

# 2019 Nitrate Report: Community Public Water Systems

This report includes information on Community Public Water Systems (CPWSs) with source-water nitrate levels of at least 3 milligrams per liter (mg/L). CPWSs provide water to people in their homes. Water samples for nitrate-N are collected from:

- The drinking water source; this represents raw (untreated) water
- The entry point into the distribution system; this represents finished water, which is the water that reaches consumers at their taps

The Drinking Water Protection Section (DWP) at the Minnesota Department of Health (MDH) updates this report once per year.

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# Nitrate in Drinking Water

Natural processes can cause low levels of nitrate in drinking water—usually less than 3 milligrams of nitrate (measured as nitrogen) per liter of drinking water (mg/L)<sup>1</sup>. Nitrate levels above this level often indicate influence from human activities. Elevated levels of nitrate in water can be a result of runoff or leakage from fertilized soil, wastewater, landfills, animal feedlots, septic systems, or urban drainage. It can be difficult to pinpoint where the nitrate in drinking water comes from because there are many possibilities.

The Safe Drinking Water Act (SDWA) limit for nitrate in drinking water is 10 mg/L.<sup>2</sup> Drinking water with levels of nitrate at or below 10 mg/L is considered safe for everyone. Drinking water above that level can result in methemoglobinemia in infants, where their blood can no longer transport oxygen around the body.

CPWSs regularly test for nitrate and ensure levels meet the SDWA limit. A CPWS must let its customers know if it detects nitrate at a level above the SDWA limit. To find the level of nitrate detected at a particular CPWS, read the system's Consumer Confidence Report (CCR). [Search for your Consumer Confidence Report \(CCR\)](https://mnccr.web.health.state.mn.us/index.faces) (<https://mnccr.web.health.state.mn.us/index.faces>) online or contact your public water system to get a paper copy.

Please visit [Nitrate in Drinking Water](https://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.html) (<https://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.html>) for more information.

## Notes on the Data in this Report

The data source for this report is the Minnesota Drinking Water Information System (MNDWIS). This report includes data from sampling that occurred through December 31, 2019.

CPWSs may take multiple samples for nitrate in a given time period. A CPWS is included in this report if any of those samples is above the level of interest (3.0 mg/L or 8.0 mg/L). Nitrate levels may vary over time.

### Scope

- Most data in this document go back to 1994, which is when electronic reporting began. Monitoring for nitrate began earlier, but we do not have electronic records of these results.
- We have data on pre-1994 violations, which are included in this document.
- The data includes some CPWSs that are now inactive, meaning they are no longer providing drinking water.
- The data includes all known CPWS wells that were active from 1994-present. Not all of these wells are actively used today. Some are now only used in emergencies. Some are no longer used and may be sealed.
- The data do not include wells that were only ever used for emergency or seasonal purposes.

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<sup>1</sup> Madison, R.J., and J.O. Brunett. 1985. Overview of the occurrence of nitrate in ground water of the United States. In National Water Summary 1984: Hydrological Events, Selected Water-Quality Trends, and Ground-Water Resources, USGS Water Supply Paper 2275, 93–105. Washington, D.C.: U.S. Government Printing Office.

<sup>2</sup> One milligram per liter (mg/L) is roughly the same as 1 part per million.

## Sources of Drinking Water

- Source data includes all drinking water sources that have been active since 1994. Some sources may now be sealed, inactive, or otherwise not currently used.
- Some CPWSs may have more than one source with nitrate issues.

## Costs

- Actions to address nitrate, including installing treatment, finding a new source of water, or connecting to another public water system, can cause unintended consequences and costs. For example, installing treatment like reverse osmosis filtration to address nitrate can cause corrosion issues that lead to elevated lead and copper levels. This document does not capture these unintended consequences and the costs associated with them.
- This document includes capital costs for nitrate treatment, where data is available to MDH.
- Cost figures do not include costs for other nitrate management actions like blending, drilling a new well, or connecting to another system.
- Cost figures do not include maintenance and operation (ongoing) costs.

# Finished Drinking Water Data

Finished water is the water that reaches customers at their taps, after any treatment.

