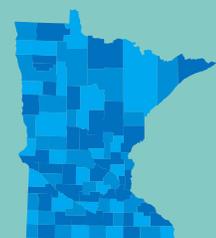


November 2022

2021 SSTS Annual Report

Subsurface Sewage Treatment Systems in Minnesota



Author

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Photo credit

MPCA photos

Contributors/acknowledgements

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Acronyms

ALS	Alternative Local Standards
FTPGW	Failing To Protect Groundwater
GPD	Gallons Per Day
ITPHS	Imminent Threat to Public Health or Safety
LGU	Local Governmental Unit
MPCA	Minnesota Pollution Control Agency
SSTS	Subsurface Sewage Treatment System
TCPA	Township Cooperative Planning Association

Executive summary

200 local governmental units (LGUs) submitted 2021 annual report data on the subsurface sewage treatment systems (SSTS) they administer locally to the Minnesota Pollution Control Agency (MPCA). The 200 local SSTS programs consist of 86 counties, 77 cities, 33 townships, and 4 other special purpose units of government with permitting authority.

A total of 630,087 SSTS were reported across Minnesota, representing an estimated 43.1 billion gallons of SSTS treated wastewater in 2021 (assuming 2.5 person/permit; 75 gallons/person; 365 days/year).

LGUs issued 12,812 SSTS construction permits in 2021 (6,026 new systems and 6,786 replacement systems). Of the SSTS permitted in 2021, approximately 96% serve residential dwellings and 4% serve other establishments.

Approximately 75% of the SSTS permitted in 2021 were Type I systems, including 5,641 Type I mounds. There were 1,701 Type II systems, 1,520 Type III systems, 97 Type IV systems, and 5 Type V systems permitted in 2021.

The majority of SSTS construction permits issued in 2021 were for systems with a flow volume between 1-2,499 gallons per day (gpd); however, there were 20 systems permitted with a flow volume between 2,500-4,999 gpd and 7 systems permitted with a flow volume between 5,000-10,000 gpd.

LGUs reported installation of 16,758 sewage in 2021.

In 2021 there were 15,876 existing system compliance inspections conducted. LGUs reported that 733 noncompliant properties were mitigated by centralized sewer connection, abandonment or removal, or a government buyout.

Of the 200 LGUs with SSTS programs in 2021, 99% approve SSTS designs before issuing construction permits, and 98% verify soils at some point during the review process. Additionally, 42% of LGUs track SSTS maintenance activities, 159 of which have property transfer compliance inspection requirements.

Over 104,000 SSTS construction permits have been issued within the last ten years, indicating that over 16% of Minnesota's 630,087 SSTS have been constructed within the last ten years or contain components less than ten years old.

The number of estimated compliant SSTS in Minnesota has increased over the last ten years, from approximately 420,500 systems in 2012 to 522,650 systems in 2021.

Trends observed from the SSTS Annual Reports through 2021, suggest continuing improvement in subsurface wastewater treatment compliance across the state of Minnesota.

Introduction

Minn. R. 7082.0040 requires local SSTS programs to submit annual reports, documenting their SSTS activities for the previous calendar year, to the MPCA by February 1. Local SSTS programs exist at four governmental levels: 1) county, 2) city, 3) township, and 4) other special purpose units of government with permitting authority.

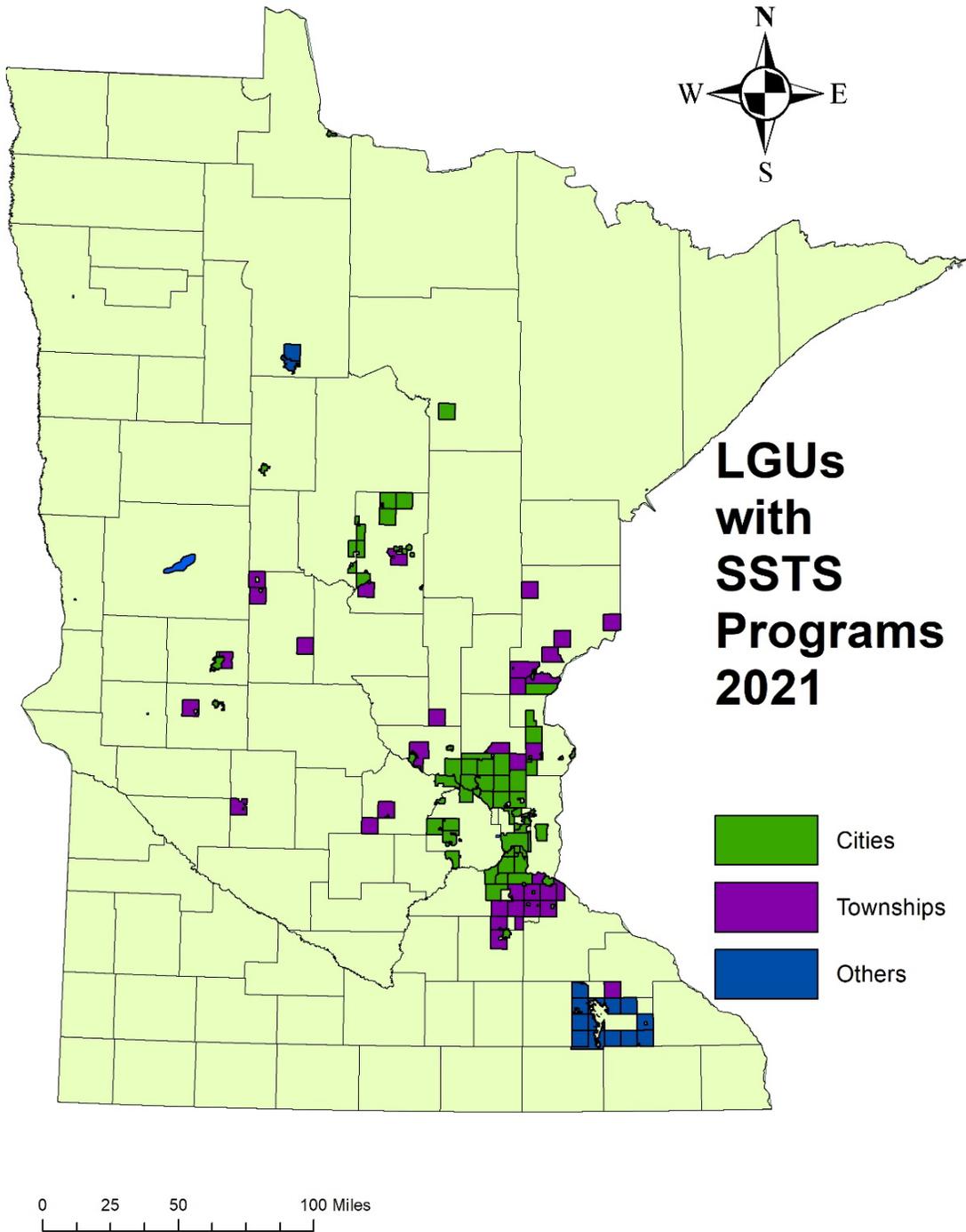
In December 2021, the MPCA sent out a web-based annual report survey to LGUs with known SSTS programs. The data obtained from this annual report survey was summarized into the statewide 2021 SSTS Annual Report. The annual report survey also collects information on the number of sewage tanks installed in each jurisdiction. This tank data is then utilized to ensure licensed SSTS installers tank fee payments are accurate. Tank fees ([Minn. § 115.551](#)) help fund SSTS compliance efforts across the state.

The 2021 SSTS Annual Report generally models the format used in the 2020 SSTS Annual Report and includes a broad analysis of SSTS trends. The analysis is based on data that LGUs provided in their annual report survey submissions. Some data are considered “hard”, such as the types and number of permits issued. Other data are considered “soft”, such as SSTS compliance rate estimates. Additionally, the 2021 SSTS Annual Report includes information about SSTS certification and licensing, which is compiled by the MPCA’s certification and training unit.

Annual report responses

As of 2021, there were 200 LGUs that administered SSTS programs in Minnesota. The number of county programs remained the same at 86; however, the number of city and township programs changed from 2020. [Appendix B1](#) contains a list of cities with SSTS programs in 2021. [Appendix B2](#) contains a list of townships with SSTS programs in 2021. [Appendix B3](#) contains a list of other special purpose units of government with SSTS programs in 2021. The distribution of LGUs with SSTS programs in 2021 is displayed in [Figure 1](#).

Figure 1. LGUs with SSTS programs in 2021



LGU participation

In December 2021, 203 LGUs that were reported to have SSTS programs in 2020 were contacted by the MPCA and requested to submit annual report data through a web-based survey. The annual report surveys were sent electronically to each SSTS administrator email contact previously provided by LGUs in their 2020 annual report surveys. The MPCA was notified that 3 LGUs who received an annual report survey in 2020 no longer administer an SSTS program. The 2021 SSTS Annual Report had a 100% response rate as all 200 expected annual report surveys were submitted. [Table 1](#) provides the 2021 SSTS Annual Report response rate by LGU type.

Recipients with an incomplete status were contacted by MPCA staff and requested to submit the survey for completion, indicate the LGU no longer has an active SSTS program, or identify they are not the correct LGU SSTS program contact.

Accurate annual report survey completion can be hindered by several issues including: county staff unsure of who the local city or township contact is for each program operating within the county boundaries, city and township programs with privately contracted inspection services which change yearly, and inadequate transference of annual reporting responsibilities when there are LGU staff changes.

There are 86 counties, 77 cities, 33 townships, and 4 other special purpose units of government that make up the 200 LGUs with SSTS programs as of 2021. Ramsey County is not required to submit an annual report survey due to their entire jurisdiction being served by city and township SSTS programs. The four other special purpose units of government with permitting authority are the University of Minnesota, Bemidji Joint Powers Board, Otter Tail Water Management District, and the Olmsted Township Cooperation Planning Association (TCPA).

Table 1. 2021 SSTS Annual Report response rate by LGU type

	County	City	Township	Other	Total
LGUs – contacted per 2020 reporting	86	79	34	4	203
LGUs – indicated no active program as of 2021	0	2	1	0	3
LGUs – submitted 2021 data	86	77	33	4	200
LGUs – no response	0	0	0	0	0

Number of SSTS

As of 2021, LGUs estimate there are 630,087 total SSTS in Minnesota. The highest number of SSTS was reported in Crow Wing County (40,027) while the lowest number of SSTS was reported in Traverse County (606). In 2021, 12,812 SSTS construction permits were issued across the state. The highest number of construction permits issued in 2021 was reported in St. Louis County (994); the lowest number of construction permits issued in 2021 was reported in Lincoln County (0).

Additionally, there were 254 repair permits issued in 2021. [Table 2](#) provides statewide values, as well as the highest and lowest countywide values, for the total number of SSTS reported and construction permits issued in 2021.

County, city, township, and other special purpose units of government data were added to their respective counties to calculate this information.

