	84	59	72	63	65	0.875	7.999	0.00	29.09	30.15	1	326	1	10	248	4	22	30
	87	61	75	59	63	1.732	10.812		28.88	29.94	4	200.42	4	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 9		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 6			Greatest 24 – hr precipitation: 1.70 Date: 26-27					
						Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 2			Monthly Total Precipitation: 2.13					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.24		DATE: 15	TIME: 08:50	DEGREEE DAYS: >			MONTHLY TOTAL: 36.378		SEASON TO DATE TOTAL: 60.959			
						MINIMUM: 29.53		DATE: 20	TIME: 17:10			COOLING: 324.374		708.515				

**JUNE 2021  
Saint Peter, MN USA**

**JUNE 2022**

**LOCAL CLIMATOLOGICAL DATA**

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Saint Peter, MN USA**

**New SWCD Oshawa 110-27-24**

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES								
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date	
														INSTANT		ARCHIVE			
														SPEED	DIR	SPEED	DIR		
01	71	48	59	47	51	6.726	0.591	0.00	29.04	30.10	3	42	3	18	360	11	360	01	
02	79	48	64	42	48	5.663	4.416	0.00	28.92	29.98	7	21	7	31	45	18	360	02	
03	74	47	61	40	47	5.854	1.793	0.00	28.97	30.03	3	65	3	17	45	7	90	03	
04	70	54	61	52	55	4.678	0.660	0.06	28.91	29.97	7	253	7	20	270	15	270	04	
05	68	57	61	57	59	4.126	0.148	0.15	28.79	29.85	4	206	3	16	180	11	202	05	
06	77	58	66	59	61	2.480	3.215	0.09	28.76	29.81	2	127	2	14	90	7	135	06	
07	71	56	63	52	56	3.144	1.106	0.00	28.91	29.96	1	217	1	14	225	7	292	07	
08	78	53	66	49	54	3.463	4.132	0.00	28.92	29.97	3	86	2	19	45	8	112	08	
09	82	49	68	47	52	3.683	6.328	0.00	28.96	30.02	3	8	3	19	360	11	360	09	
10	81	62	71	57	61	0.217	5.737	0.00	28.87	29.93	2	352	3	17	292	11	270	10	
11	80	64	70	63	65	0.139	5.332	0.03	28.73	29.78	4	289	5	16	292	11	292	11	
12	90	63	76	66	69	0.364	11.147	0.00	28.74	29.79	8	225	7	22	225	15	225	12	
13	86	69	75	70	71	0.000	9.891	0.18	28.67	29.71	10	234	10	26	248	17	248	13	
14	96	76	84	71	73	0.000	18.933	0.00	28.59	29.64	9	294	12	34	292	23	315	14	
15	78	64	70	60	63	0.003	4.656	0.06	28.78	29.84	3	301	4	19	315	12	292	15	
16	83	63	73	57	61	0.106	7.880	0.00	28.90	29.95	10	9	11	34	45	20	22	16	
17	84	57	71	58	61	1.440	7.648	0.00	29.09	30.15	2	81	2	15	90	8	112	17	
18	88	59	76	58	62	0.534	11.288	0.00	29.12	30.18	10	235	10	28	225	18	225	18	
19	98	70	84	67	71	0.000	19.056	0.00	28.99	30.05	14	274	14	31	315	19	292	19	
20	101	76	89	73	76	0.000	23.524	0.00	28.89	29.95	14	287	14	31	270	19	270	20	
21	88	69	79	63	67	0.000	14.388	0.00	28.98	30.04	6	21	7	28	292	17	292	21	
22	86	61	74	59	62	0.256	9.526	0.00	29.11	30.17	4	37	4	21	22	10	45	22	
23	96	61	80	61	65	0.521	15.251	0.00	28.94	30.00	8	294	8	27	338	17	292	23	
24	92	67	80	68	71	0.000	15.306	0.00	28.89	29.94	9	263	8	23	270	14	270	24	
25	82	61	73	63	66	0.059	8.426	0.03	28.93	29.98	3	1	6	24	22	14	45	25	
26	76	55	64	49	54	3.482	2.923	0.00	29.16	30.22	7	41	6	27	68	15	45	26	
27	85	48	69	51	56	3.816	7.580	0.00	29.20	30.27	3	15	3	18	360	10	22	27	
28	86	62	73	58	62	0.156	8.284	0.01	29.07	30.13	3	318	5	30	315	20	315	28	
29	95	55	77	61	65	2.022	13.874	0.00	29.00	30.05	11	271	9	34	292	19	270	29	
30	90	71	79	64	67	0.000	14.106	0.00	28.85	29.90	5	293	6	28	292	17	292	30	
	84	60	72	58	62	2.301	8.572		28.92	29.98	6	172.04	6	< Monthly Avg					
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 8 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 7 Precipitation ≥ 0.10 in: 2			Greatest 24 – hr precipitation: 0.24 Date: 5-6 Monthly Total Precipitation: 0.61						
SEA LEVEL PRESSURE: >						MAXIMUM: 30.34 MINIMUM: 29.57		DATE: 27	TIME: 08:55	DEGREEE DAYS: >		HEATING: 52.932	MONTHLY TOTAL: 257.145	SEASON TO DATE TOTAL: 60.959	COOLING: 708.512				

**JUNE 2022  
Saint Peter, MN USA**

MARCH 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA  
New SWCD Oshawa 110-27-24



Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	37	30	33	28	31	32.434	0.000	0.00	29.01	30.07	2	24	1	10	68	5	315	01
02	36	25	31	26	29	34.374	0.000	0.00	29.12	30.18	4	43	4	17	68	10	22	02
03	26	19	23	13	20	42.101	0.000	0.00	29.40	30.47	4	77	4	15	45	9	68	03
04	38	24	31	24	28	33.541	0.000	0.00	29.10	30.16	11	132	10	30	158	21	135	04
05	36	30	33	31	32	31.915	0.000	0.00	28.68	29.73	4	47	5	19	45	11	112	05
06	30	23	25	21	24	39.616	0.000	0.00	28.99	30.05	10	321	10	30	315	19	315	06
07	28	16	23	17	21	41.770	0.000	0.00	29.13	30.20	4	328	5	17	315	10	315	07
08	37	23	28	22	26	36.694	0.000	0.00	28.99	30.04	6	264	8	23	248	16	225	08
09	23	11	16	9	14	48.574	0.000	0.00	29.14	30.21	6	331	6	23	315	13	315	09
10	28	7	18	10	16	46.880	0.000	0.00	29.17	30.23	7	263	7	28	270	19	292	10
11	22	4	10	2	8	55.086	0.000	0.00	29.15	30.22	9	314	10	29	338	16	315	11
12	31	0	16	6	13	48.599	0.000	0.00	29.06	30.12	7	232	8	26	202	18	225	12
13	46	24	35	28	31	29.097	0.000	0.00	28.86	29.92	3	310	4	19	225	13	225	13
14	39	29	34	30	32	30.681	0.000	0.00	29.07	30.13	6	66	5	22	45	13	68	14
15	54	24	38	32	35	27.011	0.000	0.00	29.11	30.17	7	215	5	18	225	12	248	15
16	56	35	45	38	41	19.729	0.000	0.00	28.79	29.84	5	226	6	21	225	14	225	16
17	47	33	39	34	37	26.258	0.000	0.00	28.99	30.05	3	11	3	14	45	7	22	17
18	48	30	37	32	35	27.719	0.000	0.00	28.99	30.05	4	51	4	18	68	11	68	18
19	55	26	39	32	35	26.320	0.000	0.00	28.94	29.99	1	307	1	12	202	6	292	19
20	59	27	42	35	38	22.556	0.000	0.00	28.99	30.04	7	139	6	21	135	15	135	20
21	70	44	55	44	48	10.309	0.423	0.00	28.81	29.86	6	205	8	27	158	17	158	21
22	44	33	39	37	38	25.994	0.000	0.01	28.79	29.85	6	37	6	20	22	13	68	22
23	35	32	33	31	32	31.858	0.000	0.00	28.71	29.77	10	25	9	23	45	14	22	23
24	43	32	37	33	35	28.235	0.000	0.00	28.78	29.83	4	13	6	16	22	11	22	24
25	43	28	37	29	33	28.401	0.000	0.00	28.84	29.89	9	330	10	43	315	19	315	25
26	32	19	26	15	22	39.409	0.000	0.00	29.10	30.16	6	11	6	27	45	12	360	26
27	30	15	22	12	19	42.744	0.000	0.00	29.27	30.33	4	34	4	16	45	10	22	27
28	39	20	29	18	25	35.827	0.000	0.00	29.19	30.25	9	146	7	26	158	18	158	28
29	42	33	36	26	31	28.940	0.000	0.00	28.78	29.84	14	151	14	37	180	22	158	29
30	34	31	32	30	31	32.632	0.000	0.00	28.47	29.51	6	42	3	23	45	12	112	30
31	34	29	32	27	30	33.233	0.000	0.00	28.67	29.72	5	16	5	17	360	9	22	31
	39	24	31	25	29	33.501	0.423		28.97	30.03	6	151.94	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 25		Precipitation ≥ 0.01 in: 0		Greatest 24 - hr precipitation: 0.01 Date: 21-22										
		Maximum Temp ≤ 32: 9		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.01										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.54		DATE: 3		TIME: 09:45		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.44		30		06:45		DEGREEE DAYS: >		HEATING: 1038.539								
								COOLING: 0.423		60.959								
										708.512								

MARCH 2022  
Saint Peter, MN USA

MAY 2022

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA  
New SWCD Oshawa 110-27-24



Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	49	40	43	40	42	21.945	0.000	0.12	28.73	29.78	11	33	10	31	22	18	45	01
02	45	38	41	36	39	23.610	0.000	0.00	29.03	30.09	3	70	3	17	22	10	360	02
03	59	37	47	38	42	17.564	0.000	0.00	29.04	30.10	5	115	4	22	90	13	135	03
04	65	36	51	40	44	13.983	0.000	0.00	29.15	30.21	3	239	3	17	248	12	248	04
05	63	42	52	45	48	13.091	0.000	0.02	29.03	30.09	4	200	3	19	225	12	202	05
06	73	42	59	43	48	7.692	1.555	0.00	28.88	29.94	5	213	5	22	225	14	225	06
07	77	46	63	44	50	5.275	3.385	0.00	28.84	29.90	13	249	12	33	270	22	248	07
08	64	52	57	48	52	7.871	0.000	0.12	28.71	29.76	14	242	14	37	225	24	248	08
09	91	56	69	57	61	2.567	6.650	0.00	28.53	29.57	9	261	15	41	225	27	225	09
10	80	52	66	48	53	3.648	4.635	0.00	28.97	30.03	5	105	5	20	112	12	135	10
11	82	58	68	59	62	0.952	4.340	0.48	28.99	30.05	2	187	7	53	360	37	338	11
12	96	60	75	67	68	0.844	10.931	0.10	28.82	29.87	7	244	7	41	270	24	248	12
13	78	59	67	55	58	1.164	3.336	0.05	28.87	29.93	5	342	6	23	315	15	315	13
14	75	51	64	48	53	3.647	2.725	0.00	28.92	29.98	3	358	6	22	360	13	360	14
15	75	45	62	42	48	5.966	2.805	0.00	28.95	30.00	5	32	5	22	45	13	45	15
16	74	48	62	44	50	4.982	2.432	0.00	28.93	29.99	5	52	5	27	22	14	45	16
17	63	49	56	49	52	9.128	0.000	0.33	28.96	30.02	3	221	3	15	248	12	225	17
18	76	54	63	56	58	4.687	2.611	0.00	28.79	29.85	2	7	3	21	22	14	360	18
19	73	46	62	55	57	4.882	2.036	0.04	28.45	29.50	6	206	4	26	180	17	225	19
20	63	45	55	48	50	9.662	0.000	0.07	28.54	29.59	8	17	9	25	45	17	360	20
21	54	38	48	36	41	17.156	0.000	0.00	29.07	30.13	4	55	4	17	22	9	22	21
22	58	40	49	35	41	15.850	0.000	0.00	29.29	30.36	4	49	3	19	22	10	22	22
23	69	35	54	36	42	11.265	0.265	0.00	29.28	30.34	5	254	5	19	292	12	248	23
24	71	47	59	41	47	6.695	0.965	0.00	29.15	30.21	8	225	7	23	225	15	202	24
25	52	48	50	48	49	14.899	0.000	0.33	28.93	29.99	4	139	4	16	135	10	135	25
26	58	46	51	47	49	13.593	0.000	0.01	28.85	29.91	5	116	5	15	135	10	135	26
27	80	39	61	50	53	8.061	4.468	0.00	28.88	29.94	6	270	5	19	270	14	270	27
28	94	60	76	59	63	0.464	11.516	0.15	28.62	29.67	10	288	12	36	292	24	292	28
29	83	64	74	65	67	0.047	9.315	0.75	28.48	29.52	12	255	12	29	248	20	225	29
30	85	62	71	63	65	0.506	6.997	0.39	28.48	29.52	10	267	12	44	292	29	270	30
31	70	56	63	54	57	2.931	0.827	0.00	28.76	29.82	12	341	14	34	315	23	315	31
	71	48	59	48	52	8.214	4.305		28.87	29.92	6	182.33	7	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 3		Minimum Temp ≤ 32: 0		Precipitation ≥ 0.01 in: 13			Greatest 24 - hr precipitation: 0.94 Date: 0-1									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 8				Monthly Total Precipitation: 2.96							
SEA LEVEL PRESSURE: >		MAXIMUM: 30.42		DATE: 22		TIME: 12:35		DEGREEE DAYS: >		HEATING: 254.625		MONTHLY TOTAL: 60.959		SEASON TO DATE TOTAL: 708.512				
		MINIMUM: 29.21		DATE: 19		TIME: 21:25				COOLING: 81.795								

MAY 2022  
Saint Peter, MN USA



MAY 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA  
New SWCD Oshawa 110-27-24



Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	88	55	72	42	50	2.626	9.289	0.00	28.60	29.64	5	192	7	29	158	19	158	01
02	71	49	62	46	51	3.957	0.775	0.00	28.50	29.55	3	30	4	22	22	14	22	02
03	69	48	58	46	50	7.670	0.235	0.00	28.68	29.73	7	356	6	25	338	15	360	03
04	60	37	49	32	39	16.172	0.000	0.00	28.97	30.03	5	342	4	21	360	12	360	04
05	55	32	44	34	39	21.388	0.000	0.19	29.12	30.18	0	8	2	21	225	10	248	05
06	62	35	50	35	40	15.492	0.000	0.00	29.12	30.18	5	285	5	39	270	17	270	06
07	60	34	49	31	38	16.456	0.000	0.00	29.06	30.12	4	5	4	20	270	10	360	07
08	55	36	47	29	37	17.765	0.000	0.00	29.02	30.08	6	119	7	22	135	15	135	08
09	64	35	51	31	38	14.393	0.000	0.00	28.98	30.04	3	342	4	19	360	10	360	09
10	58	36	48	28	37	16.646	0.000	0.00	29.15	30.21	5	30	5	24	45	13	22	10
11	64	31	49	25	35	16.190	0.000	0.00	29.31	30.38	2	85	2	17	68	9	22	11
12	71	34	55	26	37	10.985	0.842	0.00	29.34	30.41	3	191	3	20	180	11	135	12
13	74	39	58	29	39	8.687	2.178	0.00	29.26	30.32	8	181	8	29	180	19	180	13
14	61	51	56	40	46	8.887	0.000	0.02	29.13	30.19	7	156	8	23	158	17	158	14
15	78	48	63	47	52	5.324	3.191	0.00	29.01	30.07	2	140	5	20	158	13	158	15
16	77	50	64	53	56	4.714	3.626	0.00	29.04	30.10	8	147	8	25	158	16	135	16
17	82	47	66	51	55	4.454	5.043	0.00	29.08	30.14	8	119	6	27	90	18	135	17
18	69	56	62	56	58	3.016	0.393	0.05	29.02	30.08	9	109	9	23	112	15	112	18
19	74	62	67	64	65	0.904	2.893	0.71	28.95	30.00	7	146	7	21	158	14	158	19
20	74	65	68	65	66	0.030	3.509	0.07	28.97	30.03	10	153	9	22	180	15	158	20
21	81	63	71	66	67	0.375	6.456	0.27	29.08	30.14	9	165	9	26	180	17	180	21
22	85	66	75	67	68	0.000	9.599	0.00	29.16	30.22	10	173	10	25	180	15	180	22
23	84	64	73	65	67	0.088	8.501	0.00	29.07	30.13	4	159	6	19	112	12	135	23
24	90	68	77	63	66	0.000	12.262	0.00	28.91	29.97	9	190	10	27	158	19	158	24
25	87	63	75	59	63	0.036	9.965	0.14	28.79	29.85	9	230	10	34	270	19	225	25
26	68	55	60	45	50	5.078	0.073	0.00	29.07	30.13	3	328	4	21	292	10	270	26
27	56	42	48	44	46	16.858	0.000	0.80	29.07	30.13	3	54	3	18	22	9	22	27
28	60	40	49	41	44	16.402	0.000	0.05	29.17	30.23	3	48	3	17	90	9	90	28
29	67	38	54	40	45	10.931	0.100	0.00	29.19	30.26	6	141	6	21	135	14	135	29
30	61	50	55	50	52	9.715	0.000	0.06	29.14	30.21	7	183	7	24	180	14	180	30
31	79	50	64	50	54	5.202	4.096	0.00	29.11	30.17	5	222	5	20	270	13	248	31
	70	48	59	45	50	8.981	4.370		29.03	30.09	6	162.32	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 2		Precipitation ≥ 0.01 in: 10			Greatest 24 - hr precipitation: 0.85 Date: 27-28									
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0			Precipitation ≥ 0.10 in: 5			Monthly Total Precipitation: 2.36								
SEA LEVEL PRESSURE: >		MAXIMUM: 30.48		DATE: 12		TIME: 09:35		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.51		1		19:30		DEGREEE DAYS: >		HEATING: 260.440								
								COOLING: 83.023		60.959								
										708.515								

MAY 2021  
Saint Peter, MN USA

**NOVEMBER 2021**  
**LOCAL CLIMATOLOGICAL DATA**  
 DAVIS INSTRUMENTS, WEATHERLINK NETWORK

**Saint Peter, MN USA**  
**New SWCD Oshawa 110-27-24**



Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago

TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	43	29	35	27	31	30.293	0.000	0.00	29.27	30.34	6	279	5	24	270	13	292	01
02	42	26	33	25	29	31.936	0.000	0.00	29.35	30.42	3	300	2	14	360	7	270	02
03	47	22	33	26	30	31.796	0.000	0.00	29.28	30.35	5	143	4	19	158	12	135	03
04	52	27	38	33	36	26.772	0.000	0.00	29.13	30.20	5	169	4	19	158	12	158	04
05	62	37	48	40	44	16.665	0.000	0.00	28.93	29.99	14	169	15	38	180	26	180	05
06	71	39	52	41	45	13.209	0.655	0.00	28.94	30.00	5	208	5	18	202	12	202	06
07	63	43	51	45	47	14.736	0.000	0.00	28.85	29.91	6	168	6	20	158	12	180	07
08	59	38	47	36	41	18.335	0.000	0.00	29.11	30.17	3	0	3	19	22	11	22	08
09	54	30	41	30	35	23.680	0.000	0.00	29.21	30.27	0	65	1	8	270	5	90	09
10	54	35	45	38	41	19.714	0.000	0.00	28.85	29.90	8	123	8	26	112	18	112	10
11	46	34	39	34	37	26.168	0.000	0.00	28.52	29.56	12	277	12	32	270	18	292	11
12	37	30	33	30	32	32.130	0.000	0.00	28.70	29.75	7	297	8	27	292	15	292	12
13	36	29	31	27	29	34.202	0.000	0.00	28.88	29.94	5	236	7	32	292	20	292	13
14	33	26	29	24	27	35.545	0.000	0.00	28.94	30.00	4	317	5	30	292	16	292	14
15	41	27	32	27	30	32.643	0.000	0.00	28.97	30.03	7	108	6	17	112	11	112	15
16	50	30	39	35	37	25.700	0.000	0.00	28.66	29.71	10	142	12	43	158	29	135	16
17	41	27	35	26	31	29.926	0.000	0.00	28.92	29.97	10	276	10	33	270	19	270	17
18	32	16	27	19	24	38.259	0.000	0.00	29.22	30.28	9	289	8	36	315	18	292	18
19	43	16	31	22	27	25.290	0.000	0.00	29.10	30.16	11	156	11	35	158	24	158	19
20	45	27	35	26	31	30.139	0.000	0.00	29.05	30.11	1	253	3	16	158	10	180	20
21	37	18	29	20	25	36.254	0.000	0.00	29.16	30.22	6	285	7	32	292	16	270	21
22	37	14	25	15	21	40.433	0.000	0.00	29.16	30.23	3	195	3	12	180	7	225	22
23	57	22	40	27	33	24.864	0.000	0.00	28.76	29.81	12	162	12	30	158	19	158	23
24	50	17	38	29	34	26.614	0.000	0.00	28.81	29.86	3	291	8	29	180	17	180	24
25	24	9	16	6	13	48.938	0.000	0.00	29.34	30.40	4	323	4	21	338	11	292	25
26	36	16	27	15	23	37.544	0.000	0.00	28.95	30.01	9	150	9	24	158	17	158	26
27	45	25	34	25	30	31.285	0.000	0.00	28.86	29.92	2	299	3	14	315	7	180	27
28	40	18	29	17	24	36.345	0.000	0.00	29.09	30.15	3	277	3	14	270	8	292	28
29	57	31	41	30	36	23.905	0.000	0.00	28.80	29.85	4	227	7	24	270	13	292	29
30	46	26	36	27	32	28.844	0.000	0.00	29.02	30.08	1	300	3	14	315	8	135	30
	46	26	36	27	32	29.072	0.655		28.99	30.05	6	216.16	6	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 24		Precipitation ≥ 0.01 in: 0		Greatest 24 – hr precipitation: Date:										
		Maximum Temp ≤ 32: 1		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 0		Monthly Total Precipitation: 0.00										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.47		DATE: 25		TIME: 10:15		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.47		DATE: 12		TIME: 00:05		DEGREEE DAYS: >		HEATING: 872.164		60.959						
										COOLING: 0.655		708.515						

**NOVEMBER 2021**  
**Saint Peter, MN USA**

OCTOBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA

New SWCD Oshawa 110-27-24

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	81	63	68	64	65	0.295	3.670	0.57	29.03	30.09	1	143	1	10	158	5	135	01
02	68	62	64	62	63	1.202	0.237	0.04	28.91	29.97	3	270	3	15	292	9	270	02
03	74	48	60	52	55	6.431	1.757	0.00	28.94	30.00	2	326	2	14	360	6	360	03
04	76	43	58	50	53	9.412	2.239	0.00	29.07	30.14	1	55	0	10	22	5	90	04
05	78	44	61	53	56	7.095	2.851	0.00	29.21	30.27	2	113	1	14	90	7	90	05
06	74	51	63	57	59	4.073	1.856	0.00	29.17	30.24	2	114	1	9	90	5	90	06
07	75	61	65	60	62	1.391	1.600	0.00	29.06	30.12	2	104	2	11	90	6	90	07
08	78	62	67	61	63	1.252	3.227	0.00	28.94	30.00	3	107	2	12	112	6	90	08
09	80	60	70	61	63	1.055	6.378	0.00	28.72	29.77	5	118	5	23	90	12	90	09
10	71	50	62	54	57	3.997	0.502	0.00	28.56	29.60	5	235	5	21	225	11	248	10
11	72	42	55	44	48	10.656	1.107	0.00	28.69	29.74	1	330	1	12	22	5	270	11
12	64	47	56	50	52	9.318	0.000	0.00	28.91	29.96	1	311	1	9	270	5	292	12
13	69	50	57	51	53	8.559	0.237	0.22	28.65	29.70	5	129	6	30	90	19	90	13
14	57	40	49	41	44	16.493	0.000	0.00	28.80	29.86	6	251	5	19	180	12	270	14
15	54	37	44	37	40	21.115	0.000	0.00	28.94	29.99	4	271	3	20	292	13	270	15
16	64	35	48	36	41	17.125	0.000	0.00	29.04	30.10	5	271	4	19	270	12	270	16
17	71	31	51	39	43	15.316	0.975	0.00	29.07	30.13	1	236	1	12	248	6	270	17
18	79	43	59	43	48	9.020	3.001	0.00	28.94	29.99	3	160	3	18	158	10	158	18
19	74	49	59	47	51	7.657	1.728	0.00	28.89	29.94	2	155	1	14	225	6	180	19
20	59	47	53	50	51	12.216	0.000	0.98	28.84	29.89	2	47	2	17	360	11	90	20
21	50	34	44	39	41	21.376	0.000	0.03	29.03	30.09	5	357	4	20	45	11	360	21
22	48	30	37	33	35	27.539	0.000	0.00	29.06	30.12	1	300	1	10	270	4	270	22
23	52	28	38	32	35	26.883	0.000	0.00	29.02	30.08	2	82	1	13	90	6	90	23
24	47	34	42	35	38	23.290	0.000	0.00	28.91	29.97	3	68	2	18	90	9	90	24
25	54	32	42	33	37	22.966	0.000	0.00	29.08	30.14	4	64	3	13	45	8	45	25
26	58	39	48	37	42	17.087	0.000	0.00	28.94	30.00	12	117	12	32	112	22	135	26
27	53	47	49	44	46	15.592	0.000	0.41	28.74	29.79	11	121	11	31	112	21	112	27
28	48	45	47	45	46	18.266	0.000	0.41	28.76	29.82	4	16	4	18	360	11	360	28
29	57	37	46	41	44	18.531	0.000	0.00	28.92	29.98	5	2	4	17	360	10	360	29
30	60	31	44	39	41	20.809	0.000	0.00	28.82	29.87	3	262	3	21	292	13	270	30
31	45	30	38	32	35	26.674	0.000	0.00	29.11	30.17	6	284	6	26	292	16	292	31
	64	44	53	46	49	12.990	2.091		28.93	29.98	4	174.89	3	< Monthly Avg				
NUMBER OF DAYS WITH: >		Maximum Temp ≥ 90: 0		Minimum Temp ≤ 32: 5		Precipitation ≥ 0.01 in: 7		Greatest 24 - hr precipitation: 1.01 Date: 20-21										
		Maximum Temp ≤ 32: 0		Minimum Temp ≤ 0: 0		Precipitation ≥ 0.10 in: 5		Monthly Total Precipitation: 2.66										
SEA LEVEL PRESSURE: >		MAXIMUM: 30.33		DATE: 5		TIME: 10:55		MONTHLY TOTAL		SEASON TO DATE TOTAL								
		MINIMUM: 29.49		13		16:50		DEGREEE DAYS: >		HEATING: 402.692		60.959						
										COOLING: 31.365		708.515						

OCTOBER 2021  
Saint Peter, MN USA

SEPTEMBER 2021

LOCAL CLIMATOLOGICAL DATA

DAVIS INSTRUMENTS, WEATHERLINK NETWORK

Saint Peter, MN USA

New SWCD Oshawa 110-27-24

Lat: 44.3190 Long: -94.0276 Elev (ground): 990 ft Time Zone: America/Chicago



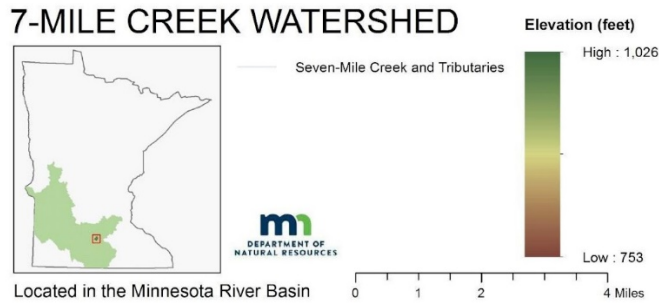
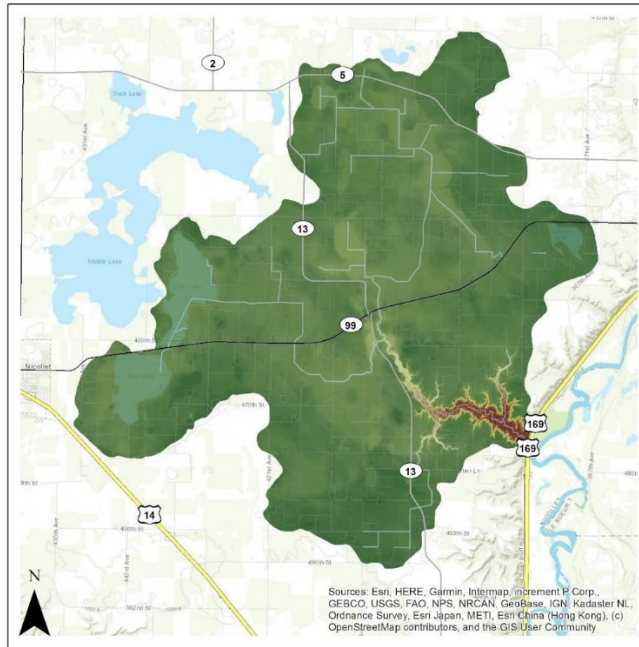
TEMPERATURE °F						DEG DAYS BASE 65°		PRECIP. (in)	PRESSURE (in Hg)		WIND SPEED = mph DIR = DEGREES							
Date	MAXIMUM	MINIMUM	AVERAGE	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING	WATER EQUIV	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	WIND MAX				Date
														INSTANT		ARCHIVE		
														SPEED	DIR	SPEED	DIR	
01	79	52	66	58	60	3.626	4.147	0.00	28.99	30.05	4	100	2	14	90	8	90	01
02	68	58	63	57	59	2.575	0.444	0.21	29.02	30.08	4	101	4	15	90	8	90	02
03	66	60	63	61	62	1.921	0.104	0.34	28.92	29.97	3	100	2	21	158	9	90	03
04	77	55	66	59	61	2.067	3.416	0.01	28.93	29.99	4	280	3	20	292	12	270	04
05	79	50	64	55	58	5.126	4.232	0.00	28.90	29.96	4	275	3	21	292	11	270	05
06	83	47	66	56	58	5.548	6.504	0.00	28.86	29.92	3	144	2	13	158	6	112	06
07	78	58	70	58	61	0.541	5.884	0.00	28.78	29.83	4	274	5	25	270	13	270	07
08	75	51	63	52	55	5.213	2.756	0.00	28.93	29.99	5	280	4	21	270	11	270	08
09	76	47	61	52	55	6.585	2.797	0.00	29.01	30.07	1	289	1	12	270	6	270	09
10	84	50	67	57	60	3.829	5.837	0.00	28.93	29.98	2	164	1	16	158	5	135	10
11	82	59	69	61	63	1.365	4.908	0.00	28.86	29.91	2	16	2	12	22	6	270	11
12	72	50	61	50	54	4.856	1.038	0.00	29.03	30.09	3	17	2	19	360	12	22	12
13	78	44	62	56	58	6.695	3.768	0.50	28.92	29.98	3	99	3	27	292	16	270	13
14	71	50	61	55	57	4.790	0.819	0.00	28.88	29.93	6	276	5	20	248	11	270	14
15	81	44	63	51	54	6.535	4.639	0.00	28.95	30.00	2	150	2	14	135	6	135	15
16	90	64	76	62	66	0.019	11.113	0.00	28.80	29.85	7	167	6	28	158	12	180	16
17	77	44	62	52	55	5.493	2.206	0.26	29.08	30.14	3	292	3	40	292	23	270	17
18	81	41	62	51	54	8.025	5.061	0.00	29.10	30.16	4	135	3	20	112	7	112	18
19	90	69	78	65	68	0.000	13.133	0.00	28.86	29.91	6	165	5	24	158	12	135	19
20	75	55	66	60	62	2.511	3.429	0.12	28.74	29.79	3	237	6	26	315	15	292	20
21	68	44	56	47	50	9.692	0.308	0.01	29.17	30.23	3	295	3	18	315	9	270	21
22	70	36	54	44	47	12.155	0.774	0.00	29.25	30.32	0	352	0	10	292	4	270	22
23	75	40	58	44	48	9.578	2.422	0.00	29.02	30.08	2	150	1	14	158	7	112	23
24	65	46	54	45	48	10.777	0.001	0.05	28.88	29.94	2	330	2	26	22	11	22	24
25	73	38	53	37	43	12.838	1.163	0.00	28.93	29.98	3	270	2	18	270	10	270	25
26	89	47	66	52	56	5.723	6.412	0.00	28.72	29.78	2	177	1	12	112	5	112	26
27	82	52	64	54	57	5.325	4.542	0.00	28.81	29.87	2	30	1	11	360	5	22	27
28	86	53	68	55	59	2.997	6.413	0.00	28.89	29.94	4	121	3	15	135	7	112	28
29	88	58	72	59	63	0.920	8.072	0.00	28.94	30.00	3	124	3	15	135	7	135	29
30	78	63	69	62	64	0.323	4.409	0.06	29.07	30.13	1	140	1	12	158	5	112	30
	78	51	64	54	57	5.091	4.025		28.94	30.00	3	185.03	3	< Monthly Avg				
NUMBER OF DAYS WITH: >						Maximum Temp ≥ 90: 1 Maximum Temp ≤ 32: 0		Minimum Temp ≤ 32: 0 Minimum Temp ≤ 0: 0		Precipitation ≥ 0.01 in: 7 Precipitation ≥ 0.10 in: 5			Greatest 24 – hr precipitation: 0.55 Date: 2-3 Monthly Total Precipitation: 1.56					
SEA LEVEL PRESSURE: >						MAXIMUM: 30.40 MINIMUM: 29.66		DATE 22	TIME 10:40	DEGREEE DAYS: >		HEATING: 147.646 COOLING: 120.750	MONTHLY TOTAL 60.959	SEASON TO DATE TOTAL 708.515				

SEPTEMBER 2021  
Saint Peter, MN USA

Appendix 2: 2020-2021 MN Department of Agriculture nutrient assessment survey



# 2021 Nutrient Management Assessment of Producers



**For additional information, contact: Denton Bruening at 651-201-6399**

625 Robert Street North • St. Paul, MN 55155-2538 • 651-201-6000 • 1-800-967-AGRI •

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**Figure 1. Crops and corresponding percent of crop acres grown by farmers for the 2021 crop season. Data included 17,000 acres as reported from 28 farmers. .... 5**

**Figure 2. There were 7,490 corn acres inventoried in the 2021 crop year. Eighty-six percent of those corn acres were planted following a soybean crop in the 2020 crop year. .... 5**

**Figure 3. There were 1,680 corn acres that received manure in the 2021 crop year. C/C Hog is defined as corn following corn applied with hog manure, C/C Cattle is defined as corn following corn applied with beef or dairy manure, C/S Hog is defined as corn following soybeans applied with hog manure and C/S Cattle means corn following is defined as with beef or dairy manure. Some manured acres were also applied with commercial fertilizer..... 6**

**Figure 4. Timing of commercial nitrogen applications on corn acres in the Seven Mile Creek Watershed was dominated by spring preplant for the 2021 crop season.8**

**Figure 5. Timing of manure nitrogen applications on corn acres applied with manure or manure and commercial fertilizer in the SMCW for the 2021 crop season. .... 8**

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## **General information: The Seven Mile Creek Watershed**

The Seven Mile Creek Watershed (SMCW) is located in southeast Nicollet County in the state of Minnesota. The SMCW consists of 23,100 acres of land and of those acres there are 19,300 acres of cropland<sup>1</sup>, according to the USDA cropscape database. During the past 20 years, several ongoing projects and programs have been valuable in the adoption of Best Management Practices (BMP) to control erosion and the loss of nutrients to surface and ground water<sup>2</sup>. The projects focused on education, nutrient management, septic system upgrades, filter strips, wetlands, water storage, stream trout habitat creation, and stream bank erosion control using soil bioengineering techniques. Intensive water quality monitoring and watershed assessments continued throughout the past twenty years.