**Table 1. CPWSs with Nitrate Levels of Greater Than 8.0 mg/L in Finished Drinking Water (1994-present)**

Since 1994, 51 CPWSs have had finished drinking water nitrate levels greater than 8.0 mg/L.

Community Public Water System	County	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Drinking Water (mg/L)	Most Recent SDWA Nitrate Violation Year	Highest 2019 Nitrate Level in Drinking Water (mg/L) <sup>3</sup>	Actions (Management, SWP, or Both) <sup>4</sup>	Estimated Capital Cost for Treatment in 2019 Dollars
Adrian	Nobles	1,211	Groundwater	16	1993	4.8	Both	\$937,045
Altura	Winona	493	Groundwater	8.2	-	7.3	SWP	
Atwater	Kandiyohi	1,133	Groundwater	9.2	-	8.5	Both	
Balaton	Lyon	639	Groundwater	9.7	-	0.5	SWP	
Battle Lake Mobile Home Park	Otter Tail	31	Groundwater	13	2019	13	Both	
Beardsley	Big Stone	225	Groundwater	12	1996	2.3	Management	
Brookhaven Development	Scott	45	Groundwater	12	2018	8.7	None	
Chandler	Murray	270	Groundwater	16	1999	9.1	Both	
Clear Lake	Sherburne	525	Groundwater	13	1993	2.0	Both	\$688,336
Cold Spring	Stearns	4,201	Groundwater	12	2004	8.3	Both	
Country Court Manufactured Home Park	Renville	Inactive	Groundwater	18	-	Inactive	None	

<sup>3</sup> "Inactive" means the CPWS is no longer providing drinking water. "Buys water" means the CPWS buys water from another CPWS.

<sup>4</sup> Management actions include treatment, blending, and changing the source of drinking water (i.e. drilling a new well or connecting to another CPWS). Source water protection (SWP) actions mean the CPWS has a source water protection plan and/or has received an MDH source water protection grant.

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Community Public Water System	County	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Drinking Water (mg/L)	Most Recent SDWA Nitrate Violation Year	Highest 2019 Nitrate Level in Drinking Water (mg/L) <sup>3</sup>	Actions (Management, SWP, or Both) <sup>4</sup>	Estimated Capital Cost for Treatment in 2019 Dollars
Darfur	Watonwan	87	Groundwater	9.7	-	9.3	SWP	
Edgerton	Pipestone	1,171	Groundwater	20	1993	5.8	Both	\$486,066
Eitzen	Houston	242	Groundwater	18	1993	0	Both	
Elgin	Wabasha	1,089	Groundwater	11	-	9.4	Both	
Ellsworth	Nobles	462	Groundwater	20	2019	15	Both	\$621,147
Fairmont	Martin	10,328	Surface water	12	2016	4.1	SWP	
Halstad	Norman	597	Groundwater	8.2	-	1.0	None	
Hardwick	Rock	198	Groundwater	11	-	Buys water	Management	
Hastings	Dakota	22,335	Groundwater	11	1999	9.5	Both	\$4,132,939
Hills	Rock	685	Groundwater	8.2	-	Buys water	Management	
Ivanhoe	Lincoln	559	Groundwater	8.4	-	Buys water	Management	
Jasper	Pipestone	623	Groundwater	8.8	-	Buys water	Management	
Kjellberg's	Wright	1,000	Groundwater	10	-	6.8	Management	
Leota	Nobles	209	Groundwater	22	2011	Buys water	Management	
Lewiston	Winona	1,620	Groundwater	12	1998	0	Both	
Lincoln-Pipestone Rural Water System	Lincoln	13,644	Groundwater	25	1997	8.1	Both	\$2,603,632
Luverne	Rock	4,688	Groundwater	19	-	0.87	Both	
Magnolia	Rock	214	Groundwater	8.2	-	Buys water	Management	