Table 2. Total number of SSTS reported and construction permits issued in 2021

	Total number of SSTS	Construction permits issued in 2021
Statewide	630,087	12,812
Highest county	40,027	994
Lowest county	606	0

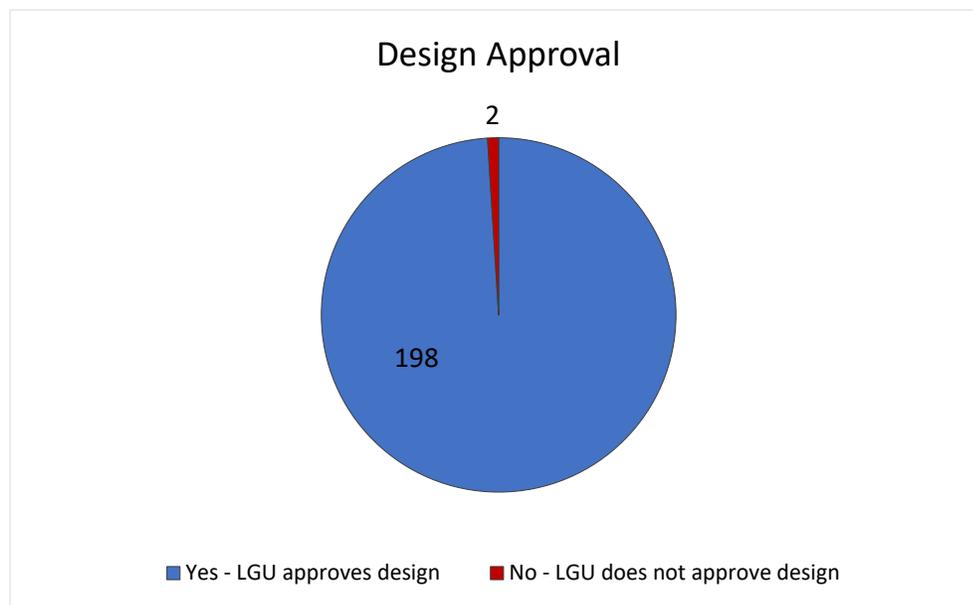
[Appendix A1](#) contains a countywide list of the following information:

1. Number of SSTS reported in 2021;
2. Number of SSTS construction permits issued in 2021;
3. Number of SSTS construction permits issued over the last 20 years (2002-2021);
4. Number of existing system compliance inspections conducted in 2021 countywide (private inspector and LGUs);
5. Percentage of existing SSTS inspected in 2021 out of total SSTS reported in county; and
6. Counties with property transfer compliance inspection requirements.

Design approval

The annual report survey asks LGUs to indicate if they approve SSTS designs before issuing construction permits. Of the 200 LGUs with SSTS programs in 2021, 198 (99%) reported that they approve SSTS designs before construction permit issuance ([Figure 2](#)). The two LGUs that reported not approving SSTS designs before construction permit issuance will be contacted to discuss rule requirements.

Figure 2. 2021 LGU status for SSTS design approval before construction permit issuance



Soil verification

The annual report survey requests LGUs to indicate when they most often perform infield soil verification during the review process. As of 2021, 98% of LGUs reported verifying soils at some time before, during, or after system construction. There were 136 LGUs that reported verifying soils before construction permit issuance, 44 LGUs that reported verifying soils during construction, and 15 LGUs that reported verifying soils after construction. There were 5 LGUs that reported not verifying soils at any time before, during, or after system construction.

[Figure 3](#) displays a tool commonly used to determine the depth to the limiting layer by identifying distinct redoximorphic concentrations and depletions in the soil profile.

[Figure 4](#) provides a breakdown of when LGUs are most often performing infield soil verifications as of 2021. [Figure 5](#) displays the time of soil verification throughout the state by county. Those jurisdictions that reported not verifying soils will be contacted to discuss the requirements of Minn. R. 7082.0500.

Figure 3. A hand auger tool is used during a soil observation



Figure 4. 2021 LGU status for soil verification timing

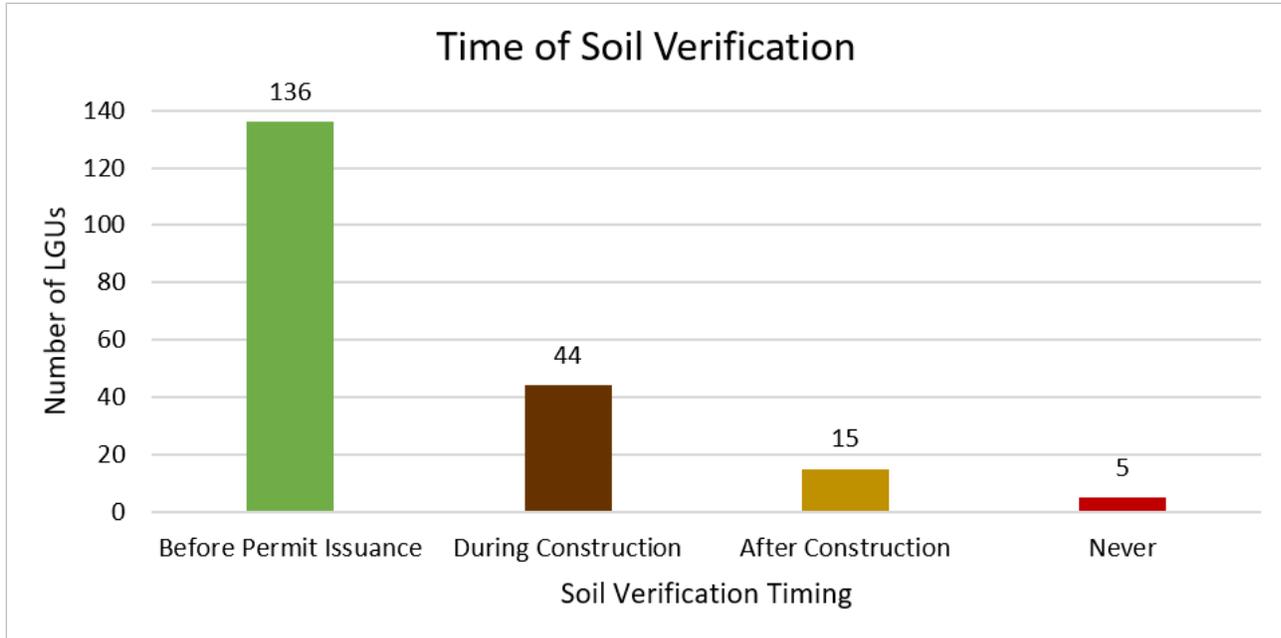
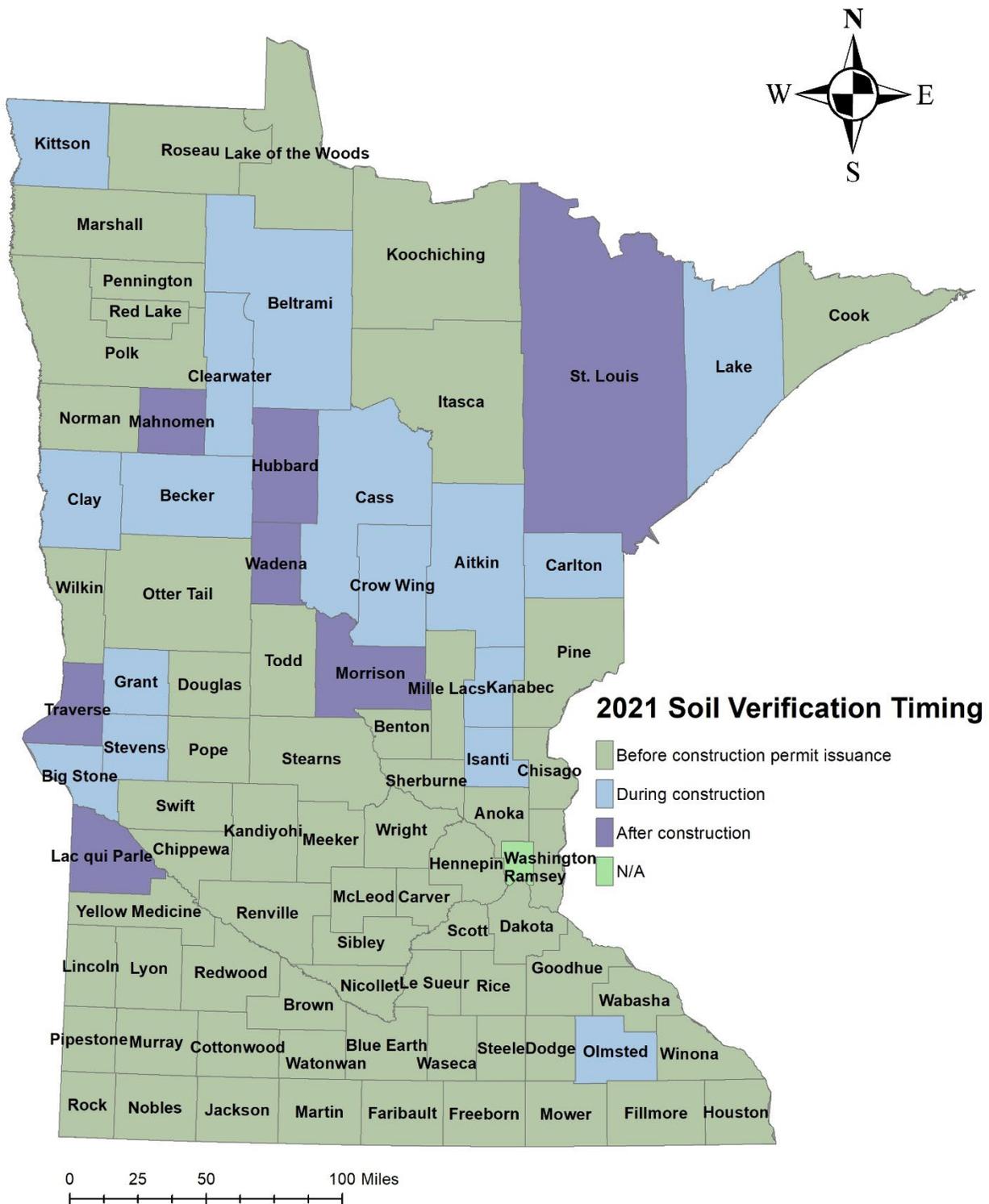


Figure 5. Timing of soil verification as of 2021 by county



Systems by type

The following section describes each of the types of SSTS.

Type I Systems are mounds, at-grades, trenches, or beds built in accordance with the prescriptive requirements of Minn. R. chs. 7080-7081.

- Specific prescriptive requirements in Minn. R. chs. 7080 and 7081.
- Requires a management plan.
- Has been termed “standard systems”.
- Designed by a basic, intermediate, or an advanced designer – based on flow.

Type II Systems are holding tanks, privies, or SSTS in floodplain areas.

- Employed to fit non-standard site conditions (e.g., floodplains) or special dwelling and “other establishment” situations (privy or holding tanks).
- Requires a management plan.
- Has been termed “alternative systems”.
- Designed by a basic, intermediate, or an advanced designer – based on flow.

Type III Systems are systems that do not have one foot of natural soil, are determined to have disturbed soils, or have limited space for a soil dispersal area, among other potential deviations.

- Deviates from certain allowable Type I prescriptive standards when needed.
- Employed to fit non-standard soil and site conditions or organic loading-limited design without the use of pretreatment.
- Requires a management plan.
- Has been termed “other systems”.
- Designed by a basic, intermediate, or an advanced designer – based on flow.

Type IV Systems are systems, which employ a treatment component registered under Chapter 7083.4030 and can have a reduced infiltration area and/or vertical separation.

- Follows Type I prescriptive design requirements when site conditions allow.
- Deviates from Type I prescriptive standards due to the use of a registered treatment product.
- Employed to:
 - Reduce the vertical separation distance requirement.
 - Reduce the absorption area.
 - Extend the life of the soil system.
 - Reduce waste strength.
- Higher operation and maintenance requirements than a Type I – III.
- Requires a management plan.
- Requires an operating permit and service provider.
- Designed by an intermediate or advanced designer – based on flow.

Type V Systems are systems designed by a professional engineer that deviate from the prescriptive requirements of a Type I system.

- Does not need to follow prescriptive design standards.
- Must meet environmental and safety performance outcomes.
- Components not following Type I – IV design standards authorized by a professional engineer.

- Employed to use registered and/or non-registered treatment and dispersal products.
- Requires a management plan.
- Requires an operating permit and service provider.
- Designed by an advanced designer and signed off by a professional engineer or appropriately licensed professional.