In 2019 the Minnesota Department of Agriculture (MDA) was contacted to survey farmers in the SMCW on farming practices, specifically related to farm practices affecting nutrient management and field erosion.

The Farm Nutrient Management Assessment Program (FANMAP) survey is a tool used to evaluate water pollution prevention by documenting farming practices.

This work was conducted in concert with and was paid for by the EPA Section 319 Seven Mile Creek Assessment and Implementation Project (2018-2022), led by Gustavus Adolphus College in conjunction with Great River Greening and Nicollet Soil and Water Conservation District.

## **Nutrient Use and Management for Farms in the Seven Mile Creek Watershed**

The following information was collected for all inventoried acres within the SMCW through Farm Nutrient Management Assessment Program (FANMAP) interviews:

- Timing, rates and method of applications were collected for all nitrogen (N), phosphorus, P<sub>2</sub>O<sub>5</sub> (P) and potassium, K<sub>2</sub>O (K) inputs<sup>3</sup> (fertilizers, manures and legumes)
- Manure contributions
- Tillage practices
- Cover crops
- Crop yields

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<sup>1</sup> Grass and pasture is included in the cropland acres.

<sup>2</sup> The National Water Quality Initiative is one example of a program that provided funding for nutrient reduction to waters and practices that decrease erosion.

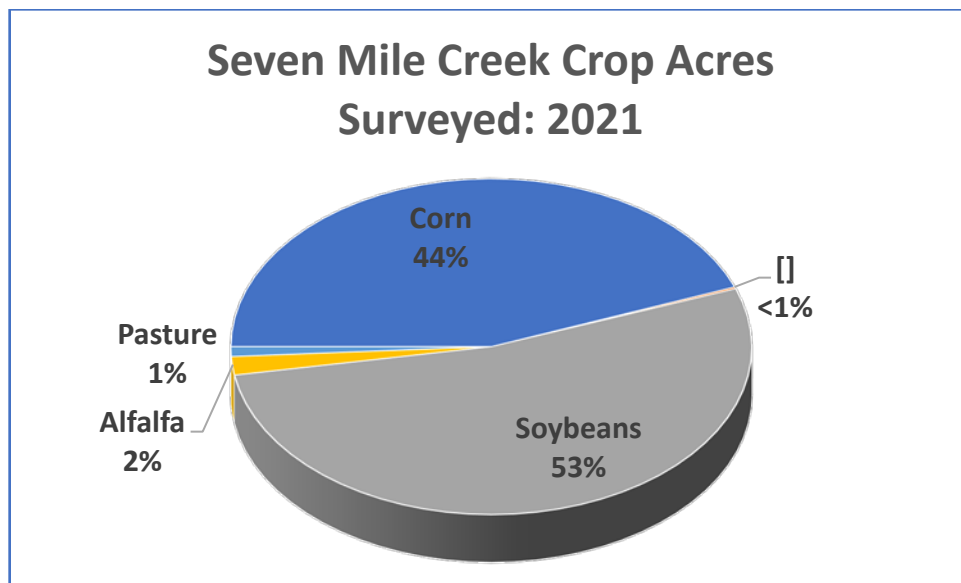
<sup>3</sup> The analysis grade of phosphorus (P) and potassium (K) in fertilizers are expressed as P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O.

FANMAP was to be performed in the winter of 2020. The farmer surveys were initially interrupted by the lockdown from the covid pandemic. Face to face farmer visits were not an option and the normal interview process of interviewing farmers with their records on individual farms had to be abandoned. Only 6 farm interviews were done in 2020 before the MDA, following state prodigal, required all employees to discontinue any face-to-face meetings or interactions<sup>4</sup>. In the summer of 2021 the MDA relaxed contact with the public, but still limited face to face contact. As a solution to collect farmer data without multiple face to face interviews, it was determined to collect the farmer data from the fertilizer dealers who supplied inputs to the dealers within the SMCW. The Minnesota Department of Agriculture has used this approach in the past. All information is based on the 2021 crop year. Residue estimates are based on the preceding fall of the crop year, or the fall of 2020.

### **Farm Size, Crop and Livestock Characteristics of the Selected Farms in the Seven Mile Creek Watershed**

Five fertilizer dealer interviews were conducted in the summer of 2021. A total 28 farmers and 17,000 acres of farmland was inventoried in the SMCW study for the 2021 crop season. An average farm would be approximately 600 acres.

During the survey process, families or partners were often combined during the interview process. For example, if a farmer and his or her children farmed together, it would be reported as one operation. According to the information collected from USDA cropland, dealer interviews covered approximately 85% of crop acres in the SMCW. The SMCW cropland was dominated by a field corn/soybean rotation accounting for 97% of all acres. Figure 1 lists each type of crop grown and the corresponding percentage of acres. Other crops could include sweet corn or other minor crops grown in Minnesota.



<sup>4</sup> Exceptions to person to person contact was limited to only absolutely necessary interactions.

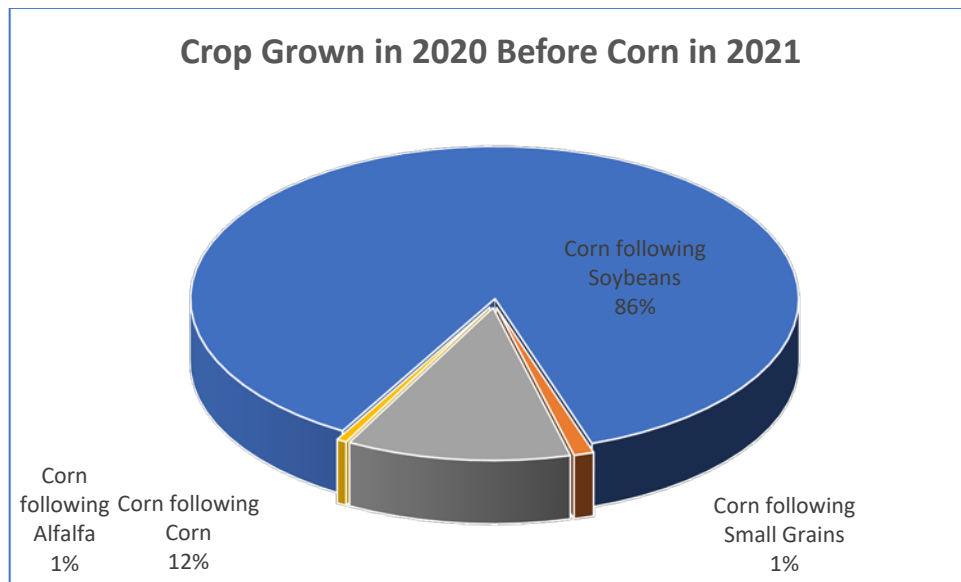


**Figure 1. Crops and corresponding percent of crop acres grown by farmers for the 2021 crop season. Data included 17,000 acres as reported from 28 farmers.**

The crop year of 2021 was somewhat unusual in the fact that it was one of the few years in recent history that corn soybean acres out-numbered corn acres by almost 10%. Several dealers noted that 2019 was a very wet year that had many acres that went unplanted. Those acres were generally planted to corn for 2020 leading to more corn acres than normal. Then in 2021 those farmers with a corn soybean rotation planted more corn than in a typical year. For the 2020 crop year there were 1,500 more corn acres than soybean acres.

Also, there were no small grains reported planted in 2021. Generally there are some acres of small grains. The previous year dealers reported that some farmers planted spring wheat and oats in the SMCW.

For corn acres, it is important to know the previous crop. The previous crop determines the amount of nitrogen suggested to be applied to the corn crop when compared to the University of Minnesota recommendations for fertilizing corn for nitrogen. Figure 2 details the corn acres by previous crop grown in 2020.



**Figure 2. There were 7,490 corn acres inventoried in the 2021 crop year. Eighty-six percent of those corn acres were planted following a soybean crop in the 2020 crop year.**

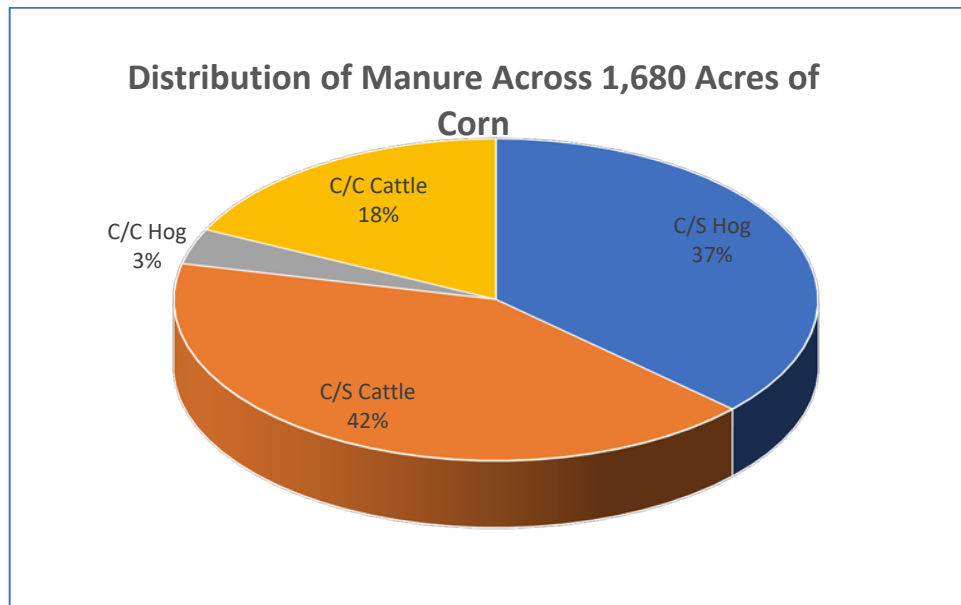
## Fertilizer and Manure Use as Reported by Fertilizer Dealers Serving the Seven Mile Creek Watershed

### Nitrogen Contributions

Nitrogen (N) applied on surveyed acres varied by commercial nitrogen source and by manure source. Dealers reported ranges of fertilizer applications and timing of those applications. Nutrients applied were from commercial fertilizer only on 5,810 acres of corn and from manure or manure and commercial fertilizer on 1,680 acres of corn.

Commercial fertilizer was only applied on corn acres except for 360 acres of soybeans that received an average of 17 pounds of nitrogen, 45 pounds of phosphorus, and 52 pounds per acre of potash. No manure was applied on any crop except corn. All nutrient analysis in this report will be based on the corn acres that received nutrients.

Figure 3 details the distribution of manure across the 1,680 acres of corn that received manure by previous crop and type of manure.



**Figure 3. There were 1,680 corn acres that received manure in the 2021 crop year. C/C Hog is defined as corn following corn applied with hog manure, C/C Cattle is defined as corn following corn applied with beef or dairy manure, C/S Hog is defined as corn following soybeans applied with hog manure and C/S Cattle is defined as corn following soybeans applied with beef or dairy manure. Some manured acres were also applied with commercial fertilizer.**

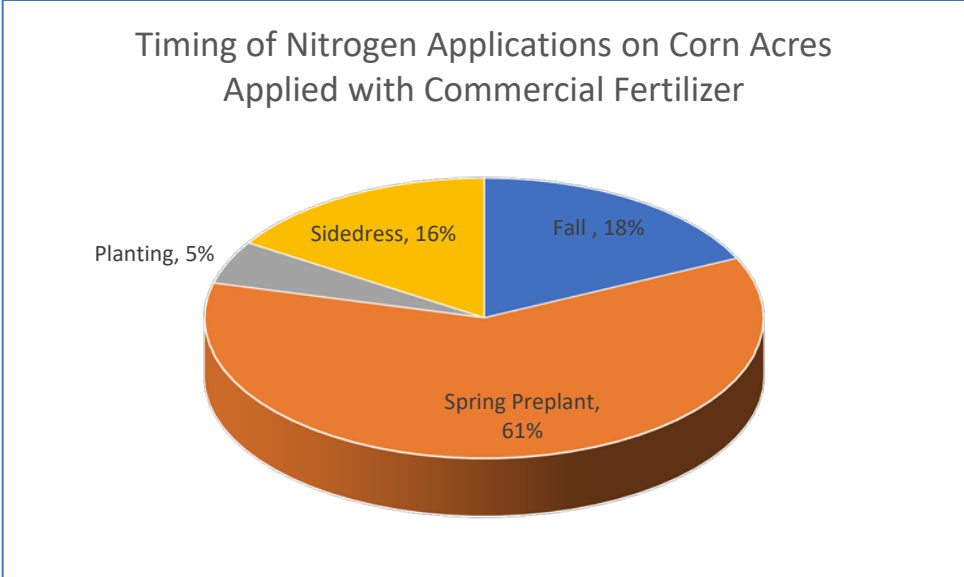
Numbers of actual livestock were not collected through the dealers. This would be information that would be collected from the farmers during a normal farmer interview process. It was also not possible to collect the feedlot information for the survey from any other source.

Table 1 details the nutrients applied on corn acres within the SMCW for the 2021 crop year. Some manured acres received commercial nitrogen in addition to the manure applied. Rates of manure depended on the type of livestock, whether the manure was liquid or solid, whether it was applied in the spring or fall, or whether it was applied based on the nitrogen content or the phosphorus content.

<b>Corn Acres</b>	<b>Acres</b>	<b>Nutrient Source</b>	<b>N</b>	<b>P</b>	<b>K</b>
Corn Following Soybeans	5,160	Commercial Fertilizer	156	61	72
Corn Following Corn	530	Commercial Fertilizer	184	48	51
Corn Following Alfalfa	40	Commercial Fertilizer	65	60	61
Corn Following Small Grains	80	Commercial Fertilizer	173	59	70
Corn Following Soybeans	1,320	Manure/Commercial Fert.	178	87	83
Corn Following Corn	360	Manure/Commercial Fert.	201	81	91
<b>Totals/Averages</b>	<b>7,490</b>		<b>164</b>	<b>66</b>	<b>73</b>

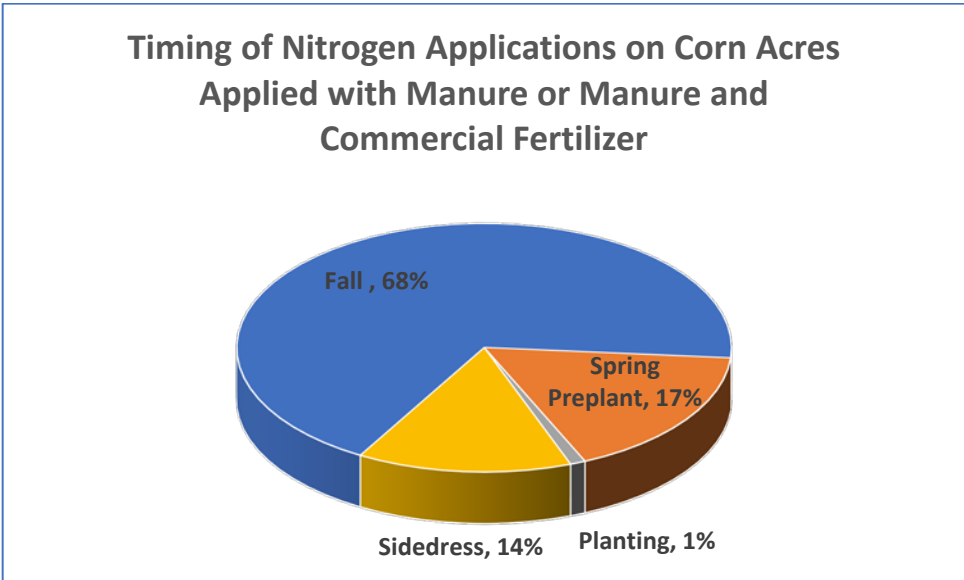
Timing of nitrogen (N) applications on corn acres varied depending on the source of fertilizer available at the dealers, whether manure was the source, or if pesticides were included in the application such as a weed and feed program<sup>5</sup>. In regard to corn acres applied only with commercial fertilizer, 61% of the nitrogen was applied preplant for the 2021 crop year. Figure 4 details the timing of the commercial nitrogen applications on corn acres that only received nitrogen from commercial sources.

<sup>5</sup> A typical weed and feed program for corn would be to plant the corn and then apply an application that would include urea impregnated with a pre-emergence pesticide or apply a pre-emergence pesticide in a tank mix with a liquid nitrogen fertilizer such as 32% or 28% urea ammonium nitrate solution (UAN).



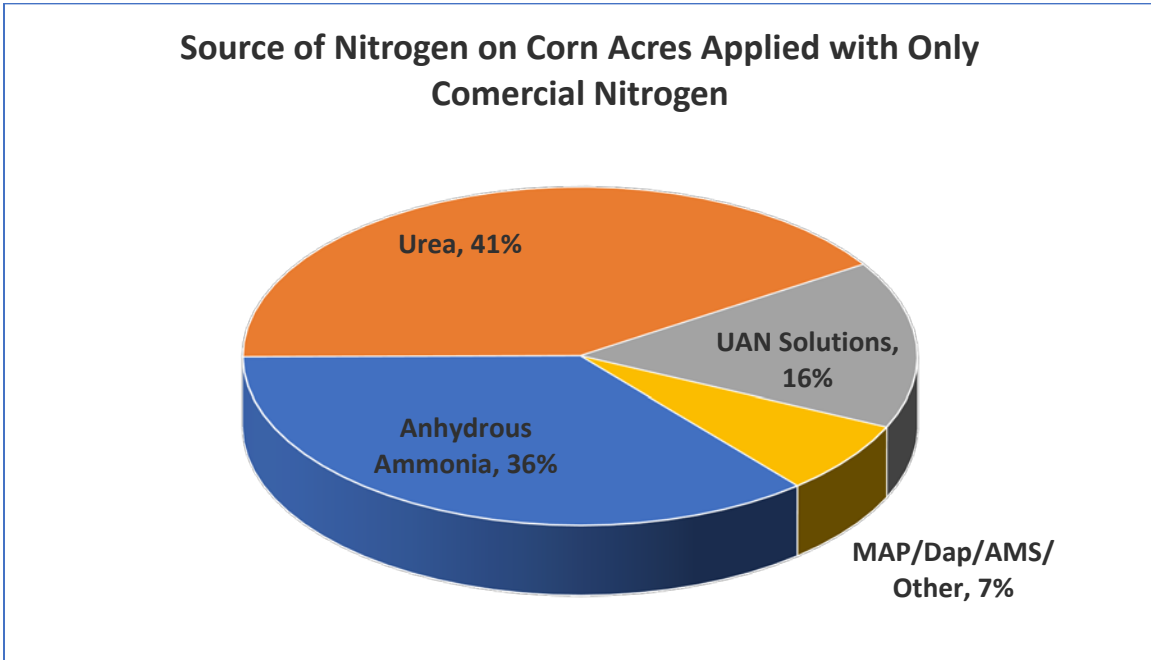
**Figure 4. Timing of commercial nitrogen applications on corn acres in the Seven Mile Creek Watershed was dominated by spring preplant for the 2021 crop season.**

Figure 5 details the timing of nitrogen applications on corn acres that were applied with manure or manure and commercial nitrogen. Eighteen percent of the nitrogen on manured acres came from a commercial source and 82% of the nitrogen came from manure. All of the 14% of the nitrogen applied at sidedress, including weed and feed, came from commercial fertilizer as did the 1% at planting.



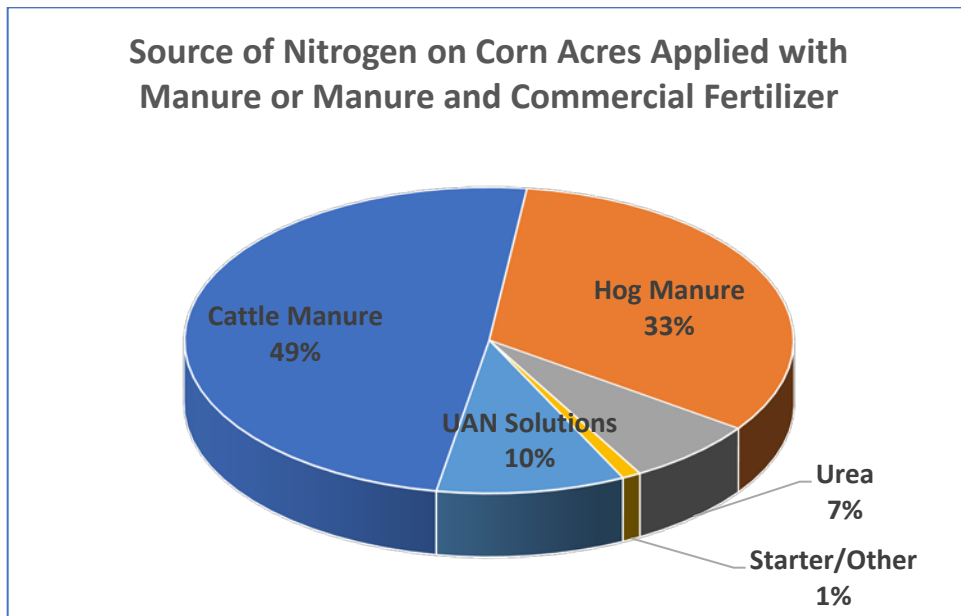
**Figure 5. Timing of nitrogen applications on corn acres applied with manure or manure and commercial fertilizer in the SMCW for the 2021 crop season.**

Urea supplied 41% of all commercial N on field corn acres applied with only commercial fertilizer (Figure 6).



**Figure 6. Anhydrous ammonia supplied most of the commercial N to corn acres in the Seven Mile Creek Watershed.**

Corn acres applied with manure or manure and commercial fertilizer are shown in Figure 7. Acres of corn without manure are not shown in this chart. Cattle manure accounted for 49% of the nitrogen applied to corn acres with manure applications



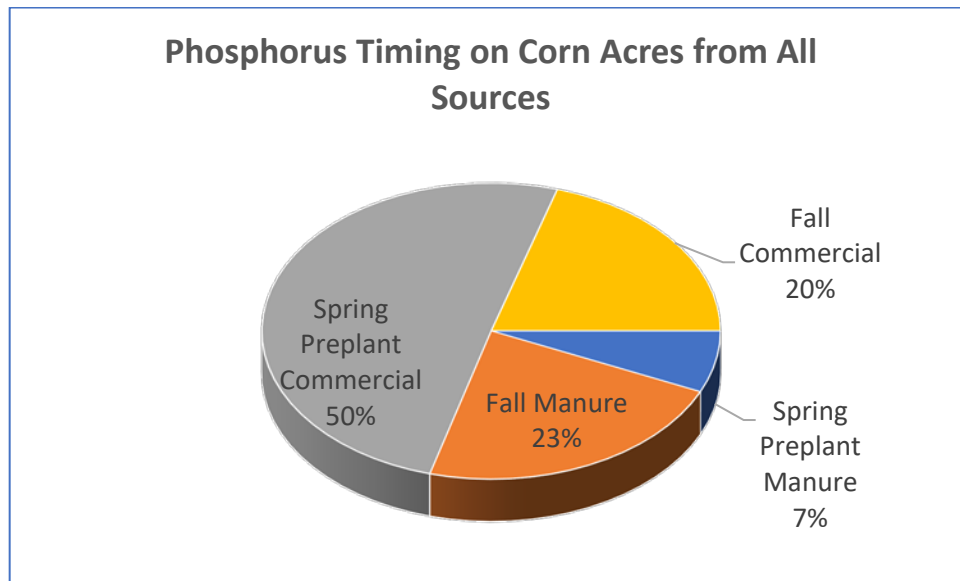
**Figure 7. Timing of all nitrogen applications on corn acres that received manure in the SMCW. Manure contributed 82% of the nitrogen applied.**

Farmers often take a nitrogen credit for manure that was applied two years previous to the crop if it is corn following corn. Farmers also often take a nitrogen credit if alfalfa was grown in the two years before the current corn crop. Neither one of these credits were considered because the data was collected from the dealer. This information would need to be collected from the farmer. However, due to the small amount of alfalfa grown and the limited acres of corn following corn it appears that those contributions would be minimal in this analysis.

A very small percentage (<1 percent) of the commercial N was applied to crops other than corn. Because of the small sample size, analysis is not performed in regard to nutrients on these acres. For the 2021 season there were only 360 acres of soybeans that received commercial fertilizer. No other crop received commercial fertilizer or manure.

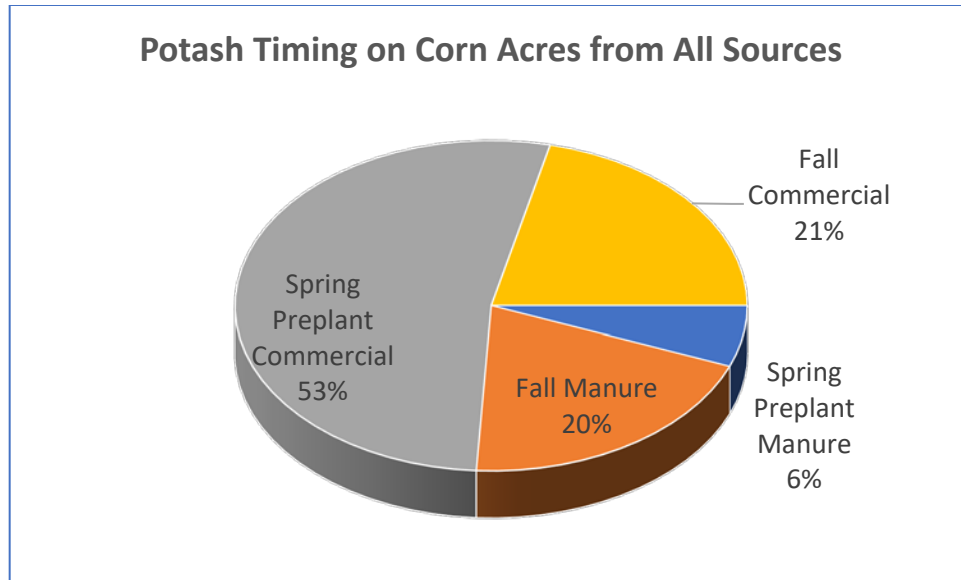
### Phosphorus and Potash Contributions

Timing of phosphorus (P) and potash (K) applications on corn acres varied depending on the source of fertilizer available at the dealers and whether manure was the source. Regarding all corn acres, 57% of the P was applied preplant for the 2021 crop year, including 50% from commercial fertilizer and 7% from manure. Of the Figure 8 details the timing of the phosphorus applications on corn acres that received P from all sources including both manured and non-manured acres.



**Figure 8. Timing of all phosphorus applications on corn acres in the SMCW for the 2021 crop season.**

Figure 9 details the timing and source of potash (K) applications on corn acres. Fifty-nine percent of the potash was spring preplant applied from all sources including 53% from commercial fertilizer and 6% from manure.



**Figure 9. Timing of all potash applications on corn acres in the SMCW was dominated by spring applications for the 2021 crop season.**

### **Nutrient Balances and Economic Considerations: Seven Mile Creek Watershed**

Total nitrogen (N) from commercial fertilizer and manure applied to inventoried corn acres totaled 1,226,240 pounds. Field corn yield goal for these farms averaged 208 bushels per acre (Bu/Ac). It appears farmers used realistic yield goals for field corn acres and that farmers have been growing excellent crops to reach their yield goals consistently in the past five years.

Current nitrogen recommendations from the University of Minnesota are based on economic and environmental factors. Current U of M nitrogen recommendations suggest that farmers should use nitrogen to corn price ratio to determine the maximum return to nitrogen. Using this method, recommendations were generally at a .10 N price to crop ratio for farmers without manure applications. Recommendations with manure were at a .05 N price to crop ratio. Actual amounts of N applied from fertilizer and manure averaged 164 pounds of nitrogen per acre across all corn acres.

Table 2 compares current U of M nitrogen recommendations to actual amounts of N (fertilizer and manure) applied to each field. Actual amounts of N averaged 164 pounds per acre. It should also be noted that the University of Minnesota recommendations for nitrogen are expected to increase by about 10 pounds per acre due to recent research and test plot data.

**Table 2. Nitrogen Applied Compared to the 2021 U of M Recommendations in the 2021 SMCW Survey for Corn Acres.**

<b>Crop Rotation</b>	<b>Manure</b>	<b>Average N applied</b>	<b>Low Range</b>	<b>.10 MRTN</b>	<b>High Range</b>
Corn Following Soybeans	No	156	120	130	145
Corn Following Soybeans	Yes	178	120	130	145
Corn Following Corn	No	184	152	165	180
Corn Following Corn	Yes	201	152	165	180
Corn Following Alfalfa <sup>6</sup>	No	65	**	**	**
Corn Following Small Grains	No	173	152	165	180
<b>All Corn Acres</b>	<b>**</b>	<b>164</b>	<b>**</b>	<b>**</b>	<b>**</b>

**The table below compares the .05 MRTN to the N applied on manured acres.**

<b>Crop Rotation</b>	<b>Manure</b>	<b>Average N applied</b>	<b>Low Range</b>	<b>.05 MRTN</b>	<b>High Range</b>
Corn Following Soybeans	Yes	178	140	150	165
Corn Following Corn	Yes	201	175	195	210

Soil tests were not attained at the dealership. The soil tests would normally be available at the farm site during a farmer survey. Therefore, the applications of P and K could not be compared to the soil tests based on the University of Minnesota recommendations. Table 3 details the University of Minnesota crop removal rates based on pounds of nutrients removed per bushel of corn harvested. Over 95% of the corn following soybean acres received phosphorus and potash only in the corn year. Therefore, the phosphorus and potash applied would be for 2 years of crops. However, the corn following corn applications of phosphorus and potash would be for a single year, unless the following crop would be soybeans in 2022. Future crops were not part of the dealer survey as that would be a question that generally only a farmer would know the answer.

<sup>6</sup> Corn following alfalfa does not have an MRTN based on a price ratio.



**Table 3. Phosphorus and Potash removal. Crop removal rates are based on the University of Minnesota crop removal rates in pounds per bushel and then calculated by multiplying by the yields reported during the surveys.**

<b>Crop Single Year</b>	<b>Crop Removal Phosphorus</b>	<b>Crop Removal Potash</b>	<b>Yield</b>	<b>Crop Removal Phosphorus</b>	<b>Crop Removal Potash</b>
	Pounds per Bushel	Pounds per Bushel	Bushels Per Acre	Pounds per Acre	Pounds per Acre
Soybeans	0.69	1.1	54	37.26	59.4
Corn	0.28	0.19	208	58.24	39.52
<b>Crop Rotation Removal Two Years</b>					
Corn Following Soybeans				95.5	98.92
Corn Following Corn				116.48	79.04

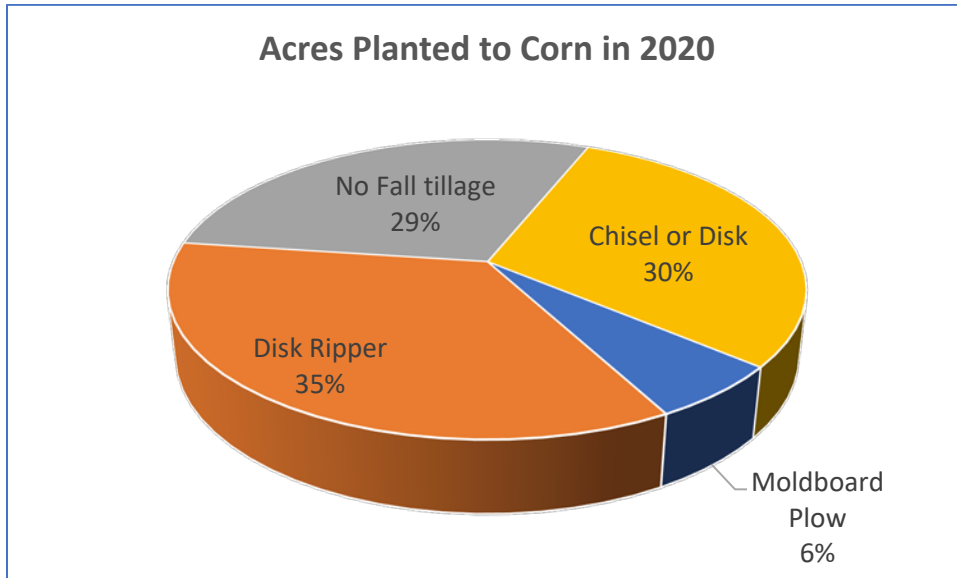
However, based on the average corn yield reported (208 bushels per acre) and the average soybean yield reported (54 bushels per acre) it appears that farm fields on average are applying less P and K than is removed for corn following soybeans. Because farmers did not report what was to be planted on corn following corn acres it is not possible to state that there is more P and K applied than removed, if those acres were going into soybeans that would not be fertilized, then the applications on corn following corn would still be for two crop years. Table 4 details the P and K applications compared to the removal rates.

**Table 4. Phosphorus and Potash applications compared to crop removal. (Crop removal calculations are averages from the University of Minnesota)**

<b>Corn Acres</b>	<b>Nutrient Source</b>	<b>Years Of Removal</b>	<b>P Applied</b>	<b>P Removed</b>	<b>K Applied</b>	<b>K Removed</b>
Corn Following Soybeans	Commercial Fertilizer	2	61	96	72	99
Corn Following Corn	Commercial Fertilizer	1	48	58	51	40
Corn Following Soybeans	Manure/ Commercial Fert.	2	87	96	83	99
Corn Following Corn	Manure/ Commercial Fert.	1	81	58	91	40

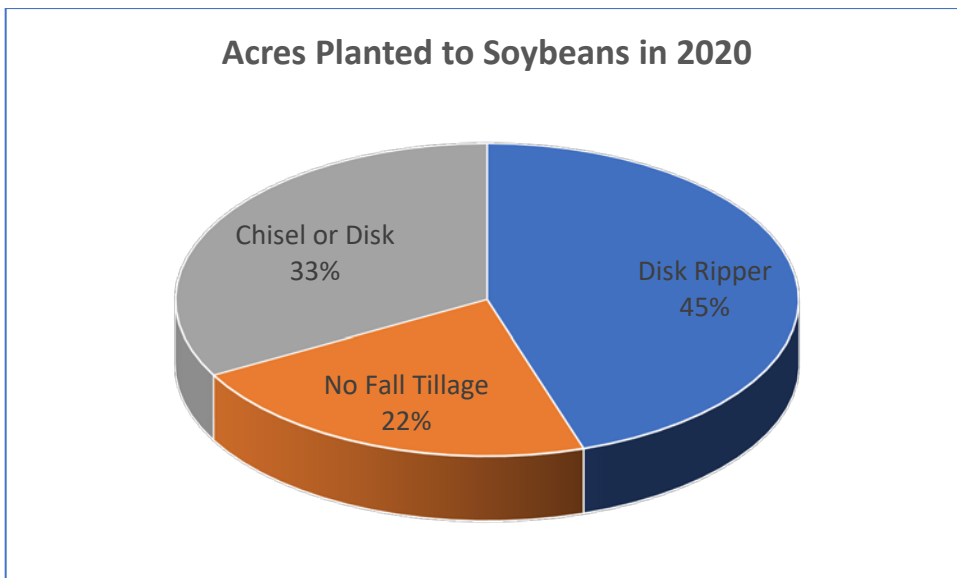
## Tillage Practices: Seven Mile Creek Watershed

Tillage practices were documented on all surveyed acres in the SMCW. A fall residue survey was performed on all acres within the SMCW in November of 2021. Figure 10 details the tillage following the acres that were planted to corn in 2020.



**Figure 10. Fall tillage on corn acres within the SMCW planted in 2020 before the 2021 crop season.**

Figure 11 details the tillage following the acres that were planted to soybeans in 2020.