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Melrose	Stearns	3,677	Groundwater	14	1996	6.1	Both	
Mobile Manor Mobile Home Park	Scott	197	Groundwater	8.8	-	8.6	None	
Northfield	Rice	20,515	Groundwater	9.4	-	0.83	SWP	
Oak Grove Mobile Home Park	Becker	60	Groundwater	11	2019	11	Both	
Oak Hills Fellowship Bible College	Beltrami	225	Groundwater	14	2009	1.0	Management	
Ostrander	Fillmore	256	Groundwater	9.8	-	0	Both	
Park Rapids	Hubbard	4,136	Groundwater	12	2010	0	Both	
Perham	Otter Tail	3,421	Groundwater	10	-	4.1	Both	
Randall	Morrison	650	Groundwater	14	2015	0.83	Both	
Richmond	Stearns	1,457	Groundwater	11	1996	2.5	Both	
Rock County Rural Water System	Rock	2,256	Groundwater	23	-	9.1	Both	
Rockwood Estates	Benton	400	Groundwater	27	2006	6.4	Management	
Saint John's University	Stearns	2,500	Groundwater	24	-	0.47	None	
Shakopee	Scott	40,610	Groundwater	12	-	7.0	Both	
Southview Heights	Blue Earth	Inactive	Groundwater	9.5	-	Inactive	None	
Steen	Rock	180	Groundwater	8.2	-	Buys water	Management	
Sundruds Court	Hubbard	40	Groundwater	22	2015	3.8	Both	\$18,917
Tamarack Court, Inc.	Stearns	Inactive	Groundwater	13	2004	Inactive	Management	

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Timberline Mobile Home Park	Roseau	130	Groundwater	9.9	-	0	Management	
Trosky	Pipestone	86	Groundwater	9.0	-	Buys water	Management	
Utica	Winona	293	Groundwater	18	-	8.6	Both	
Verndale	Wadena	559	Groundwater	11	2017	7.3	Both	

## Source Water Data

Source water is the water that comes from the drinking water source, before any treatment and before it is distributed to customers.

**Table 2. Number of CPWSs with Nitrate above 3.0 mg/L in Source Water (January 2018 – December 2019)**

From January 2018 – December 2019, 74 CPWSs had source-water nitrate levels above 3.0 mg/L.

Nitrate Level (mg/L)	Number of CPWSs
3.1 to 5.4	35
5.5 to 10.4	26
Over 10.4	13
<b>Total</b>	<b>74</b>

See Appendix A for a map of CPWSs with nitrate above 3.0 mg/L in source water.

**Table 3. CPWSs with Nitrate above 3.0 mg/L in Source Water (January 2018 – December 2019)**

From January 2018 – December 2019, 74 CPWSs had source-water nitrate levels above 3.0 mg/L.

Community Public Water System	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Source Water (mg/L)	Highest 2018-2019 Nitrate Level in Source Water (mg/L)
Adrian	1,211	Groundwater	32	21
Altura	493	Groundwater	8.2	7.4
Atwater	1,133	Groundwater	9.2	8.9
Austin Mobile Home Park	59	Groundwater	6.7	4.3
Austin Utilities	24,854	Groundwater	3.4	3.4
Battle Lake	918	Groundwater	5.1	3.5
Battle Lake Mobile Home Park	31	Groundwater	13	13
Bay Lake Reserve Development	98	Groundwater	3.7	3.7
Becker	4,720	Groundwater	7.5	6.2



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Community Public Water System	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Source Water (mg/L)	Highest 2018-2019 Nitrate Level in Source Water (mg/L)
Belle Plaine	6,901	Groundwater	5.2	5.2
Bethany Water Company	60	Groundwater	5.7	5.7
Big Lake	10,060	Groundwater	6.9	4.8
Bonnevista Terrace Mobile Home Park	579	Groundwater	6.3	6.3
Brookhaven Development	45	Groundwater	12	11
Brownsdale	682	Groundwater	5.4	4.7
Canton	346	Groundwater	3.1	3.1
Chandler	270	Groundwater	16	9.1
Chatfield	2,858	Groundwater	4.8	4.8
Clear Lake	525	Groundwater	31	31
Clearwater	1,784	Groundwater	4.2	4.1
Clearwater Well Company	65	Groundwater	3.9	3.5
Cold Spring	4,201	Groundwater	12	12
Darfur	87	Groundwater	9.7	9.7
Edgerton	1,171	Groundwater	20	20
Elgin	1,089	Groundwater	11	9.8
Ellsworth	462	Groundwater	32	13
Glenwood	2,564	Groundwater	7.9	7.9
Goodhue	1,200	Groundwater	6.2	6.2
Harmony	1,020	Groundwater	4.2	4.2
Hastings	22,335	Groundwater	11	11
Hiawatha Estates, Subds. I, II & III	95	Groundwater	3.8	3.8