SSTS reported by type

The number of SSTS construction permits reported by system type is presented in [Table 3](#). The majority of SSTS permitted in 2021 were Type I systems; approximately 58% of the Type I systems were mound systems. Over 7% of Type I systems permitted in 2021 contain proprietary distribution media, consisting of 719 chamber trenches and 28 EZ Flow trenches.

There were 1,701 Type II systems, 1,520 Type III systems, 97 Type IV systems, and 5 Type V systems permitted in 2021.

Table 3. 2021 SSTS construction permits reported by system type

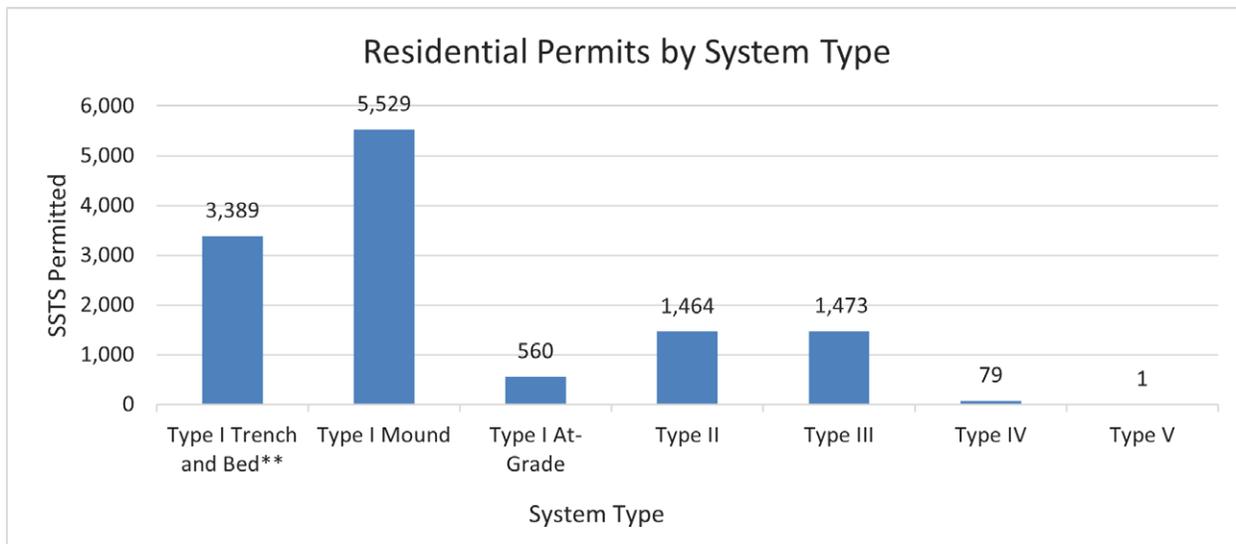
System Type	System Subtype	Residential	Other Establishment	Total	% Change From 2020
Type I	All	9,478	202	9,680	3%
	At-Grade	560	6	566	2%
	Chamber Trench	712	7	719	11%
	EZ Flow Trench	25	3	28	-10%
	Mound	5,529	112	5,641	3%
	Rock Trench	974	27	1,001	7%
	Seepage or Pressure Beds	1,678	47	1,725	-4%
Type II		1,464	237	1,701	19%
Type III		1,473	47	1,520	7%
Type IV		79	18	97	-11%
Type V		1	4	5	-38%
Total		12,495	508	13,003	5%

Note: The totals in this dataset are inconsistent with construction permit data included elsewhere in this report due to inconsistencies among reporting LGUs. This dataset should only be used for identifying trends and proportional analysis.

Residential SSTS

The number of SSTS construction permits issued in 2021 for residential dwellings, reported by system type, is presented in [Figure 6](#). A total of 12,495 residential SSTS were permitted in 2021. Type I systems accounted for approximately 76% of total residential SSTS permitted, including 3,389 trenches and beds, 5,529 mounds, and 560 at-grades. There were 1,464 Type II systems, 1,473 Type III systems, 79 Type IV systems, and 1 Type V systems permitted in 2021 for residential dwellings.

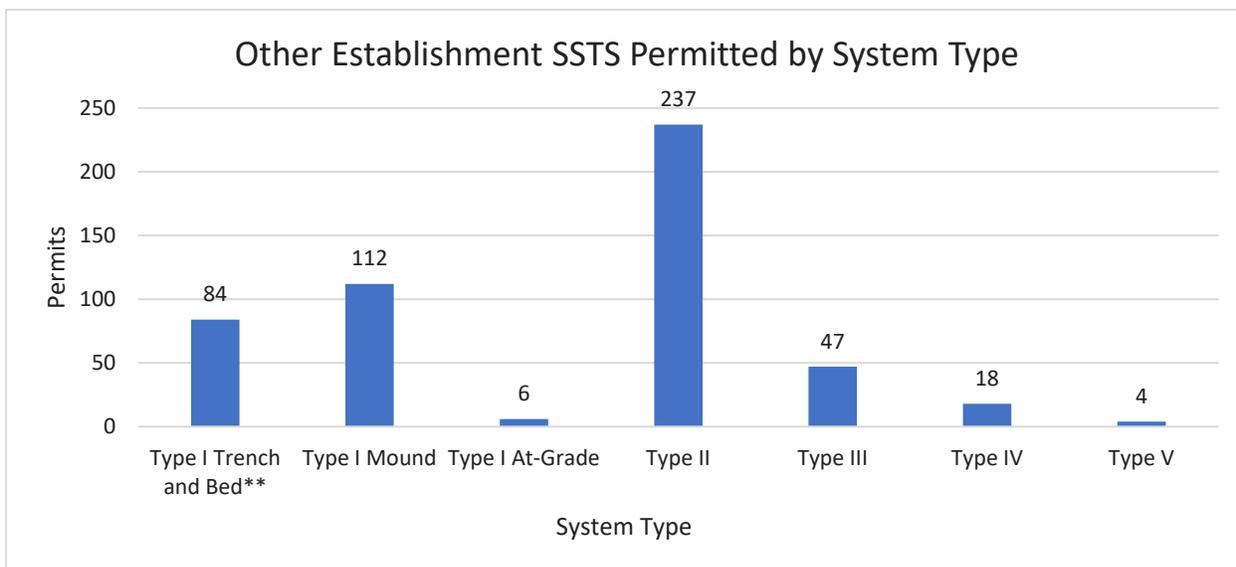
Figure 6. 2021 SSTS construction permits, reported by system type, for residential dwellings



Other establishment SSTS

The number of SSTS construction permits issued in 2021 for other establishments, reported by system type, is presented in [Figure 7](#). A total of 508 other establishment SSTS were permitted in 2021. Type I systems accounted for approximately 40% of total other establishment SSTS permitted, including 84 trenches and beds, 112 mounds, and 6 at-grades. There were 237 Type II systems, 47 Type III systems, 18 Type IV systems, and 4 Type V systems permitted in 2021 for other establishments.

Figure 7. 2021 SSTS construction permits, reported by system type, for other establishments



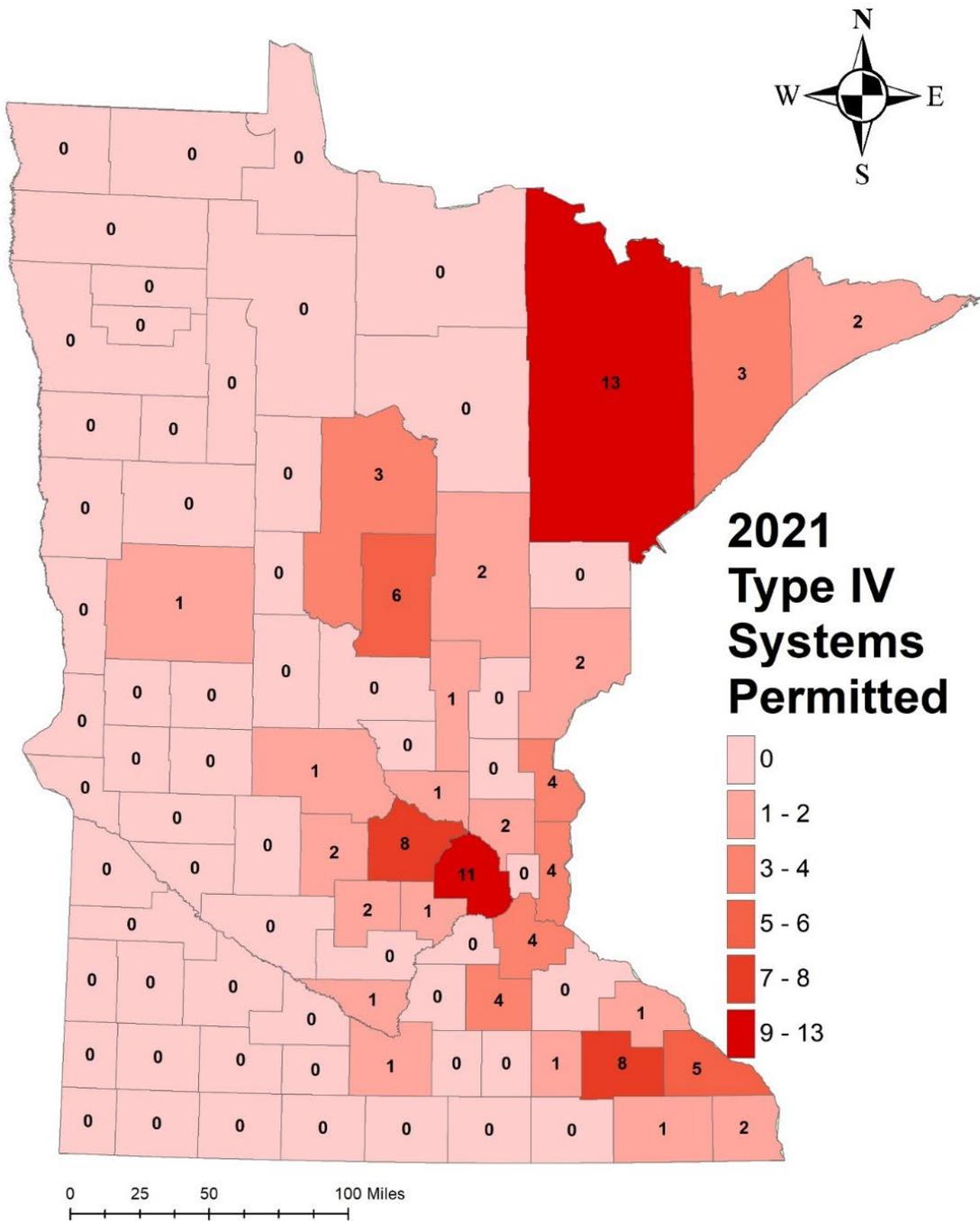
Type IV systems

A total of 97 Type IV systems were permitted in 2021, consisting of 79 residential SSTS and 18 other establishment SSTS. An example of a registered proprietary treatment product used in a Type IV system is shown in Figure 8. The greatest number of Type IV systems was reported in St. Louis County (13). Figure 9 presents the distribution of Type IV systems permitted in 2021 by county.