**Figure 11. Fall tillage on soybean acres within the SMCW Planted in 2020 before the 2021 season.**

Due to the short window for planting crops in the spring, additional tillage in the spring was not recorded.

No analysis was done on the acres other than corn and soybeans due to limited acres in this category.

Cover crops were used on 8% of the corn acres in 2020 and 3% of the soybean acres. Due to the extremely wet year of 2020, farmers may have adjusted their tillage to accommodate the weather and also the planting of cover crops.

### **Conclusions and Summary of the Current Nutrient and Tillage Management Practices for the Seven Mile Creek Watershed.**

The Seven Mile Creek Watershed consists of fine-textured soils which are common in the South Central Minnesota region. Five Dealers representing 28 farmers and 17,000 acres of farmland were interviewed during the summer of 2021 by the Minnesota Department of Agriculture staff using the Farm Nutrient Management Assessment Program (FANMAP) tool. The total watershed area consists of 19,300 acres of cropland. Dealers volunteered up to 5 hours of their time to share information about farmers in the SMCW operations. The overall purpose of the program was to develop a clear understanding of current farm practices regarding agricultural nutrients, tillage and other management practices, and to use this knowledge for future water quality educational programs.

Over 85% percent of the crop acres within the SMCW were inventoried. Field corn and soybeans were the dominant crops with 97 percent of all acres planted to these crops. Forty-four percent of the crop acres were planted with field corn and 99 percent of the commercial N, P, K and manure was applied to those field corn acres. Sixty-one percent of all commercial N applied was applied as a spring preplant and urea accounted for 41 percent of the commercial nitrogen applied. Sixty-eight percent of the nitrogen was fall applied on corn acres applied with manure and cattle manure accounted for 49% of the nitrogen applied on manured acres.

Tillage practices varied across the inventoried farms. Disk rippers were the most used tillage on both corn acres and soybean acres.

Acres not captured in the survey process could change the analysis of this report.

**Appendix 3: Land ownership trends and data**

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**Summer 2020 Seven Mile Creek Report on Land Ownership****August 31, 2020****Anna Versluis, Gustavus Adolphus College Department of Geography**

Most land in Seven Mile Creek Watershed, like much of the land in southern Minnesota, is privately owned and used for agriculture. At times the landowner farms the land and at other times the land is leased (more rarely, sharecropped) to a farmer on an annual or longer-term basis. In either case, in our current system, landowners are powerful entities with great latitude in shaping decisions about land use, how the land is viewed and treated, and what the vision for the land is going into the future. Here I proposed an exploratory project to look into agricultural land ownership in southern Minnesota and particularly in Seven Mile Creek Watershed, Nicollet County. I spent 68 hours in July and August, 2020, on the following:

**1. Conduct a literature review on agriculture land ownership patterns in the U.S. corn and soybean "heartland."**

Because the USDA agricultural census and surveys focus on the farm as the unit of analysis, not much research has been conducted on agricultural land ownership. The USDA has periodically surveyed land owners, most recently the 2014 Tenure, Ownership, and Transition of Agricultural Land Survey (see Bigelow, Borchers and Hubbs 2016 for the USDA summary report on this survey). Iowa is the only state that regularly collects data on farmland ownership (every five years; see Duffy 2013). Based on this survey, we know that nearly 40 percent of agricultural land in the U.S. is leased or rented (and it is higher—more than half of land is rented—when excluding ranchland and looking only at cropland). Eighty-seven percent of agricultural landowners are neither farmers nor ranchers.

In Minnesota, 11.6 million acres of agricultural land are rented out for \$2 billion in rent received annually. The land and buildings are valued at \$58 billion. From 2019 USDA agricultural survey, average rent per acre for non-irrigated cropland in Nicollet County was \$208, the 17th highest rent in the state.

According to Horst and Marion (2019) White people own 98 percent and operate 94 percent of all farmland. They generate 98 percent of all farm-related income from land ownership and 97 percent of income from farm owner-operatorship.

Studies of absentee agricultural land ownership by social scientists in the past decade or so tend to focus on the question of if female landowners are better conservationists (they are not; see work by Peggy Petrzelka, for example).

**2. Learn what land ownership data are available for Nicollet County, Minnesota, and neighboring counties: who holds this data, how can it be accessed, in what format, at what spatial and temporal scales? What information (attributes of land parcels) is publicly available? What is required to compile these data in a GIS? Are there privacy or other concerns to navigate?**

The county government collects parcel data for their county. In most cases, the data are updated every month. The data are available to the public. The parcel attributes I requested for Seven Mile Creek Watershed are:

parcel ID  
Area in acres  
Use Code  
Owner  
Owner Address  
Market Value  
Residential or not  
Agricultural Land (Description, Soil Type, Acres)  
Sales history (Date, Seller, Buyer, Sale Condition - NUTC, Type, MultiParcel, Amount)

The Nicollet County data are free and can be requested by email using a form; however, one must pay for the parcel data for Le Sueur and Blue Earth Counties. Some counties (though none in southern Minnesota) have downloadable parcel data from county websites. For viewing (but not downloading) parcel data, the website Beacon.com is useful. LandGrid.com is another website that is working to compile parcel data worldwide, with downloads available for a fee (\$200 per Minnesota county, although the attributes are more limited than are available from the county—for instance, they do not provide the parcel's appraised value or when it was last sold).

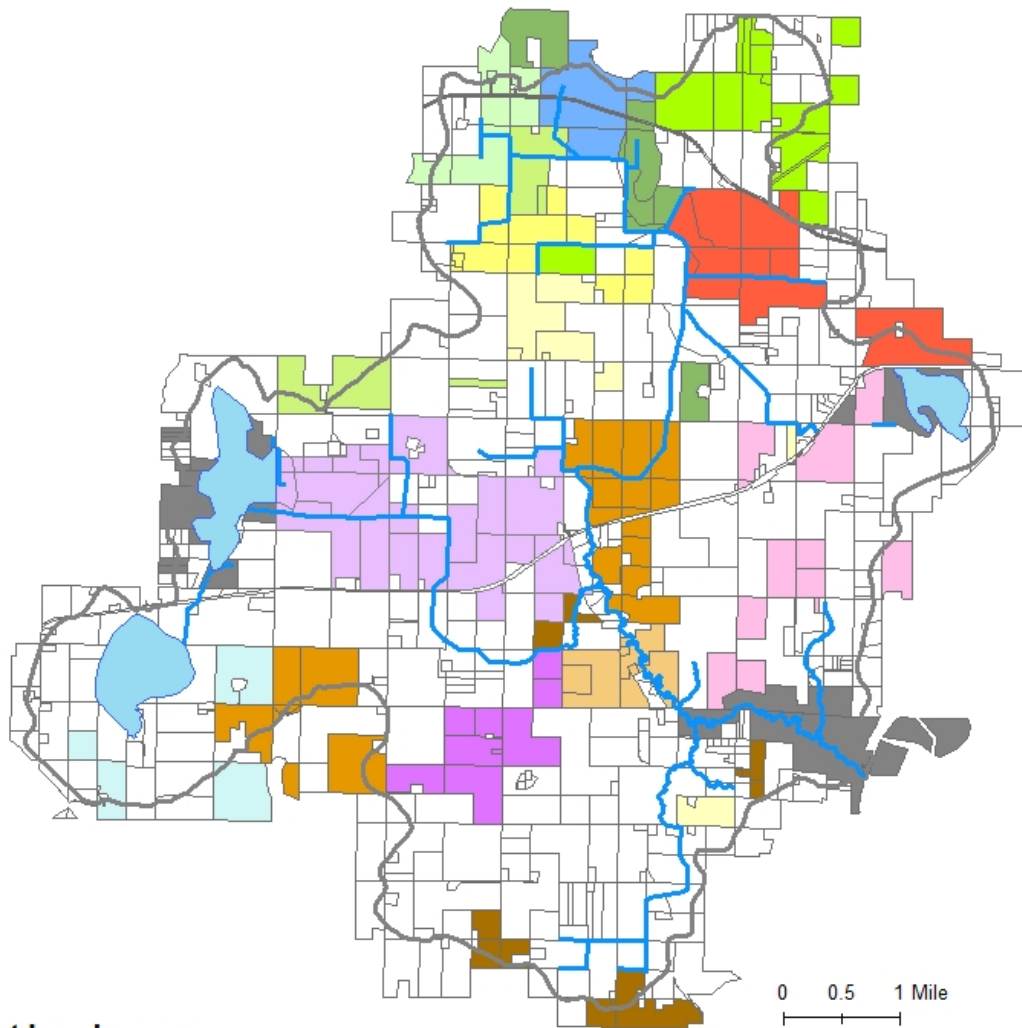
**3. Explore aggregated agricultural land ownership data available from the USDA's National Agricultural Statistics Service.**

I explored the data from the 2014 Tenure, Ownership, and Transition of Agricultural Land Survey but found there was little more to discover beyond what was already contained in the USDA survey report by Bigelow, Borchers and Hubbs (2016).

















**4. Create a map of land ownership in Seven Mile Creek Watershed with the current data available (and assuming the Seven Mile Creek Watershed project does not already have such a map).**

Included here are two maps, the top 11 private landowning entities for Seven Mile Creek Watershed, and parcels owned by absentee landowners (i.e., those whose mailing address is outside of the region, state, or country). Following the maps is a text summary of some of the findings based on Seven Mile Creek parcel data.

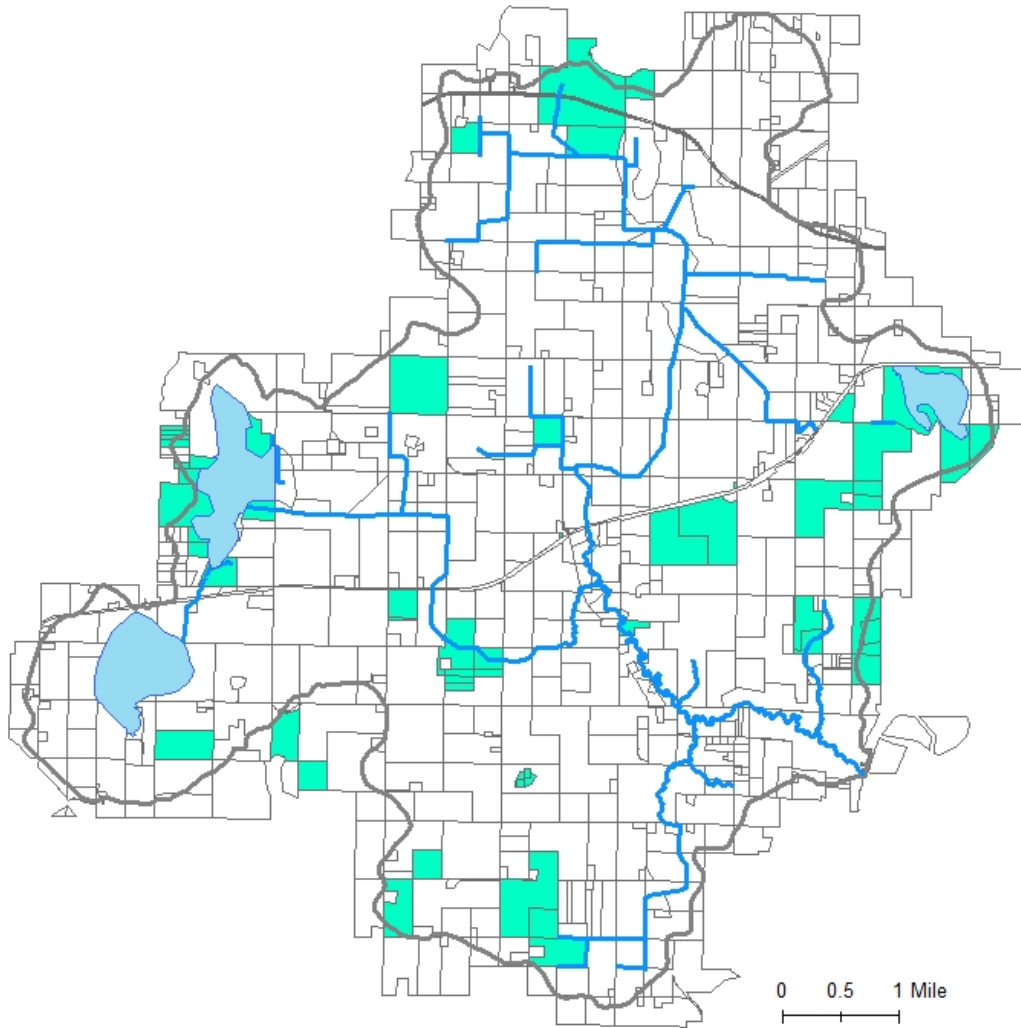
# Seven Mile Creek Watershed Parcel Ownership



## Largest Landowners

 Peters, Charles J	 Seitzer Gerald F
 Molitor, Wayne M	 Rudenick, Scott L & Julie A Rudenick
 Meyer, Janice K or Meyer, Robert E II	 Seitzer, Peter T & Ann M Seitzer
 Wenner, Donald G	 Thorns: Johnson David & Beverly Marie Thorn
 Mogensen David B & Mary K Mogensen Revocable Trust	 Overson, Lowell
 Peters, Jerome M & Marlys J Peters	 Leonard, Jeffrey E; L & W Farms
 Wenner Farms LLC Eugene & Betty; Keith & Helen	 Vogel Howard W & Phyllis E Vogel Trust
 Wenner Farms, LLC	 government

# Seven Mile Creek Watershed Absentee Landowners



## Seven Mile Creek Watershed

*Note this analysis was conducted on parcels completely or partially in the watershed (26,745 acres, or 10,823 hectares). Thus, like the previous maps show, the area of study is actually a bit larger than the watershed itself (23,230 acres, or 9401 hectares).*

- There are 623 parcels in the watershed. The average parcel size is 43 acres; the median size is 22.5 acres.
- There are over 300 different land owning entities in the watershed. In reality, there are likely fewer owners since one person may own land under a variety of different arrangements (singly, with a spouse, with a partner, in a trust, as part of a limited liability company, etc.).
- The total property in the watershed is appraised at \$227,001,300.
  - The mean appraised value per landowning entity is \$669,620. The median value is \$354,300.
  - The landowning entity with the highest total assessed property is Peters Family LLLP at \$9,432,900.
  - The top three owner entities hold ten percent of the watershed's property value. The top 14 owner entities hold a quarter of the appraised property value.
- Eleven percent of the land (2604 acres) has an absentee owner (based on the mailing address of the owner entity).
- Seventy-three percent of land is classified as "ag land," 14 percent as "ag dwelling," and 5 percent as "ag buildings." Four percent of the land is "exempt," three percent is "residential," and the remaining (about half a percentage point) is Rural Vacant Land, Commercial, or Other.
- The watershed is dominated by several large landholders. (This analysis is after combining some larger owner entities based on mailing address; with this there are a total of 321 owner entities.)
  - The top five landowners own nearly 20 percent of the land in the watershed. The top 11 owners own 30 percent of the watershed.
  - Properties associated with Charles J Peters (Peters Family LLLP, Peters Family Farm Inc, and Charles J Peters & Joann R Peters), the largest landowner in the watershed, make up 5.8 percent of the acres in parcels in the watershed, or 1574 acres.
  - The largest two owners (Peters Family LLP/Farm Inc and Molitor, Wayne M) together own over 10 percent of the watershed.
  - Of the ten largest landowning entities, three have the name Wenner and two have the name Peters.
- Various government entities (Nicollet County, the Minnesota DNR, City of Nicollet, etc.) own 1035 acres, or 3.9 percent of the acreage in parcels in the watershed.

## References

- Bigelow, Daniel; Allison Borchers; and Todd Hubbs. 2016. *U.S. Farmland Ownership, Tenure, and Transfer*. Economic Information Bulletin Number 161. USDA Economic Research Service.
- Duffy, Michael. 2014. *Farmland Ownership and Tenure in Iowa, 2012*. Iowa State University Extension and Outreach.
- Horst, Megan and Amy Marion. 2019. Racial, ethnic and gender inequities in farmland ownership and farming in the U.S. *Agriculture and Human Values* 36: 1-16.
- Petrzelka, Peggy and Sandra Marquart-Pyatt. 2011. Land tenure in the U.S.: Power, gender, and consequences for conservation decision making. *Agriculture and Human Values* 28: 549-560.

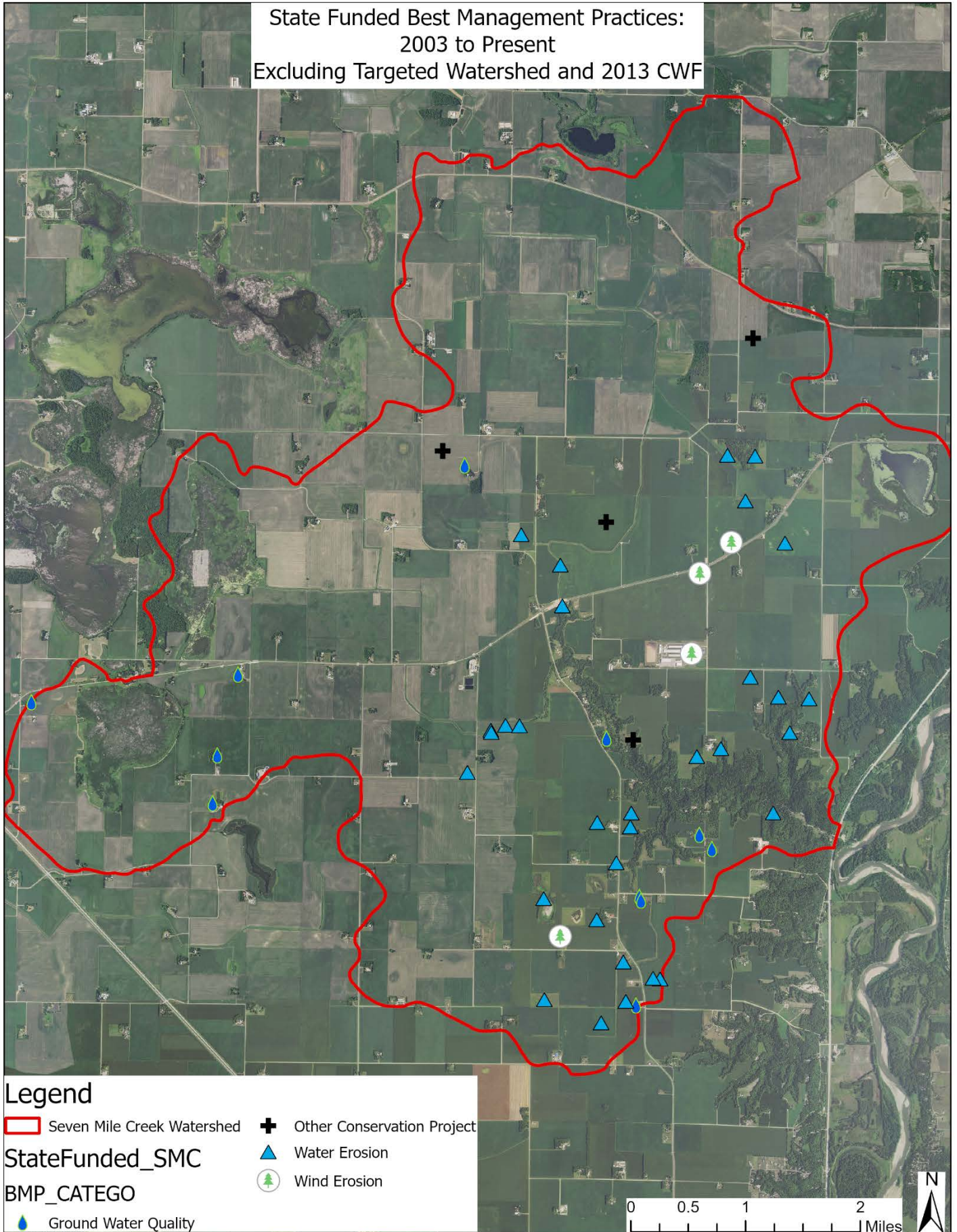


**Appendix 4: Implementation projects from 2000-2020 -- Maps and estimated reductions**

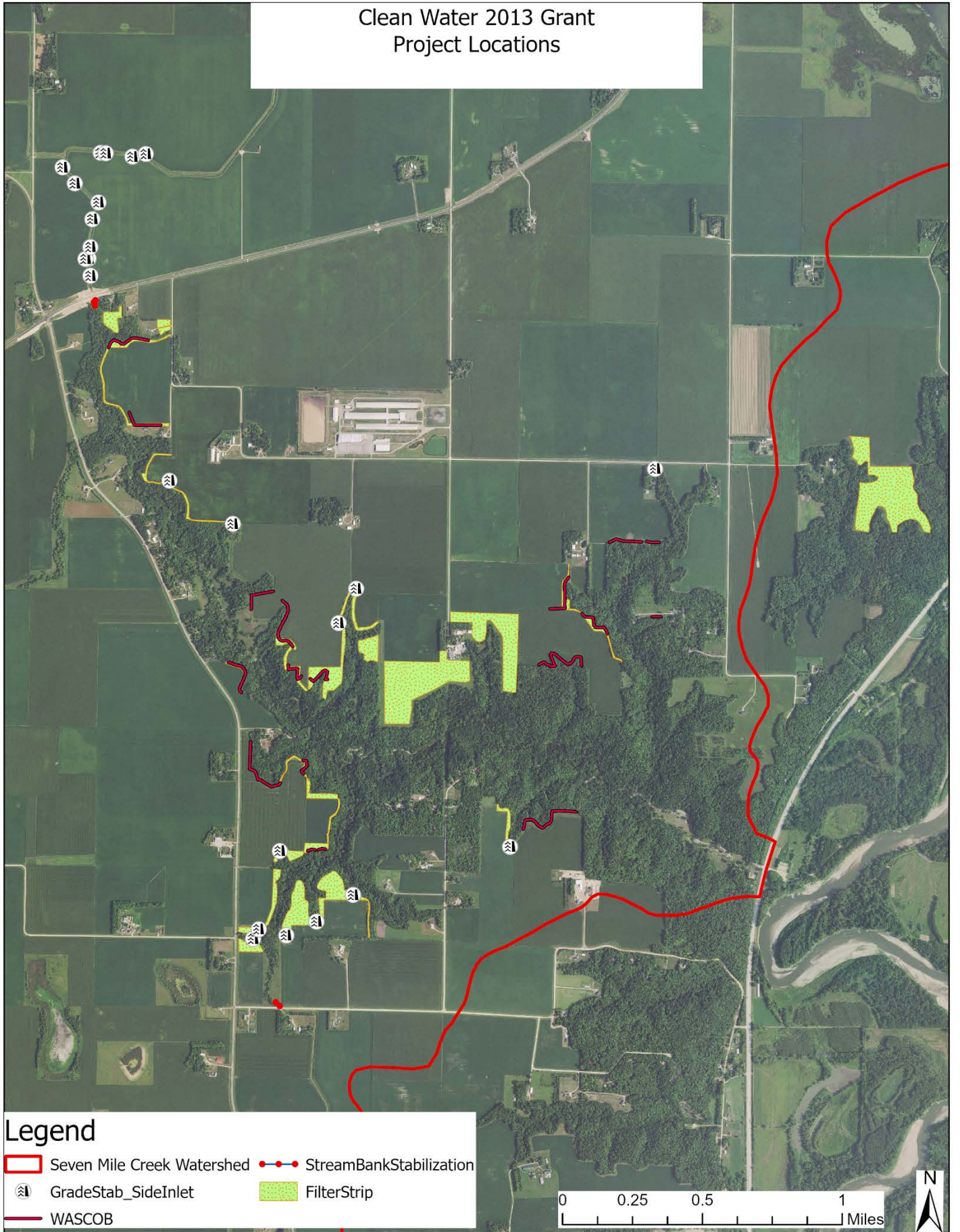
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For more than twenty years government agencies, nonprofit entities and educational institutions have promoted best management practice implementation in the Seven Mile Creek watershed. In this project we mapped locations of those projects, calculated changes in land parcel size over that period, and made estimates of project pollutant reductions using commonly used 'calculators'. This Appendix contains the maps, data and a summary table of the estimated load reductions. More information and detailed data can be provided upon request.

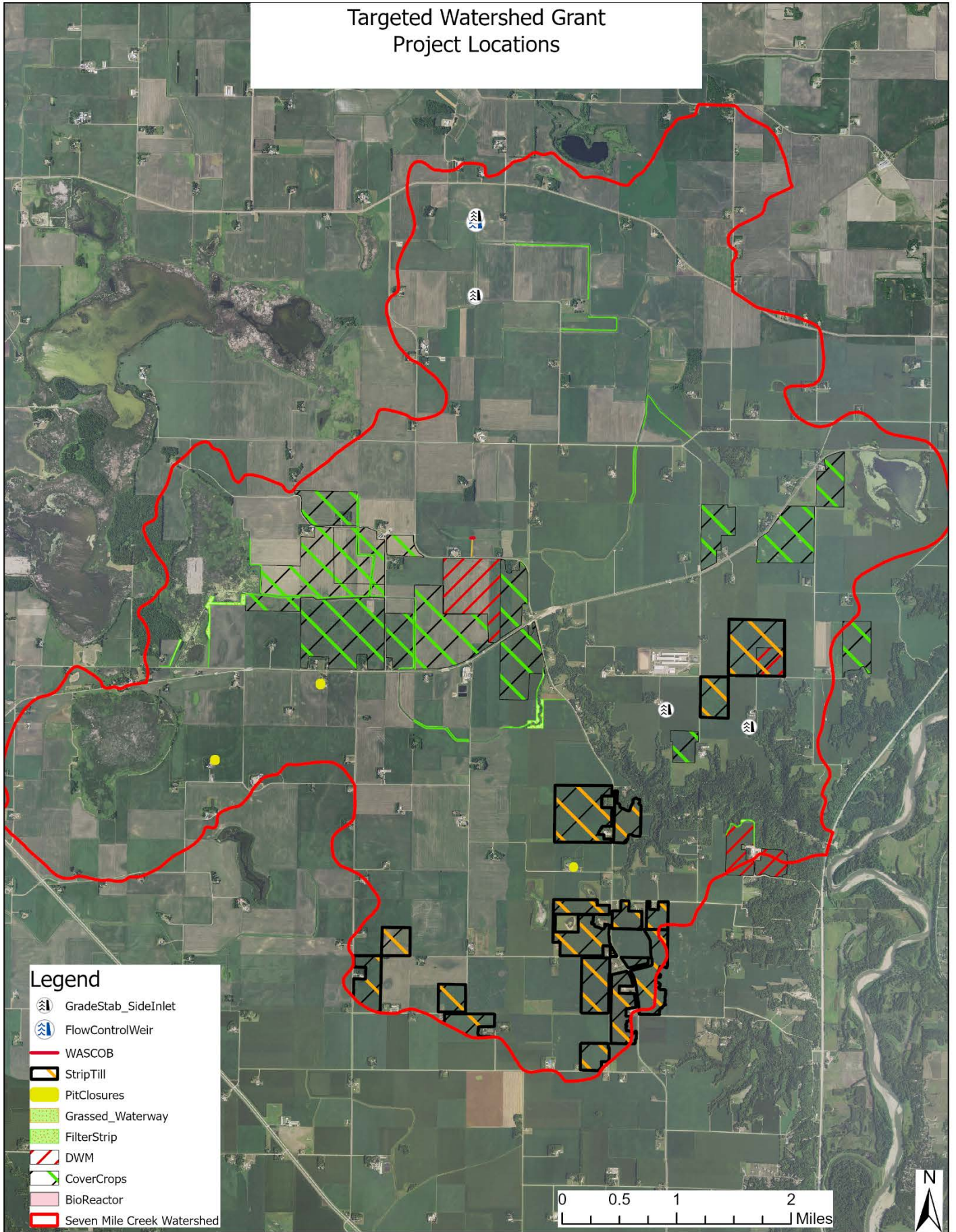
State Funded Best Management Practices:  
2003 to Present  
Excluding Targeted Watershed and 2013 CWF



# Clean Water 2013 Grant Project Locations

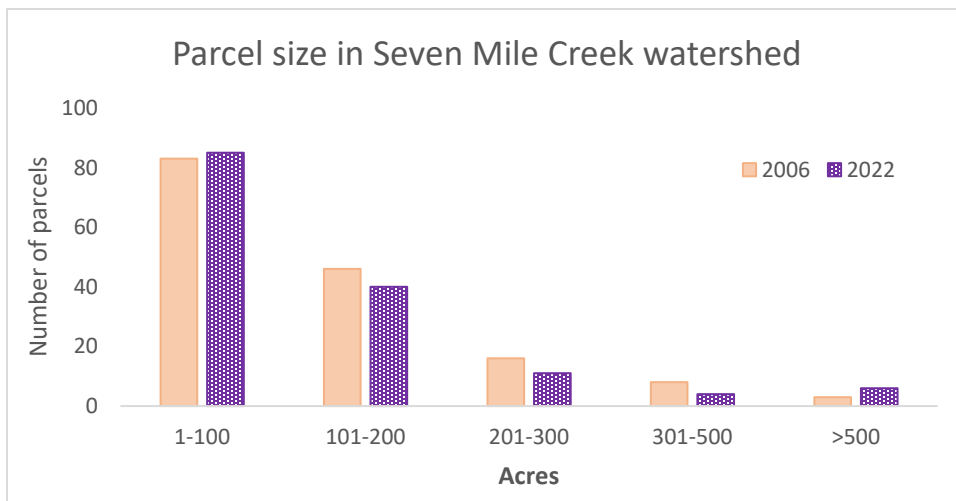


# Targeted Watershed Grant Project Locations



## Classification of parcel size

<i>Acres</i>	<i>2006</i>	<i>2022</i>
1-100	83	85
101-200	46	40
201-300	16	11
301-500	8	4
>500	3	6
<b>Median Size (ac)</b>	89	72
<b>Average Size (ac)</b>	120	126
<b>Total # of Fields</b>	156	146



**WHOLE WATERSHED (ALL BMPs)**

Year following BMP completion	TSS reduction projected for BMPs (t/yr)	P reduction projected for BMPs (lbs/yr)	N reduction projected for BMPs (lbs/yr)	P reduction projected for septics (lbs/yr)	N reduction projected for septics (lbs/yr)	Total annualized TSS reduction (t/year)	Total annualized P reduction (lbs/yr)	Total annualized N reduction (lbs/yr)	Total annualized TSS reduction (t/yr)	Total annualized P reduction (t/yr)	Total annualized N reduction (t/yr)
2004		8	3000	14	18		22	3018		0.0	1.4
2005	53	98	3500	91	113	53	212	6631	48	0.1	3.0
2014	372	624	0	245	303	425	1080	6934	385	0.5	3.1
2015	219	250	365	14	18	644	1345	7316	584	0.6	3.3
2016	150	227	1100	34	42	794	1606	8458	720	0.7	3.8
2017	439	1,202	0	14	18	1233	2822	8475	1118	1.3	3.8
2018	225	412	947	29	36	1458	3263	9458	1322	1.5	4.3
2019	1,011	1,970	168	19	24	2468	5252	9650	2239	2.4	4.4
2020	27	45				2495	5297	9650	2263	2.4	4.4

**SMC1 AND SMC2 COMBINED**

Year following BMP completion	TSS reduction projected for BMPs (t/yr)	P reduction projected for BMPs (lbs/yr)	N reduction projected for BMPs (lbs/yr)	P reduction projected for septics (lbs/yr)	N reduction projected for septics (lbs/yr)	Total annualized TSS reduction (t/year)	Total annualized P reduction (lbs/yr)	Total annualized N reduction (lbs/yr)	Total annualized TSS reduction (t/yr)	Total annualized P reduction (t/yr)	Total annualized N reduction (t/yr)
2004		8	3000	14	18		22	3018		0.0	1.4
2005	53	98	3500	62	77		183	6595		0.1	3.0
2014	232	409	0	182	226	232	774	6821	210	0.4	3.1
2015	54	62	124	5	6	286	841	6951	259	0.4	3.2
2016	18	36	1100	24	30	303	901	8080	275	0.4	3.7
2017	116	228	0	10	12	419	1139	8092	380	0.5	3.7
2018	54	119	947	14	18	473	1272	9057	429	0.6	4.1
2019	1,011	1,970	168	19	24	1484	3262	9249	1346	1.5	4.2
2020	27	45				1511	3307	9249	1370	1.5	4.2

Tables C1 and C2: Estimated pollutant loading reductions. Some types of projects have widely available calculators of how much sediment, phosphorus and/or nitrogen pollution reduction can be attained. Also, some practices have calculators for how much soil erosion can be reduced. Estimates were made for these types of practices: woodchip bioreactors, controlled drainage, grassed waterways, WASCOBs, side inlets, intake replacements, cover crops, vegetated buffer strips, strip till and septic systems (as compared to a failed septic system assumed to provide no treatment).

**Appendix 5: Historical narrative of watershed efforts**

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**Summary of Lessons Learned in the Seven Mile Creek Watershed**

Seven Mile Creek is a stream located in southcentral Minnesota that drains into the Minnesota River. The watershed has received significant interest from state and federal agencies, foundations, community members, non-profits, and more since the late 1990s. Over \$6.5 million have been invested in outreach and agricultural water quality best management practice implementation due to the sediment, nutrient and bacteria discharge from this creek. The watershed is approximately 23,500 acres with ~79% of the watershed being currently managed for corn and soybean production. Approximately 85% of the soil is regarded as prime farmland. However, 11,000 of those acres were historically wetland, so much of the land is now artificially drained with approximately 9,000 of those wetland acres now in row crops. Over 25 miles of open ditches have been constructed and an unknown number of miles of drainage tile have been installed. With increased drainage, there has been an increase in water discharging from the creek during rain events. In the last few miles of the creek before it discharges into the Minnesota River, there are steep ravines in a county park where highly erosive soils are washed out – oftentimes in a highly destructive movement of sediment – and adding disproportionate loads of sediment per acre of watershed downstream compared to other watersheds. Efforts have been made to retain more water in the upland areas, on crop fields, but the exceptionally large rain events in the past decade have continued to wash out ravines, trails, and roads in the park. FEMA funding has been used to rebuild and improve the strength of the most erosive ravines, but more efforts are needed in the watershed to manage the flow of water downstream.

We interviewed key members from the various partnerships organizations who made an impact in the watershed over the years. These interviews allowed us to record observations, highlights, and recommendations about the successes and lessons learned in this watershed.

The first organized efforts to improve water quality in Seven Mile Creek began in the 1990s. Some initial funds and equipment were provided, and MPCA started measuring baseline water quality while other state agency staff started measuring what happened to concentrations of nutrients and sediment during rain events. Momentum in the upland areas of the watershed seemed to grow by the mid-2000s. As some funding sources ended, a coalition of neighboring counties (Brown, Nicollet, and Cottonwood) were able to fund a staff person to recruit farmers and perform outreach through state Clean Water Partnership funds. They partnered with various non-profit organizations for single projects including stream restorations, but a non-profit organization wasn't the lead until the late 2000s. By the early 2010s, the partners were able to secure significant funds for practice implementation and outreach. By the mid-2010s, over 110 agricultural BMPs were installed or implemented across the watershed. Since the 1990s, this watershed has an excellent dataset and invested interest comparable to or greater than most watersheds in the region.

Significant milestones throughout the past 30 years included a large, multi-landowner wetland restoration project, a stream restoration project with Trout Unlimited, and large ditch and waterway surveys covering multiple aspects of hydrology, geology, ecology, and water quality.