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Community Public Water System	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Source Water (mg/L)	Highest 2018-2019 Nitrate Level in Source Water (mg/L)
Holdingsford	770	Groundwater	3.7	3.7
Indian Hills Development	156	Groundwater	5.1	3.4
Isanti Estates	267	Groundwater	5.9	5.9
Kasota	670	Groundwater	5.1	4.2
Kjellberg's	1,000	Groundwater	10	7.1
Lake City	5,042	Groundwater	3.8	3.8
Lake Elmo	4,878	Groundwater	4.0	3.8
Lincoln-Pipestone Rural Water System	13,644	Groundwater	22	19
Little Norway Trailer Court	60	Groundwater	4.5	4.3
Mankato	42,803	Surface water	14	6.9
Melrose	3,677	Groundwater	9.2	9.2
Milan	369	Groundwater	6.2	6.2
Minnesota Veterans Home	180	Groundwater	4.7	3.1
Mobile Manor Mobile Home Park	197	Groundwater	8.8	8.8
Moose Lake	1,259	Groundwater	7.2	7.2
Northfield	20,515	Groundwater	9.4	5.3
Oak Grove Mobile Home Park	60	Groundwater	11	11
Oak Park Heights	4,339	Groundwater	3.7	3.7
Perham	3,421	Groundwater	9.6	7.9
Pine River	941	Groundwater	5.5	5.5
Pipestone	4,273	Groundwater	4.7	4.7
Plainview	3,340	Groundwater	5.7	5.7

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Community Public Water System	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Source Water (mg/L)	Highest 2018-2019 Nitrate Level in Source Water (mg/L)
Rice	1,279	Groundwater	7.2	7.2
Rock County Rural Water System	2,256	Groundwater	28	27
Rockwood Estates	400	Groundwater	27	6.4
Roosevelt Manor	60	Groundwater	5.4	5.4
Roscoe	104	Groundwater	6.0	6.0
Rosemount	22,445	Groundwater	5.6	4.7
Saint Paul Park	5,392	Groundwater	3.6	3.1
Saint Peter	11,784	Groundwater	20	20
Sauk Rapids	13,083	Groundwater	5.4	4.7
Scandia Water Company	35	Groundwater	3.2	3.2
Shakopee	40,610	Groundwater	12	7.6
South Saint Paul	20,400	Groundwater	4.3	3.5
Spring Grove	1,291	Groundwater	3.9	3.9
Stillwater	18,227	Groundwater	4.0	4.0
Sundsruds Court	40	Groundwater	29	29
Swanville	351	Groundwater	5.1	4.8
Utica	293	Groundwater	18	8.7
Valley Mobile Home Park	34	Groundwater	5.1	4.7
Vermillion	451	Groundwater	3.9	3.9
Verndale	559	Groundwater	11	8.0
Walker	934	Groundwater	5.2	5.0

**Table 4. CPWSs with Nitrate above 3.0 mg/L in Source Water (1994-present)**

Since 1994, 118 CPWSs have had source-water nitrate levels above 3.0 mg/L.