Figure 8. Type IV system using a registered proprietary treatment product



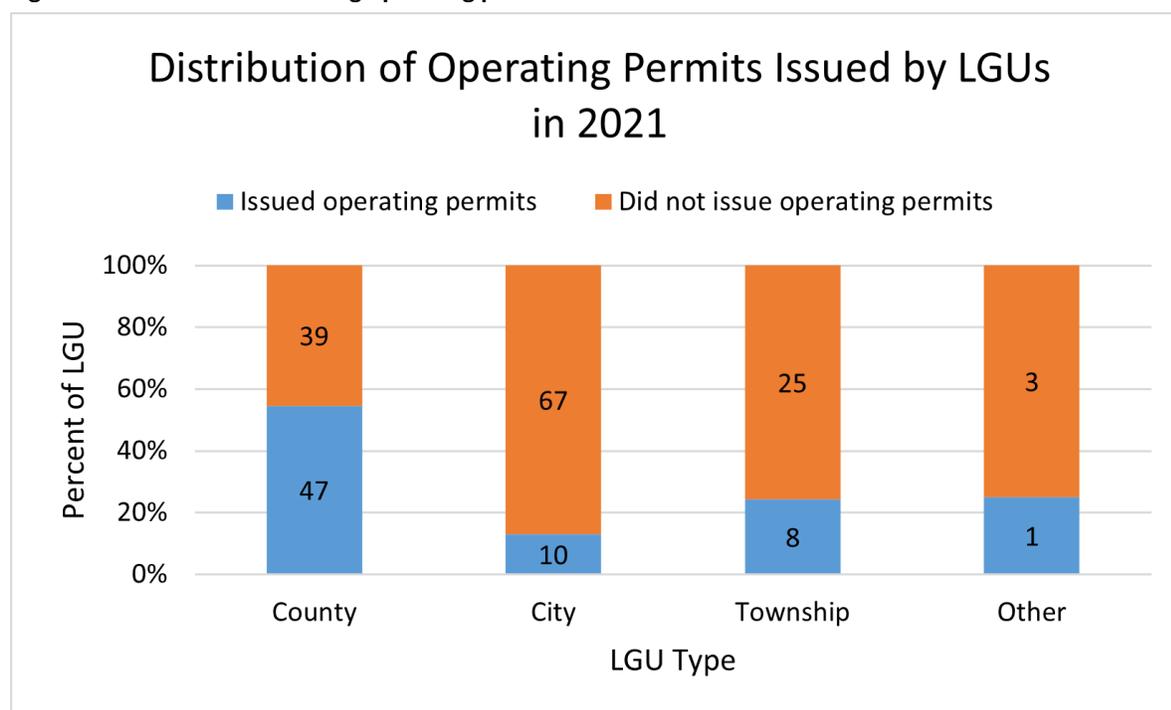
Figure 9. Type IV systems permitted in 2021 by county



Operating permit issuance

Operating permits are site-specific regulatory documents that outline various parameters for maintenance, monitoring, and other service functions for a variety of SSTS types. It was reported that 675 operating permits were issued in 2021 for both residential and other establishment systems. The LGUs that issued operating permits in 2021 consist of 46 counties, 10 cities, 8 townships, and 1 other special purpose unit of government. The distribution of LGUs who issued operating permits in 2021 is presented in [Figure 10](#).

Figure 10. LGU status for issuing operating permits in 2021



SSTS by wastewater flow volume

Over 99% of the total SSTS construction permits issued in 2021 were for systems with a flow volume between 1-2,499 gpd, consisting of 12,338 residential SSTS and 477 other establishment SSTS. Of the total SSTS with a flow volume between 1-2,499 gpd permitted, approximately 53% were replacement systems and 47% were new systems.

A total of 20 systems with a flow volume between 2,500 and 4,999 gpd were permitted in 2021, consisting of 9 residential SSTS and 11 other establishment SSTS. Of the total SSTS with a flow volume between 2,500 and 4,999 gpd permitted, 10 were replacement systems and 10 were new systems.

A total of 7 systems with a flow volume between 5,000 and 10,000 gpd were permitted in 2021. Of the total SSTS with a flow volume between 5,000 and 10,000 gpd permitted, 3 were replacement systems (1 residential and 2 other establishment SSTS) the other 4 were new systems. All 4 new systems with a flow volume between 5,000 and 10,000 gpd were other establishment SSTS

[Table 4](#) provides the number of SSTS construction permits issued in 2021 by wastewater flow volume.

Table 4. SSTS permitted in 2021 by flow volume

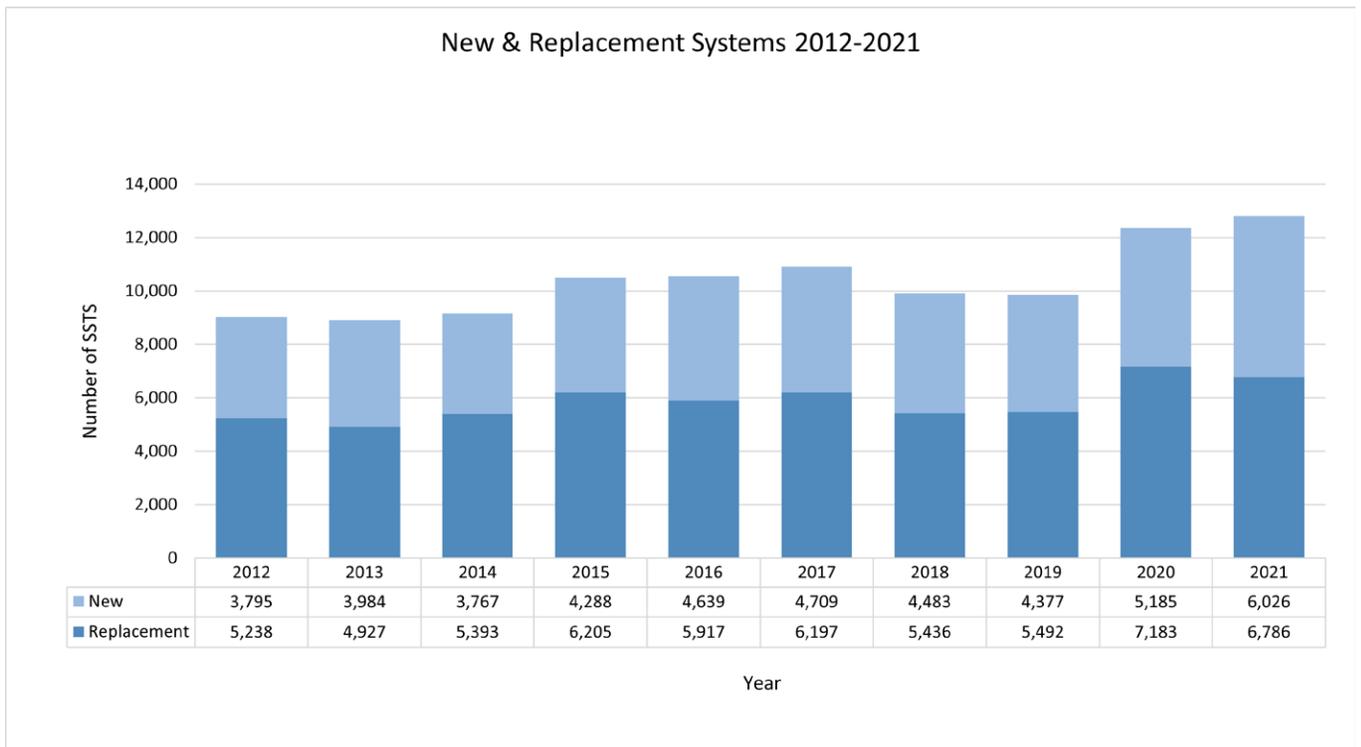
Flow Volume	Residential		Other Establishment		Total
	New	Replacement	New	Replacement	
1 – 2,499 gpd	5,699	6,639	313	134	12,785
2,500 – 4,999 gpd	6	3	4	7	20
5,000 – 10,000 gpd	0	1	4	2	7
Total	5,705	6,643	321	143	12,812

New and replacement SSTS

The number of SSTS construction permits issued for new and replacement systems over the last ten years is presented in [Figure 11](#). Over 104,000 construction permits have been reported by LGUs since 2012; approximately 57% were for replacement systems and 43% were for new systems.

LGUs issued 12,812 construction permits in 2021 for 6,026 new systems and 6,786 replacement systems. Existing systems may be replaced due to failing to protect groundwater (FTPGW) or posing an imminent threat to public health and safety (ITPHS). These conditions are typically identified through various local triggers such as: property transfer inspections, land use permits, building permits, conditional use permits, variances, and complaints.

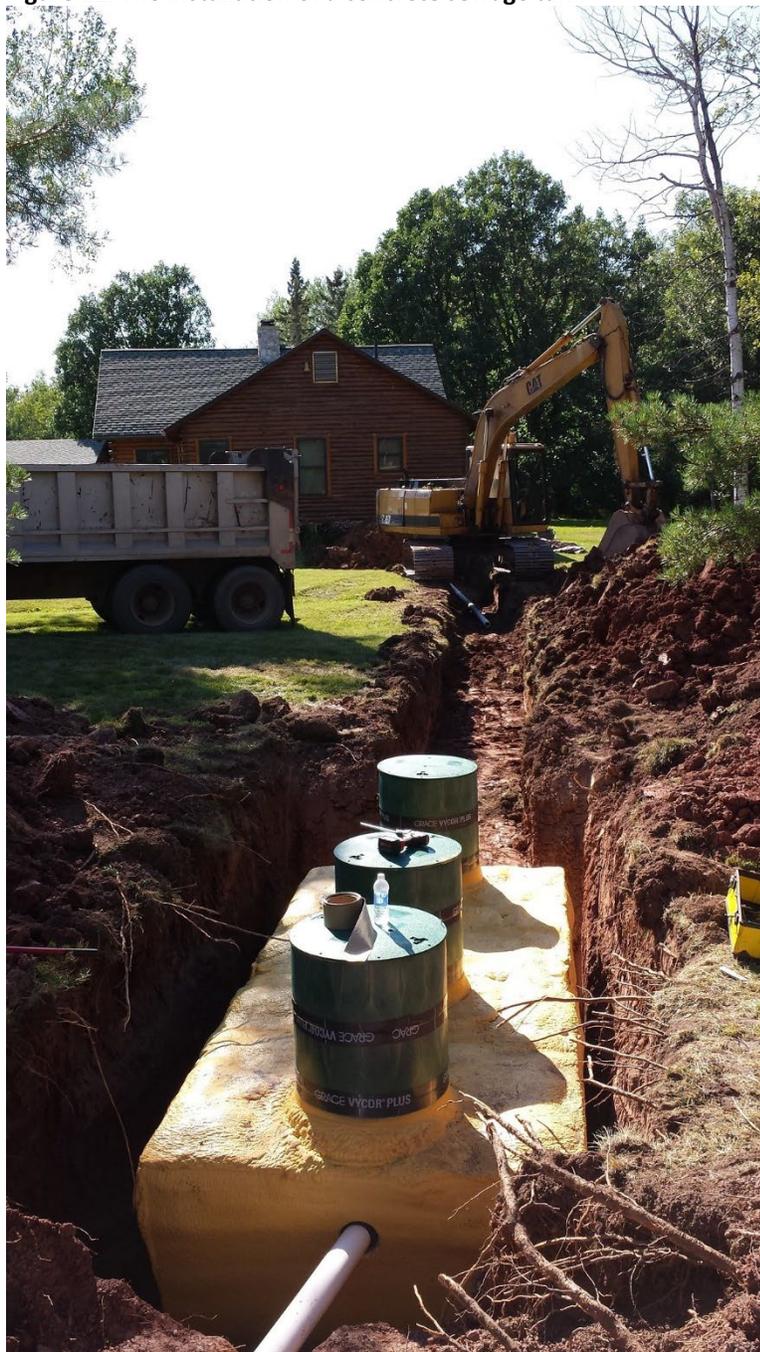
Figure 11. SSTS construction permits for new and replacement systems 2012-2021



Sewage tanks installed

LGUs reported that 16,758 septic system tanks were installed in MN 2021, 159 of which were performance-based SSTS tanks. Collecting tank installation data supports the administration of [Minn. Stat. § 115.551](#), requiring installers to pay a fee of \$25 for each tank installed in the previous year. For performance-based systems, the tank fee is limited to \$25 per household system installation.