Success seemed to happen when there was a true leader in the watershed. When someone was spending most of their time working on promoting practices, engaging the community, hosting events and meetings, and connecting farmers to funding sources, there were better results. The key to this success was based on the leader being proactive rather than waiting for landowners and farmers to take the initiative. However, conversations with non-profit organizations in other watersheds revealed that successes can also occur when farmers initiate the efforts and build the momentum. In these cases, farmers and neighbors join together to pursue a goal that they are passionate about. They ask for assistance

pursuing funding, hosting events, and spreading the message from a local non-profit organization. Staff in the organization may change, but the core farmers and their proactive, charismatic collaborative remain. In the Seven Mile Creek watershed, leaders and organizations kept changing. Efforts within the watershed began with agencies seeing the environmental need for change, and partners worked to recruit and pay farmers to adopt the practices that addressed that need.

Every successful watershed initiative seems to have a leader. Some leaders are brought into the watershed to work with farmers, and some leaders are a collaborative of farmers working with their neighbors and partnering organizations. When the leader is from outside the watershed, their message seems to have more success when they are a neutral party unaffiliated with any governing agency. When the leader is a farmer collaborative, the farmers need assistance pursuing the funding for practice implementation, infrastructure and resource development, hosting events, and relaying the message. However, the outside person's message seems to lose the residents' interest after some time. Seven Mile Creek experienced some burnout after farmers were overrecruited and repeatedly asked to implement practices that they were not interested in implementing. Farmers also need to do what is right for their operations; implementing practices needs to make sense financially, and federal subsidies and programs sometimes inhibit farmer interest and entrench the status quo. Once the funding to implement practices in Seven Mile Creek Watershed ended, the momentum faded.

In the late 2010s and early 2020s, interest began to shift toward cover crops and perennial crops that provide both environmental benefits and profit. While adoption is still slow, the interest has been growing. A collaborative of farmers are taking the lead in the watershed adjacent to Seven Mile Creek where they are drawing the interest of investors and pilot programs. Funding is being offered for growing cover crops, but farmers and landowners are reluctant to sign a contract with the government for multiple years. Growing crops on their own that have the potential for new markets and profitability are garnering more interest. Similarly to the mid-2010s when major private foundation funds were being offered to farmers in Seven Mile Creek Watershed with little contractual agreement, farmers are expressing interest in funds that benefit the bottom line without multi-year contracts.

In the lower reaches of the watershed, there were also successful restoration projects where funding helped with stream geomorphology, sediment control, invasive species management, and habitat restoration. Volunteers assisted with shrub removal and planting events. The Seven Mile Creek Park is a unique opportunity for engaging the public and connecting community members to the work in the watershed. It is also a rare trout stream for that part of the state. However, there were some experimental erosion control projects that failed in less than a decade. Some of the failures of experimental projects deterred managers from trying other new erosion control projects. While some partners believe opening the canopy to allow for better understory vegetation establishment would reduce erosion in the ravines, there is too much pressure on park staff to implement projects that are proven to work. Therefore, recent erosion control projects are more "hardscape" (i.e. riprap, grading, rock dams, culverts, etc.). Relationships were also harmed during the mid-2010s through improper planning and management of resources. Poor communication and a lack of trust harmed some of the momentum in the lower reaches of the watershed and coordination between partners. Similarly to the importance of community involvement and farmer collaboration in the watershed, maintaining community within the partnership is also vital for successful watershed initiatives. After trust was broken, some partners lost interest in the efforts and belief in the effectiveness of best management practices and restoration work.

### **Key Lessons Learned for Successful Voluntary Watershed Initiatives**

1. Build momentum from farmer and community collaboratives who are already excited and interested in improving their watershed.
2. Use a neutral voice for outreach efforts who is unaffiliated with governing agencies.
3. Provide funding with as few contractual obligations as possible for farmers who are interested in trying something new.
4. Provide a consistent messaging and involve members of the community who are the most trusted.
5. Maintain relationships and clear communication among partners.
6. Experiment under low-risk conditions before implementing larger projects.



## **Appendix 6: Monitoring ravine erosion**

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Determining and controlling sources of total suspended sediments in Seven Mile Creek is intricately tied to the geologic setting, and thus deserves a brief synopsis here. The geologic history of Seven Mile Creek watershed is the same as many of the streams and rivers that are tributary to the Minnesota River in this region. Glacial deposition during the last glacial retreat created a gently rolling topography largely comprised of glacial till, with interspersed outwash and lacustrine deposits. Subsequently, glacial meltwaters exiting Glacial Lake Agassiz carved the deep valley of the Minnesota River, and the tributary streams responded by deeply eroding their own streambeds. This incision is naturally ongoing but has also been exacerbated by increased stream discharge and increased peak flows due to drainless and, more recently, climate change. Today, steep eroding ravines mark the transition from the inhabited uplands of Seven Mile Creek watershed to the lower wooded slopes and hiking trails of Seven Mile Creek Park.

Several researchers have worked to classify and quantify sediment sources and yields from the landscapes of south-central Minnesota, and it is beyond the scope of this report to summarize them here. In short, consensus is building around the understanding that while topsoil erosion is a serious cause for concern, we cannot solve the suspended sediment impairments unless we also manage eroding bluffs and ravines. Furthermore, this and other work demonstrate that erosion in this geologic setting does not stop immediately follow upstream erosion control measures.

The sequence of photos on the following page is from a single camera facing a new ‘tributary’ developing off the side of Ravine Z. Future work will categorize and tally the observed processes and correlate them to factors such as air temperature fluctuation, precipitation totals, precipitation rates, etc. Approximately 3000 photos were collected during this grant period and can be provided upon request.



**Photo 1: 3/26/2020**

Erosional scarp carved in part by fluvial processes and also by mass wasting processes. ~1-meter thick lacustrine clay layer bisects the outcrop (center of photo). Groundwater seepage evident from ice.



**Photo 2: 12/5/2020**

Scarp has widened and clay layer is more visible. Fluvial channel development visible above clay layer. Sheets of clay have sheared off the face and collected in bowl. *Note camera angle is slightly shifted.*



**Photo 3: 4/7/2021**

Tree-fall has widened the scarp and destabilized soil and sediment. Colluvium buildup has obscured the clay layer. Together, those two observations indicate the presence of large deposits of loose sediment that will be mobilized by a rain event and become part of the Seven Mile Creek total suspended sediment

### Appendix 7: Additional water quality graphs

The graphs provided here give additional insight what proportion of the watershed’s pollutant loads comes from each subwatershed. Detailed discussion is beyond the scope of this report but will be forthcoming in the near future.

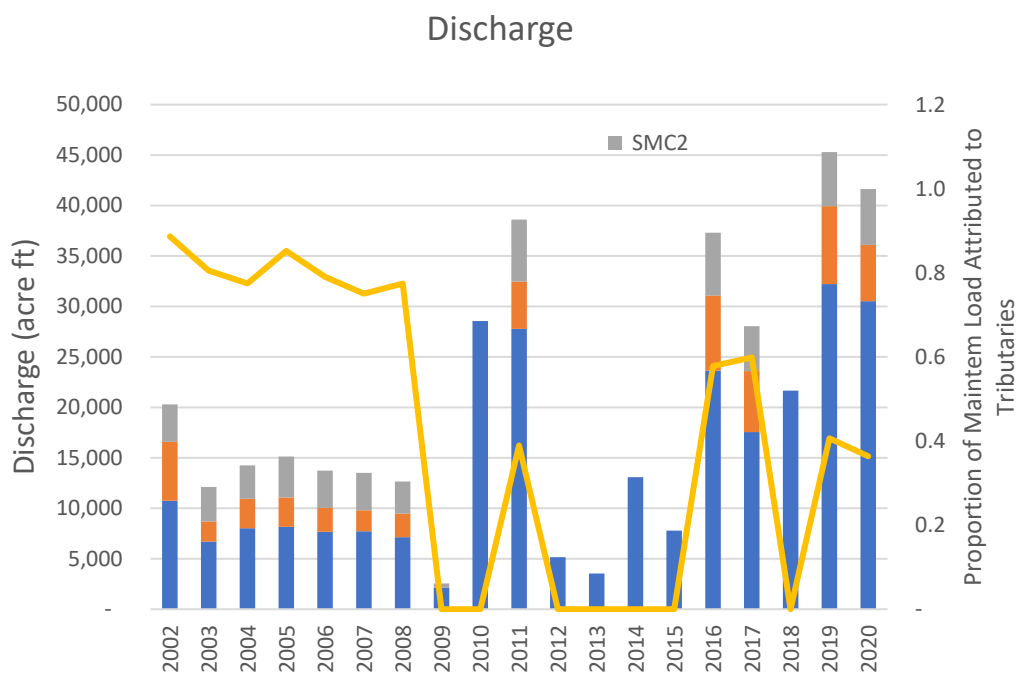


Figure 7-1: Attribution of discharge volume: tributaries compared to mainstem

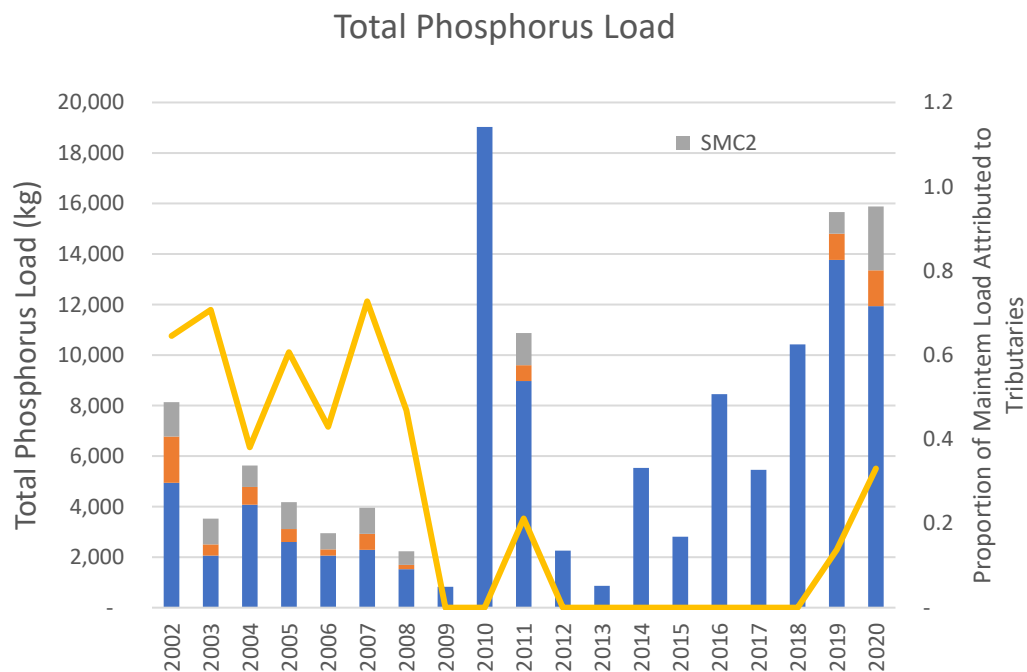


Figure 7-2: Attribution of phosphorus loading: tributaries compared to mainstem

### Total Suspended Solids Load

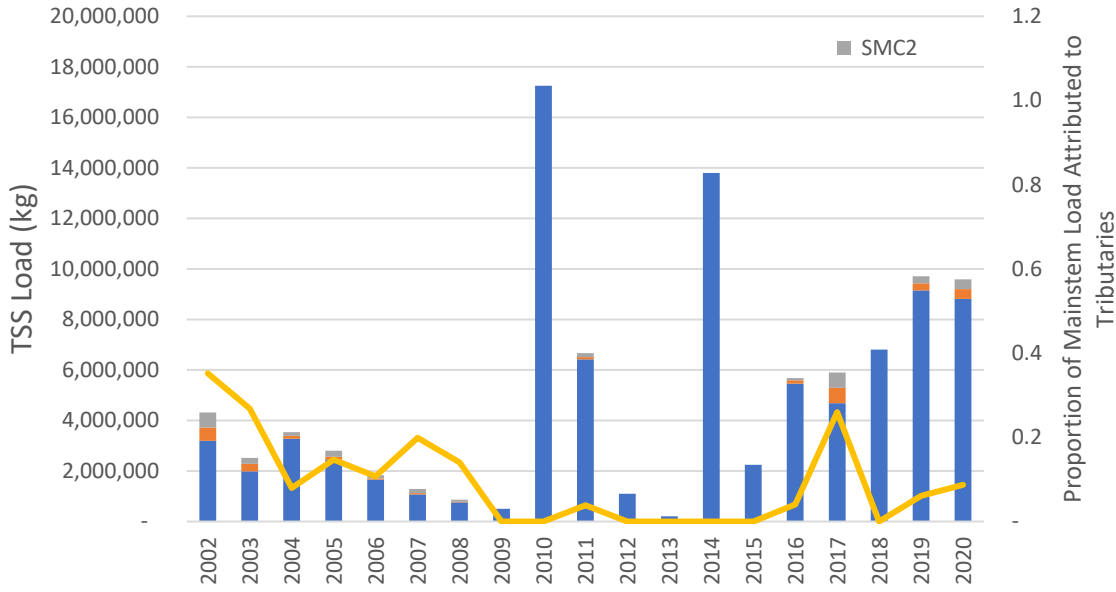


Figure 7-3: Attribution of total suspended solids loading: tributaries compared to mainstem

### NO<sub>3</sub>-NO<sub>2</sub> Nitrogen Load

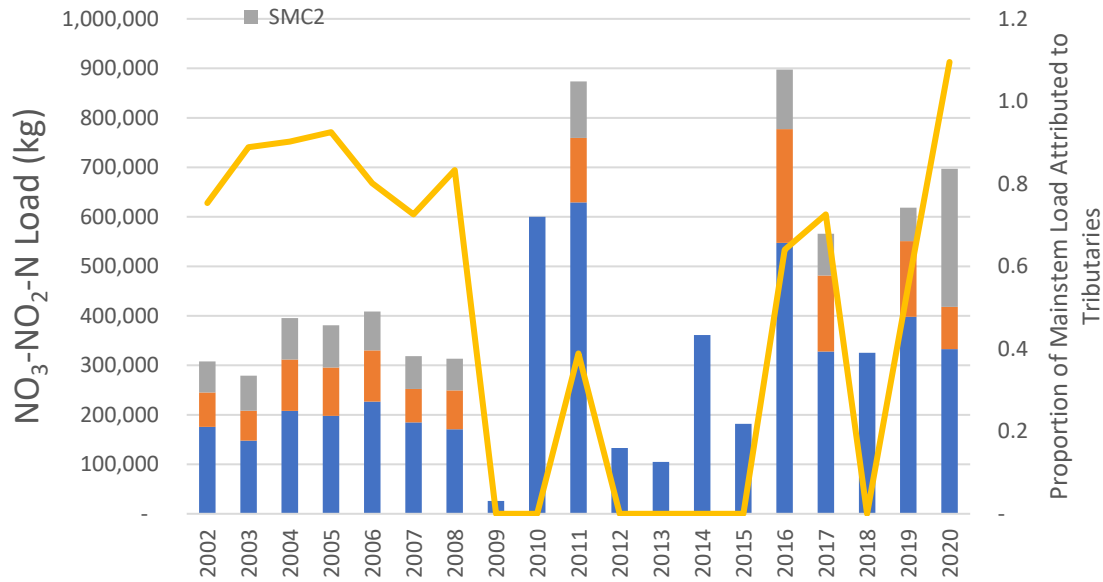


Figure 7-4: Attribution of total suspended solids loading: tributaries compared to mainstem

**Appendix 8: Groundwater monitoring data**

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The data presented here were collected from 5 shallow groundwater monitoring wells in Seven Mile Creek Park. Detailed discussion is beyond the scope of this report but will be forthcoming in the near future.

Station	Date	Nitrate as N (mg/L)
MW1	6/22/2018	3.32
MW1	7/2/2018	2.45
MW1	7/30/2018	3.01
MW1	7/17/2019	5.77
MW1	6/11/2020	3.64
MW1	7/14/2020	5.68
MW1	7/27/2020	5.46
MW1	8/20/2020	2.72
MW1	10/8/2020	4.88
MW1D	6/22/2018	6.41
MW1D	7/2/2018	4.46
MW1D	7/30/2018	6.29
MW1D	7/30/2018	5.64
MW1D	7/17/2019	5.70
MW1D	6/11/2020	4.83
MW1D	7/14/2020	7.88
MW1D	7/27/2020	8.10
MW1D	8/20/2020	3.66
MW1D	10/8/2020	5.38
MW2	6/11/2020	10.25
MW2	7/14/2020	13.94
MW2	7/27/2020	13.45
MW2	8/20/2020	7.19
MW2	11/5/2020	9.60

Station	Date	Nitrate as N (mg/L)
MW3	6/22/2018	1.99
MW3	7/2/2018	2.47
MW3	7/30/2018	1.14
MW3	7/17/2019	1.71
MW3	6/11/2020	0.92
MW3	7/14/2020	1.31
MW3	7/27/2020	1.10
MW3	8/20/2020	0.88
MW4	6/22/2018	6.24
MW4	7/2/2018	5.58
MW4	7/30/2018	7.00
MW4	7/17/2019	19.66
MW4	6/11/2020	5.36
MW4	7/14/2020	9.89
MW4	7/27/2020	10.85
MW4	8/20/2020	5.35
MW4	11/6/2020	6.71

## Appendix 9: Bioreactor data

A bioreactor installed before this grant project was monitored for the grant period. Nitrate concentrations in the inflow and outflow were measured at Gustavus laboratories, and periodically checked with duplicates sent to MVTL. A detailed analysis of data is beyond the scope of this report but will be forthcoming in the near future.

Station	Date	Nitrate as N (mg/L)
Inflow	6/28/2018	22.67
Inflow	6/28/2018	21.45
Inflow	6/28/2018	22.67
Inflow	6/28/2018	21.45
Inflow	7/16/2018	17.68
Inflow	7/16/2018	20.08
Inflow	7/16/2018	17.68
Inflow	7/16/2018	20.08
Inflow	7/23/2018	19.36
Inflow	7/23/2018	19.54
Inflow	7/23/2018	19.54
Inflow	7/23/2018	19.36
Inflow	7/30/2018	20.28
Inflow	7/30/2018	18.11
Inflow	8/6/2018	20.10
Inflow	8/6/2018	17.41
Inflow	8/13/2018	20.13
Inflow	9/18/2018	17.94
Inflow	9/18/2018	8.37
Inflow	9/22/2018	5.11
Inflow	9/22/2018	9.43
Inflow	9/24/2018	1.12
Inflow	9/24/2018	1.65
Inflow	9/25/2018	4.71
Inflow	9/25/2018	8.82
Inflow	10/1/2018	8.93
Inflow	10/1/2018	4.64
Inflow	10/10/2018	10.75
Inflow	10/10/2018	6.45
Inflow	4/20/2019	16.56
Inflow	5/7/2019	17.81
Inflow	5/7/2019	19.95
Inflow	5/29/2019	15.95
Inflow	5/29/2019	16.06
Inflow	6/6/2019	29.88
Inflow	6/6/2019	33.14
Inflow	6/12/2019	35.13

Station	Date	Nitrate as N (mg/L)
Inflow	6/12/2019	38.01
Inflow	6/28/2019	13.70
Inflow	6/28/2019	14.16
Inflow	7/5/2019	14.00
Inflow	7/5/2019	14.03
Inflow	7/19/2019	13.11
Inflow	7/19/2019	11.75
Inflow	6/2/2020	17.52
Inflow	7/21/2020	17.70
Inflow	7/21/2020	17.72
Inflow	7/27/2020	11.08
Inflow	6/3/2021	10.79
Inflow	6/24/2021	11.00
Inflow	7/14/2021	8.14
Inflow	8/9/2021	7.98
Inflow	8/16/2021	1.76
Inflow	10/14/2021	0.73
Outflow	6/28/2018	19.05
Outflow	6/28/2018	18.19
Outflow	6/28/2018	19.05
Outflow	6/28/2018	18.19
Outflow	7/16/2018	0.53
Outflow	7/16/2018	0.49
Outflow	7/16/2018	0.53
Outflow	7/16/2018	0.49
Outflow	7/23/2018	0.76
Outflow	7/23/2018	0.48
Outflow	7/23/2018	0.48
Outflow	7/23/2018	0.76
Outflow	7/30/2018	0.29
Outflow	7/30/2018	0.28
Outflow	8/6/2018	0.53
Outflow	8/6/2018	0.28
Outflow	8/13/2018	8.06
Outflow	9/18/2018	15.43
Outflow	9/18/2018	7.38
Outflow	9/22/2018	8.15

Station	Date	Nitrate as N (mg/L)
Outflow	9/22/2018	15.33
Outflow	9/24/2018	9.32
Outflow	9/24/2018	18.75
Outflow	9/25/2018	9.73
Outflow	9/25/2018	18.77
Outflow	10/1/2018	19.00
Outflow	10/1/2018	15.44
Outflow	10/10/2018	17.78
Outflow	10/10/2018	14.36
Outflow	4/20/2019	15.06
Outflow	5/7/2019	16.29
Outflow	5/7/2019	17.55
Outflow	5/29/2019	14.70
Outflow	5/29/2019	15.42
Outflow	6/6/2019	24.81
Outflow	6/6/2019	26.97

Station	Date	Nitrate as N (mg/L)
Outflow	6/12/2019	13.18
Outflow	6/12/2019	14.21
Outflow	6/28/2019	1.03
Outflow	6/28/2019	0.98
Outflow	7/5/2019	11.98
Outflow	7/19/2019	1.08
Outflow	7/19/2019	1.32
Outflow	6/2/2020	11.84
Outflow	7/21/2020	0.32
Outflow	7/27/2020	7.07
Outflow	6/3/2021	4.40
Outflow	6/24/2021	0.28
Outflow	7/14/2021	0.26
Outflow	8/9/2021	0.26
Outflow	8/16/2021	0.26
Outflow	10/14/2021	0.16

**Appendix 10: Aquatic invertebrate sampling**

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*Water Quality and Diversity of Macroinvertebrates in the 7 Mile Creek Watershed**Fall 2019*

Emily Lloyd (GAC '20)

**Abstract**

The Shannon-Wiener index, Family-Based Biological Index, %EPT, % Dominate taxa were calculated for three habitat locations (riffle/run, woody debris and instream/overhanging vegetation) for two locations on the 7 Mile Creek Watershed to compare the water quality between the two sites. It was determined that the Downstream location had better water quality based on these biological indexes compared to the Upstream location.

**Introduction**

Agriculture is a major contributor of water pollution. Activities associated with farming increase soil erosion and sequentially increase sedimentation in the water. The increased sedimentation can decrease the sunlight that is filtered through the water resulting a decrease in primary production in the ecosystem (Brezonik et al 1999). Fertilizer use increases the Nitrogen and Phosphorus present in the water due to agricultural run-off (Brezonik et al 1999). Nitrogen and phosphorus are often limiting nutrients in aquatic environments, and the influx caused by run-off is problematic. Increased concentrations of phosphorus and nitrogen in water systems can result in algal blooms which disrupt ecosystems (Chirhart 2003).

The Nitrogen and Phosphorus concentrations in addition to the increased sedimentation have contributed to the degradation of Minnesota waterways (Chirhart 2003). For example, the Minnesota River, which eventually flows into the Mississippi River, does not meet water quality standards set by the US federal government (Kuehner, 2004). The Minnesota River is considered one of the most polluted rivers in America (Brezonik et al 1999). Two-thirds of the total sediment, phosphorus, and nitrogen loads at the mouth of the Minnesota river are from watersheds located within the Blue Earth, Le Sueur, and Middle Minnesota watersheds (Brezonik et al 1999). Monitoring efforts must take place to assess the impact that agricultural and other human activities have on the water quality.

Macroinvertebrates are often used as indicators of water quality, and the use of biological indices can provide insight into water quality as well. Macroinvertebrates are found in most water systems; most species exhibit limited emigration and immigration allowing for site specific water quality assessments (Carter et al. 2017). Macroinvertebrates have life cycles that are longer than a year, making them suitable study organism for long term observation. Species also have differing tolerances to pollution, allowing for community structure to provide insight to water quality. Identification of macroinvertebrates to the family level has been shown to provide similar water quality results to genus level identification (Oleary et al. 2004, Plafikin et al. 1989). Identification to the family level is less time consuming and can be done with introductory knowledge of macroinvertebrates, allowing students or citizen scientists to partake in rapid assessment efforts. These rapid assessment efforts are important initial screening of waterways and can help identify risk areas. Macroinvertebrate indices fall into four categories: richness measurements, tolerance measurements, composition measurements, and trophic structures (Chirhart 2003).

The Shannon-Weiner index measures species richness and evenness in a community and has been used in macroinvertebrate biological assessments. The Shannon-Wiener Index is



usually a value between 1.5 and 3.5, and a larger value of H' is indicative of greater richness and evenness of the community (Magurran 2004). Values that are around 3.0 suggest that the environment is stable, and values that are under 1.0 indicate that the habitat is unstable due to pollution leading to habitat degradation (Sandin et al. 2004). The orders Ephemeroptera, Plecoptera and Trichoptera have low tolerance to pollution and are often used in a few biological indexes such as the percent EPT. This metric is the percentage of the individuals to the total taxa that is present at a location. EPT taxa are intolerable to pollution and a subsequently larger ratio is indicative of higher water quality (Plafikin et al. 1989). Percent dominate taxa is used to assess water quality and is the percentage of the three most abundant taxa compared to the total taxa present. This metric increases in response to poor water conditions (Barbor et al 1999). The Family-Based biological index (**FBI**) measures the quality by assigning families pollution tolerance values. An FBI value between 0-3.75 is indicative of excellent water quality, whereas a score between 7.26-10 demonstrates very poor water quality (Carter et al. 2007). The effects of water quality on these metrics is summarized in **Table 1**.

The purpose of this report was to determine the Shannon-Weiner Index, the percent EPT, percent dominate taxa, and the Family-Based biological index for two locations on 7-mile Creek (7MC) located within the Middle Minnesota Watershed. Each location had three habitats types: riffle, woody debris, and overhanging vegetation where samples were collected. We hypothesized that there would be a difference within the biological indices between the habitat types because humans affect the habitats differently. We also hypothesized that there would be a difference between the two 7MC locations because the differences in the surrounding area would result in a difference in the nutrient run-off.

**Table 1: Biological indexes relationship to water quality**

Metric	Range	Relationship to Water quality
H'	1.5-3.5	Increases
%EPT	0-100	Increases
% Dominate	0-100	Decreases
FBI	1-10	Decreases

## Materials and Methods

### *Study Sites*

Samples were taken from two locations on the Seven Mile Creek Watershed. What will be referred to as the “Upstream” location was located at (44°17'01.0"N 94°04'34.7"W) (**Figure 1**). Samples were taken on September 29<sup>th</sup> 2019. The surrounding area was agricultural corn fields and a county road. There was a large culvert that was built under the road and samples were taken downstream of this structure. The culvert was narrower than the stream on either side resulting in a channelization effect. There was little sedimentation in the culvert. The stream was slow moving and shaded by trees.



Figure 1: Aerial of Upstream site. The red box outlines the locations where samples were taken. Image is from Google Maps.

Samples from what will be referred to as the “Downstream” location were taken on October 7<sup>th</sup> 2019. The lower location was located at (44°15'47.1"N 94°01'49.6"W) (**Figure 2**). The surrounding area was a county park with public hiking trails, a children's play structure, and an expansive parking lot that ran the length of the stream. The stream was wider and faster than the upper location and had less tree coverage than the upper location.



Figure 2: Aerial of Downstream site. The red box outlines the locations where samples were taken. Image is from Google Maps.

### *Data Collection*

The data set that was used in this analysis was created by the Fall 2019 BIO-241 class at Gustavus Adolphus College. The class was broken up into five groups of three for sample collection and identification and the methods used by these students is described below. The data collected by the five groups was combined for the three habitat types at the Upstream and the Downstream location for this analysis.

### *Riffle samples*

In shallow water with heterogeneous sedimentation the flat end of a kicknet was placed in the bottom of the stream. 30cm upstream from the net, rocks with diameters greater than 7cm were

picked up and rubbed underwater in front of the net and then placed aside. After all rocks were rubbed in front of the kicknet the macroinvertebrates that were in the kicknet were placed in a 1L Nalgene® water bottle that was half filled with stream water. A second collection was taken at a different location in the stream and placed in the same collection bottle.

#### *In-stream/Overhanging Vegetation*

Vegetation of 0.5 meters in length was approached from downstream, the vegetation was shaken over the net to catch falling invertebrates. Any invertebrates were placed in a 1L Nalgene® collection bottle half filled with stream water. The vegetation was then examined for a few minutes and any other invertebrates found were placed in collection bottle. A second collection was taken using the same methods at a different location and placed in the same collection bottle.

#### *Woody Debris Habitat*

Locations that had fallen trees and other partly submerged woody debris were identified. At these locations, invertebrates were taken off of the debris that was not underwater using forceps. The net was pushed from downstream to upstream of the debris for 60 seconds to collect underwater invertebrates. The invertebrates were placed in a 1L Nalgene® collection bottle that was half filled with stream water. A second collection was collected from a different location using the same methods and the samples were placed in the same collection bottle.

#### *Sample Storage and Identification*

Before leaving the field, the Nalgene collection bottles had excess stream water removed and were filled two-thirds full with 100% ethanol to kill and preserve the samples. In the laboratory, the invertebrate samples were sorted from the stream debris (i.e plants) and placed in a 1L Nalgene® bottle filled two-thirds full with 80% ethanol and stored at 8°C. The invertebrates were identified on October the 27th using the Stream Monitoring Manual (2002). Invertebrates were identified to the level of family. Identification of smaller macroinvertebrates was made possible with the use of a dissecting scope. The number of individuals and family was recorded for each of the three habitat types at the lower and upper locations.

#### *Data analysis*

The Shannon Wiener-Index (**H'**) was used as a measure of species richness and evenness (*Equation 1*). The macroinvertebrate identifications and counts provided by the five groups of BIO-241 students were combined for each habitat site at the Upstream and Downstream location.

#### *Equation 1: Shannon-Wiener Index*

$$H' = - \sum_{i=1}^R p_i \ln p_i$$

Family-Based Biological Index (**FBI**) was used as a measure of water quality in this study. (*Equation 2*). Tolerance values are assigned to invertebrates based on their ability to live in unfavorable conditions such as polluted waters. Tolerance values published by the Minnesota Pollution Control Agency were used to calculate the FBI. Families with an unknown tolerance

value were excluded from the analysis. The FBI value was calculated for the three habitat types at the two study sites.

$$\frac{\text{Equation 2: Family-Based Biological Index}}{\sum(\# \text{ of individuals in a Family} * \text{Tolerance value})}$$

Total # of individuals sampled

### Percent EPT taxa

The Percent EPT taxa is the total number of EPT individuals divided by the total number of individuals in the sample (*Equation 3*). The percent EPT was calculated for each habitat type at the two study sites.

$$\frac{\text{Equation 3: Percent EPT Taxa}}{\sum(\# \text{ of individuals in EPT orders})}$$

Total # of individuals sampled

### Percent Dominate Taxa

The percent dominate taxa is the sum of the individuals belonging three most abundant families over the total number of individuals present.

$$\frac{\text{Equation 4: Percent Dominate Taxa}}{\sum(\# \text{ of individuals in the three most abundant families})}$$

Total # of individuals sampled

## Results

A detailed presentation of the taxonomy of the macroinvertebrate communities of both sites is provided in **Appendix A**. In total, 27 unique families were found at the Upstream site in the three habitats. 15 of these families were found in one or more of the habitats. There were 17 families identified in the Upstream riffle, 10 in the overhanging vegetation and 12 in the woody debris (**Table 2**). In total, there were 31 unique families identified in the Downstream site with 18 families present in one or more of the three habitats (**Table 2**).

The three most abundant families for each site are described in **Table 3**. The Upstream and the Downstream riffle were the only habitats between the locations that shared the same families in three most abundant species, all of the other habitats had no similar families. The family Hydropsychidae was the most abundant family at both the Upstream and Downstream location, and the family Gerridae was the 2<sup>nd</sup> most abundant family at the Downstream and 3<sup>rd</sup> at the Upstream locations(**Table 3**).The percent dominate taxa for the two sites ranged from 46% (Upstream Riffle) to 74.3% (Upstream overhanging vegetation) with an average of 52.8% (**Table 2, Figure 6**). Both the Upstream and Downstream overhanging vegetation had the highest percent dominate taxa, followed by the woody debris, and lastly the riffle habitat (**Figure 6**). There was a larger range in the percent dominate taxa in the Upstream location compared to the downstream location (**Figure 6**). The range of the percent dominate taxa of the Upstream site was 28.2 and the range of the percent dominate taxa of the Downstream site was 14.8.

The percent EPT was greatest in in the Downstream woody debris habitat with a value of 37.3 percent and lowest in the overhanging vegetation at the Upstream location (**Table 2, Figure 4**). At both locations the percent EPT was highest in the riffle habitat, second highest in the

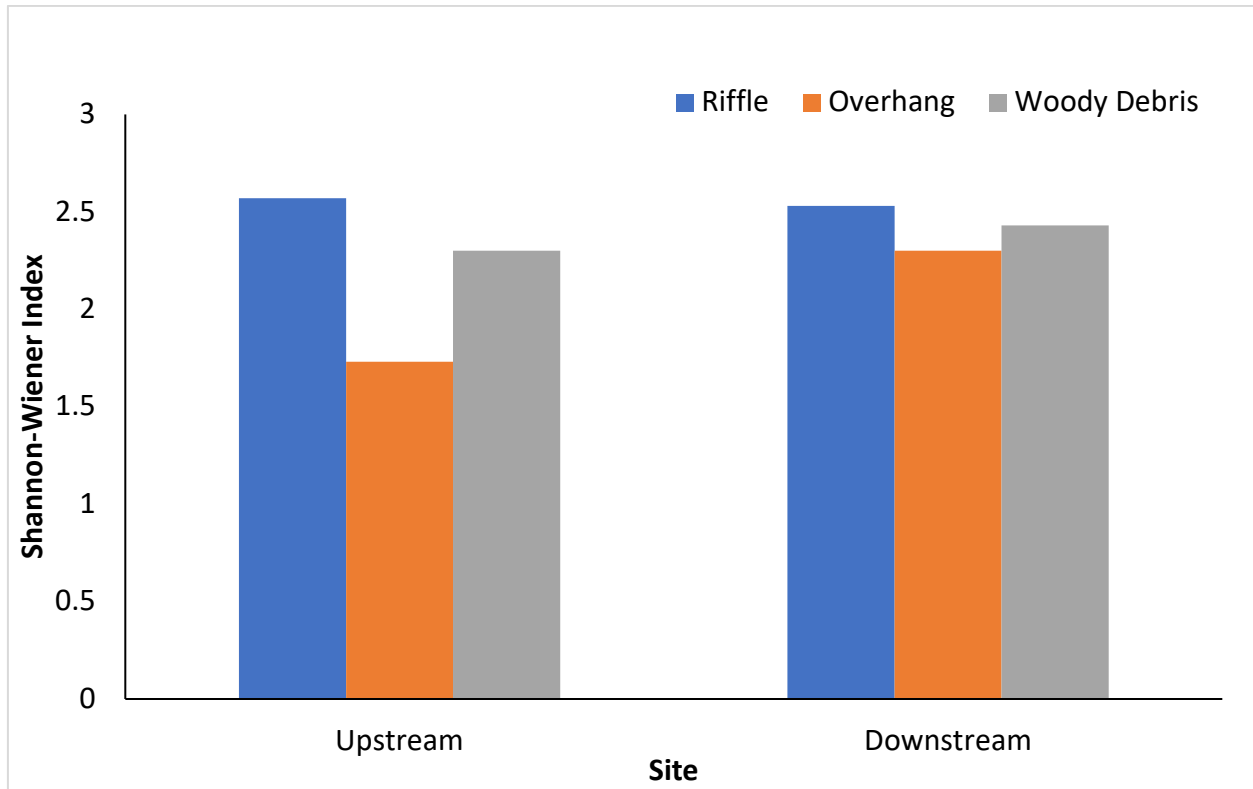
woody debris habitat and lowest in the overhanging vegetation habitat (**Figure 4**). Overall the Downstream had a greater percent EPT compared to the Upstream location (**Figure 4**).