Community Public Water System	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Source Water (mg/L)	Highest 2019 Nitrate Level in Source Water (mg/L) <sup>5</sup>	Source Water Protection Activities (plan, grant, or both) <sup>6</sup>	Estimated Capital Cost for Treatment in 2019 Dollars
Adams	800	Groundwater	6.8	< 0.05	Plan	
Adrian	1,211	Groundwater	32	13	Both	\$937,045
Altura	493	Groundwater	8.2	7.4	Both	
Atwater	1,133	Groundwater	9.2	8.9	Both	
Austin Mobile Home Park	59	Groundwater	6.7	3.8		
Austin Utilities	24,854	Groundwater	3.4	3.4	Plan	
Avon	1,454	Groundwater	4.3	No Sampling	Both	
Balaton	639	Groundwater	9.7	0.7	Both	
Battle Lake	918	Groundwater	5.1	3.5	Both	
Battle Lake Mobile Home Park	31	Groundwater	13	13	Plan	
Bay Lake Reserve Development	98	Groundwater	3.7	3.7		
Beardsley	225	Groundwater	13	2.3		
Becker	4,720	Groundwater	7.5	6.0	Plan	
Belle Plaine	6,901	Groundwater	5.2	5.2	Plan	

<sup>5</sup> “Inactive” means the CPWS is no longer providing drinking water. “Buys water” means the CPWS buys water from another CPWS. “No sampling” means the CPWS did not collect voluntary source samples because they are inactive, buy water from another CPWS, did not need to sample because previous samples showed low nitrate levels (below 3.0 mg/L), did not have the resources to collect samples, or collected their own samples and MDH does not have the results.

<sup>6</sup> The CPWS has a source water protection plan, has received an MDH source water protection grant, or both. If blank, the CPWS may be working on a plan. CPWSs with higher risk of contamination must start a plan by June 2020.

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Bellechester	169	Groundwater	4.5	< 0.05	Both	
Bethany Water Company	60	Groundwater	5.7	5.7		
Big Lake	10,060	Groundwater	6.9	4.8	Plan	
Bonnevista Terrace Mobile Home Park	579	Groundwater	6.3	6.3		
Boyd	175	Groundwater	7.0	Buys water		
Brookhaven Development	45	Groundwater	12	8.7		
Brownsdale	682	Groundwater	5.4	4.7	Plan	
Buckman	270	Groundwater	6.9	3.0	Plan	
Caledonia	2,824	Groundwater	8.6	0.94	Both	
Cambridge	8,834	Groundwater	7.3	No Sampling	Both	
Canton	346	Groundwater	3.1	3.1	Plan	
Chandler	270	Groundwater	16	9.1	Plan	
Chatfield	2,858	Groundwater	4.8	4.8	Both	
Clear Lake	525	Groundwater	31	31	Both	\$688,336
Clearwater	1,784	Groundwater	4.2	4.1	Both	
Clearwater Well Company	65	Groundwater	3.9	3.5		
Cold Spring	4,201	Groundwater	12	9.8	Both	
Cottage Grove	36,900	Groundwater	6.3	0.34	Both	
Darfur	87	Groundwater	9.7	9.3	Both	
Dexter	342	Groundwater	5.3	< 0.05	Plan	

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Edgerton	1,171	Groundwater	20	20	Both	\$486,066
Elgin	1,089	Groundwater	11	9.4	Plan	
Ellsworth	462	Groundwater	32	13	Plan	\$621,147
Fairmont	10,328	Surface water	7.6	No Sampling	Both	
Glenwood	2,564	Groundwater	7.9	7.9	Both	
Goodhue	1,200	Groundwater	6.2	6.2	Plan	
Hardwick	198	Groundwater	11	Buys water		
Harmony	1,020	Groundwater	4.2	4.2	Plan	
Hastings	22,335	Groundwater	11	11	Both	\$4,132,939
Hiawatha Estates, Subds. I, II & III	95	Groundwater	3.8	3.5		
Hills	685	Groundwater	8.2	Buys water		
Holdingsford	770	Groundwater	3.7	3.7	Both	
Ihlen	63	Groundwater	11	Buys water		
Indian Hills Development	156	Groundwater	5.1	3.1		
Isanti Estates	267	Groundwater	5.9	5.9	Grant	
Ivanhoe	559	Groundwater	3.8	Buys water		
Jasper	623	Groundwater	13	Buys water		
Kasota	670	Groundwater	5.1	3.3	Both	
Kellogg	469	Groundwater	4.0	2.6	Plan	
Kerkhoven	721	Groundwater	3.1	No Sampling		