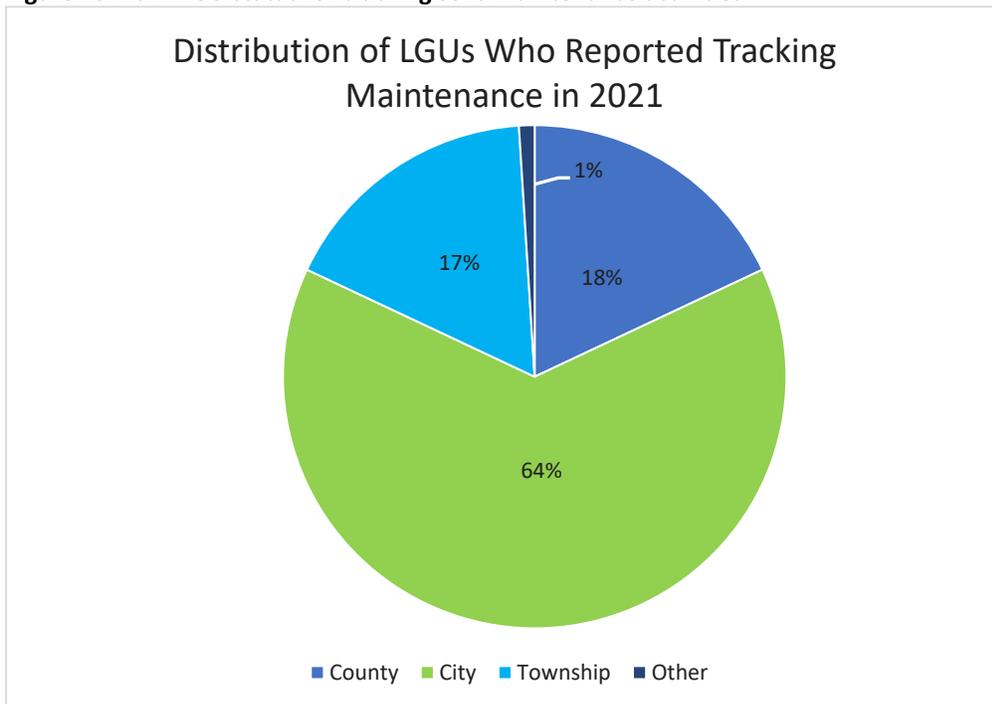
Figure 12. The installation of a concrete sewage tank



Tracking SSTS maintenance activities

The annual report survey asks LGUs to indicate if they track SSTS maintenance activities. Of the 200 LGUs with SSTS programs in 2021, 83 (42%) reported that they track SSTS maintenance activities. There were 15 counties, 53 cities, 14 townships, and 1 other special purpose unit of government that reported tracking the maintenance of SSTS ([Figure 13](#)). The high number of city programs can be attributed to the Metropolitan Council, requiring maintenance tracking in the metropolitan area.

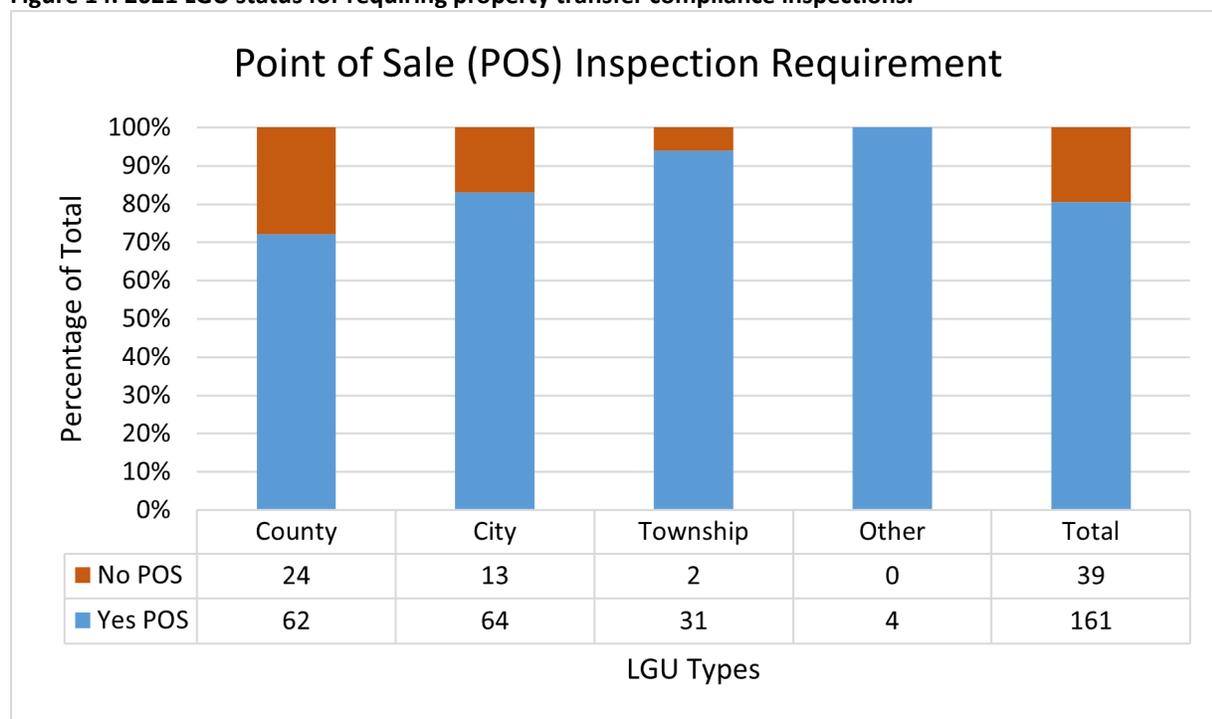
Figure 13. 2021 LGU status for tracking SSTS maintenance activities



Compliance inspections for property transfers

There is currently no state-level requirement for LGUs to implement property transfer compliance inspections in their programs; however, many LGUs have indicated that this is the most effective trigger for identifying noncompliant systems. The annual report survey asks LGUs to indicate if they require compliance inspections for property transfers. Of the 200 LGUs with SSTS programs in 2021, 161 (81 %) reported that they require compliance inspections for property transfers. The LGUs with property transfer compliance inspection requirements consist of 86 counties, 77 cities, 33 townships, and 4 other special purpose units of government ([Figure 14](#)).

Figure 14. 2021 LGU status for requiring property transfer compliance inspections.



Existing system compliance inspections

LGUs reported that there were 15,876 existing system compliance inspections in 2021, representing a small (1%) increase from 2020 (15,764). Compliance inspections are an important part of addressing existing systems that pose an environmental or human health risk. LGUs include inspection triggers in their ordinances, such as at the time of property transfer or when a building permit is sought, to create a mechanism for verifying system compliance and correcting noncompliant systems.

The number of existing system compliance inspections broken down by LGU type is provided in [Table 5](#); counties reported 13,258, cities reported 1,952, townships reported 374, and other special purpose units of government reported 292 compliance inspections occurring within their jurisdictions. [Figure 15](#) displays the total number of existing system compliance inspections reported in each county. [Figure 16](#) displays the amount of existing system compliance inspections for 2021 as a percentage of total SSTS reported countywide.

Table 5. 2021 existing system compliance inspections by LGU type

LGU type	Number of compliance inspections of existing systems	Percentage of total compliance inspections
County	13,258	83.5%
City	1,952	12.3%
Township	374	2.4%
Other	292	1.8%
Total	15,876	100%

Figure 15. 2021 existing system compliance inspections per county

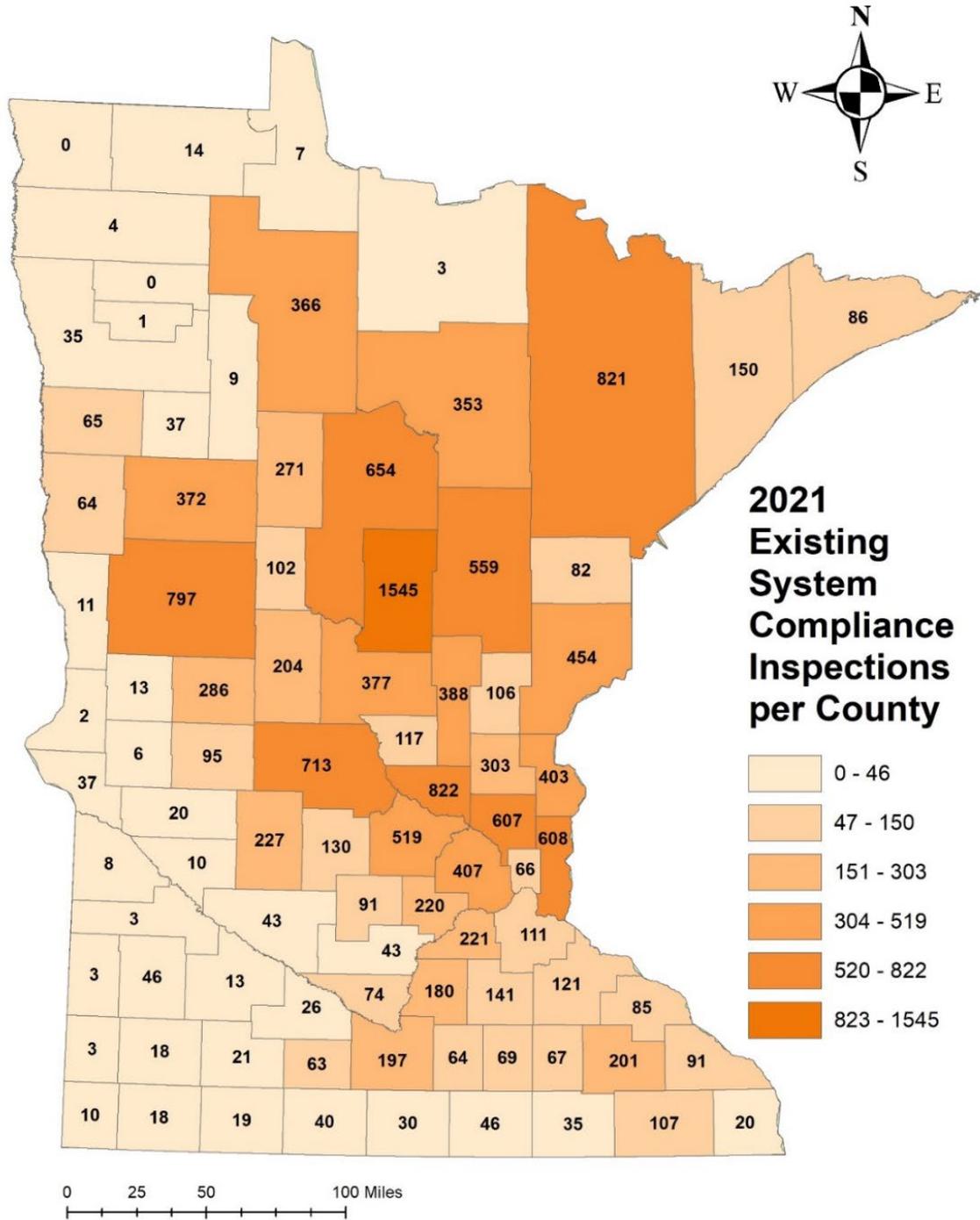
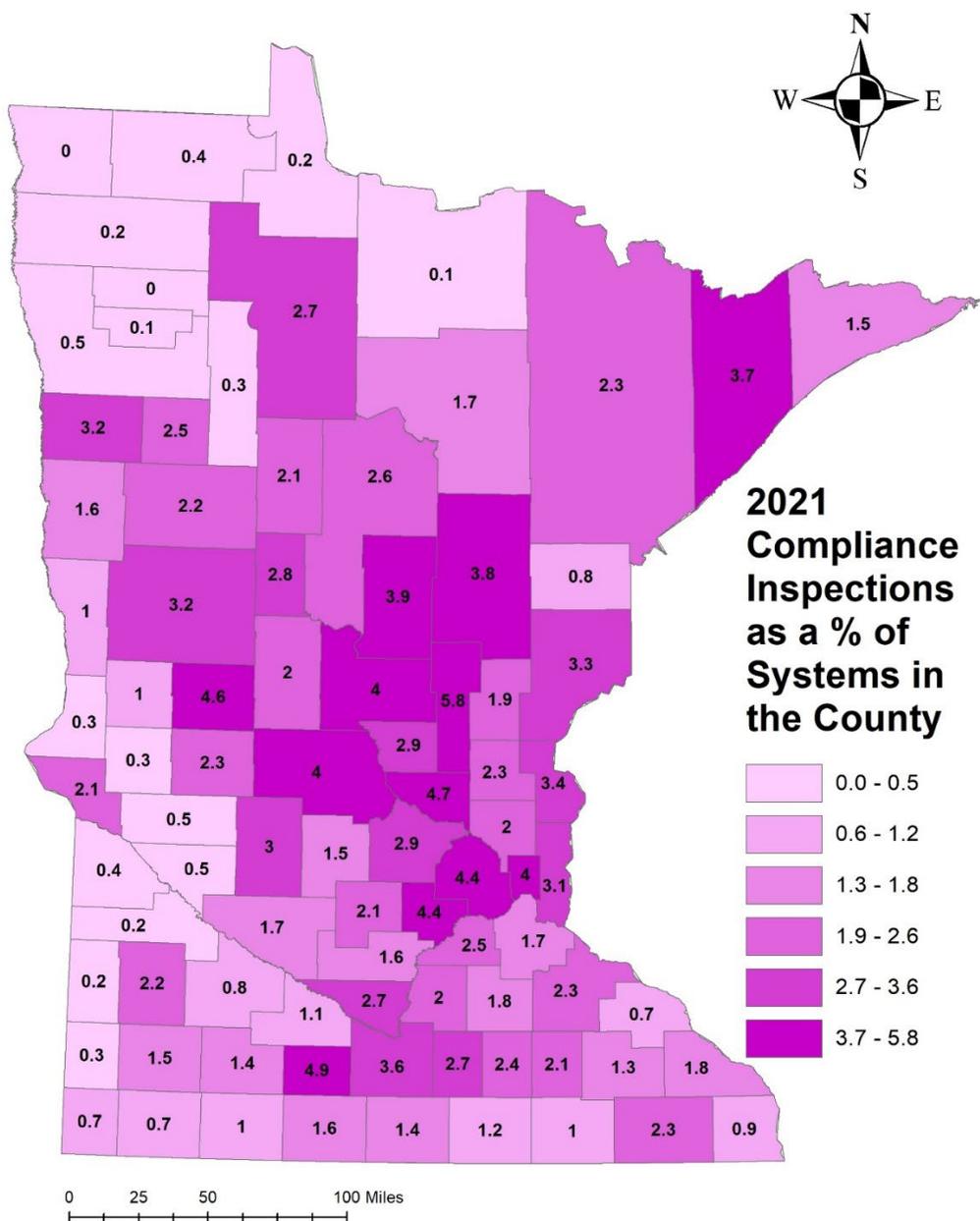