The Shannon-Weiner Index (**H'**) was highest at the Upstream and Downstream riffle habitats which both had an index of 2.5 (**Table 2, Figure 3**). The upstream overhanging vegetation had the lowest index of 1.7 (**Figure 3**). At both sites, the riffle habitat had the highest Shannon-Weiner Index, followed by the woody debris and lastly the overhanging vegetation (**Figure 3**).

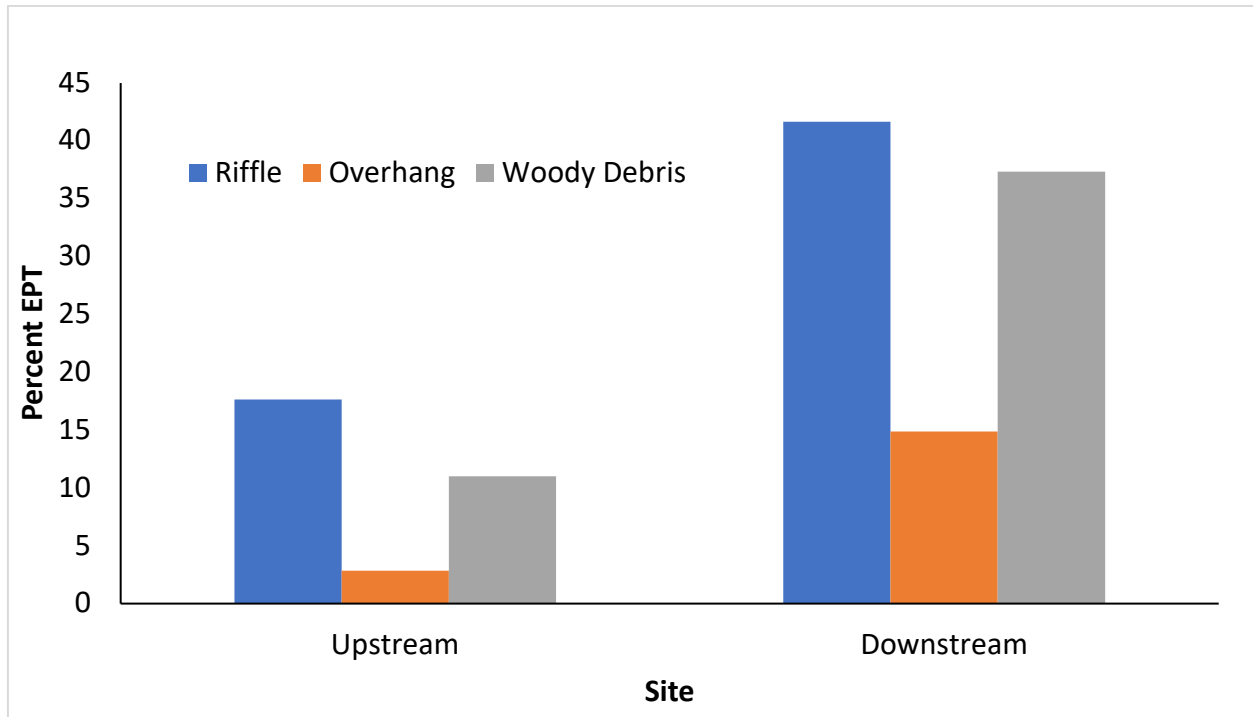
The Upstream woody debris habitat had the highest Family-Based Biological Index (**FBI**) value of 7.1 and the Downstream overhanging vegetation had the lowest value of 5.0 (**Table 2, Figure 5**). In both sites, the woody debris had the highest FBI value, the riffle had the second highest, and the overhanging vegetation had the lowest value (**Figure 5**). Overall the downstream location had lower FBI values for each location compared to the Upstream site (**Figure 5**).

**Table 2: Summary of the Biotic Measures for the Upstream and Downstream Sites**

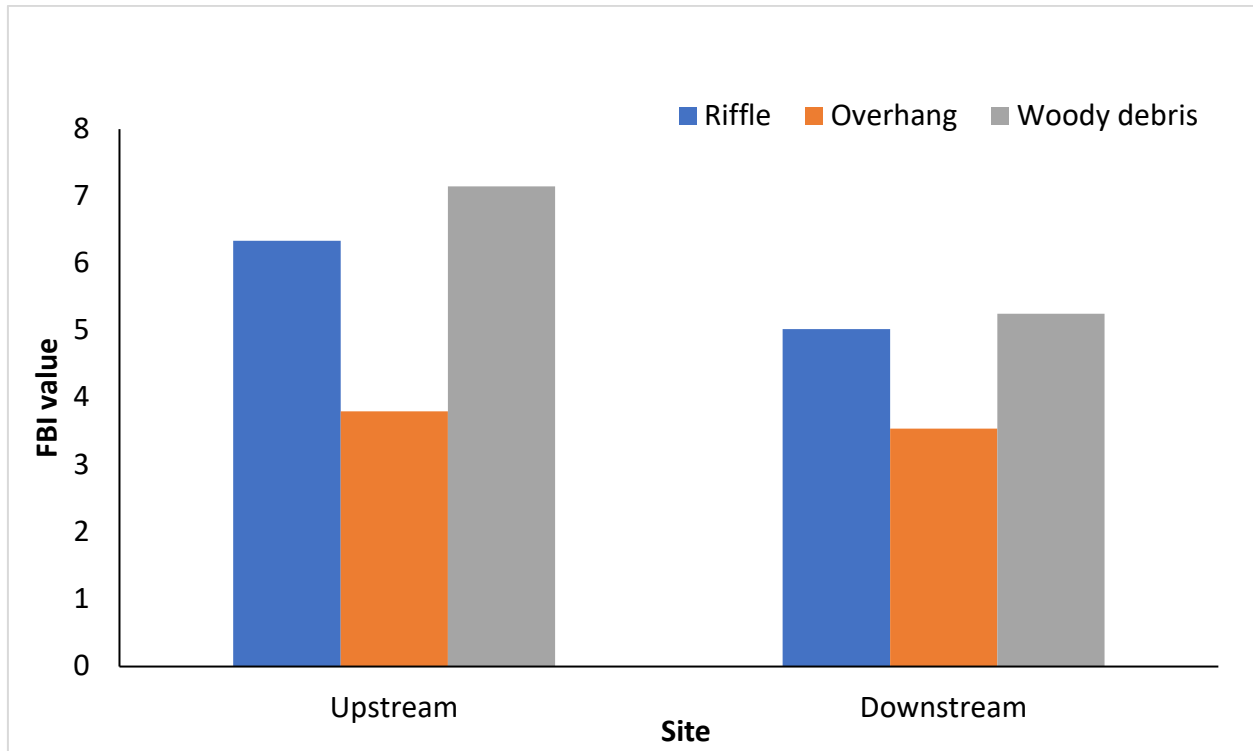
Site	Habitat	Total # of Individ.	H'	FBI	%EPT	#EPT Families	Total Families	% Dominate
<b>Upstream</b>	Riffle	50	2.5	6.4	17.6	3	17	46
<b>Upstream</b>	Overhanging	35	1.7	3.8	2.9	1	10	74.3
<b>Upstream</b>	Woody Debris	27	2.3	7.1	11	1	12	51.8
<b>Downstream</b>	Riffle	79	2.5	5	41.7	5	12	39.3
<b>Downstream</b>	Overhanging	74	2.3	3.5	14.9	3	12	54
<b>Downstream</b>	Woody Debris	83	2.4	5.3	37.3	6	12	51.8



**Figure 3:** Comparison of the Shannon-Wiener Index of the Upstream and Downstream site. At both locations the riffle habitat had the highest Shannon-Wiener Index, followed by the overhanging vegetation and then woody debris habitat. Both the Upstream riffle and the Downstream riffle had the highest Shannon-Wiener Index value of 2.5 and Upstream overhanging vegetation had the lowest Shannon-Wiener Index of 1.7. The data collected by the 5 groups in the BIO-241 class was combined and the Shannon-Wiener Index was calculated using Equation 1.



**Figure 4:** Comparison of percent EPT of the Upstream and Downstream site. The Downstream riffle had the highest percent EPT with 41.7%, and the Upstream overhanging vegetation had the lowest percent EPT 2.8%. In both locations the percent of EPT was highest in the riffle, second highest in the wood debris and lowest in the overhanging vegetation. The data collected by the 5 groups in the BIO-241 class was combined and the Percent EPT was calculated by dividing the total number of individuals belonging to the orders: Ephemeroptera, Plecoptera and Trichoptera (*Equation 2*)

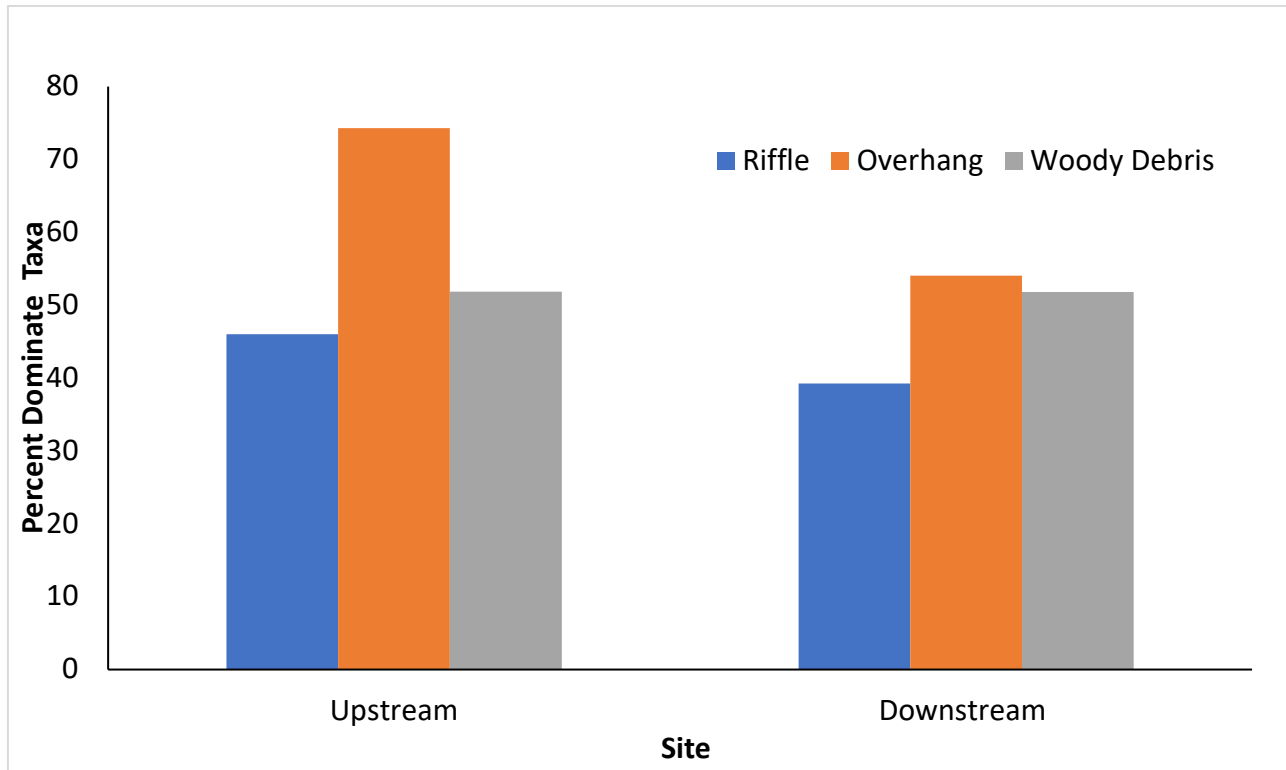


**Figure 5:** Comparison of the Family-Based Biological Index (FBI) between the Upstream and the Downstream locations. The Upstream woody debris habitat had the highest FBI value of 7.1 and the Downstream overhanging vegetation had the lowest value of 5.0. In both sites, the woody debris had the highest FBI value, the riffle had the second highest, and the overhanging vegetation had the lowest value. FBI values were calculated by taking the sum of the products of the number of individuals and the associated tolerance value for each habitat. The sum was then divided by the total number of individuals in the sample (*Equation 3*).



**Table 3: Summary of the Dominate Families for the Upstream and Downstream Sites (EPT Families are designated with an asterisk (\*))**

<b>Site</b>	<b>Habitat</b>	<b>Most abundant</b>	<b># of Indiv of most abundant</b>
<b>Upstream</b>	Riffle	Hydropsychidae*	13
		Hirudinea	5
		Gerridae	4
<b>Upstream</b>	Overhanging	Amphipoda	16
		Armadillidae	8
		Araneae	2
<b>Upstream</b>	Woody Debris	Corixidae	6
		Belostomatidae	5
		Coenagrionidae	3
<b>Downstream</b>	Riffle	Hydropsychidae*	13
		Gerridae	10
		Tipulidae	8
<b>Downstream</b>	Overhanging	Gammaridae	16
		Araneae	13
		Aeshnidae	11
<b>Downstream</b>	Woody Debris	Baetidae	16
		Amphipoda	15
		Tipulidae	12



**Figure 6:** Comparison of the percent dominate taxa between the Upstream and Downstream site. The Upstream overhanging vegetation had the highest percent dominate taxa of 74.3% and the Downstream riffle had the lowest percent dominate taxa of 39.2%. Both the Upstream and the Downstream sites had the same trend of the overhanging vegetation having the highest percent dominate taxa, followed by the woody debris and lastly the riffle habitat. Percent dominate taxa was calculated dividing the sum of the individuals of the three most abundant taxa by the total numbers of individuals present in the sample (*Equation 4*)

## Discussion

The purpose of this report was to compare the water quality among two sites located on 7-Mile Creek. The Shannon-Wiener Index is usually a value between 1.5 and 3.5, and a larger  $H'$  value is indicative of greater richness and evenness of the community (Magurran 2004). Values that are around 3.0 suggest that the environment is stable, and values that are under 1.0 indicate that the habitat is unstable due to pollution or habitat degradation (Sandin et al. 2001). The Shannon-Wiener index for the riffle, overhanging vegetation and the woody debris of the Upstream location was 2.5, 1.7, and 2.3 respectively. For the Downstream location, the Shannon-Wiener index for the riffle habitat was 2.5, 2.3 for the overhanging vegetation, and 2.4 for the woody debris. All of the habitats except the Upstream overhang had comparable Shannon-Weiner values, which fall into the moderate diversity range suggesting moderate water quality. (Magurran 2004). The Upstream overhang had a Shannon-Weiner Index that suggests poor diversity and water quality.

The Shannon-Weiner Index makes an assumption that all of the species that are in the sample are evenly distributed, and this creates an error that becomes more pronounced as sample sizes decrease (Magurran 2004). This index was created for sample sizes that are greater than 100 individuals (Veech et al 2002). It is worth noting that that none of the habitats had sample sizes that contained 100 individuals or more. There were more individuals sampled at the

Downstream location compared to the Upstream location, which may suggest that the Downstream location has a more accurate Shannon-Weiner index.

The lowest percent EPT was associated with the overhanging vegetation at the Upstream location. Values of 50% or greater indicate good water conditions, values between 50% and 25% indicate moderate conditions and values below 25% indicate poor conditions (Plafkin et al 1989). Because the orders Ephemeroptera, Plecoptera and Trichoptera are pollution sensitive, a higher percentage is indicative of better water quality (Plafkin et al 1989). The percent of the EPT was higher overall at the Downstream location compared to the Upstream location suggesting that the water quality is higher at the Downstream location compared to the Upstream location.

A percent dominate value of 50% is indicative of harsh environmental conditions (Plafkin et al 1989). The Upstream and Downstream riffle habitats had a percent dominate values of 46% and 39.3% respectively making these habitats the only two locations with values lower than 50%. The most dominate family for the riffle habitat for both locations was Hydropsychidae which is an EPT order, which suggests that the water quality may be better at riffle locations than the percent dominate value may indicate. Overall the Downstream location had lower percent dominate values compared to the Upstream location suggesting that the water quality was better at the Downstream site.

The Downstream location had FBI values that ranged from 3.5-5.3. The Upstream riffle had an FBI value of 3.5 that was within the range of Class I-Excellent water quality (Bieger et al. 2010). The Downstream overhanging vegetation and woody debris had FBI values of 5 and 5.3 respectively and classified as Class IV-Fair water quality. In comparison the Upstream location had a range from 3.8-7.1. The overhanging vegetation had an FBI value of 3.8 classified as Class II-Very Good water quality. The Upstream riffle had an FBI value of 6.4 and was classified as Class V-Regular and the Upstream woody debris had an FBI of 7.1 and water quality classified as Class VII-Very Poor (Carter et al. 2007).

The FBI values for the Downstream location were overall lower than the Upstream location suggesting that the Downstream location has better water quality compared to the Upstream location. Similarly, to the Shannon-Weiner Index, the FBI index was created for sample sizes of 100 individuals or more (Hilsenhoff, 1982). Sample sizes of 50 are half as accurate as samples sizes of 100 at calculating water quality. It is important to note that our data did not contain sample sizes of 100 macroinvertebrates, and this should be taken into consideration when interpreting the results in this report.

Based on the data, the Downstream location has better water quality compared to the Upstream location. The Downstream location had higher Shannon-Weiner indexes indicating that the Downstream location had greater species diversity and richness compared to the Upstream site. The Downstream location has a higher percent EPT compared to the Upstream location. The greater presence of these pollution intolerance species suggests higher water quality (Chirhart 2003). The Downstream site had lower percent dominate taxa which suggests that there is less redundancy in at this location, and as a result there is higher diversity. The higher diversity as suggested by lower percent dominate taxa is indicative of higher water quality present at the Downstream location. The FBI values were overall lower at the Downstream location, the water quality ranged from Class I-Excellent water quality to Class IV-Fair water quality. In comparison, the water quality for the Upstream location based on the FBI values ranged from Very Good water quality to Class VII-Very Poor.

The differences in the surrounding areas could sever as a potential cause for the differences in water quality between the two locations. The Downstream location had more

vegetative cover surrounding the stream compared to the Upstream location. Vegetation can reduce the velocity of water reaching the stream (Helmers et al. 2008). The presence of vegetation can also promote the uptake of nitrogen at the surface and has been shown to decrease erosion (Helmers et al. 2008). This is important if the run-off entering the stream contains fertilizers. Since, the Upstream location was surrounded by corn field, it is possible that the run-off entering this stream contained fertilizers. Water samples at both locations could provide further insight to the nutrients that are present in the water. The Upstream location also had a man-made culvert located upstream of where samples were taken, which could also influence the water quality. The presence of a culvert can result in increased erosion of the stream which can decrease water quality (Aust et al. 2011). Measuring the sedimentation in the water in the future may help elucidate if the presence of the culvert results in higher sedimentation in the Upstream location compared to the Downstream location. Based on the metrics provided in this report, the Downstream location has better water quality compared to the Upstream location, however more research will need to be done to determine the causes of the differences in water quality.

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### **References**

- Aust WM, Carroll MB, Bolding MC, Dolloff CA. Operational Forest Stream Crossings Effects on Water Quality in the Virginia Piedmont. *Southern Journal of Applied Forestry*. 2011;35(3):123–130. doi:10.1093/sjaf/35.3.123
- Barbour, MT., Gerritsen, J., Snyder, BD, Stribling, JB. (1999) *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish*, 2nd edn. EPA 841-B-99-002. US Environmental Protection Agency, Office of Water, Washington, DC.
- Bieger L, Carvalho A, Strieder M, Maltchik L, Stenert C. Are the streams of the Sinos River basin of good water quality? Aquatic macroinvertebrates may answer the question. *Brazilian Journal of Biology*. 2010;70(4 suppl):1207–1215. doi:10.1590/s1519-69842010000600010
- Carter JL, Resh VH, Hannaford MJ, Myers MJ. Macroinvertebrates as Biotic Indicators of Environmental Quality. 2007 Feb 10:805–831.
- Chirhart, J. 2003. Development of a Macroinvertebrate Index of Biological Integrity (MIBI) for Rivers and Streams of the St. Croix River Basin in Minnesota. Minnesota Pollution Control Agency, Biological Monitoring Program
- Helmers, M.; Isenhardt, T.; Dosskey, M.; Dabney, S.; and Strock, J. 2008. Buffers and Vegetative Filter Strips. *Agricultural and Biosystems Engineering Publications*. 298.

- Oleary N, Vawter AT, Wagenet LP, Pfeffer M. Assessing Water Quality Using Two Taxonomic Levels of Benthic Macroinvertebrate Analysis: Implications for Volunteer Monitors. *Journal of Freshwater Ecology*. 2004;19(4):581–586. doi:10.1080/02705060.2004.9664738
- Kuehner, K. J. 2004. An Historical Perspective of Hydrologic Changes in Seven Mile Creek Watershed. Cottonwood Water Quality Board, St. Peter, MN.
- Plafkin, J.L., Barbour, M.T., Porter, K.D., Gross, S.K., and Hughes, R.M.. 1989. Rapid Bioassessment Protocols for use in Streams and Rivers: Benthic Macroinvertebrates and Fish. U.S. Environmental Protection Agency. EPA 440/4-89/001. 8 chapters, Appendices A-D.
- Magurran, A.E. 2004. *Measuring Biological Diversity*. Blackwell.
- Sandin, L., M. Sommerhäuser, I. Stubauer, D. Hering & R. Johnson, 2000. Stream assessment methods, stream typology approaches and outlines of a European stream typology, AQEM projec
- Veech JA, Summerville KS, Crist TO, Gering JC. The additive partitioning of species diversity: recent revival of an old idea. *Oikos*. 2002;99(1):3–9. doi:10.1034/j.1600-0706.2002.990101.x

**Appendix A: Raw Sample Count For the Three Habitats at Both Locations**

Riffle Upstream

Phylum	Class	Order	Family	Total
Arthropoda	Insecta	Coleoptera	Dryopidae	0
			Elmidae	1
			Hydrophilidae	1
			Psephenidae	0
			Dytiscidae	1
			Haliplidae	0
			Coccinellidae	0
			Carabidae	0
			Gyrinidae	0
		Diptera	Athericidae	0
			Nematocera	0
			Culicoidea	0
			Chironomidae	0
			Culicidae	0
			Empididae	0
			Simulidae	0
			Tipulidae	2
			Muscidae	0
		Ephemeroptera	Baetidae	0
			Caenidae	0
			Heptageniidae	1
			Leptophlebiidae	0
			Oligoneuroniidae	0
			Tricorythidae	0
		Hemiptera	Cicadetta	0
			Gerridae	5
			Notonectidae	0
			Kerriidae	0
			Reduviidae	0
			Psyllidae	0
			Mesoveliidae	1
			Corixidae	4
			Belostomatidae	3
Nepidae	2			
Odonata	Calopterygidae	3		

		Neuroptera	Chrysopidae	0
		Megaloptera	Sialidae	0
		Odonata	Coenagrionidae	2
			Aeshnidae	0
		Plecoptera	Perlodidae	0
			Taeniopterygidae	0
			Chloroperlidae	0
		Trichoptera	Helicopsychidae	0
			Hydropsychidae	13
			Leptoceridae	0
			Limnephilidae	0
			Polycentropodidae	2
			Psychomyiidae	0
			Hydroptilidae	0
	Arachnida	Araneae	Araneae	1
	Arachnida	Araneae	Lycosoidea	1
	Crustacea	Amphipoda	Amphipoda	0
		Decapoda	Decapoda	1
	Malacostraca		Armadillidae	0
	Myriapoda		Diplopoda	0
	Malacostraca		Gammaridae	0
Mollusca	Gastropoda		Gastropoda	0
Annelida	Clitellata		Lumbricidae	1
			Naididae	0
	Hirudinea		Hirudinea	5
Arthropoda	Myriapoda		Diplopoda	0

#### Riffle Downstream

Phylum	Class	Order	Family	Total
Arthropoda	Insecta	Coleoptera	Dryopidae	0
			Elmidae	1
			Hydrophilidae	0
			Psephenidae	0
			Dytiscidae	3
			Haliplidae	0
			Coccinellidae	0
			Carabidae	0
			Gyrinidae	0
		Diptera	Nematocera	0

		Culicoidea	0
		Athericidae	0
		Chironomidae	0
		Culicidae	0
		Empididae	0
		Simuliidae	0
		Tipulidae	8
		Muscidae	0
	Ephemeroptera	Baetidae	5
		Caenidae	0
		Heptageniidae	4
		Leptophlebiidae	0
		Oligoneuroniidae	0
		Tricorythidae	0
	Hemiptera	Cicadetta	0
		Gerridae	10
		Notonectidae	1
		Kerriidae	1
		Reduviidae	0
		Psyllidae	0
		Mesoveliidae	1
		Corixidae	0
		Belostomatidae	7
		Nepidae	0
	Odonata	Calopterygidae	0
	Neuroptera	Sialidae	0
	Megaloptera	Coenagrionidae	1
	Odonata	Chrysopidae	0
		Aeshnidae	0
	Plecoptera	Perlodidae	0
		Taeniopterygidae	0
		Chloroperlidae	0
	Trichoptera	Helicopsychidae	1
		Hydropsychidae	13
		Leptoceridae	0
		Limnephilidae	0
		Polycentropodidae	6
		Psychomyiidae	0
		Hydroptilidae	0



	Arachnida	Araneae	Araneae	3
	Arachnida	Araneae	Lycosoidea	1
	Crustacea	Amphipoda	Amphipoda	6
		Decapoda	Decapoda	8
	Malacostraca		Armadillidae	0
	Myriapoda		Gammaridae	0
	Malacostraca		Gastropoda	0
Mollusca	Gastropoda		Lumbricidae	0
Annelida	Clitellata		Naididae	1
			Hirudinea	0
	Hirudinea			
Arthropoda	Myriapoda		Diplopoda	0

Overhanging Upstream

Phylum	Class	Order	Family	Total
Arthropoda	Insecta	Coleoptera	Dryopidae	0
			Elmidae	0
			Hydrophilidae	0
			Psephenidae	0
			Dytiscidae	1
			Haliplidae	0
			Coccinellidae	1
			Carabidae	0
			Gyrinidae	0
		Diptera	Athericidae	0
			Nematocera	4
			Culicoidea	1
			Chironomidae	0
			Culicidae	0
			Empididae	0
			Simulidae	0
			Tipulidae	0
			Muscidae	0
		Ephemeroptera	Baetidae	0
			Caenidae	0
			Heptageniidae	0
			Leptophlebiidae	0
			Oligoneuroniidae	0
Tricorythidae	0			

		Hemiptera	Cicadetta	0
			Gerridae	1
			Notonectidae	0
			Kerriidae	0
			Reduviidae	2
			Psyllidae	1
			Mesoveliidae	0
			Corixidae	0
			Belostomatidae	1
			Chrysopidae	0
		Neuroptera	Nepidae	0
		Megaloptera	Sialidae	0
		Odonata	Coenagrionidae	0
			Aeshnidae	1
			Perlodidae	0
		Plecoptera	Taeniopterygidae	0
			Chloroperlidae	0
			Helicopsychidae	1
		Trichoptera	Hydropsychidae	0
			Leptoceridae	0
			Limnephilidae	0
			Polycentropodidae	0
			Psychomyiidae	0
			Hydroptilidae	0
			Araneae	2
	Arachnida	Araneae	Lycosoidea	0
	Arachnida	Araneae	Amphipoda	16
	Crustacea	Amphipoda	Decapoda	0
		Decapoda	Armadillidae	8
	Malacostraca		Gammaridae	0
	Myriapoda		Gastropoda	0
	Malacostraca		Lumbricidae	0
Mollusca	Gastropoda		Naididae	0
Annelida	Clitellata		Hirudinea	0
			Diplopoda	1
	Hirudinea			
Arthropoda	Myriapoda			

Overhanging Downstream

Phylum	Class	Order	Family	Total	
Arthropoda	Insecta	Coleoptera	Dryopidae	0	
			Elmidae	0	
			Hydrophilidae	0	
			Psephenidae	0	
			Dytiscidae	3	
			Haliplidae	1	
			Coccinellidae	0	
			Carabidae	0	
			Gyrinidae	0	
		Diptera	Athericidae	0	
			Nematocera	0	
			Culicoidea	1	
			Chironomidae	0	
			Culicidae	0	
			Empididae	0	
			Simulidae	0	
			Tipulidae	0	
			Muscidae	0	
		Ephemeroptera	Baetidae	0	
			Caenidae	0	
			Heptageniidae	6	
			Leptophlebiidae	0	
			Oligoneuroniidae	0	
			Tricorythidae	0	
			Hemiptera	Cicadetta	1
				Gerridae	7
				Notonectidae	0
		Kerriidae		0	
		Reduviidae		0	
		Psyllidae		0	
		Mesoveliidae		0	
		Heteroptera	Corixidae	0	
			Belostomatidae	4	
			Nepidae	0	
		Neuroptera	Chrysopidae	0	
		Megaloptera	Sialidae	0	
		Odonata	Coenagrionidae	0	
			Calopterygidae	0	

			Aeshnidae	11	
		Plecoptera	Perlodidae	0	
			Taeniopterygidae	0	
			Chloroperlidae	0	
			Trichoptera	Helicopsychidae	1
		Hydropsychidae		4	
		Leptoceridae		0	
		Limnephilidae		0	
		Polycentropodidae		0	
		Psychomyiidae		0	
		Hydroptilidae		0	
	Arachnida	Araneae		Araneae	13
	Arachnida	Araneae		Lycosoidea	0
	Crustacea	Amphipoda	Amphipoda	0	
		Decapoda	Decapoda	0	
	Malacostraca		Armadillidae	0	
	Myriapoda		Diplopoda	16	
	Malacostraca		Gammaridae	0	
Mollusca	Gastropoda		Gastropoda	1	
Annelida	Clitellata		Lumbricidae	0	
			Naididae	0	
	Hirudinea		Hirudinea	0	
Arthropoda	Myriapoda		Diplopoda		

#### Woody Debris Upstream

Phylum	Class	Order	Family	Total
Arthropoda	Insecta	Coleoptera	Dryopidae	0
			Elmidae	0
			Hydrophilidae	0
			Psephenidae	0
			Dytiscidae	1
			Haliplidae	1
			Coccinellidae	0
			Carabidae	0
			Gyrinidae	0
		Diptera	Athericidae	0
			Nematocera	0
			Culicoidea	1
			Chironomidae	0

			Culicidae	0
			Empididae	0
			Simulidae	0
			Tipulidae	0
			Muscidae	0
		Ephemeroptera	Baetidae	0
			Caenidae	0
			Heptageniidae	0
			Leptophlebiidae	0
			Oligoneuroniidae	0
			Tricorythidae	0
		Hemiptera	Cicadetta	0
			Gerridae	0
			Notonectidae	0
			Kerriidae	0
			Reduviidae	0
			Psyllidae	0
			Mesoveliidae	0
		Heteroptera	Corixidae	6
			Belostomatidae	5
			Nepidae	1
		Neuroptera	Chrysopidae	0
		Megaloptera	Sialidae	0
		Odonata	Coenagrionidae	3
			Calopterygidae	0
			Aeshnidae	0
		Plecoptera	Perlodidae	0
			Taeniopterygidae	0
			Chloroperlidae	0
		Trichoptera	Helicopsychidae	0
			Hydropsychidae	3
			Leptoceridae	0
			Limnephilidae	0
			Polycentripodidae	0
			Psychomyiidae	0
			Hydroptilidae	0
	Arachnida	Araneae	Araneae	2
	Arachnida	Araneae	Lycosoidea	0
	Crustacea	Amphipoda	Amphipoda	1

		Decapoda	Decapoda	0
	Malacostraca		Armadillidae	1
	Myriapoda		Diplopoda	0
	Malacostraca		Gammaridae	0
Mollusca	Gastropoda		Gastropoda	1
Annelida	Clitellata		Lumbricidae	0
			Naididae	0
	Hirudinea		Hirudinea	0
Arthropoda	Myriapoda		Diplopoda	0

#### Woody Debris Downstream

Phylum	Class	Order	Family	Total
Arthropoda	Insecta	Coleoptera	Dryopidae	0
			Elmidae	1
			Hydrophilidae	0
			Psephenidae	0
			Dytiscidae	2
			Haliplidae	0
			Coccinellidae	0
			Carabidae	0
		Gyrinidae	0	
		Diptera	Athericidae	0
			Nematocera	0
			Culicoidea	0
			Chironomidae	0
			Culicidae	0
			Empididae	0
			Simulidae	0
			Tipulidae	12
		Muscidae	0	
		Ephemeroptera	Baetidae	16
			Caenidae	2
			Heptageniidae	4
			Leptophlebiidae	4
			Oligoneuroniidae	0
			Tricorythidae	0
		Hemiptera	Cicadetta	0
			Gerridae	9
			Notonectidae	0

			Kerriidae	0
			Reduviidae	0
			Psyllidae	0
			Mesoveliidae	0
		Heteroptera	Corixidae	0
			Belostomatidae	4
			Nepidae	1
		Neuroptera	Chrysopidae	0
		Megaloptera	Sialidae	0
		Odonata	Coenagrionidae	3
			Calopterygidae	0
			Aeshnidae	0
		Plecoptera	Perlodidae	0
			Taeniopterygidae	0
			Chloroperlidae	0
		Trichoptera	Helicopsychidae	0
			Hydropsychidae	4
			Leptoceridae	0
			Limnephilidae	0
			Polycentropodidae	1
			Psychomyiidae	0
			Hydroptilidae	0
	Arachnida	Araneae	Araneae	2
	Arachnida	Araneae	Lycosoidea	0
	Crustacea	Amphipoda	Amphipoda	15
		Decapoda	Decapoda	0
	Malacostraca		Armadillidae	1
	Myriapoda		Diplopoda	0
	Malacostraca		Gammaridae	0
Mollusca	Gastropoda		Gastropoda	1
Annelida	Clitellata		Lumbricidae	0
			Naididae	0
	Hirudinea		Hirudinea	1
Arthropoda	Myriapoda		Diplopoda	0

Aquatic Macroinvertebrates  
Seven Mile Creek Data Set

<b>Site Location:</b>				
<b>Habitat type:</b>				
<b>Collectors:</b>				
<b>Date Collected:</b>				
<b>Sorter/IDer:</b>				
<b>Phylum</b>	<b>Class</b>	<b>Order</b>	<b>Family</b>	<b># observed</b>
Arthropoda	Insecta	Coleoptera	Dryopidae	
			Elmidae	
			Hydrophilidae	
			Psephenidae	
			Dytiscidae	
			Gyrinidae	
		Diptera	Athericidae	
			Chironomidae	
			Empididae	
			Simulidae	
			Tipulidae	
			Muscidae	
		Ephemeroptera	Baetidae	
			Caenidae	
			Heptageniidae	
			Leptophlebiidae	
			Oligoneuroniidae	
			Tricorythidae	
		Heteroptera	Corixidae	
			Belostomatidae	
			Nepidae	
		Megaloptera	Sialidae	
		Odonata	Coenagrionidae	
			Aeshnidae	
		Plecoptera	Perlodidae	
			Taeniopterygidae	
			Chloroperlidae	
		Trichoptera	Helicopsychidae	
			Hydropsychidae	
			Leptoceridae	
			Limnephilidae	
			Polycentropodidae	
Psychomyiidae				
Hydroptilidae				
Arachnida	Araneae			
Crustacea	Amphipoda			
	Decapoda			
Mollusca	Gastropoda			
Annelida	Hirudinea			



Aquatic Macroinvertebrates  
Seven Mile Creek Data Set

Total # of Organisms =				
<b>FBI =</b>				
Number of Taxa =				
EPT Index =				

Family IB = # individuals \* tolerance value

**FBI =  $\Sigma(\text{\#individuals in each family} * \text{tolerance values}) / \text{total \# organisms in}$**

# of taxa = # of different families present in the sample

EPT Index = (# E+P+T)/# Chironomidae



Aquatic Macroinvertebrates  
Seven Mile Creek Data Set

$\Sigma =$	

rganisms in sample

**Appendix 11: *E. coli* and bacterial genetic typing**

In 2019 and 2021, samples were collected from monitoring stations SMC 1, SMC 4, SMC 5, SMC 6 and SMC 7. *E. coli* abundance was measured by MVTL and at Gustavus. Genetic typing samples were prepared at Gustavus and analyzed at the University of Minnesota. Tables 9-1 and 9-2 contain the results; future work will provide more interpretation.