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Kjellberg's	1,000	Groundwater	10	7.1		
Lake City	5,042	Groundwater	3.8	3.8	Both	
Lake Elmo	4,878	Groundwater	4.0	3.8	Plan	
Leota	209	Groundwater	15	Buys water		
Lewiston	1,620	Groundwater	12	0.05	Both	
Lincoln-Pipestone Rural Water System	13,644	Groundwater	22	19	Both	\$2,603,632
Little Norway Trailer Court	60	Groundwater	4.5	4.2		
Luverne	4,688	Groundwater	8.4	No Sampling	Both	
Mabel	747	Groundwater	11	< 0.05	Plan	
Magnolia	214	Groundwater	8.2	Buys water		
Mankato	42,803	Surface water	14	6.9	Both	
Melrose	3,677	Groundwater	9.2	9.2	Both	
Milan	369	Groundwater	6.2	6.2	Plan	
Minnesota Veterans Home	180	Groundwater	4.7	3.1		
Mobile Manor Mobile Home Park	197	Groundwater	8.8	8.8		
Moose Lake	1,259	Groundwater	7.2	7.2	Plan	
Nevis	415	Groundwater	3.7	< 0.05	Both	
Northfield	20,515	Groundwater	9.4	5.3	Both	
Oak Grove Mobile Home Park	60	Groundwater	11	11	Both	
Oak Park Heights	4,339	Groundwater	3.7	3.6	Both	

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Ormsby	129	Groundwater	8.5	Buys water	Grant	
Ostrander	256	Groundwater	9.8	< 0.05	Plan	
Paradise Park Mobile Home Park	50	Groundwater	3.1	2.7		
Park Rapids	4,136	Groundwater	12	No Sampling	Both	
Paynesville	2,486	Groundwater	3.4	2.6	Both	
Perham	3,421	Groundwater	9.6	6.6	Both	
Pine Land Mobile Home Park (Carda's)	70	Groundwater	5.1	< 0.05	Plan	
Pine River	941	Groundwater	5.5	4.1	Both	
Pipestone	4,273	Groundwater	4.7	4.7	Both	
Plainview	3,340	Groundwater	5.7	5.0	Both	
Rice	1,279	Groundwater	7.2	7.2	Both	
Rich Prairie Sewer and Water District	1,500	Groundwater	5.1	No Sampling	Both	
Richmond	1,457	Groundwater	11	No Sampling	Both	
Rock County Rural Water System	2,256	Groundwater	28	26	Plan	
Rockville	751	Groundwater	4.3	0.77	Both	
Rockwood Estates	400	Groundwater	27	6.4		
Rollingstone	664	Groundwater	5.5	0.68		
Roosevelt Manor	60	Groundwater	5.4	5.4		
Roscoe	104	Groundwater	6.0	4.4	Both	
Rosemount	22,445	Groundwater	5.6	4.7	Both	