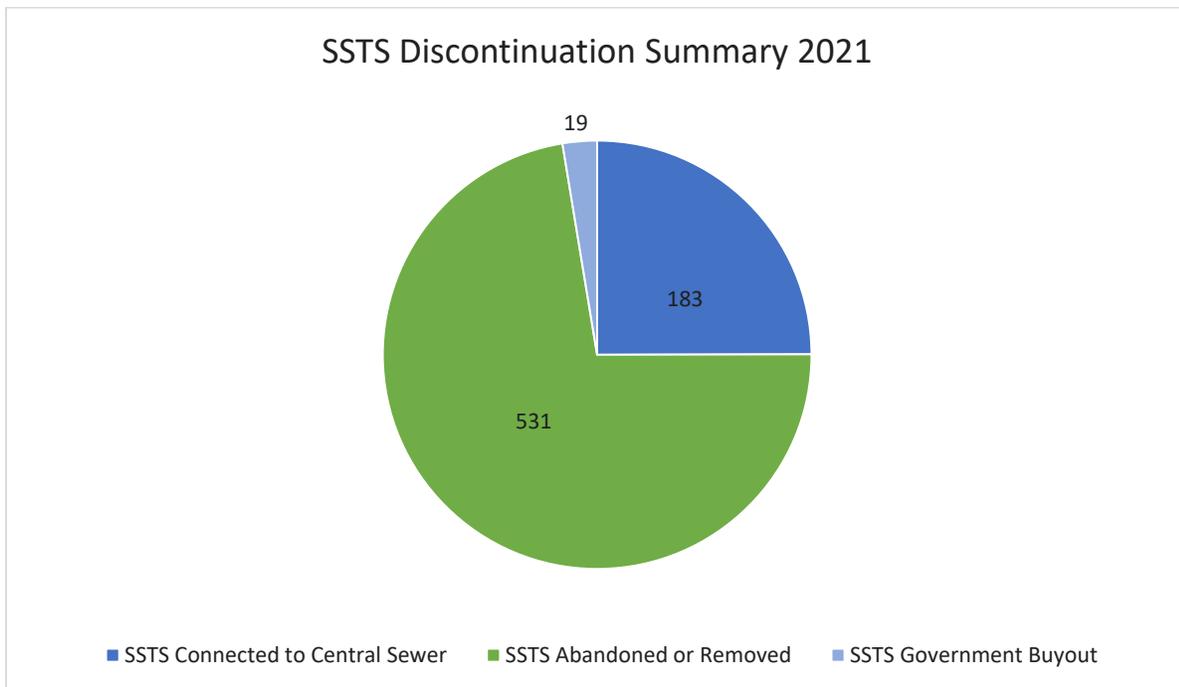
Figure 16. 2021 existing system compliance inspections presented as a percentage of total systems in county



Noncompliant properties mitigated by centralized sewer connection, abandonment or removal, or government buyout

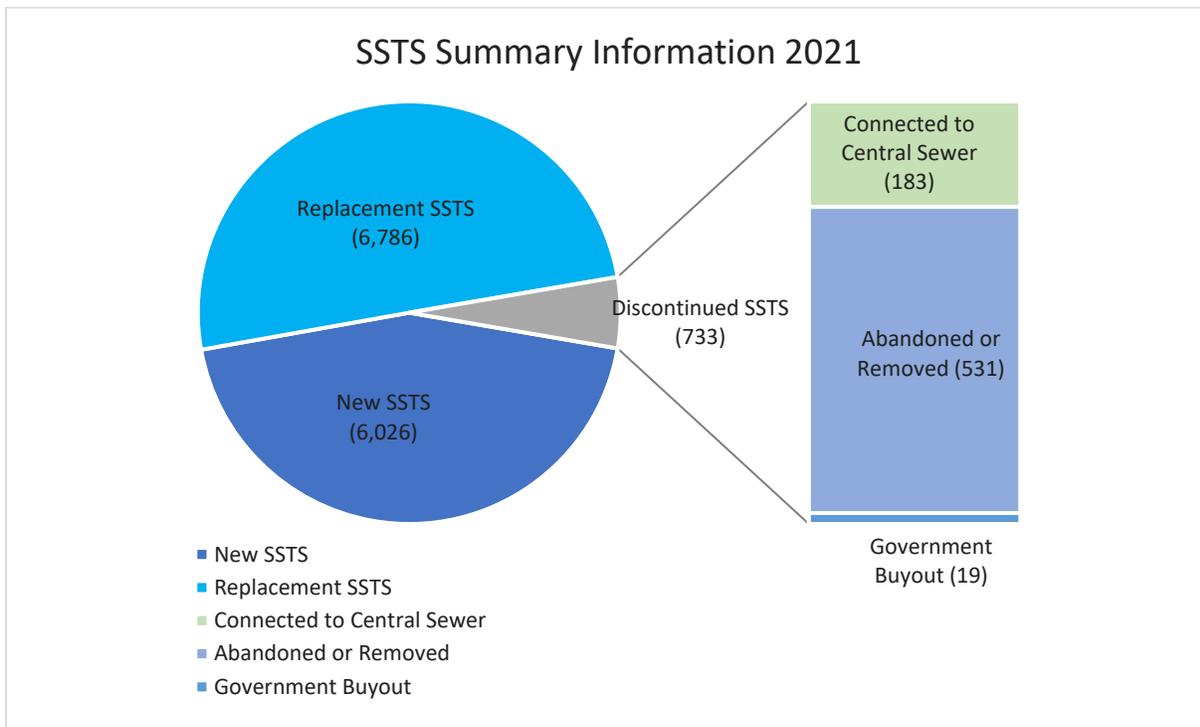
The number of noncompliant properties mitigated in 2021 by 1) connecting to centralized sewer, 2) abandonment or removal, or 3) a government buyout is provided in [Figure 17](#). LGUs reported that 733 noncompliant properties had SSTS discontinued through one of these three mechanisms. Of the noncompliant properties with SSTS discontinued in 2021, 183 were connected to centralized sewer, 531 were abandoned or removed, and 19 were part of a government buyout program.

Figure 17. Noncompliant properties with discontinued SSTS in 2021



[Figure 18](#) presents a summary of SSTS activity for 2021, including new SSTS permitted, replacement SSTS permitted, and noncompliant properties with SSTS discontinued through centralized sewer connection, abandonment or removal, or a government buyout. The total number reported for these SSTS activities in 2021 was 13,545.

Figure 18. Summary of new SSTS, replacement SSTS, noncompliant properties with discontinued SSTS in 2021



SSTS compliance trends

Each LGU was requested to provide their **best estimate** of SSTS compliance. This included the following information:

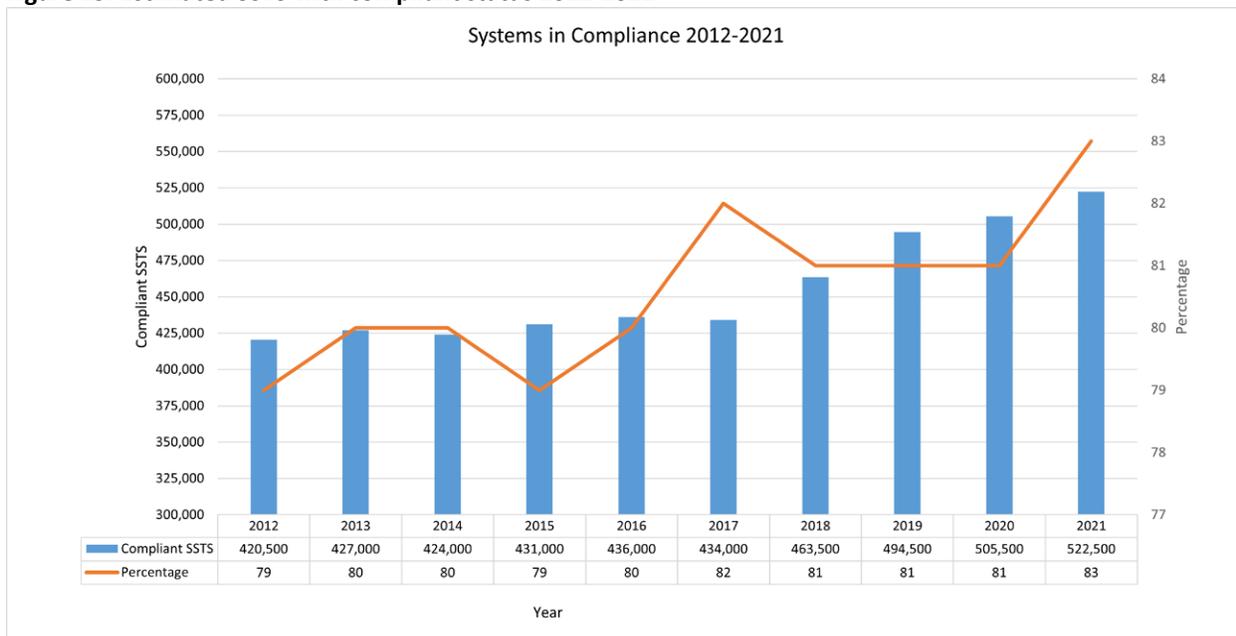
- Total number of SSTS in jurisdiction;
- Number of SSTS estimated to be compliant;
- Number of SSTS estimated to be an ITPHS; and
- Number of SSTS estimated to be FTPGW.