*Table 9-1: E. coli summary statistics of all samples collected during the grant period. SMC1 and SMC4-7 were sampled for E.coli at the same time samples were taken for bacterial genetic typing during 2019 and 2021. Additional surveillance data (~weekly) were acquired for SMC1 and SMC2 in years 2018-2020 and for SMC2, SMC4 and SMC8 in 2021.*

Site	*Mean (cfu per 100mL)	Min (cfu per 100mL)	Max (cfu per 100mL)	25% (cfu per 100mL)	75% (cfu per 100mL)	% exceeding standard**	Count
SMC1	436	9	24200	161	9	28%	102
SMC2	289	1	17329	112	727	21%	121
SMC4	249	6	24196	116	371	16%	38
SMC5	346	72	2420	186	853	15%	20
SMC6	643	71	3700	295	1790	36%	14
SMC7	242	63	1180	137	443	0%	18
SMC8	295	19	3873	146	524	19%	31

*\*Geometric mean reported for bacterial samples*

*\*\*Recreational waters standard: 1260 colony-forming units (cfu) per 100 mL.*

Table 9-2: Bacterial genetic typing summary statistics of all samples collected during the grant period. An event (positive result) is defined as >100 gene copies detected per 100 mL of sample. When multiple samples were taken on the same day, average values are reported.

Site	2019				2021			
	Samples	Cow events	Pig events	Human events	Samples	Cow events	Pig events	Human events
SMC1	13	0	0	6	--	--	--	--
SMC4	14	0	0	5	6	0	0	0
SMC5	12	2	0	6	6	1	0	0
SMC6	12	1	0	0	4	0	0	0
SMC7	11	2	0	3	6	0	0	0
SMC8	--	--	--	--	6	1	0	1

## **Appendix 12: Outreach and communication**

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Many forms of outreach and communication were executed during the 4 years of this project. A few examples of printed materials are included here. A big component of our COVID-adaptation was producing videos, which are posted on the partnership's website: [7-milecreek.org](http://7-milecreek.org)

# Seven Mile Science Meeting

February 5, 2020

Gustavus Adolphus College, Campus Center St. Peter Room

## PURPOSE

(1) To deliberate on the question 'Has environmental quality in Seven Mile Creek improved?' (2) To agree on summary interpretations we are ready to communicate to the public, and (3) make any plans/adjustments to 2020 monitoring

## AGENDA

**9:00** Greetings and introductions (Laura, Brad, Eric)

**9:15** Goals for today, and agreeing on agenda

**9:20** How would we determine whether the environmental quality of Seven Mile Creek has improved? What metrics, what statistical approaches? How do different disciplines or agencies approach this type of question?

**9:45** Brief presentations of what datasets we have

- o SMC mainstem WQ and hydrology (Scott Matteson and Pat Baskfield)
- o SMC tributary WQ and hydrology (Laura)
- o Sediment delivery and ravine evolution (Chris)

**10:45** Break

**11:00-12:30** Discussion: How do the data answer (or not answer) the question about whether environmental quality has improved? Which conditions in Seven Mile have improved? Which conditions have stayed the same, or worsened? How confident are we in those interpretations?

**12:30-1:00** Lunch (provided)

**1:00** Small group work: How would you communicate these data to the public? How can we simplify, visualize, or clearly articulate what we know, and what we don't?

**1:45** Report back to the full group, discuss

**2:15** What are the next steps we'd recommend for this watershed? This could include monitoring, data analysis, public meetings, or something entirely different

**3:00** Adjourn

## PARTICIPANTS

Laura Triplett, Gustavus Geology  
Brad Gordon, Great River  
Greening  
Eric Miller, Nicollet County SWCD  
Chris Lenhart, University of MN  
Pat Baskfield, MPCA Mankato  
Brooke Hacker, DNR

Scott Matteson, MDA  
Bryan Spindler, MPCA  
Scott Maclean, MPCA  
Greg Johnson, MPCA  
Julie Bartley, Gustavus Geology  
Amy Kochsiek, Gustavus Biology  
Pete Otterness, Nicollet County

Mike Suska, Nicollet County  
Todd Meyer, Nicollet County  
Shauna Capron, Gustavus student  
researcher  
Hannah Schroeder, Gustavus  
student researcher

## RESOURCES

Seven Mile website

[7-milecreek.org](http://7-milecreek.org)

Shared on Google Drive

1. Mainstem WQ and flow data [SM3\\_Data\\_02-03-2020.xlsx](#)
2. TSS and flow from tribs [All\\_loads\\_00\\_19](#)
3. Kuehner watershed report, 2001
4. Lenhart et al. CAST report, 2016



# Cover Crop Seeding Field Day

## Thursday September 13<sup>th</sup>, 2018

1:00pm – 4:30pm (registration and refreshments 1:00pm to 1:15pm)

Location: Oshawa Township Hall (38711 State Highway 99, St Peter)

Approximately 8 miles East of Nicollet or 5 miles West of St Peter

- Visit with local producers who are using cover crops and reduced tillage practices on their operations.
  - How do they work into a corn/bean rotation.
  - Interseeding (pro's/cons and lessons learned)
  - Seeding after early small grains harvest.
- Update on work being done in the Seven Mile Creek Watershed and updates on future work.
- NRCS Rainfall Simulator demonstration



**NICOLLET**

SOIL & WATER  
CONSERVATION DISTRICT

&

GREAT  
RIVER  
GREENING

The Great River Greening logo includes a stylized green hill and a blue river.

Made possible with support from:

sustainable  
farming  
association



Questions: Contact Eric Miller at Nicollet SWCD (507) 232-2550 or [eric.miller@nicolletswcd.org](mailto:eric.miller@nicolletswcd.org)

# You Are Invited

## Minnesota Agscape Sustainability Tour

Join us for an educational afternoon to tour one of Minnesota's Discovery Farms that shows real life examples of what farmers are doing to improve water quality. In addition, time will be spent at that site for a farm family to explain and demonstrate how precision farming is utilized by farmers and ag professionals. From there we will travel to a restored prairie and wetland. At this site, representatives from Soil and Water Conservation District, as well as, NRCS will be sharing about programs being used to improve water quality. The DNR will be present to share on the work that has been done to preserve virgin prairie along the Minnesota River Valley.

We look forward to having you join us for our event and sharing in good conversation!



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We look forward to having you join us for our event and sharing in good conversation!





## Minnesota Agscape Sustainability Tour

Learn more about the opportunities, programs and technology that we as producers use to maintain and grow the productive soils of our area. We use these tools to find sustainable methods to feed the world, support our lifestyles, maintain healthy soil and water for generations to come.

This event is hosted by

the Farm Bureaus of Nicollet, Renville & Sibley Counties with help from the NRCS of Nicollet & Sibley Counties and SWCD of Nicollet & Sibley Counties

## You Are Invited

Thursday, September 19th, 2019

Tours 12:30 p.m. to 4:30 p.m.

Bus will Leave at 12:30 From:

Squirrel's Bar & Grill

105 1st Ave SW Fairfax, MN 55332

Dinner at 4:30 p.m. @ Peichel's Hill

70725 Fort Road Fairfax, MN 55332

Tours buses will leave from Squirrel's at 12:30 p.m. and will end at Peichel's Hill for Dinner at 4:30 p.m. One bus will return to Squirrel's after the tours are completed at 4:30 p.m. and the other will return to Squirrel's at approximately 6:30 p.m.

**Please RSVP by September 6th**

Please direct questions to Sibley County Soil & Water Conservation District 507-702-7077 Or Kelsey Anderson—  
Kelsey.anderson528@gmail.com Subject: MN Agscape



## Minnesota Agscape Sustainability Tour

Learn more about the opportunities, programs and technology that we as producers use to maintain and grow the productive soils of our area. We use these tools to find sustainable methods to feed the world, support our lifestyles, maintain healthy soil and water for generations to come.

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**Please RSVP by September 6th**

Please direct questions to Sibley County Soil & Water Conservation District 507-702-7077 Or Kelsey Anderson—  
Kelsey.anderson528@gmail.com Subject: MN Agscape

# The Free Press

Tuesday, September 27, 2022

## Efforts made to protect Seven Mile Creek

By [Natalie Rademacher nrademacher@mankatofreepress.com](mailto:Natalie.Rademacher@mankatofreepress.com)

Mar 17, 2021



Herman Bartsch, a specialist for the Minnesota Area Water Quality Certification Program, holds up soil from a field within the Seven Mile Creek Watershed where a farmer is using “strip tillage.”  
Courtesy Brad Gordon

ST. PETER — A group is helping farmers adopt practices that reduce the amount of runoff from fields that ends up in Seven Mile Creek.

The [Seven Mile Creek Watershed Partnership](#), a coalition including Great River Greening, Nicollet Soil and Water Conservation Districts and Gustavus Adolphus College, is working to communicate practices to farmers that help them as well as protect local water systems.

“It’s finding that balance,” said Brad Gordon, southern Minnesota program manager for Great River Greening.

Much of this work is funded through a Minnesota Pollution Control Agency grant that focuses on implementing better farming practices in the watershed and communicating the impacts on water quality.

Seven Mile Creek drains water from 24,000 acres of Nicollet County farmland through the county park and into the Minnesota River. The amount of water that flows from the farmland into the creek and the amount of fertilizer used on the land greatly impacts the quality of the creek’s water.

Phosphorus and nitrogen, two primary nutrients in commercial fertilizers, can create algae blooms in the water. Some of these blooms can produce toxins that harm fish and even humans.

Members of the partnership have been working with local farmers to install systems that capture runoff and implement crops that better hold nutrients in the soil, reducing how much of the nutrients can end up in the creek.

One of these practices, called woodchip bioreactors, involves creating a trench filled with wood chips that captures nitrates from the water and converts it to nitrogen gas.

Another practice involves increasing the use of cover crops, such as Kernza. It is a perennial wheatgrass that has a deep root system. The deeper roots help capture carbon and hold water and nutrients in the soil, reducing how much runoff escapes a field and ends up in the creek.

Growing Kernza and other practices have been gaining traction in the area in the past few years, in large part because of the efforts from these groups to communicate with farmers.

“Some farmers in the watershed are really excited about trying new things,” said Laura Triplett, a professor at Gustavus Adolphus College.

Triplett and students at Gustavus have been gathering data from Seven Mile Creek to determine if the increase in these practices is improving water quality. The research is in its third year of a four-year grant.

The efforts appear to be working: Nitrate levels in the water have gone down since hitting a peak in 2013.

“It’s really encouraging. It seems like the work farmers are doing is trending in the right direction,” Gordon said.

It can be difficult to track exactly how much of a difference the projects have made, though, because rainfall varies year to year.

Several large storms occurred during the past couple of years that have increased erosion and runoff ending up in the creek. There was a mega rain event in July last year that dumped up to 11 inches of rain on some parts of the region in fewer than 24 hours, according to the Department of Natural Resources.



A researcher collects a sample of water from Seven Mile Creek shortly after a storm. Heavy rainfall can increase runoff and nutrients that ends up in the creek.

Courtesy Brad Gordon

The heavy rain from the storm caused soil loss for local farmers and Seven Mile Creek Park sustained heavy damage from the increase in water flowing through the creek.

“The devastation in the park was astounding,” Triplett said.

She said her work didn’t start out being about climate change, but the extreme weather is impacting the findings.

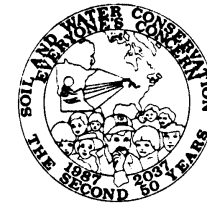
After big rain events, farmers need to drain excess water from the fields to protect their crops, but the problem is that the drainage ends up in the creek.

“These big events are pretty likely to stick around for years to come so it’s good to get some of these practices installed to help buffer against these rain events,” Gordon said.

The partnership is trying to prepare for this drastic weather by finding more ways to hold water back so these practices continue to help farmers and Seven Mile Creek.

Nicollet Soil & Water Conservation District  
501 7th Street, PO Box 457  
Nicollet, MN 56074  
507-232-2550

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# Nicollet SWCD News

2020

January

## LAWNS TO LEGUMES

### Funding available

Minnesota residents can now apply to be reimbursed for up to \$350 in costs associated with establishing pollinator habitats in their yards. Applications will be accepted until Feb. 28, 2020 and funding decisions and all notifications will be emailed in March for Spring 2020 installations.

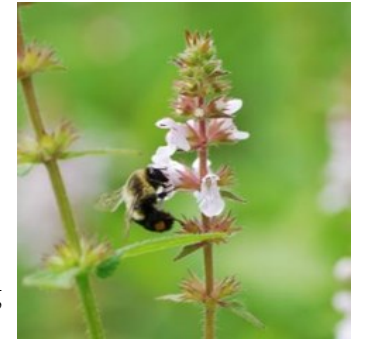


Photo credit: BWSR Website

The application is located on the Blue Thumb Partners website:  
[Bluethumb.org/apply-for-lawns-to-legumes-assistance](http://Bluethumb.org/apply-for-lawns-to-legumes-assistance).

### Key Ways to Incorporate Pollinator Habitat into Yards:

- Expand garden beds and plant pollinator habitat ie: native flowers.
- Remove existing lawn (using sod cutters, etc.) and seed a pollinator lawn seed mix that typically include no-mow fescues and flowers.
- Inter-seed flowers into existing lawn and increase mowing height and decrease mowing frequency.
- Convert large areas to prairie vegetation.
- Plant your rain-garden with pollinator-beneficial plants.
- Incorporate flowering shrubs and trees in the landscape such as chokeberry, dogwood, ninebark, hawthorn, cherry, plum, apple, maple and basswood.
- Provide nesting and over-wintering opportunities.
- Eliminate the use of insecticides and fungicides to the extent possible.

### Why Pollinator Beneficial Plantings Are Important:

- Many insects such as bees, butterflies, and moths that support our food and ecological systems are at serious risk.
- Pollinator beneficial plantings also provide water quality, carbon sequestration and other ecosystem benefits.
- Design, installation and management of pollinator plantings provide green industry jobs.
- Improved soil health.

### The Nicollet Soil and Water Conservation District

501 7th Street  
PO Box 457  
Nicollet, MN 56074  
Phone: (507) 232-2550

#### District Board

John Kral, Chair  
Tim Braun, Vice Chair  
Bruce Hulke, Secretary  
Robby Gieseke, Treasurer  
Eric Annexstad, Member

#### District Employees

Kevin Ostermann  
*District Manager*

Blake Honetschlager  
*District Technician*

Eric Miller  
*District Technician*

Judy Beetch  
*Administrative Assistant*

#### Office Hours:

Monday-Friday  
8:00am-4:30pm  
*Please call ahead to schedule an appointment.*

**Natural Resource Conservation Service**  
Phone: (507) 237-5435 ext. 3

April Sullivan  
*District Conservationist*

Katie Mattila  
*Soil Conservationist*

## Want the local weather?

Through funding provided by Gustavus and the MPCA, we now have three weather stations open to public viewing. Data can be accessed at [www.weatherlink.com](http://www.weatherlink.com) or by downloading the Davis Weather Link app on your mobile phone.

Create a free account and search for the stations named:  
SWCD Office, SWCD Belgrade 109-27-16 and SWCD Oshawa 110-27-24



Scan the above code with your phone camera to get the app!

This newsletter is published by the Nicollet Soil and Water Conservation District, 501 7th St., Nicollet, MN 56074 and USDA NRCS, 112 5th St, Gaylord, MN 56074. For more information regarding this newsletter, contact (507) 232-2550. **USDA is an equal opportunity provider, employer, and lender.**

Board Meetings are held the first Wednesday of each month at 8:30 a.m. Agenda posted on the website one week prior.



Online version available @ [www.nicolletswcd.org](http://www.nicolletswcd.org)  
Email [info@nicolletswcd.org](mailto:info@nicolletswcd.org) for updates  
"Like us" on the Nicollet Soil & Water Facebook page!

## SEVEN MILE CREEK

It's official, 2019 was the wettest year on record for Nicollet County. It doesn't take a rain gage to convince anyone in the area of that, but the previous record was in 2016 at 42.71 inches and 2019 had over 45 inches. Last year was wet! As a result of all the rain, Seven Mile Creek had excessive flow throughout the year, particularly in March, April, and May. Rainfall broke historic records over those three months and closed area trails, including many at Seven Mile Creek Park. Excessive stormwater from the watershed washed out ravines and flooded trails, overwhelming infrastructure throughout the ravine system.

All of the soil eroding from fields, ravines, and streambanks in the Seven Mile Creek Watershed makes its way into the creek itself and creates significant water quality issues. Some of that soil settles in the creek bed, floodplain, or sandbars within the creek, but many tons of that soil stays suspended in the creek and flows out to the Minnesota River – as can be observed by the creek's brown turbidity during those large flow events. Recent observations by Gustavus' Dr. Laura Triplett and her research team indicate that the majority of the sediment is from erosion in the ravines and downstream part of the creek's watershed in 2019. In response, County staff and partners – including Great River Greening – are hopeful about new opportunities for restoration and erosion prevention in the near future. Stay tuned for some of these new ideas, solutions, and efforts to reduce erosion in the next newsletter. **Brad Gordon, Ph.D, Great River Greening**



Photo taken by Nicollet County park staff

### United States Department of Agriculture Conservation Financial Assistance Programs:

**EQIP (Environmental Quality Incentive Program)**  
Continuous Sign-up - Now Accepting Applications for FY 2020 Funds

**CSP (Conservation Stewardship Program)**  
Continuous Sign-up—Now Accepting Application for FY 2020  
For more information, contact the NRCS Office at (507) 237-5435 x3

Natural Resources Conservation Service  
112 5th Street, PO Box 868, Gaylord, MN 55334  
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## MN CREP

2019 was a successful year for landowners in Nicollet County, who sought to enroll their property in the MN CREP program. Ten applications were submitted and funded by the state. Eight of the applications were wetland restorations in the Minnesota River floodplain. The other two applications were upland wetland restorations. In total, around 770 acres were enrolled into the permanent program this year.

On December 9<sup>th</sup>, 2019, enrollment in CRP was re-opened. As of the writing of this article, the SWCD has not received information regarding the next CREP sign-up period. Enrollment should be open after the first of the year. If landowners are interested, they should contact Eric Miller, Nicollet/Sibley Farm Bill Technician at the Nicollet SWCD office.

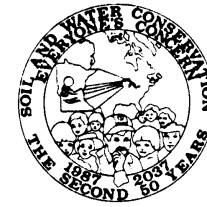


2020 Tree Order Form					Order Number (office use)
Mail Order NICOLLET SOIL AND WATER CONSERVATION DISTRICT					Name:
To: 501 7th St., PO Box 457, Nicollet MN 56074					Address:
PHONE: (507) 232-2550					Email Address:
QUALITY NURSING STOCK FOR CONSERVATION					Phone:
<b>CONIFER POTTED</b>					<b>Important Notice</b> Trees are distributed in April. We will notify you of your pickup day.  The cost of trees does not warrant free replacement and the district offers no guarantee of survival.
Species	Size	# of Trees	Cost		
1 Quart Blackhills Spruce	8-12"		x \$3.75/Tree =		
1 Quart Colorado Spruce	8-16"		x \$3.75/Tree =		
1 Quart Red Pine	5-10"		x \$3.75/Tree =		
1 Quart White Pine	5-8"		x \$3.75/Tree =		
1 Quart Ponderosa Pine	6-10"		x \$3.75/Tree =		
1 Quart American Arborvitae	6-12"		x \$3.75/Tree =		
2 Gal. White Pine	18-24"		x \$13.25/Tree =		
2 Gal. American Arborvitae	18-24"		x \$13.25/Tree =		
2 Gal. Blackhills Spruce	24-30"		x \$13.25/Tree =		
2 Gal. Colorado Spruce	24-30"		x \$13.25/Tree =		
<b>BARE ROOT DECIDUOUS</b> 1 Bundle = 10 Trees					<b>Payment due in full on day of order. No refunds on cancelled orders after February 23rd, 2020.</b>  Availability and size are subject to change.
Black Walnut	18-24"		x \$14.00/Bundle =		
Hackberry	18-24"		x \$14.00/Bundle =		
Norway Poplar	18-24"		x \$14.00/Bundle =		
Sugar Maple	18-24"		x \$14.00/Bundle =		
Red Maple	18-24"		x \$14.00/Bundle =		
Swamp White Oak	18-24"		x \$14.00/Bundle =		
Red Oak	18-24"		x \$14.00/Bundle =		
Bur Oak	18-24"		x \$14.00/Bundle =		
<b>SMALL TREES</b> 1 Bundle = 10 Trees					
Elderberry	18-24"		x \$14.00/Bundle =		
Crab, Red Splendor	18-24"		x \$14.00/Bundle =		
Nanking Cherry	18-24"		x \$14.00/Bundle =		
American Plum	18-24"		x \$14.00/Bundle =		
Amur Maple	18-24"		x \$14.00/Bundle =		
<b>SHRUBS</b> 1 Bundle = 10 Trees					If you would like to be notified of your pickup day by e-mail, please provide that information in the space provided above.
American Hazelnut	18-24"		x \$14.00/Bundle =		
Common Lilac	18-24"		x \$14.00/Bundle =		
Serviceberry (Juneberry)	18-24"		x \$14.00/Bundle =		
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Flame Willow	18-24"		x \$14.00/Bundle =		
<b>FABRIC TREE SQUARES &amp; ROLLS</b>					<b>Pickup location will be at the Nicollet SWCD 501 7th Street Nicollet, MN</b>
Price Includes 6"x1"x6" Staples		# of Mats or Feet			
Pre-Cut Tree Squares	3' x 3'		x \$1.65/Square =		
Fabric Roll Mat (whole roll)	300 Feet		x \$110.00/Roll =		
Grow Tubes (4ft Tall)	4 Feet		x \$5.00/Tube =		
			<b>SUBTOTAL</b>		
			<b>SALES TAX (7.375%)</b>		
<i>Please Round Sales Tax Correctly</i>			<b>TOTAL DUE</b>	<b>Make Checks Payable to Nicollet SWCD</b>	



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# Nicollet SWCD

2021

January

## Thank You Robby!

Robby Gieseke is awarded a plaque by Nicollet Soil and Water Conservation District Manager, Kevin Ostermann, for serving as District 4 Supervisor on the Nicollet SWCD Board from 2009—2020. Thanks for your many years of service Robby!!



## Now Taking Tree Orders for Spring Planting



The Nicollet Soil and Water Conservation District Tree Program was developed to provide landowners with an affordable and convenient way to purchase trees and shrubs for conservation practices. Practices may include: windbreaks, shelterbelts, living snow fences and wildlife habitat.

The tree program is on a first come, first serve basis. If you place an order, you will be notified by postcard when the trees can be picked up. Approximate delivery time is the end of April. Trees can be picked up at the Nicollet SWCD in Nicollet. The tree order form is on the inside back page and can also be found on our website: [www.Nicolletswcd.org](http://www.Nicolletswcd.org). Give us a call with any questions or to request that an order form be mailed to you.

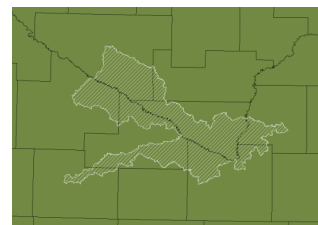
## Conservation Planning Services—In the Middle MN Watershed

Local, State, and Federal Agencies have come together to target conservation in the Middle Minnesota Watershed. Jennifer Hahn, the Middle MN Watershed Planner, is working with the conservation offices and producers in Nicollet, Sibley, and surrounding counties to work with landowners and operators on their resource concerns, provide plans and designs to address those concerns, and connect the producers to programs for financial assistance.

Did you notice erosion, compaction, poor stand areas, soft spots, etc. during harvest? Are you interested in increasing infiltration and/or organic matter? Do you need a pit closed or need a composting facility? Would you like to tighten up your input costs with a nutrient management plan?

These and other concerns can be assessed and a tailored plan can be created for you and your land free of charge. We can also help you sign up for financial assistance programs to help with the costs of implementing these practices.

Land within the Middle MN Watershed is eligible for these services.  
**Jennifer Hahn, Watershed Planner, Middle MN Watershed Phone: 651-485-7848**  
**Email: [Jennifer.hahn@mn.nacdnet.net](mailto:Jennifer.hahn@mn.nacdnet.net)**



### Potential Projects

- Erosion control
- Nutrient management
- Pest management
- Cover crops
- Reduced tillage
- Composters
- Pit closures
- Alternative intakes
- Prescribed grazing
- Forage management
- Pollinator/wildlife
- Feedlot practices
- More

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*Please call ahead to schedule an appointment.*

### Natural Resource Conservation Service

Phone: (507) 237-5435 ext. 3

April Sullivan  
*District Conservationist*

Katie Mattila  
*Soil Conservationist*

### United States Department of Agriculture Conservation Financial Assistance Programs:

**CRP (Conservation Reserve Program)**

*Ongoing-visit with FSA or NRCS*

**CSP (Conservation Stewardship Program)**

*Continuous Sign-up Now Accepting Applications for FY2021 Funds*

**EQIP (Environmental Quality Incentive Program)**

*Continuous Sign-up-currently accepting for potential 2nd round in 2021*

**WRE (Wetland Reserve Easements) Continuous Sign-up**

**For more information, contact the Sibley/Nicollet NRCS Office in Gaylord: (507) 237-5435**

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Email [info@nicolletswcd.org](mailto:info@nicolletswcd.org) for updates  
"Like us" on the Nicollet Soil & Water Facebook page!

## First Kernza® Perennial Grain Harvest in Nicollet County a Success



Dan Coffman holding his first Kernza® harvest.

Dan Coffman's first harvest of the new Kernza® perennial grain looked impressive, showing great promise for growing the crop in this part of the state. With 1,172 acres of Kernza® now planted in Minnesota (about 20 in Nicollet County), acreage is still gradually expanding as Forever Green at the University of Minnesota and growers across the state continue to learn more about the crop.

Kernza® offers exceptional opportunities for innovation and adding a new crop to growers' rotations. It's showing considerable interest for market development and it has excellent soil and water benefits too. Look for Kernza® products at local grocery stores, bakeries and breweries, or order flour at [perennial-pantry.com](http://perennial-pantry.com) to support Kernza's® establishment.

To find more information, resources will be available at [7-milecreek.org](http://7-milecreek.org) or email **Brad Gordon** at [bgordon@greatrivergreening.org](mailto:bgordon@greatrivergreening.org) with questions.

## Minnesota Soil Health Coalition

The Minnesota Soil Health Coalition is a farmer run, farmer led statewide organization with one primary goal — to improve soil health. Minnesota producers understood the importance of developing a coalition that was driven and led by producers to support and inform their fellow farmers in implementing best practices to improve soil health. As such, the Minnesota Soil Health Coalition was born in 2019. The importance of healthy soil is not only beneficial to the environment, but also to agriculture production.

### OUR PASSION

The Minnesota Soil Health Coalition is a farmer led and driven organization dedicated to providing education, farmer-to-farmer mentoring, networking, and plain language technical information. Two key goals of the Coalition are to provide farmer-to-farmer mentoring and soil health testing that couples management, economic, and agronomic data to more quickly provide real world information to the producers of Minnesota. The idea being that information is power—that the faster real world information is made available, the quicker management decisions can be made in the field.



### WHAT WE DO

#### EDUCATE

We provide education and training to farmers, agencies, and the public through both in person events and online resources, including videos, podcasts, articles, and more. Visit [mnsoilhealth.org](http://mnsoilhealth.org) for access to all our educational resources including a calendar of events.

#### MENTOR

We have developed a robust Farmer Mentor Network to provide farmers a personal resource to assist in achieving their soil health goals. Every one in our mentor network is thoroughly vetted and completed an onboarding process to ensure they are well versed in the best practices in soil health. Find a mentor online at: [mnsoilhealth.org/mentor](http://mnsoilhealth.org/mentor)

#### CONNECT

Improved soil health is the result of uniting conservation agencies, farmers, and leaders in the industry to advocate for large-scale adoption of soil health principals.

#### RESEARCH

Soil health initiatives vary depending on the soil itself, and developing a plan of action involves conducting research. This includes collecting, analyzing, and disseminating field scale data on soil health, management, and economics each year.

#### ORGANIZE

MNSHC plans and executes several collaborative events, trainings, field days, and meetings with producers and other entities throughout the year.

#### DEVELOP

MNSHC works with Minnesota farmers in developing agreements to monitor management, soil health, and economics.

Find out more at [www.mnsoilhealth.org](http://www.mnsoilhealth.org). Check us out on Facebook at <https://www.facebook.com/mnsoilhealth/>

Find newsletters, events, videos, technical information, podcasts, and more!

For more information, contact **Jennifer Hahn** [coordinator@mnsoilhealth.org](mailto:coordinator@mnsoilhealth.org)

The Minnesota Soil Health Coalition, a 501(c)3 nonprofit organization, is led by an elected board and composed of Minnesota agriculture producers.



2021 Tree Order Form					Order Number (office use)
Mail Order NICOLLET SOIL AND WATER CONSERVATION DISTRICT					Name:
To: 501 7th St., PO Box 457, Nicollet MN 56074					Address:
PHONE: (507) 232-2550					Email Address:
QUALITY NURSING STOCK FOR CONSERVATION					Phone:
<b>CONIFER POTTED</b>					<b>Important Notice</b> Trees are distributed in April. We will notify you of your pickup day.  The cost of trees does not warrant free replacement and the district offers no guarantee of survival.
Species	Size	# of Trees	Cost		
1 Quart Red Pine	5-10"		x \$4.00/Tree =		
1 Quart White Pine	5-8"		x \$4.00/Tree =		
1 Quart Colorado Spruce	8-16"		x \$4.00/Tree =		
1 Quart Blackhills Spruce	8-12"		x \$4.00/Tree =		
1 Quart American Arborvitae	6-12"		x \$4.00/Tree =		
2 Gal. White Pine	18-24"		x \$15.00/Tree =		
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Dogwood Redosier	18-24"		x \$15.00/Bundle =		
Flame Willow	18-24"		x \$15.00/Bundle =		
Cranberrybush	18-24"		x \$15.00/Bundle =		
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			<b>SUBTOTAL</b>		
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			<b>TOTAL DUE</b>		
<i>Please Round Sales Tax Correctly</i>				<b>Make Checks Payable to Nicollet SWCD</b>	

**Appendix 13: Nine Key Element Watershed Plan**

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**Seven Mile Creek Watershed**

Nine Key Element Watershed Plan

For Fecal Coliform, Nitrate, and Turbidity

February 2020

Prepared by

Great River Greening and Gustavus Adolphus College

Prepared for

Minnesota Pollution Control Agency

St. Paul, MN

## Background

The U.S. EPA has identified nine key elements that should be contained within a watershed plan (US EPA 2008). The Seven Mile Creek Watershed is well studied and collectively these reports can serve as the basis for a nine element plan. This document compiles these existing documents to address the nine key elements into the Seven Mile Creek Nine Element Watershed Plan to address phosphorus and sediment. Information and conclusions are summarized from the existing reports, to support consistency with each of the nine elements. References to the original reports are included; please refer to the original reports for the specific details of the analyses.

## Introduction

Seven Mile Creek is located within Nicollet County between the communities of Nicollet and St. Peter in South Central Minnesota and is located within the greater Minnesota River-Mankato Watershed. The watershed is 23,551 acres with 79% of acres being intensively managed for corn and soybean production and 14% being in forests, wetlands, and grasslands. The remaining land is developed, pasture, or other crops (NRCS-USDA 2019). The creek garners more attention than most waterways in the area due to Seven Mile Creek Park located at the mouth of the watershed. The county park is 640 acres and contains open, mowed areas and 10 miles of trails throughout the ravine system. The creek has been designated as a class 1-D marginal trout stream by the Minnesota Department of Natural Resources since 1985 (Kuehner 2009), and it is listed as a warmwater general use Class 2B stream and coldwater Class 2A stream in two sections by the Minnesota Pollution Control Agency (MPCA) (Bateman et al. 2019).

Many years of monitoring, assessment, implementation, and coalition building form the basis for the Seven Mile Creek Watershed Project, a collaborative effort to restore and protect the water quality of Seven Mile Creek. This Nine Element Watershed Plan summarizes the information gained through the work of dedicated staff and volunteers in several projects and identifies and prioritizes areas within the watershed where conservation efforts are needed.

Seven Mile Creek is impaired for lack of macroinvertebrate assemblage, lack of fish assemblage, fecal coliform, turbidity, and nitrate. It is stocked annually with Brown Trout in order to maintain a population in the creek. In the lower reach of the creek, total phosphorus has a high average concentration in Seven Mile Creek of 0.22 mg/L (the MPCA WRAPS report calculated a FWMC of 0.35 mg/L from 2007-2015), but the lack of secondary data prevented any conclusions about total phosphorus's impact on aquatic life in the stream. Nitrate concentrations ranged from 0.2 – 42.8 mg/L with an average of 16.4 mg/L (the MPCA WRAPS report calculated a FWMC of 21.5 mg/L from 2007-2015), and 68% of the samples exceeded the 10 mg/L standard. Stream bank and ravine erosion are a major source of suspended solids in the creek with total suspended solids (TSS) averaging 140 mg/L (the MPCA WRAPS report calculated a FWMC of 341.5 mg/L from 2007-2015), a high of 5,970 mg/L, and 60% of the samples exceeding the 10 mg/L standard for cold-water streams. However, the greatest mass of sediment flows through Seven Mile Creek during large rain events when massive ravine erosion takes place. In the upper, warm-water reach of the creek, nitrate ranged from 0.2 – 49.5 mg/L with an average of 17.8 mg/L (Bateman et al. 2019).

Temperature, nitrate, suspended solids, habitat, connectivity, and altered hydrology were all confirmed stressors for aquatic life in Seven Mile Creek (Bateman et al. 2019). However, nutrients and sediment discharge from the creek into the Minnesota River and contribute to water quality issues downriver. The loads of nutrients and sediment from this stream are significant and practices to address them should be prioritized in the greater watershed.

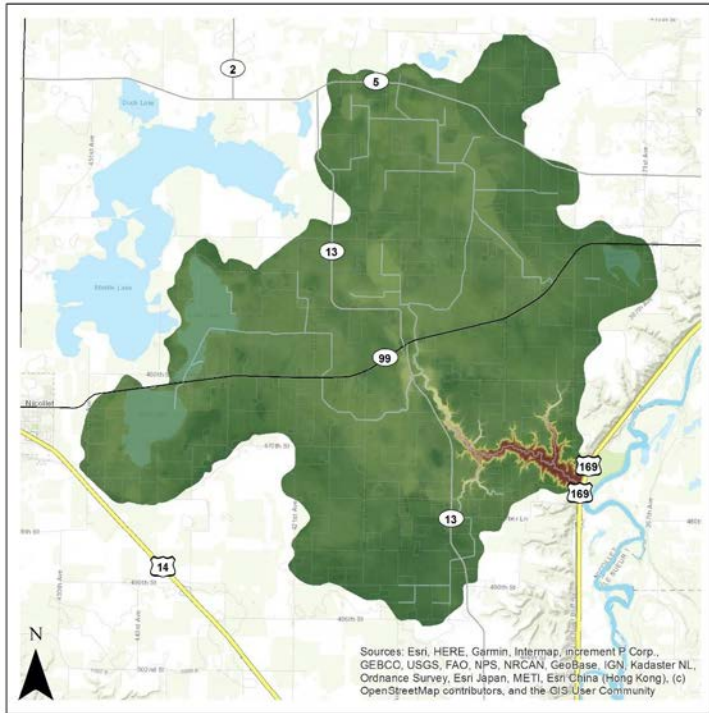
This watershed plan is a compilation of reports, strategies, and data from within the Seven Mile Creek watershed. The intent of this document is to provide a comprehensive and detailed plan that integrates the various components of the project, identifies additional information and actions needed, and meets the guidelines for watershed plans developed by the US EPA (2008). The plan describes the watershed, identifies water quality goals and objectives, quantifies the pollutants degrading stream water quality, and identifies the work needed to improve the water quality. The plan will be updated as the work is implemented, goals for water quality improvement are met, or greater priorities arise. The goal

for this document is to reduce nutrient, suspended sediment, and fecal coliform loads within the Seven Mile Creek watershed.