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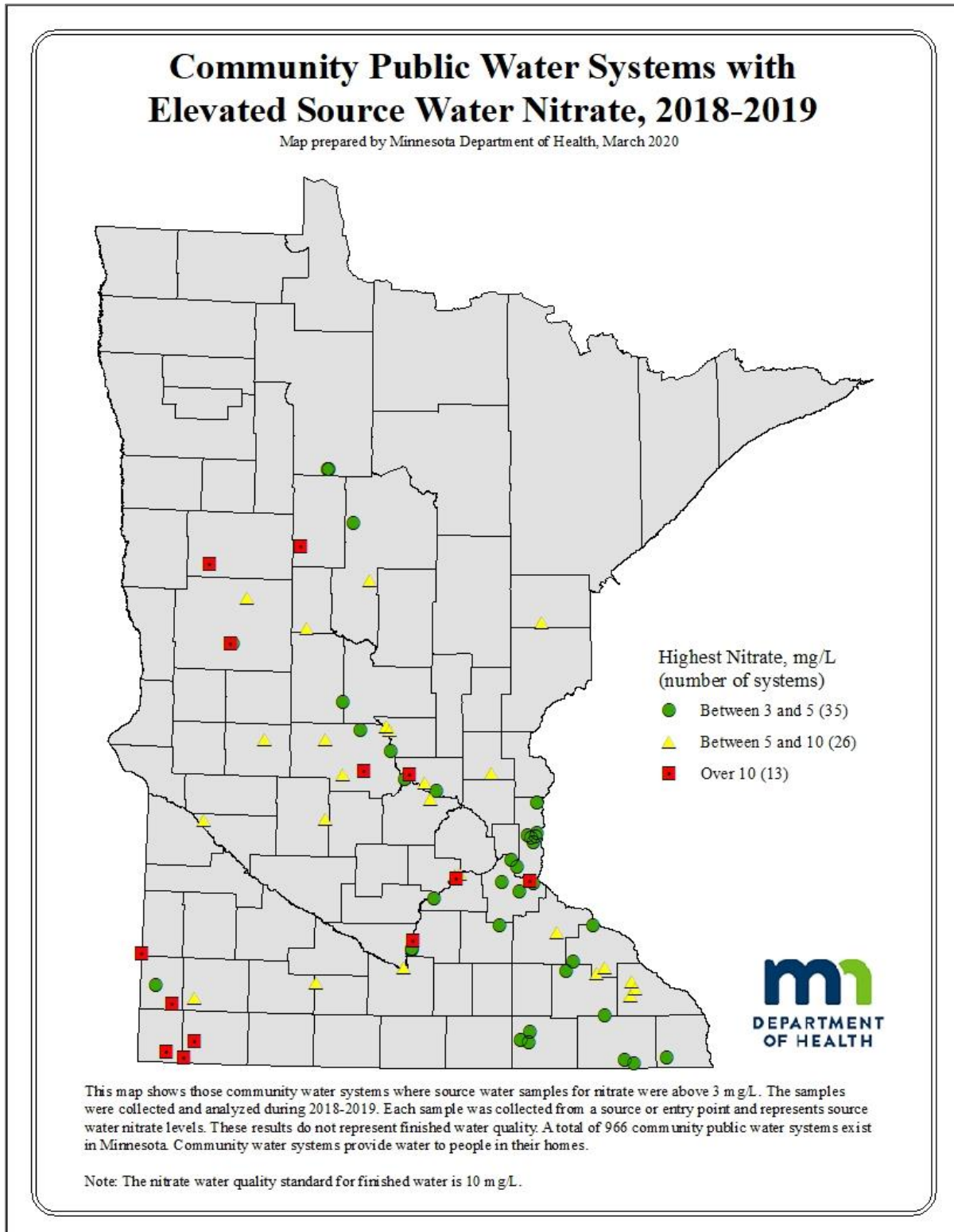
Community Public Water System	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Source Water (mg/L)	Highest 2019 Nitrate Level in Source Water (mg/L) <sup>5</sup>	Source Water Protection Activities (plan, grant, or both) <sup>6</sup>	Estimated Capital Cost for Treatment in 2019 Dollars
Saint Paul Park	5,392	Groundwater	3.6	3.1	Both	
Saint Peter	11,784	Groundwater	20	20	Both	\$21,257,691
Sauk Rapids	13,083	Groundwater	5.4	4.7	Both	
Scandia Water Company	35	Groundwater	3.2	3.2		
Shady Oaks Mobile Home Park	40	Groundwater	4.3	No Sampling	Plan	
Shakopee	40,610	Groundwater	12	7.2	Both	
South Saint Paul	20,400	Groundwater	4.3	3.4	Both	
Spring Grove	1,291	Groundwater	3.9	3.9	Plan	
Steen	180	Groundwater	8.2	Buys water		
Stillwater	18,227	Groundwater	4	4.0	Plan	
Sundsruds Court	40	Groundwater	29	29	Plan	\$18,917
Sunray Water Company, LLC	90	Groundwater	6.1	< 0.05	Plan	
Swanville	351	Groundwater	5.1	4.0		
Timberlane Estates	64	Groundwater	3.6	0.53		
Timberline Mobile Home Park	130	Groundwater	9.9	< 0.05		
Town and Country Mobile Home Park	250	Groundwater	3.1	< 0.05		
Trosky	86	Groundwater	9.0	Buys water		
Twin Haven Estates	200	Groundwater	3.7	< 0.05	Plan	
Utica	293	Groundwater	18	8.7	Plan	
Valley Mobile Home Park	34	Groundwater	5.1	3.2	Plan	