Figures [19](#), [20](#), and [21](#) present annual estimates of SSTS compliance status from 2012 to 2021.

Overall, SSTS in Minnesota are becoming increasingly compliant year to year. Negative trends in some years can conflict with overall compliance trends. Many LGUs are developing databases, reviewing old files, completing inventories, and other processes that facilitate more accurate data.

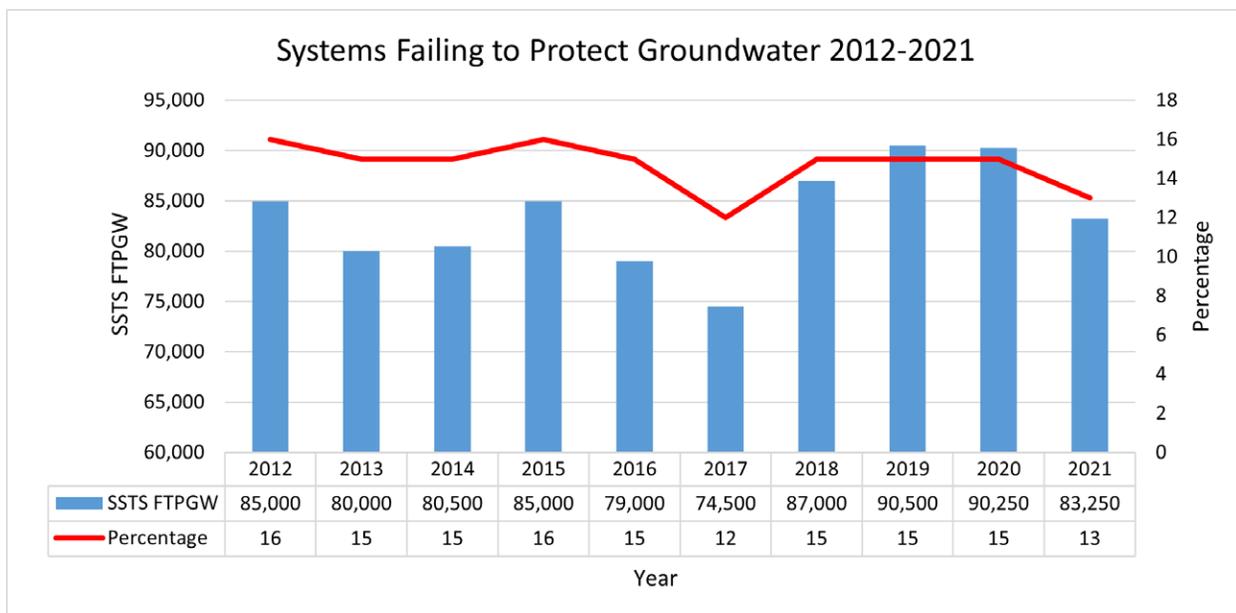
The number of estimated compliant SSTS has increased over the last ten years, from approximately 420,500 systems in 2012 to 522,650 systems in 2021. Additionally, the estimated percentage of compliant SSTS out of total SSTS increased from 79% in 2012 to 83% in 2021. [Figure 19](#) displays the number and percentage of SSTS with compliant status estimated by LGUs over the last ten years.

Figure 19. Estimated SSTS with compliant status 2012-2021



The estimated number of SSTS FTPGW has decreased over the last ten years, from approximately 85,000 (16%) systems in 2012 to 83,265 (13%) systems in 2021. [Figure 20](#) displays the number and percentage of SSTS with FTPGW status estimated by LGUs over the last ten years.

Figure 20. Estimated SSTS with FTPGW status 2012-2021



The estimated number of SSTS with an ITPHS status has decreased over the last ten years, from approximately 28,500 (5%) systems in 2012 to 24,170 (4%) systems in 2021. [Figure 21](#) displays the number and percentage of SSTS with ITPHS status estimated by LGUs over the last ten years. Systems that have been identified as an ITPHS may include when there is sewage backup into the dwelling or other establishment, sewage discharge to the ground surface or surface waters, and unsecured or damaged maintenance hole covers (see [Figure 22](#)). Per state statute, systems identified as an ITPHS

must be upgraded, replaced, repaired, or discontinued within ten months of receipt of a notice of noncompliance or within a shorter period if required by local ordinance.

Figure 21. Estimated SSTS with ITPHS status 2012-2021

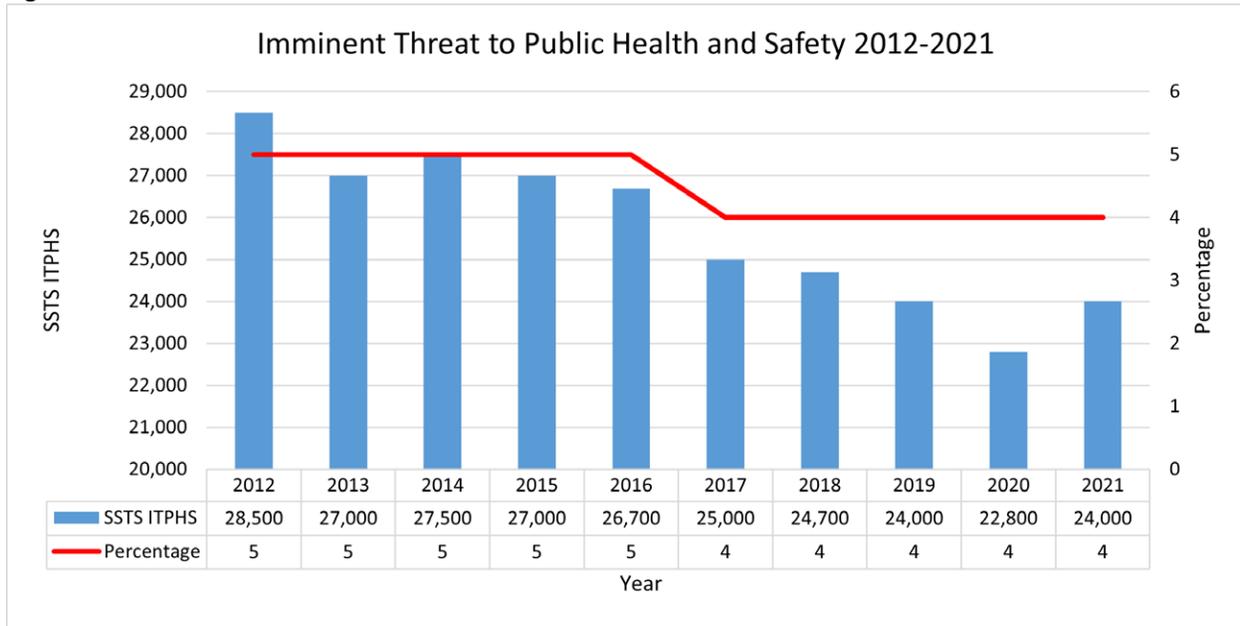


Figure 22. Maintenance hole covers identified as structurally unsound or unsecured are an ITPHS



SSTS certification and licensing

Following the adoption of the Individual Sewage Treatment System standards by the MPCA Citizens' Board in 1978, the University of Minnesota and the MPCA worked cooperatively to provide voluntary Onsite Sewage Treatment System workshops. In 1994, the Minnesota Legislature made the certification and licensing of SSTS professionals mandatory.

Since the administration of the statewide certification and licensing program began through the end of 2021, over 1,200 workshops have occurred throughout Minnesota with nearly 60,000 learners participating. Individuals have taken more than 27,000 certification exams and the MPCA has awarded over 1,350 business licenses and 2,500 individual certifications to SSTS designers, installers, maintainers, service providers, and inspectors.

[Figure 23](#) presents 2021 data for all SSTS certification exam types. [Figure 24](#), [25](#), [26](#), [27](#), [28](#), [29](#), [30](#), [31](#), [32](#), and [33](#) present data on individual certification exam types over the last ten years.

Figure 23. Maintenance hole covers identified as structurally unsound or unsecured are an ITPHS