The plan incorporates the nine elements presented in the Clean Water Act Section 319 guidelines for watershed plans to fully address impaired or threatened waterbodies. The nine elements include:

- A. Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan.
- B. An estimate of the load reductions expected from management measures.
- C. A description of the nonpoint source management measures that will need to be implemented to achieve load reductions in paragraph 2, and a description of the critical areas in which those measures will be needed to implement this plan.
- D. Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.
- E. An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.
- F. Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious.
- G. A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.
- H. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.
- I. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item h immediately above.

The EPA watershed planning guidelines provide direction in developing a sufficiently detailed plan at an appropriate scale so that problems and solutions are targeted effectively.



## 7-MILE CREEK WATERSHED

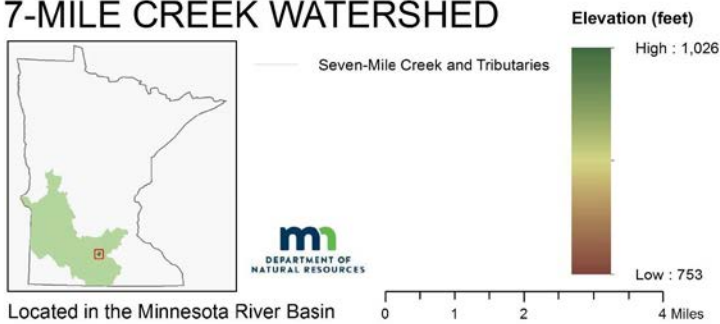


Figure 1. Seven Mile Creek Watershed located within the greater Minnesota River Basin. The majority of the tributaries to the creek are drainage ditches, and the elevation changes dramatically before the stream discharges into the Minnesota River.

### Watershed Description

#### Physical and Natural Features

The Seven Mile Creek Watershed is a 37-square mile (23,551 acres) watershed located between the cities of Nicollet and St. Peter in Nicollet County, Minnesota. The watershed is located in the Minnesota River Basin, within the Minnesota

River - Mankato major watershed (HUC8) in South-Central Minnesota (Figure 1). The stream flows directly to the Minnesota River. Flat agricultural fields (0-2% slope) dominate the upper watershed while steep, highly dissected, and forested terrain comprises the lower portion of the watershed. Cropland covers 81% of the watershed, dominated by corn and soybean production (NRCS-USDA 2019).

Seven Mile Creek transitions from being a drainage ditch to a stream where it flows under MN-99. The creek is 6.1 miles long from MN-99 to the Minnesota River. It originates as a series of public drainage ditches in the upper watershed. Most of the stream is a designated trout stream and flows through a 640-acre county park. Much of the upland watershed was originally comprised of wetlands but surface and tile drainage have been installed to enable crop production. By 1985, the agricultural drainage consisted of approximately 25 miles of surface ditches and 600 miles of sub-surface tile (Kuehner 2009). Significantly more tile has been installed since that time. By the 2000s, less than 15% of the original wetlands remained.

#### *Climate*

The climate of Seven Mile Creek Watershed is continental with cold, dry winters and warm wet summers. The average annual temperature from 1919-2018 in the Minnesota River – Mankato Watershed is 44.6 °F. The average annual precipitation over that same period is 28.5 inches and has increased to an average of 29.4 inches over the past twenty years (University of Minnesota 2019). Figure 2 illustrates the average monthly precipitation for the area. The water year average runoff coefficient from 1926-2005 as measured in Mankato was 0.12 (SD = 0.08), or approximately 3.4 inches (Vandegrift and Stefan 2010).

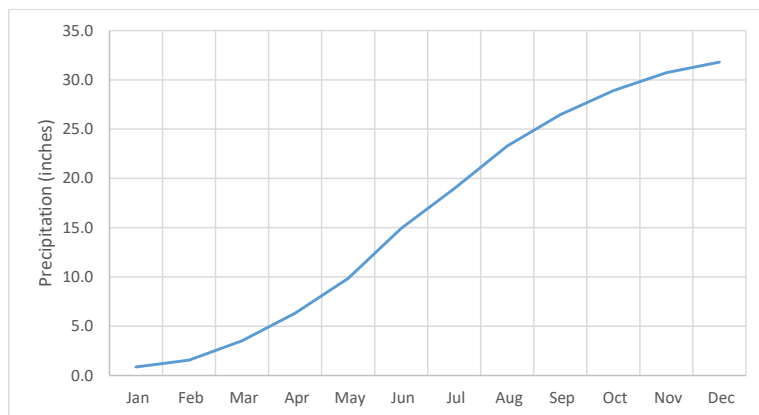


Figure 2. Cumulative monthly precipitation from 1981-2010 averages in Nicollet County, MN (University of Minnesota 2019).

#### *Hydrology*

Seven Mile Creek is a perennial stream originating near the intersection of County Road 13 and MN-99. The tributaries upstream of MN-99 are drainage ditches, and the stream enters a ravine system after it passes under the highway. It maintains a base flow of 1 to 3 ft<sup>3</sup>/sec from groundwater presumably upwelling from the Jordan Sandstone Aquifer. Three public ditches (CD 46, CD 13, and CD 24) and two public tile systems (CD 29 and CD 58) form the headwaters of the watershed. The ditches contribute water to the stream during spring and storm event runoff and typically become intermittent after July. A shallow subsurface flow component is present from the public tile systems, private tile systems connected to the ditches and public tile systems, and near-bank storage of surface water infiltrating to alluvial material

along the stream. Multiple seepage wetlands can be found within the ravine system where infiltrated surface water from the upland areas discharges near or in the stream. The groundwater and surface water interaction should be further investigated due to the effect each may have on the other in terms of water quality and quantity. Additional studies need to be completed to further the understanding of groundwater and surface water interactions within Seven Mile Creek.

According to 1854 Public Land Survey Maps, tributaries to Seven Mile Creek totaled about 7.3 miles at that time. Most of these tributaries meandered and extended from large upland prairie pothole wetland complexes. Many of the prairie potholes that were once scattered throughout the watershed were closed-flow intermittent wetland systems, which filled with rain and melting snow and then slowly evaporated or drained through the ground-water system during the late summer months. Under most conditions, water was trapped in these potholes and only a small portion entered the creek as runoff.

Artificial drainage systems were first established in the 1880s to manage the high water table present in much of the upper watershed and thus enhance crop production. The systems incorporated open ditches and tile drains. Today, approximately 25 miles of open ditches and approximately 15 miles of public drain tile exist in Seven Mile Creek Watershed. The estimate for private tiles lines was approximately 600 miles in 1985, but the current length of tile is unknown (Kuehner 2009) (Figure 3).

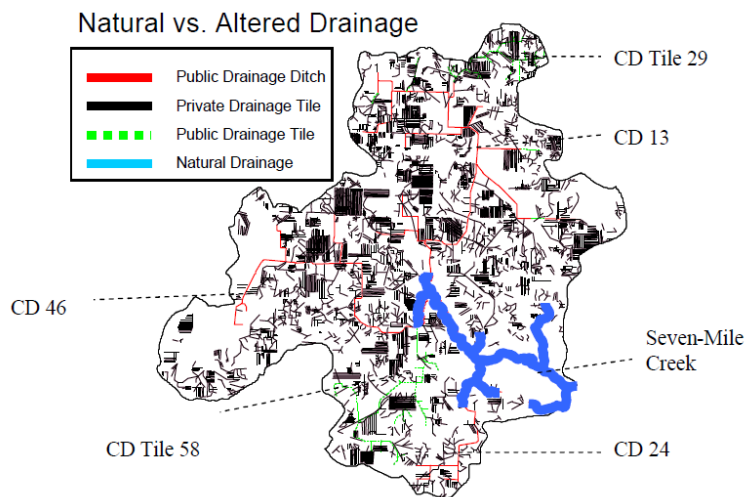


Figure 3. Natural and altered drainage in the Seven Mile Creek watershed from Kuehner 2004.

#### *Topography and Elevation*

Much of the watershed is nearly level or gently sloping until the slopes increase in the lower portion of the watershed (Figure 1). The watershed begins at an elevation of 1,020 feet and ends at an elevation of 746 feet. It drops 210 feet in its 6.1-mile length resulting in an average gradient of 34.4 feet/mile. The watershed above the ravine system is relatively flat, and the elevation drops only 25 feet from the northern-most extent of the ditch system to the start of the stream (where it intersects Hwy-99). A longitudinal profile of the northern ditch and the creek is shown in Figure 4 demonstrating the drastic elevation change of the stream compared to the ditches above the stream.



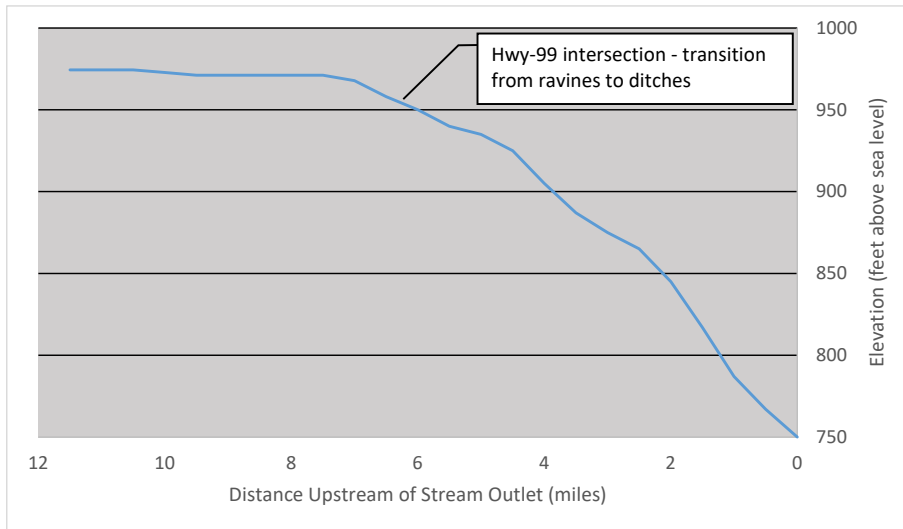


Figure 4. Water surface elevation of Seven Mile Creek by stream mile including elevations in the northern ditch tributary above the intersection with Highway 99.

#### Geology and Soils

The upper portion of the watershed lies in the Olivia Till Plain section of the Minnesota Lowlands province. It is covered by a thick mantle of glacial drift varying in thickness from 50 to 200 feet (Jackson 1994). The nearly level terrain of the upper watershed contains historical, small depressions, marshes, and swales characteristic of the immature drainage network of a young till plain.

Geomorphological composition of the Seven Mile Creek Watershed is predominantly till plains. Most of the soils in the watershed were developed in glacial till under tall grass prairie conditions. Soils consist mostly of poorly drained clay loams and silty loams on level land. Soils along the creek are mainly well-drained loams to poorly drained clay loams. As the creek descends into the Minnesota River valley, outcrops of Jordan Sandstone are evident. Soils near the mouth of the creek transition to alluvial deposits and coarser textured materials (Jackson 1994; Jirsa et al. 2011; USDA 2015).

The three dominant soil series within the watershed are the Canisteo Glencoe complex, Cordova clay loam, and Canisteo clay loams. Together these soils comprise nearly 40% of the watershed area (Figure 5). The Canisteo Glencoe Complex and Canisteo Clay Loam Series are very deep, very poorly drained, formed out of glacial till, slightly alkaline, and slopes approximately 0-2%. Cordova Clay Loam soils are characterized as very deep and poorly drained. They have moderately slow permeability in the upper part and moderate permeability in the lower part, were formed from ground moraines in glacial till, and have slopes in the 0-2% range (Jackson 1994).

Over 85% of the watershed is classified as prime farmland. Many areas that have not been considered prime farmland have been extensively tilled to improve drainage and make the land farmable. Poor drainage and steep slopes near the lower portion of the watershed are the primary limitations for crop production (Jackson 1994).

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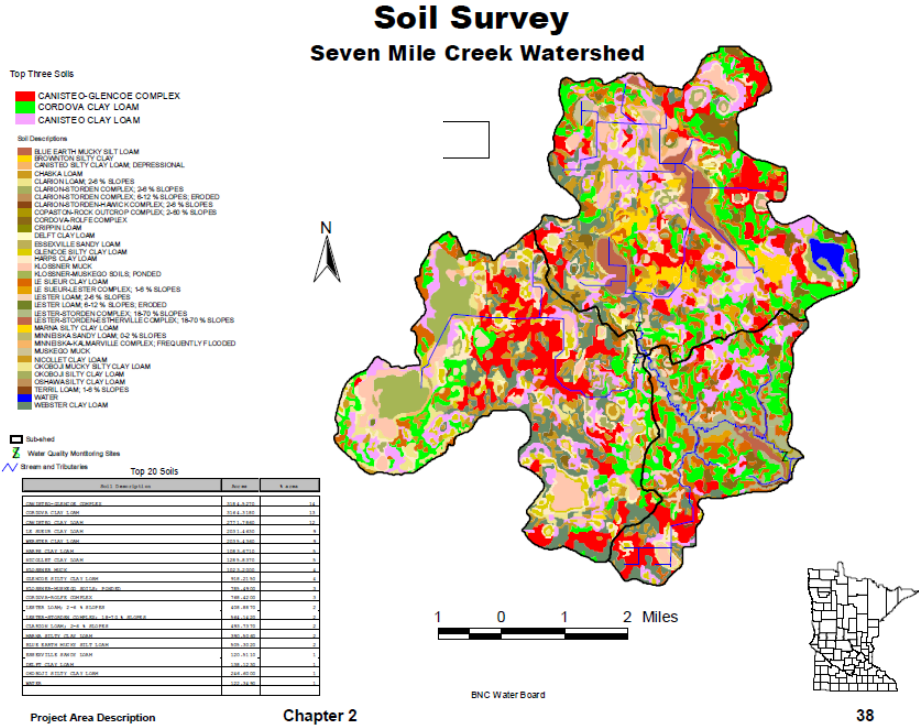


Figure 5. Soil types in the Seven Mile Creek watershed (USDA 2015).

**Vegetation**

Presettlement vegetation in the watershed was predominantly tall prairie grasses and wetlands with small areas of mixed deciduous hardwood forests scattered in the eastern portion of the watershed (Figure 6). Analysis of pre-settlement maps and survey notes by Kuehner (2004) indicate that about 50% of the watershed was once covered by wetlands (Figure 7). Current vegetation is dominated by corn and soybean production following extensive surface and tile drainage with a small area of remaining deciduous forest, wetlands, and grassland. Residential development is growing in the watershed, resulting in small areas of lawn, trees, and impervious surfaces.

## Presettlement Vegetation Seven Mile Creek Watershed

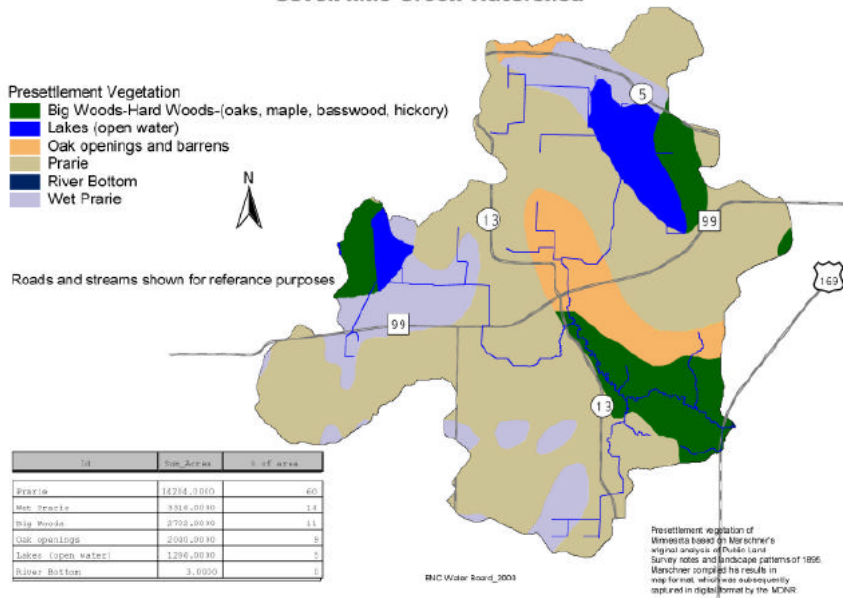


Figure 6. Pre-settlement vegetation in the Seven Mile Creek watershed.

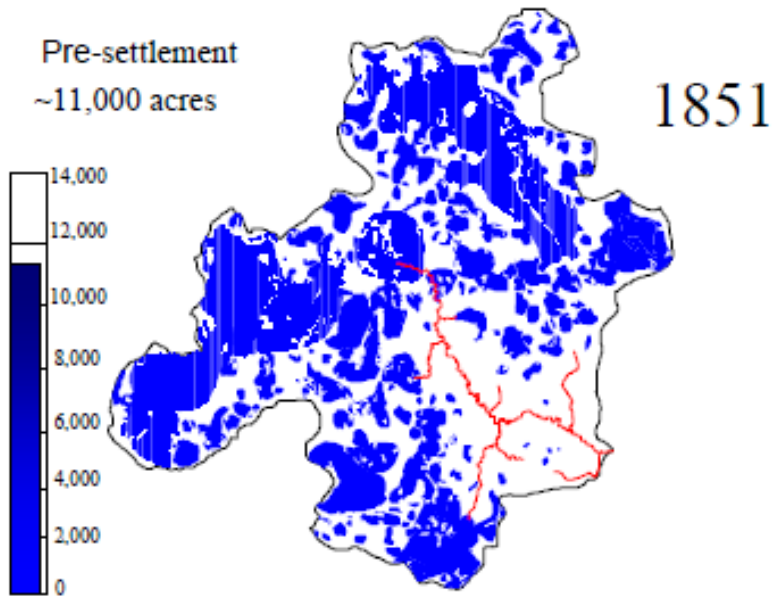


Figure 7. Estimated pre-settlement wetlands in the Seven Mile Creek watershed (Kuehner 2004).

#### *Fish, Wildlife, and Plant Species Status*

The county park provides a refuge for a diverse set of birds and animals. Songbirds, hawks, owls, wild turkeys, and other common southern Minnesota bird species are present in the park. No exotic or invasive aquatic animal species have been identified in the watershed. Common buckthorn (*Rhamnus cathartica*) is present in the wooded areas above and in the county park.

Cerulean warbler (*Setophaga cerulean*), Louisiana waterthrush (*Parkesia motacilla*), and Acadian flycatcher (*Empidonax vireescens*) have been identified as species of special concern by the Minnesota Department of Natural Resources. Plant species of special concern include American ginseng (*Panax quinquefolius* L.) and snow trillium (*Trillium nivale* Riddell). The yellow sandshell mussel (*Lampsilis teres*) is a state endangered species that has been found at the confluence of Seven Mile Creek and the Minnesota River.

Seven Mile Creek is classified as a Class 1-D marginal trout stream and is stocked with brown trout (*Salmo trutta*) by MN DNR (Kuehner 2009). This type of fishery is very rare for south central Minnesota due to the need for cold water temperatures and adequate habitat. The steep gradients and gravelly substrate of the creek, along with the heavily forested areas along its lower reaches, provide a unique habitat for brown trout. Fingerling brown trout were first introduced into Seven Mile Creek in 1986. Prior to this introduction, the stream supported a fish community dominated by cyprinid species.

Stocking information from the CWP Diagnostic Study Report indicated that fingerling brown trout were stocked in the late 1980s and early 1990s. DNR fish surveys note the survival of annually stocked trout, but also noted that low flows and the lack of deep pools with overhead cover were significant factors limiting the survival of the trout. Online DNR stocking records show that the stocking of 7,500 fingerling brown trout continued every year between 1998 and 2015, except for 2000, 2003, 2007, and 2009. In addition to the fingerlings, 333 yearling brown trout were stocked in 2001. A total of 10,500 fingerlings were stocked in 2004.

#### *Open Space, Forested Areas, Sensitive Areas, and Cultural Resources*

The 625-acre county park at the mouth of the watershed is a local and regional source of recreation. The park contains about 320 acres of mixed deciduous hardwood forest. The rest is open grass, developed, or wetland. Besides Minnemishinona Falls – a small, scenic overlook – the Seven Mile Creek County Park is Nicollet County's only park. The park has more than seven miles of hiking, biking, and horse trails. It has abundant bird and wildlife populations and provides a home for the bird and plant species of special concern in the watershed. It is often used for educational programs by local schools and universities, it has playgrounds and ball fields, provides fishing access, and opportunities for numerous other outdoor activities.

#### *Land Use and Land Cover*

Approximately 81% of the watershed is now agricultural land composed of corn and soybeans in rotation with some peas, sweet corn, alfalfa, and pasture (NRCS-USDA 2019). Some land is enrolled in state or federal conservation programs or too steep to farm, but most of the land is in row crops (Figure 8). The watershed contains 38 state- and county-permitted feedlots. Over 6,600 acres of cropland are permitted to receive spread manure by the county (MPCA 2020; Nicollet County 2020), and more acres likely have state permits for spread manure (current state data unavailable). The ravine system is largely wooded with some open areas, but it is mostly unmanaged due to its steep slopes. No municipalities exist within the watershed. State, county, and township roads are present along most of the section lines in the watershed.

The predominance of row crop agriculture in the watershed is due to the extensive water drainage that has occurred. As noted above, wetlands accounted for nearly 50% of the watershed's land cover prior to European settlement. However, wetlands now account for about 7% of the watershed (Figure 9). With the advent of federal Farm Bill policies and state wetland programs in support of wetland protection and restoration, over 940 acres of wetlands and grassland have been restored since 1985 (NRCS-USDA 2019).

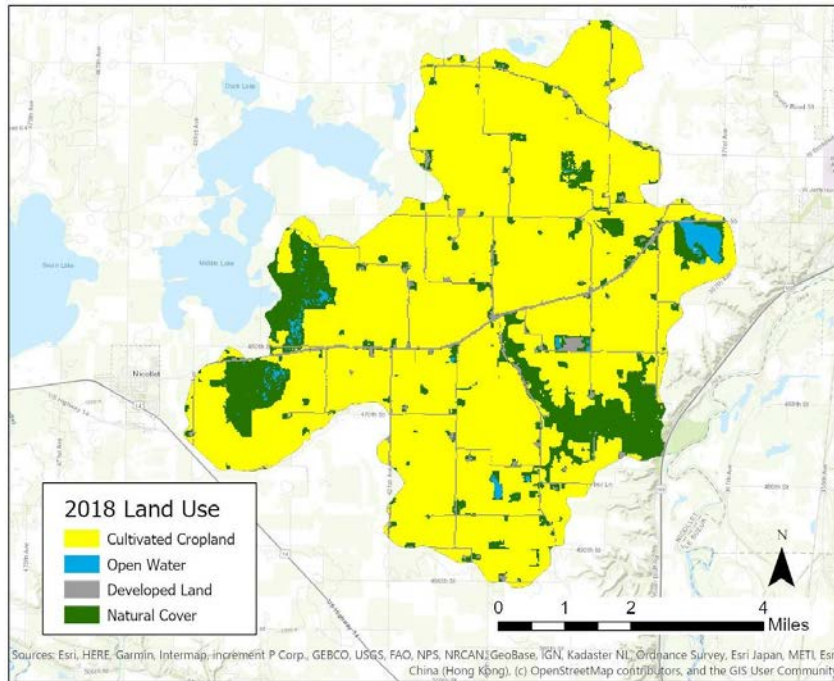


Figure 8. Seven Mile Creek watershed land use and cover in 2018.

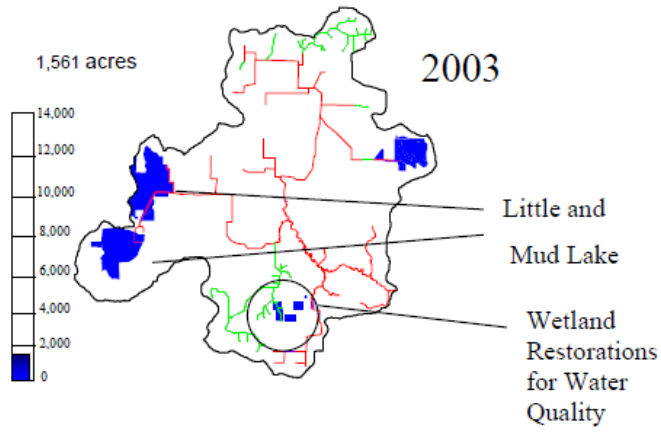


Figure 9. Remaining and restored wetlands in the Seven Mile Creek watershed in 2003 (Kuehner 2004).

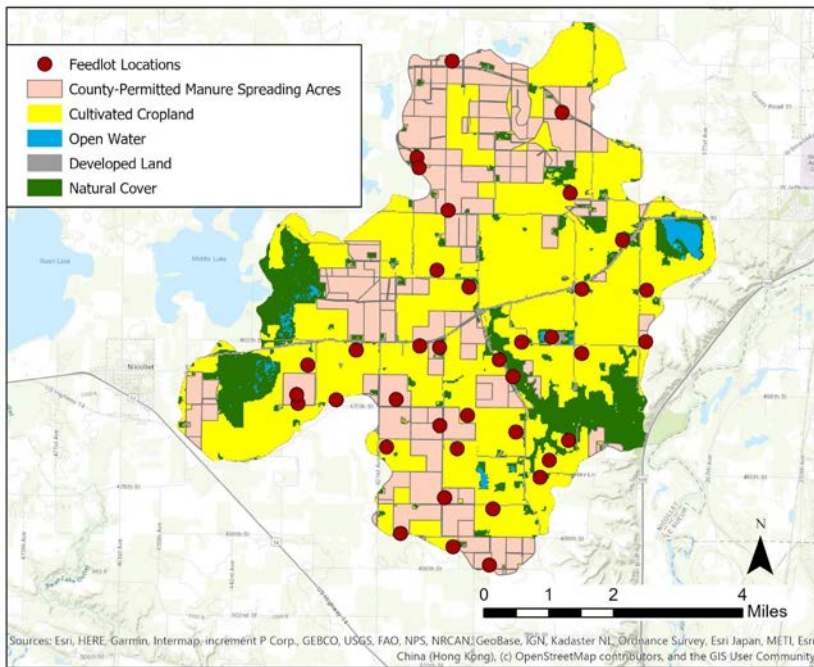


Figure 10. Feedlots and permitted acres for spreading manure within the watershed. Spreading acres in this map are only those permitted for manure application by the county (MPCA 2020; Nicollet County 2020). Larger feedlots with state spreading permits are not included in this map due to the GIS data being unavailable at this time.

*Developed Areas, Future Land Use Expectations, Political Boundaries, and Relevant Authorities*

The Clean Water Partnership (CWP) Diagnostic Study indicated that there were an estimated 157 homes in the watershed in 2001 (Figure 10). The watershed population was estimated at just over 500, assuming an average household of 3.3 people. Most of the houses in the watershed are located on farmsteads however some individual rural residential development has occurred. Nicollet County does not allow urban land uses in the county's agricultural districts. According to the Nicollet County Zoning Ordinance, the county will only consider rezoning for commercial, industrial, or platted residential use on land immediately adjacent to municipal boundaries where municipal services can be provided. One new dwelling per quarter section is allowed in all the districts outside of the cities, provided that the building lot has access to a public road.

The watershed is located entirely in Nicollet County. The majority of the watershed is located in Oshawa Township and smaller portions are located in Traverse, Belgrade, and Nicollet Townships. A portion of the watershed lies within the City of St. Peter wellhead (source water) protection area (Figure 11). The St. Peter drinking water wells are in areas of high vulnerability to nitrate contamination and costly treatment (Boettcher and Spindler 2019).

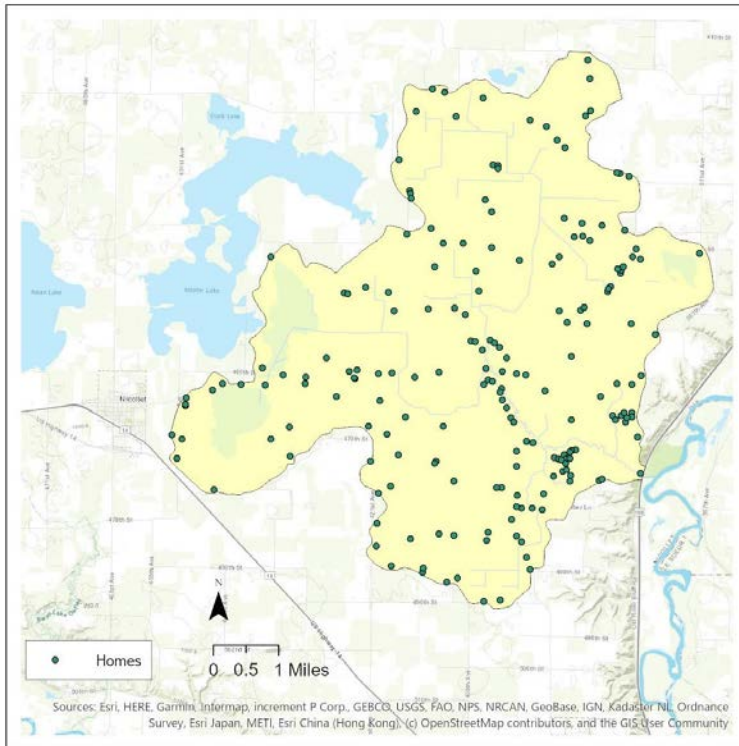


Figure 10. Home locations in the Seven Mile Creek watershed (Nicollet County 2020).

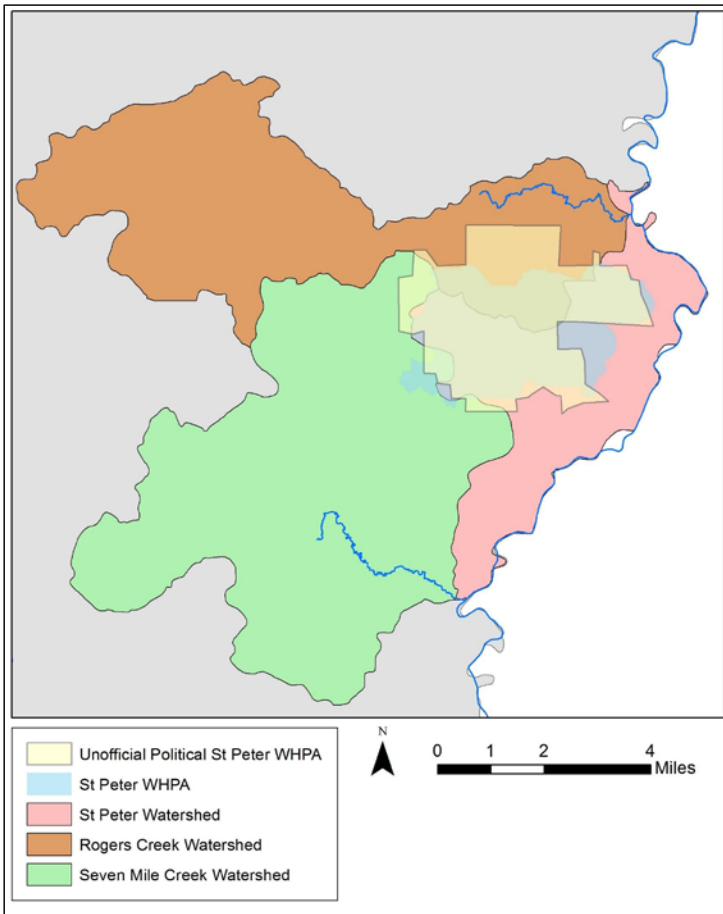


Figure 11. Watershed boundaries and the St. Peter Wellhead Protection Area (WHPA).

### Septic Systems

Septic systems are required in all homes located in the watershed. Based on estimates by the Nicollet County Environmental Services Department, there are 199 septic systems in the Seven Mile Creek Watershed. Of those systems, 154 were built since and in compliance with the 1996 Minnesota Rule 7080, 10 have not been updated since the rule, and 35 have no record (Figure 12, MPCA 2014d). Septic systems constructed before Rule 7080 are likely less effective than those built since the rule was established. Based on the current data, 77% of the septic systems in the watershed are compliant with the current rules and standards. This is a significant improvement from 2001 data displaying only 38% compliance within the watershed (Kuehner 2001) and local county data listing compliance possibly as low as 20% (Nicollet County 2020).



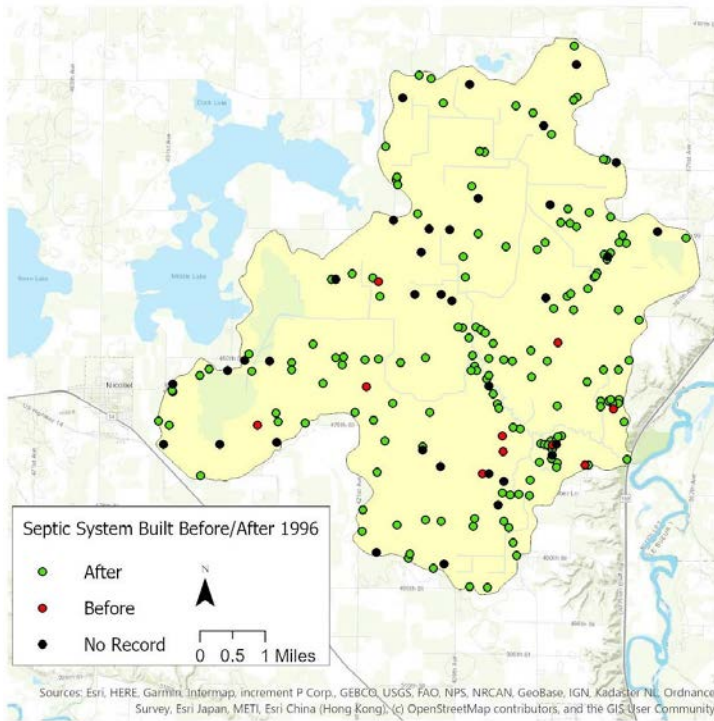


Figure 12. Locations of septic systems in the Seven Mile Creek watershed. Systems constructed before the new rules in 1996 are likely less effective than those constructed after 1996 (MPCA 2014d). Many older systems have been updated and are now categorized as being constructed after 1996 (Nicollet County 2020).

#### Element A. Identification of causes of impairments and pollutant sources

The MPCA has divided Seven Mile Creek into two sections with impairments. The first section (703) extends from MN-99 to CD 46A. It is a warmwater general use Class 2B impaired for lack of macroinvertebrate assemblage, fecal coliform, and turbidity. The second section (562) extends from CD 46A to the Minnesota River. It is a coldwater Class 2A impaired for lack of macroinvertebrate assemblage, lack of fish assemblage, fecal coliform, nitrates, and turbidity (Bateman et al. 2019).