NITRATE REPORT: COMMUNITY PUBLIC WATER SYSTEMS

Community Public Water System	Current Population	Surface or Groundwater System	Highest Historic Nitrate Level in Source Water (mg/L)	Highest 2019 Nitrate Level in Source Water (mg/L) <sup>5</sup>	Source Water Protection Activities (plan, grant, or both) <sup>6</sup>	Estimated Capital Cost for Treatment in 2019 Dollars
Vermillion	451	Groundwater	3.9	3.9	Plan	
Verndale	559	Groundwater	11	7.6	Both	
Walker	934	Groundwater	5.2	5.0	Both	
Wilmont	344	Groundwater	6.0	No Sampling	Grant	

# Appendices

## Appendix A: Map of Community Public Water Systems with Elevated Source Water Nitrate, 2018-2019



## Appendix B: Sources of Cost Estimates

- Clara City: \$3.2 million total project cost including tower, new well, 2 miles of watermain; completed fall 2002; online August 2002
  - Minnesota Department of Health. “Clara City Joins the Membrane Wave: Reverse-Osmosis Successful in Removing Nitrite.” From the winter 2003-04 *Waterline* newsletter.
- Lincoln-Pipestone: Holland Treatment Plant online October 1999;
  - Minnesota Department of Health. “Lincoln-Pipestone Tackles Nitrate with New Reverse-Osmosis Plant”; From the spring 2000 *Waterline* newsletter.
- Clear Lake: \$412,390 in 1995
  - Lewandowski, A., Rosen, C., & Moncrief, J. 2007. Cost of Nitrate Contamination of Public Water Supplies: A Report of Interviews with Water Suppliers. University of Minnesota Department of Soil, Water, and Climate. <https://www.house.leg.state.mn.us/comm/docs/CostofNitrateContaminationtoPublicSuppliers2007.pdf>
- Edgerton: \$352,000 in 2003
  - Lewandowski, A., Rosen, C., & Moncrief, J. 2007. Cost of Nitrate Contamination of Public Water Supplies: A Report of Interviews with Water Suppliers. University of Minnesota Department of Soil, Water, and Climate. <https://www.house.leg.state.mn.us/comm/docs/CostofNitrateContaminationtoPublicSuppliers2007.pdf>
- Ellsworth: \$362,000 in 1994
  - Lewandowski, A., Rosen, C., & Moncrief, J. 2007. Cost of Nitrate Contamination of Public Water Supplies: A Report of Interviews with Water Suppliers. University of Minnesota Department of Soil, Water, and Climate. <https://www.house.leg.state.mn.us/comm/docs/CostofNitrateContaminationtoPublicSuppliers2007.pdf>
- Adrian: \$601,000 in 1998
  - Lewandowski, A., Rosen, C., & Moncrief, J. 2007. Cost of Nitrate Contamination of Public Water Supplies: A Report of Interviews with Water Suppliers. University of Minnesota Department of Soil, Water, and Climate. <https://www.house.leg.state.mn.us/comm/docs/CostofNitrateContaminationtoPublicSuppliers2007.pdf>
- Hastings
  - Email, Mark Peine, 05/17/2019, confirmed.
  - Minnesota Department of Health. “Hastings Removes Nitrate with New Plant.” From the summer 2011 *Waterline* newsletter. <https://www.health.state.mn.us/communities/environment/water/waterline/featurestories/hastings.html>
- Saint Peter
  - Minnesota Department of Health. “Saint Peter Adds Reverse Osmosis as Part of Expansion and Upgrade.” From the summer 2011 *Waterline* newsletter. <https://www.health.state.mn.us/communities/environment/water/waterline/featurestories/saintpeter.html>
- Sundsruds Court
  - Minnesota Department of Health. Minnesota Drinking Water 2015 Annual Report for 2014. <https://www.health.state.mn.us/communities/environment/water/docs/report2014.pdf>

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