The greatest suspected sources for stressors in the two sections of Seven Mile Creek include tile drainage/land use for nitrate; flow alteration/velocity, streambank erosion, and tile/channelization for suspended solids; and channel morphology and bedded sediment for habitat; altered hydrology for temperature; flow alteration and road crossings/perched culverts for connectivity; and altered waters/channelization, reduced baseflow, and tile drainage/land use for altered hydrology (Bateman et al. 2019). Sources for fecal coliform were not discussed in the MPCA stressor report, but the most likely sources listed in the Minnesota River – Mankato draft WRAPS report that would likely be sources in Seven Mile Creek include surface runoff from crops with surface-applied manure, surface runoff from crops with subsurface-applied manure, environmental propagation, failing or absent septic systems, pets and wildlife, pastures, and feedlot runoff (Boettcher and Spindler 2019). In a study using HFERP DNA fingerprint analysis in Seven Mile Creek, *E. coli* populations consisted of both transient and persistent strains, some of which appeared to be naturalized to the environment (particularly sediment) but were mixed with newly contributed strains of *E. coli* (Sadowsky et al. 2010).

Total phosphorus concentrations in Seven Mile Creek oftentimes exceed the 0.150 mg/L standard, and this exceedance is usually during higher flows in the creek (Fettig et al. 2016). However, due to a lack of secondary data (Chl-a, BOD, Do flux), results were inconclusive as to whether phosphorus was a stressor for impairments in Seven Mile Creek (Bateman et al. 2019). Regardless of whether phosphorus is a stressor in Seven Mile Creek, it should be reduced due to the load contributing to phosphorus induced impairments downriver.

#### Element B. Expected load reductions for solutions identified

Solutions for stressor remediation/mitigation include agricultural BMPs such as bioreactors, WASCObS, cover crops, perennial crops, fertilizer management, filter strips, grass buffers, and others. Investments in agricultural BMPs that simultaneously remove nitrate from drainage, store water, and reduce runoff would be ideal. Reducing flow into the creek during rain events could reduce numerous causes of impairments from ravine and streambank erosion to phosphorus. Upgrading and repairing septic systems and feedlots throughout the watershed could reduce bacterial inputs and nutrients to the creek. Removing barriers along the stream could improve fish habitat and connectivity where removal of these structures is possible. Remeandering ditches and restoring floodplains could reduce flow, sediment, and nutrients flowing downstream. Improving the growth of deep, densely rooted vegetation around the ravine system could reduce streambank erosion, channelization, and slope erosion (Lenhart et al. n.d.). Installing engineered erosion control and water retention structures and improving hiking trail design could be helpful in highly erodible areas or where safety for park users is a concern.

Reductions of pollutants will depend on the practices implemented. In the Seven Mile Creek Watershed, one bioreactor installed in 2015 and two drainage water management systems installed in 2017 and 2018 reduced estimated loads of 1,700 lbs of nitrogen each year. A combination of 46 other BMPs installed throughout the watershed between 2013 and 2018 reduced as much as 3,700 lbs of phosphorus and 1,900 tons of sediment each year. The TSS load from Seven Mile Creek into the Minnesota River ranged from approximately 205 to 17,300 Mg/yr from 2007 to 2013 (Baskfield 2016; Lenhart et al. n.d.), and the ravines in this system are eroding rapidly each year. Addressing the erosion in the ravines could reduce the loss of thousands of tons of sediment each year (Lenhart et al. n.d.).

#### Element C. Nonpoint source management measures

The biophysical goals for the Targeted Watershed Demonstration Program (TWDP) project were to reduce the erosion rates of ravines in Seven Mile Creek County Park, reduce peak stream flows, and retain nitrogen and phosphorus in the crop-soil system. A socio-economic goal was to establish a small-scale, intensively community-focused approach of the Seven Mile Creek project to achieve and demonstrate a “social-economic-environmental triple win” in improving water quality along with providing a sustainable agricultural system in the watershed.

Recognizing the need for this broader socio-economic goal, the Seven Mile Creek Partnership developed a community-led approach that emphasized personal engagement in creating locally-led solutions. This collaboration began with the Nicollet Soil and Water Conservation District (SWCD), Great River Greening (GRG), and the Minnesota Agricultural Water Resource Center (MAWRC) reaching out to agricultural producers to gain their trust and understand their goals and priorities. This focus was formalized through a multi-year community engagement effort to build local ownership of the water quality challenges in the watershed by enlisting local champions to lead the charge for action (Fellows, Green, and Davenport 2017). The effort involved the following:

- MAWRC working with the Nicollet County Farm Bureau and Minnesota Pork Producers to identify influential local leaders willing to bring their neighbors together to discuss and work on water quality concerns;
- GRG coordinating the overall effort and facilitating water quality conversation among non-farm rural landowners and recreational users of Seven Mile Creek Park in the context of non-farm land uses; and
- University of Minnesota providing a baseline assessment of the watershed community’s capacity for collective action on water quality at the outset of the project, an evaluation at its close, and facilitation support during the project.

The conservation practices targeted for implementation included:

- Sediment control projects
  - Ravine stabilization
  - Buffer establishment
  - Water and sediment control basins
  - Grade stabilization
  - Tile side inlet replacement
- Targeted drainage improvements
- Cover crops and conservation tillage
- Tile outlet interventions
  - Saturated buffers
  - Tile treatment wetlands and
  - Bioreactors
- Nutrient management
- Feedlot assistance

#### Element D. Technical and financial assistance

Direct project funding has been received from various sources leading up to and in addition to the Clean Water Partnership program funding. The sources include Nicollet County, Great River Greening, Minnesota Board of Water and Soil Resources, McKnight Foundation, Bush Foundation, US Department of Agriculture – Natural Resources Conservation Service (USDA – NRCS), US Army Corps of Engineers (USACE), and Fishers and Farmers Partnership. In addition to direct funding, watershed work has been completed within other local, state, and federal agencies and organization programs. Some of the work has been described above. Other agency or program work in the watershed includes work performed by the University of Minnesota Extension, Minnesota Department of Agriculture, Minnesota Department of Health,

Minnesota Department of Natural Resources, Gustavus Adolphus College, Minnesota State University at Mankato, US Forest Service, and University of Minnesota – Twin Cities. The Seven Mile Creek TWDP Project, funded by state Clean Water Funds and matching local, state, and federal funds, provided the foundation for the current project work.

Costs for practice implementation have been funded by the TWDP grant, National Water Quality Initiative (NWQI) Environmental Quality Incentives Program (EQIP) funds, and nonprofit organization grants, combined with mandatory landowner cost-share contributions. Some expenses have been provided by in-kind staff support and volunteer labor. Technical assistance is provided through the TWDP grant and by the NRCS for NWQI activities. However, much of the success of this plan relies upon voluntary implementation of agricultural BMPs. Estimated costs for each practice can be found in the Agricultural BMP Handbook for Minnesota (Lenhart et al. 2017).

#### Element E. Information and education

Developing one-on-one personal relationships and the trust that slowly develops among watershed residents and government staff, combined with the exchange of information and ideas are more likely to affect an individual's decision to make changes over time than one-way information sharing. A new approach to watershed planning and management was needed – one that spoke to both the civic imagination and the self-interest of watershed residents. When given a meaningful role to play in creating and advancing a watershed plan and the ability to influence local decision making, many citizens find participation in these community activities rewarding and meaningful. Small groups of committed citizens dedicated to collaboration, civic involvement, and cooperation have proven their ability to make a significant difference in advancing new practices and creating mutually beneficial agreements that can improve water quality. However, in order for this to happen, government organizations must create the right kind of public “stage.” Creating accountability mechanisms around watershed plans is also critical to ensuring that any cooperative plan is implemented and adapted over time.

In Seven-Mile Creek watershed, some of these new ideas had taken root and begun to bear some fruit in 2017 when the 319 project was first proposed. Local efforts began with direct outreach to landowners – meeting one-on-one and taking the time to listen, working to understand landowner goals and priorities, and developing a trust with them in recent years. The approach was developed further through a collaborative visioning, goal-setting, and conservation planning process by the Seven Mile Creek Watershed Partnership. The process depended entirely upon the collaboration of the people that live and engage in activities within this watershed. Ongoing outreach activities include events, gatherings, forums, and field days as well as encouraging community members to communicate with each other.

Great River Greening, the Nicollet County Soil and Water Conservation District, and Gustavus Adolphus College are coordinating the current overall effort and facilitating water quality conversations among farmers, non-farm rural landowners, and recreational users of Seven Mile Creek Park in the context of farm and non-farm land uses. County staff are coordinating outreach efforts for work performed within the park and ravine system. Other groups and agencies who have been involved or will continue to be involved in these outreach efforts and community conversations include the MPCA, NRCS, Minnesota Farm Bureau, Fishers and Farmers Partnership, MDA, USACE, BWSR, MNDNR, Minnesota Corn Growers Association, Minnesota Agricultural Water Resource Center, University of Minnesota Extension, The Prairie Enthusiasts, Trout Unlimited, Pheasants Forever, Minnesota State University – Mankato, and multiple outdoor recreation clubs.

#### Element F. Implementation schedule

Implementation of the watershed plan for Seven Mile Creek should initially focus on issues identified as high priorities in this plan. Implementation progress will depend on available funding and the implementation schedule must take into account this dependency. Significant delays in securing sufficient funding will necessitate an extension of the implementation schedule.

Given these considerations, the following timeframes have been established for implementation of management measures, to the greatest extent practical, within the identified watersheds:

- High priority sources – 10 years from plan date
- Medium priority sources – 15 years from plan date
- Low priority sources 25 – years from plan date

#### Element G. Milestones

Implementation progress can be measured by the miles or acres of management measures installed within the watershed. For each of the high, medium and low priority sources, implementation should be assessed at the 5, 13 and 20 year marks from plan date, respectively, with the goal of having 60% of the needed practices on the ground at the respective assessment points. Measurements of implementation may include:

- Miles of stream banks stabilized
- Miles of buffer strips
- Acres of cover crops
- Acres of conservation tillage
- Acres of alternative crops seeded
- Miles of grassed waterways
- Number of stabilization structures installed
- Acres of land managed for vegetation/erosion
- Feet of hiking trails restored



#### Element H. Assessment criteria

This watershed plan focuses on identifying and reducing loads of fecal coliform, nitrate, and suspended sediment. Although total phosphorus (TP) is not a current impairment for Seven Mile Creek, it needs to be assessed due to the limited samples indicating that the creek exceeds standards. The Minnesota River – Mankato WRAPS draft has a 50% reduction goal in lake and stream loads entering the Minnesota River over the next 50 years and a 10% reduction goal over the next 10 years. The annual load of TP to the Minnesota River should be assessed. The criteria to assess fecal coliform are based on the Minnesota River – Mankato WRAPS draft to reduce the load of bacteria in the Minnesota River by 60% over 40 years with a 13% reduction goal over the next 10 years. The criteria to assess nitrate are based on the WRAPS draft goal to reduce nitrogen loads in the Minnesota River by 60% over 55 years and 10% over the next 10 years. Concentrations of nitrate in the creek have consistently exceeded standards. Load reductions will be monitored where the creek discharges into the Minnesota River. The criteria to assess sediment loads are based on the WRAPS draft goal to reduce sediment by 50% over 40 years and by 12% over 10 years. The majority of loads of each parameter from Seven Mile Creek to the Minnesota River have typically come from only a few large rain events each year. Therefore, the most important assessment criteria of each will annual loads.

It is expected that implementation of a combination of management practices identified in Element C will result in the achievement of the assessment criteria for each of the above loads.

## Element I. Monitoring

### Monitoring Approach

A multi-scale and interdisciplinary monitoring approach will be used to capture watershed and water quality changes to document the effectiveness of watershed management activities in improving water quality. It will also provide data in which to test current assumptions and knowledge regarding pollutant and other stressor sources, processes and pathways, and watershed responses (human health, aquatic life, agricultural production, and downstream loads).

Combining the current and future intensive implementation efforts with the intensive monitoring approach is important given the complexity of and difficulty in linking BMP implementation with measurable water quality outcomes at the watershed-scale. Several opportunities exist in the watershed to connect to and build on previous monitoring and research efforts to support the examination of linkages and processes from the field-scale to small watershed scale for improved watershed management.

### Monitoring Goals and Objectives

Water quality monitoring within the watershed plan serves multiple goals. The end result is to demonstrate water quality impacts of land management practices for watershed residents and users. The approaches for watershed monitoring in this plan are to:

- Evaluate the effect of BMP implementation on the water quality of Seven Mile Creek and its impacts to the connecting overall watershed
- Identify and document the sources and pathways of pollutants and other variables that affect the ecological health of Seven Mile Creek

Each goal has one or more objectives that provide descriptions of specific monitoring types and designs needed to achieve the watershed monitoring goals. Some overlap will occur as the monitoring unfolds, but it is hoped that the individual objectives will provide a framework in which to integrate data collection when possible and differentiate monitoring efforts when needed. The monitoring objectives for each monitoring goal are listed below by goal:

- 1) Evaluate the effect of BMP implementation on the water quality of Seven Mile Creek and the subwatershed in the Seven Mile Creek watershed.
  - a) Utilize before/after implementation upstream/downstream watershed monitoring design to evaluate if water quality changes to the stream can be attributed to ravine restoration practices. Secondarily, evaluate if restoration and management practices result in water quality changes in the watershed. This will be monitored by streamflow, chemistry, biology, and geomorphology.
  - b) Continue the Watershed Pollutant Load Monitoring Network (WPLMN) site near the mouth of Seven Mile Creek for use in trend analysis.
- 2) Identify and document the sources and pathways of pollutants and other variables that affect the ecological health of Seven Mile Creek.
  - a) Design and conduct *E. coli* monitoring to isolate the source of elevated bacteria levels in the stream and document whether concentrations have decreased with the upgrade of watershed septic systems.
  - b) Design and conduct water quantity monitoring and use the monitoring data to develop a detailed water budget to evaluate changes in hydrology attributable to implementation practices.

### Monitoring Timeline

Evaluating changes in water quality attributable to land use and/or management activities, restoration projects, and pollutant treatment systems takes a long time as described previously in this plan. The watershed plan is written as a ten-year plan, but the work in the plan will likely extend well beyond ten years. Monitoring data is needed prior to any implementation activity in addition to after the activity is completed. Adding to that, seasonal and annual variability in weather, vegetation, management practices, and other landscape factors will likely mask any changes in water quality. The monitoring approach in this plan, therefore, is viewed as a ten-year effort that will require considerable support from individuals, agencies, universities, and funding programs.

### **Monitoring Designs**

A major purpose of the monitoring is to provide the necessary data to evaluate if water quality changes can be attributed to watershed project implementation activities. As such, it is important to provide a “before implementation” baseline of data and an “after implementation” data record. It is also important to have data from an area that did not receive implementation (i.e., baseline data) along with data from the area receiving implementation to allow a comparison between the two conditions.

The geographic layout of the Seven Mile Creek watershed combined with the presence of previous monitoring data allows the setup of, at least, before-after designs. An upstream/downstream control/treatment design will be developed using the current load monitoring site near the mouth of the stream and two load monitoring sites that will be re-established on the primary upstream tributaries. The two upstream load sites and their watersheds will be evaluated for use as a paired-watershed monitoring design featuring adjacent watersheds with and without implementation activities combined with before and after implementation monitoring. The use of smaller, field-scale paired watersheds will also be explored.

A water quality assessment package will be developed and deployed utilizing simple to advanced monitoring setups to provide landowners with immediate feedback about the quality of water leaving their land before and after individual BMP projects are implemented. Nicollet County and Great River Greening have identified this field-scale feedback as a critical need in their effort to mobilize additional landowners in the watershed.

### **Monitoring Types**

Several different types of monitoring will be incorporated into the monitoring approach for the watershed.

- Water quality and streamflow monitoring will be completed to track pollutant concentrations and loads moving in the watershed system. Water quality sampling will involve both grab sampling, automatic samplers, and field meters and sensors. Water quality variables include various forms of phosphorus and nitrogen, total suspended solids, turbidity, bacteria, pesticides, and other variables.
- Biological monitoring will involve fish, macroinvertebrate, and stream habitat sampling.
- Fluvial geomorphology monitoring will include physical measurements of the stream and valley including cross-section dimensions, slope, sediment particle sizes, stream bed and banks materials in the determination of stream stability and sediment loss and deposition estimates.
- Watershed characteristics monitoring will be completed. While often not thought of as monitoring, the collection of a wide range of watershed characteristics is important in documenting factors that affect the movement of water and pollutants in the system along with overall ecosystem functioning. Variables that will be tracked range from geology, soil types, and topography to soil conditions, cropping patterns and management, ravines, and vegetation (plant/tree species richness, percent cover, frequency and age).

## Monitoring Sites

Monitoring will be conducted at several sites in the watershed, as described in Tables 3 and 4 below. Some sites will be monitored regularly over the long-term, while other sites will be monitored for relatively short periods of time. Types of results are briefly described here:

- Long-term pollutant load monitoring will occur at three sites in the watershed: SMC1, SMC2, and SMC3. The monitoring will involve continuous water level measurements, streamflow measurements, and water quality sampling.
- In addition, the MDA samples pesticides, nitrate, and a few other variables at the site as part of their pesticide monitoring program. The two tributary sites are being re-established following a few years of not being monitored.

Other sites will be monitored for biological and geomorphological characteristics by MPCA and DNR.

Additional monitoring sites will be established to evaluate project- and field-scale implementation activities. Given the large contribution of ravine erosion to the sediment loading in the stream, a ravine will be selected for monitoring before and after restoration activities are completed to obtain a better estimate of ravine contributions to the stream and subsequently the effect of restoration activities.

## Streamflow monitoring

Streamflow monitoring at the outlet site will be completed by the MN DNR following their standard operating procedures. From 2016-2021 the tributary gage sites will also be monitored following MN DNR procedures by Gustavus College faculty and students. Continuous water level data is collected, processed, and stored in the MPCA/DNR times series database (currently Hydstra). Streamflow measurements and rating curve development were done by the MN DNR at the outlet site.

A constraint in the collection of water quality data in small watersheds is the difficulty in operating gage sites in the winter. Water level recording equipment is typically operated during the open water season (usually March to November).

## Water quality sampling

In recent years, stream water quality samples will be collected by a combination of grab sampling, automatic sampler sample collection, and field meter measurements. Water samples are collected at the outlet site by MPCA staff following MPCA standard operating procedures. MDA staff also collect grab samples at the outlet site for pesticide and nutrient analysis. Grab sampling at the two tributary sites is being conducted during 2016-2021 by Gustavus College faculty and students along with project staff following MPCA standard operating procedures.

Sample collection using automatic samplers is completed by MDA staff at the outlet site following MDA standard operating procedures. Automatic samplers at the tributary sites are being operated by Gustavus College faculty and students following MDA standard operating procedures from 2017-2021.

From 2018-2021, water samples will be analyzed in a certified laboratory and the Gustavus laboratory for these parameters:

- Nitrogen forms
  - Nitrate+nitrite as nitrogen
  - Total Kjeldahl nitrogen
  - Ammonia as nitrogen
- Phosphorus forms
  - Total phosphorus
  - Dissolved ortho-phosphorus

- Total suspended solids
- *E. coli* bacteria

Laboratory analysis of samples by a MDH-certified laboratory is required for samples collected with MPCA grant funding. MVTL is the certified lab that will likely be used for general sample analysis. To expand the dataset, samples will also be collected for analysis at the Gustavus laboratory.

#### **Biological monitoring**

Biological monitoring will include fish and macroinvertebrate sampling following DNR and/or MPCA standard operating procedures ((MN DNR 2007; MPCA 2014c, 2014e). The fish and macroinvertebrate monitoring and assessment descriptions below are excerpted from a monitoring plan developed for the Fishers and Farmers Initiative (FFI) in 2011 (Anon 2011). Four sites in the watershed will be sampled including one site in each tributary and two sites in the main stem of the creek. All habitat types will be sampled (e.g., riffle, pool, run) within each station. Backpack electrofishing will be used to sample stream fishes.

Macroinvertebrate sampling will be completed using kick nets (D-frame dip nets). Some of the macroinvertebrate data collected from samples will include taxa (species or genera), number of species and genera, number of individuals, and habitat characteristics. The data will be used to calculate various invertebrate metrics and an Index of Biotic Integrity (IBI) following MPCA procedures (MPCA 2014b). The invertebrate IBIs comprise metrics representing individual types and trait categories.

#### **Geomorphologic monitoring**

DNR staff have conducted periodic surveys of geomorphology in the watershed following Rosgen 1996. Those surveys provide a long-term view of geomorphic change, which is strongly related to sediment mobilization and transport out of the system. DNR staff will continue those at infrequent intervals, unrelated to the current 319 grant.

#### **Watershed characteristics (Land and land management) monitoring**

Agricultural land information will be collected through a landowner interview process. For a comprehensive perspective on chemical cycling and pollutant loading from the watershed, these kinds of information would be helpful. In the current 319 project, we plan to contract with MDA to conduct a FANMAP nutrient survey which can be compared to previous surveys.

Vegetation surveys, including plant/tree species richness, percent cover, frequency and age, will be completed in the non-agricultural areas with special attention being given to riparian areas susceptible to erosion and ravine areas. Erosion estimates will be made using one or more simple to complex tools including BEHI, BSTEM, and CONCEPTS.

Watershed characteristics will also be used to complete the PTMApp and ACPF targeting tools. PTMApp is the Prioritized Target and Measure Application and ACPF is the Agricultural Conservation Prioritization Framework. The tools are designed to aid in targeting and prioritizing land for BMP implementation and will be used that way; however, the output of the tools will also be used in evaluating changes in land cover and management as they relate to changes in water quality.

#### **Evaluation Framework**

The success of the watershed project will be evaluated in various ways at different times. The foundation of the evaluation framework will be the physical, biological, and chemical monitoring of the stream; however, the evaluation will be much bigger than the end numbers. The presence and functioning of a landowner and citizen governance structure will signal true progress toward addressing water quality problems in the watershed. Monitoring land cover, management practices, soil conditions, along with climate variables will provide data in which to characterize changes in water quality. The ultimate measure of success will be the presence of the desired human and ecological uses

(swimmable and fishable of the Clean Water Act) for Seven Mile Creek by watershed residents and stream and park users.

Rapid dissemination and communication of the watershed management work occurring in the watershed is important to keep the watershed landowners and others informed about progress in the project. It is especially important in quickly communicating and sharing the monitoring results with watershed farmers and residents, scientists, policy-makers, and the public. Data compilation and synthesis will be completed by Gustavus faculty, staff, and students; agency staff; and others. A Seven Mile Creek watershed website will be created to provide easy access to technical reports, non-technical summaries and articles along with the data collected in the watershed. Efforts will be made to collaborate with research teams that worked in the watershed previously to centralize data and results from the various studies.

In addition to the website, outcomes from the project will be shared locally and regionally through at least 3 high profile news stories and 3 workshops or talks for conservation practitioners. The water quality monitoring findings will be presented to the watershed farmers annually. An annual meeting will be held to discuss monitoring progress, results, and needs. The lessons-learned, strategies, and tools used in this intensive and long-term effort in the small Seven Mile Creek watershed will be compiled and shared with others interested in replicating or building on the work.

Annual and semi-annual reports summarizing work in the watershed will also be completed as required by the various funding sources.

#### **Monitoring Collaboration**

Gustavus Adolphus College is taking the lead in working with the Seven Mile Creek watershed project to conduct the interdisciplinary monitoring described above. Faculty members from several departments in the college will participate in the monitoring program and use it in their research and teaching programs to advance the understanding of watershed systems and develop students into watershed professionals. The collaborative dynamics and the liberal arts tradition of Gustavus encourage multi-disciplinary problem-solving, which is the hallmark of integrated environmental assessments and management plans.

Nicollet County, Nicollet SWCD, and Great River Greening staff will complete much of the watershed characteristic monitoring. They will also be integral in the evaluation of the data.

The MPCA, DNR, and MDA are actively participating in the watershed through their monitoring at the outlet site of Seven Mile Creek. MPCA also conducts biological monitoring as part of the ten-year watershed approach monitoring cycle. The MPCA is currently completing the monitoring and assessment report for the first cycle of biological monitoring, conducting a stressor identification process, and will develop a WRAPS report for the Minnesota River – Mankato major watershed in conjunction with local staff and stakeholders. In addition to collecting streamflow data, DNR has staff in other programs that are providing biological and geomorphic monitoring support. The MDA conducts pesticide and nutrient monitoring at the outlet site. It also has supported various agricultural research projects and modeling efforts in the watershed.

The University of Minnesota and Mankato State University – Mankato will also likely provide monitoring support in the development of the Seven Mile Creek watershed as a Sentinel Watershed for long-term monitoring and evaluation at multiple watershed scales to improve the understanding of watershed processes and the implementation needs to significantly change the water quality and ecological health of the stream and watershed.

### Review of Historic Monitoring Efforts

Water quality monitoring in the Seven Mile Creek watershed began in 1996. Tables 3, 4, and 5 provide summaries of the monitoring sites and available data. The Brown Nicollet Cottonwood Water Board, Nicollet SWCD, Fishers and Farmers Partnership, Gustavus Adolphus College, Minnesota Department of Agriculture, and MPCA have engaged in monitoring since 1996. Citizen monitoring was performed through the Minnesota Citizen Stream Monitoring Program administered by MPCA. Much of the data collected by the BNC and Nicollet SWCD in the 2000s was performed through Clean Water Partnership projects. Monitoring by Gustavus Adolphus College has included chemistry, biology, and geomorphology in coordination with the watershed project and student research. MDA monitoring was completed as part of the MDA's pesticide monitoring program and support of the Red Top Farm research project. Fishers and Farmers Partnership monitoring was done through independent funding. MPCA monitoring was completed as part of the MPCA's ambient monitoring program, CWP program, Intensive Watershed Monitoring, and, currently, Watershed Pollutant Load Monitoring program. DNR monitoring was conducted as part of the fish survey program and the state's watershed approach.

Table 3. Monitoring sites in the Seven Mile Creek watershed with data contained in the Environmental Quality Information System (EQiS) database managed by MPCA.

Water Body	Sampling Site ID	Sampling Site Location Description	Date Range	# Samples
Seven Mile Creek – Upstream	S002-934	SEVENMILE CK DWST OF MN-99, 6 MI SW OF ST. PETER	1996 – 2016	235
Seven Mile Creek – Outlet	S003-706	SEVEN MILE CK IN SEVENMILE CK CTY PARK, 6 MI SW OF ST PETER	2003	1
	S002-937	SEVENMILE CK IN SEVENMILE CK CTY PK, 5.5 MI SW OF ST. PETER	1996 - 2018	~500 (CSMP)
	S002-466	7 MI CK AT 7 MI CK PARK, 5.3 MI SW OF SAINT PETER, MN	2003 - 2015	296 (CSMP)
County Ditch 24	S002-464	CO DT 24 AT TIMBER4 LANE, 5.5 MI NW OF MANKATO, MN	2003 - 2009	61
County Ditch 46A	S003-515	CO DT 46A AT 411TH AVENUE, 5 MI E OF NICOLLET, MN	2004 - 2015	60 (CSMP)
	S002-936	CTY DTCH 46A DWST OF CSAH-13, 6 MI SW OF ST. PETER	2000 - 2012	219

Table 4. Summary of monitoring locations, years sampled, variables, and organization and/or program doing the monitoring.

Location	Location Notes	Years	Variables*	Organization/Program**
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	9 6	9 7	9 8	9 9	0 0	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 9	1 0	1 1	1 2	1 3	1 4	1 5	1 6	1 7	1 8	1 9	2 0
Site 1 – Seven Mile Hdwtrs. & CD 13 (S002-934)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Site 2 – CD 46A (S002-936)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X
Site 3 - Outlet (S002-937)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Seven Mile Outlet (MDA SM3) (same as S002-937)							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CD 24 (S002-464)								X	X	X	X	X	X	X											
Seven Mile upstream of outlet (S003-706)								X																	
CD 46A CSMP (S003-515)									X	X	X	X	X	X	X	X	X	X	X	X					
Seven Mile Outlet CSMP (S002-466)								X	X	X	X	X	X	X	X	X	X	X	X	X					

Water quality and streamflow monitoring to compute pollutant loads was initiated in 2000 at three sites in the watershed. The monitoring was part of the Seven Mile Creek Watershed Clean Water Partnership Diagnostic Study. The three sites were selected based on spatial proximity to areas of environmental concern, feasibility of determining stream discharge relationships, and previous monitoring history. The three sites were characterized as the Hwy 99, County Road 13, and mouth sites and referred to as sites 1, 2, 3, respectively, in the diagnostic study and ensuing implementation project. The EQulS identification numbers for the three are S002-934, S002-936, and S002-937, respectively.

Additional monitoring sites were added in 2003 to help build a better understanding of the pollutant sources and to measure the effect of best management practices at a smaller scale (< 1,000 acres). A fourth load monitoring site was added in 2006. It was located on County Ditch 24. CD 24 represents much of the remaining upper watershed not previously monitored. Monitoring at the four load sites continued through 2008 as part of the CWP implementation project.

Monitoring at upper watershed sites was discontinued in recent years while monitoring at outlet site has continued through to the present. Water sampling was and continues to be weighted towards snow melt and storm event runoff events with fewer lower flow samples to provide better load computations. The outlet site is now part of the MPCA Watershed Pollutant Load Monitoring Network with monitoring planned to be long-term.

The MDA began monitoring the outlet of Seven Mile Creek in 2002 and continues sampling the site as part of their Agricultural Chemical Monitoring Program. The monitoring began as a general survey for agricultural pesticides and has increased in intensity through the years. The site is one of seven sites in the state that is intensively monitored. Sampling now incorporates automatic sampler composite samples of storm event runoff with grab samples between storm events. A suite of pesticides, nitrate-nitrogen, and total phosphorus are analyzed for each sample. Annual reports summarizing the data are published on the MDA website at <http://www.mda.state.mn.us/chemicals/pesticides/maace.aspx>.

Additional chemistry sampling has been completed by the BNC, Nicollet SWCD, FFP, and DNR to supplement the data collected for the WPLMN. The MPCA, FFP, and DNR has completed biological monitoring in recent years. The MPCA biological monitoring consisted of fish and macroinvertebrate sampling at several sites and was done as part of its Intensive Watershed Monitoring program being completed in each major watershed of the state.

Two Citizen Stream Monitoring Program (CSMP) volunteers have monitored two sites in the watershed. A site near the stream outlet has been monitored since 2003 and a site on County Ditch 46A has been monitored since 2004. CSMP monitoring includes Secchi transparency and stream condition observations.

## References

- Anon. 2011. *Seven Mile Creek Watershed Program: Monitoring Plan*.
- Baskfield, Pat. 2016. *Unpublished Stream Flow and TSS Data for Seven Mile Creek*. Mankato, MN.
- Bateman, Breeanna, Tiffany Schauls, Joe Magee, and Kim Laing. 2019. *Minnesota River Mankato Watershed Stressor Identification Report*. Saint Paul, MN.
- Boettcher, Joanne and Bryan Spindler. 2019. *Draft Minnesota River - Mankato Watershed Restoration and Protection Strategies*. Mankato, MN.
- Fellows, Sarah, Emily Green, and Mae A. Davenport. 2017. *Seven Mile Creek Watershed: Minnesota Community Assessment for Clean Water*.
- Fettig, Dan, Jordan Donatell, Joel Chirhart, Mark Gernes, David Duffey, Bruce Monson, Shawn Nelson, Pat Baskfield, Dan Helwig, Brian Spindler, and Kim Laing. 2016. *Minnesota River-Mankato Watershed Monitoring and Assessment Report*. Saint Paul, MN.
- Jackson, Thomas C. 1994. *Soil Survey of Nicollet County, Minnesota*. St Paul, MN.
- Jirsa, Mark A., Terrence J. Boerboom, V. W. Chandler, John H. Mossler, Anthony C. Runkel, and Dale R. Setterholm. 2011. "S-21 Geologic Map of Minnesota-Bedrock Geology." *Minnesota Geological Survey*.
- Kuehner, Kevin J. 2001. *Seven-Mile Creek Watershed Project: A Resource Investigation within the Middle Minnesota Major Watershed*. St. Peter, MN.
- Kuehner, Kevin J. 2004. *An Historical Perspective of Hydrologic Changes in Seven Mile Creek Watershed*.
- Kuehner, Kevin J. 2009. "Seven Mile Creek Watershed Project: Final Report, Phase II, Clean Water Partnership." *Brown Nicollet Cottonwood Water Quality Joint Powers Board*.
- Lenhart, Christian, Eric Merten, Rebecca Hammer-Lester, Brad Gordon, Robert Wells, Keith Pelletier, Justin Fasching, John Nieber, David McCullough, Leander Scott, Joseph Knight, and Rebecca Seal-Soileau. n.d. "Ravine Vegetation and In-Stream Wood Affect Erosion and Sediment Delivery Rates and Processes." *Earth Surface Processes and Landforms*.
- Lenhart, Christian, Heidi Peterson, Brad Gordon, Joel Peterson, Walter Eshenaur, Leah Gifford, Bruce N. Wilson, Joshua Stamper, Lori Krider, and Nathan Utt. 2017. *Agricultural BMP Handbook for Minnesota 2017*. 2nd ed. St Paul: Minnesota Department of Agriculture.
- MN DNR. 2007. *Fisheries Stream Survey Manual: Stream Survey Methods*.
- MPCA. 2014a. *Development of a Fish-Based Index of Biological Integrity for Assessment of Minnesota's Rivers and Streams*. St Paul, MN.
- MPCA. 2014b. *Development of a Macroinvertebrate-Based Index of Biological Integrity for Assessment of Minnesota's Rivers and Streams*. St Paul, MN.
- MPCA. 2014c. *Fish Community Sampling Protocol for Stream Monitoring Sites*. St. Paul, MN.
- MPCA. 2014d. *Minnesota Rules Chapters 7080 through 7083 Subsurface Sewage Treatment Systems Program*. St. Paul, MN.
- MPCA. 2014e. *MPCA Stream Habitat Assessment (MSHA) Protocol for Stream Monitoring Sites*. St Paul, MN.
- MPCA. 2020. "Feedlots in Minnesota." *Minnesota Geospatial Commons*. Retrieved (<https://gisdata.mn.gov/dataset/env-feedlots>).
- Nicollet County. 2020. "GIS Data in the Seven Mile Creek Watershed."
- NRCS-USDA. 2019. "CropScape - NASS CDL Program." *National Agricultural Statistics Service*. Retrieved December 20,

2019 (<https://nassgeodata.gmu.edu/CropScape/>).

Rosgen, Dave. 1996. *Applied River Morphology*. Second Edi. Hilton Lee Silvey.

Sadowsky, Michael, Scott Matteson, Matt Hamilton, and Ramyavardhane Chandrasekaran. 2010. *Project Report to Minnesota Department of Agriculture Growth, Survival, and Genetic Structure of E. Coli Found in Ditch Sediments and Water at the Seven Mile Creek Watershed*. St Paul, MN.

University of Minnesota. 2019. "Minnesota Climatology Working Group." *State Climatology Office - DNR Division of Ecological and Water Resources*. Retrieved February 1, 2017 (<http://climateapps.dnr.state.mn.us/index.htm>).

US EPA. 2008. "Handbook for Developing Watershed Plans to Restore and Protect Our Waters." *U.S. Environmental Protection Agency*. Retrieved January 28, 2020 (<https://www.epa.gov/nps/handbook-developing-watershed-plans-restore-and-protect-our-waters>).

USDA. 2015. "Web Soil Survey." *Natural Resources Conservation Service, United States Department of Agriculture*.

Vandegrift, Todd R. and Heinz G. Stefan. 2010. *Annual Stream Runoff and Climate in Minnesota's River Basins*. Minneapolis, MN.