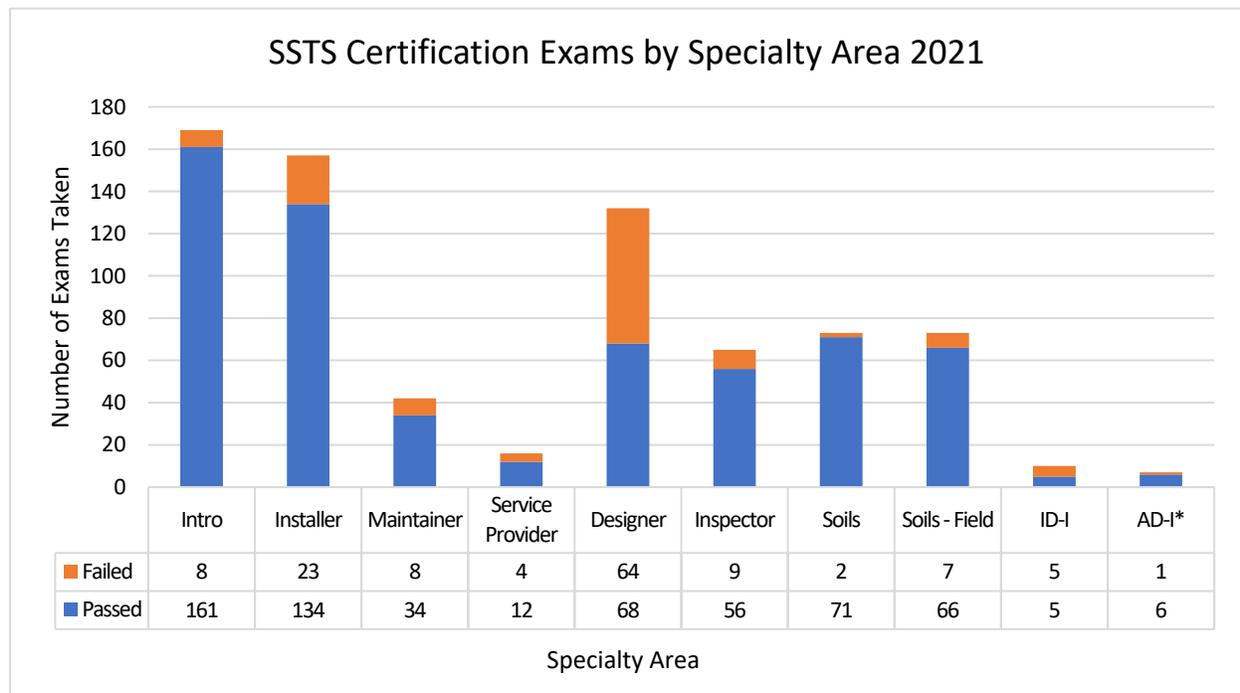


Figure 24. Introduction to Onsite Systems certification exams 2012-2021

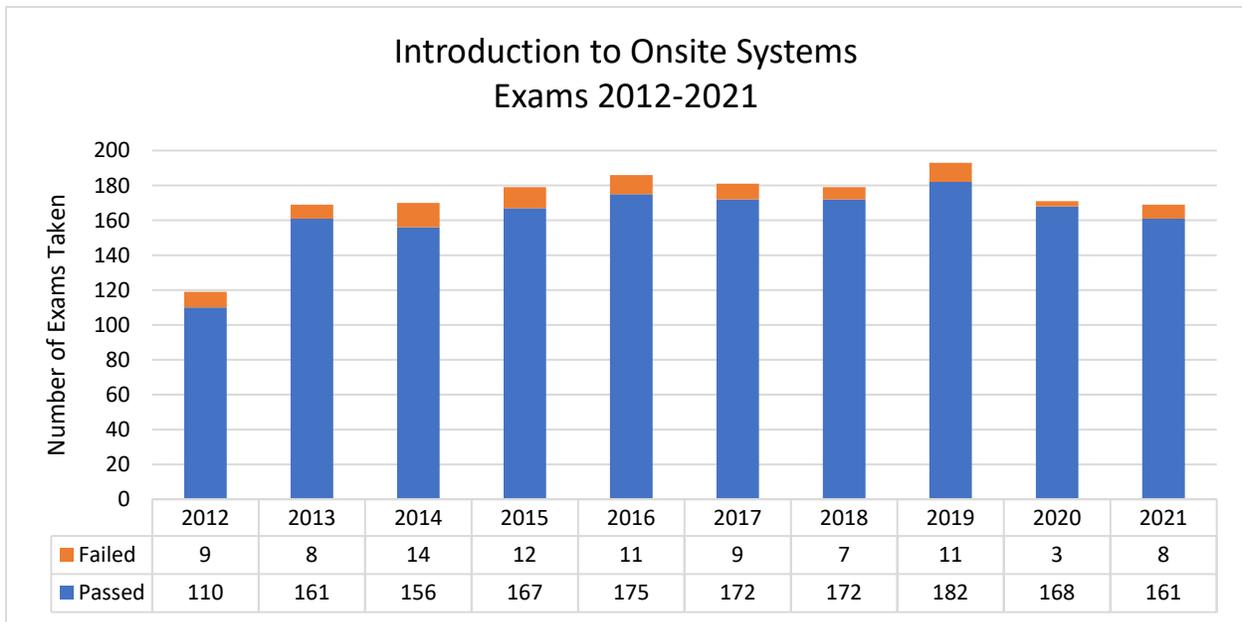


Figure 25. Installing Onsite Systems certification exams 2012-2021

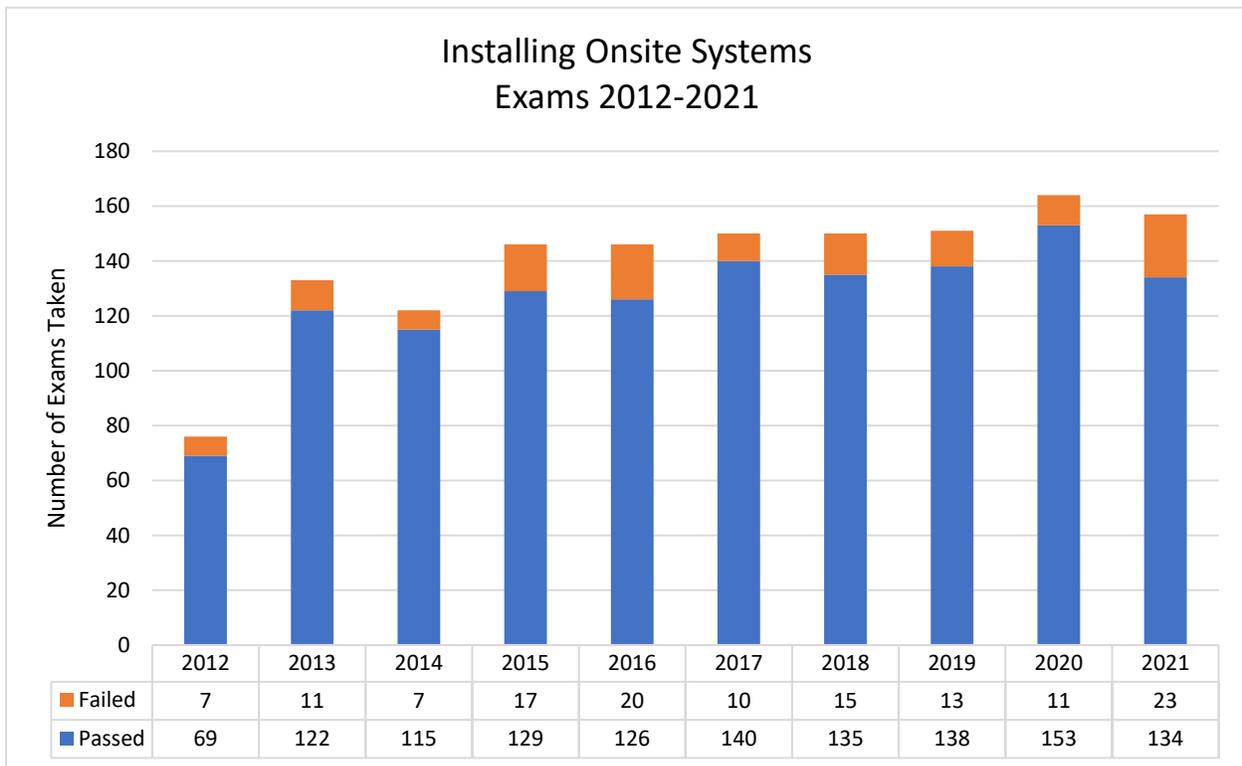


Figure 26. Maintaining Onsite Systems certification exams 2012-2021

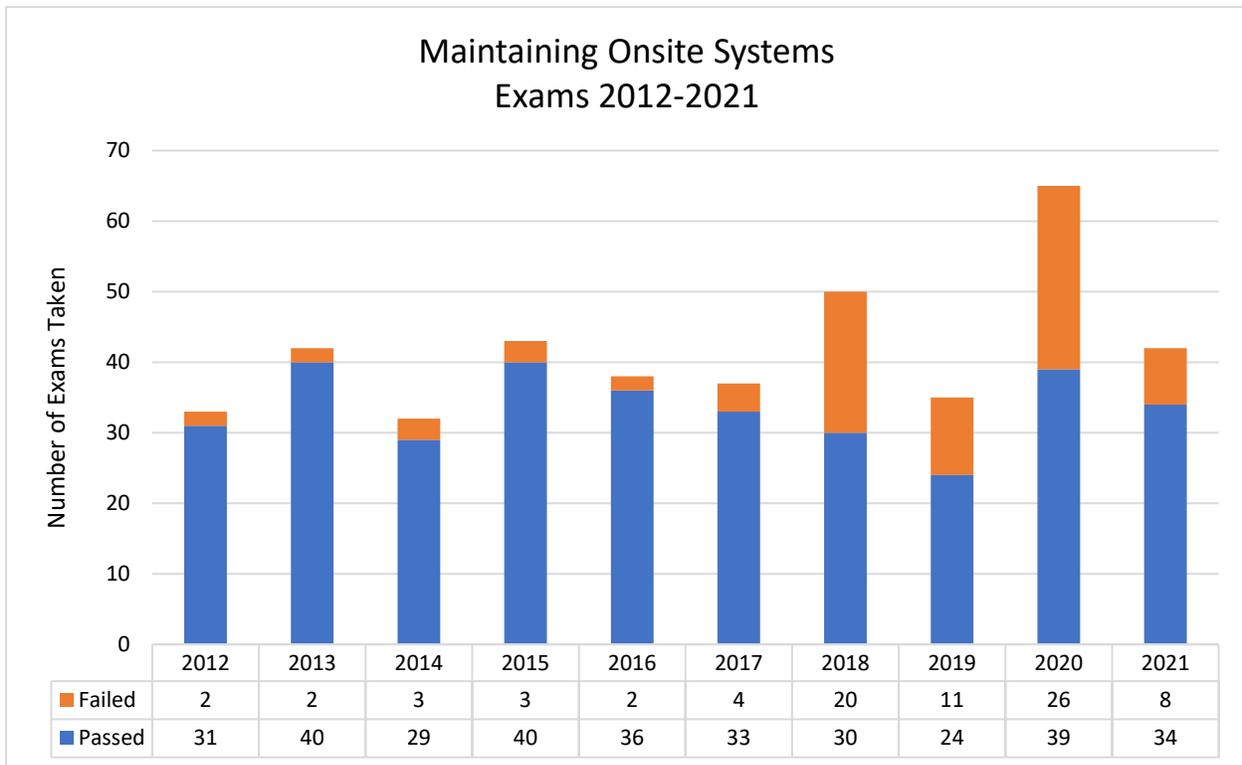


Figure 27. Service Provider for Onsite Systems certification exams 2012-2021

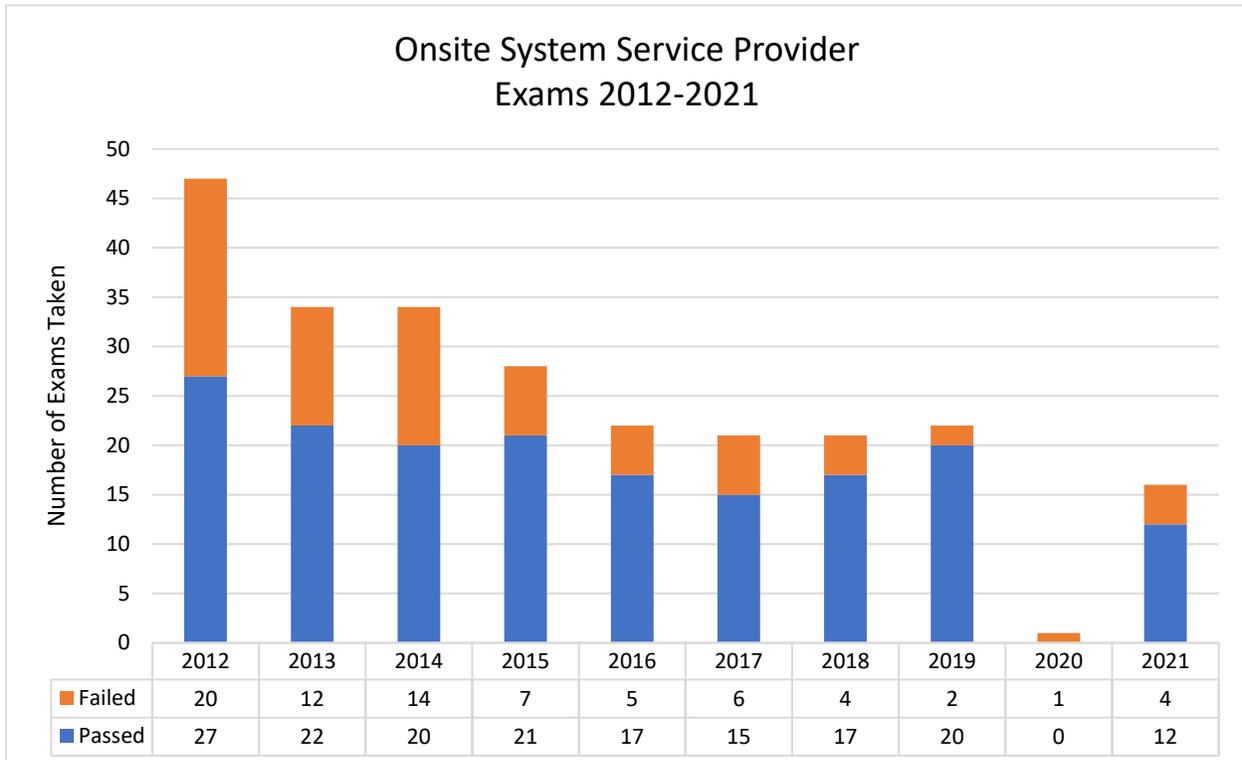


Figure 28. Designing Onsite Systems certification exams 2012-2021

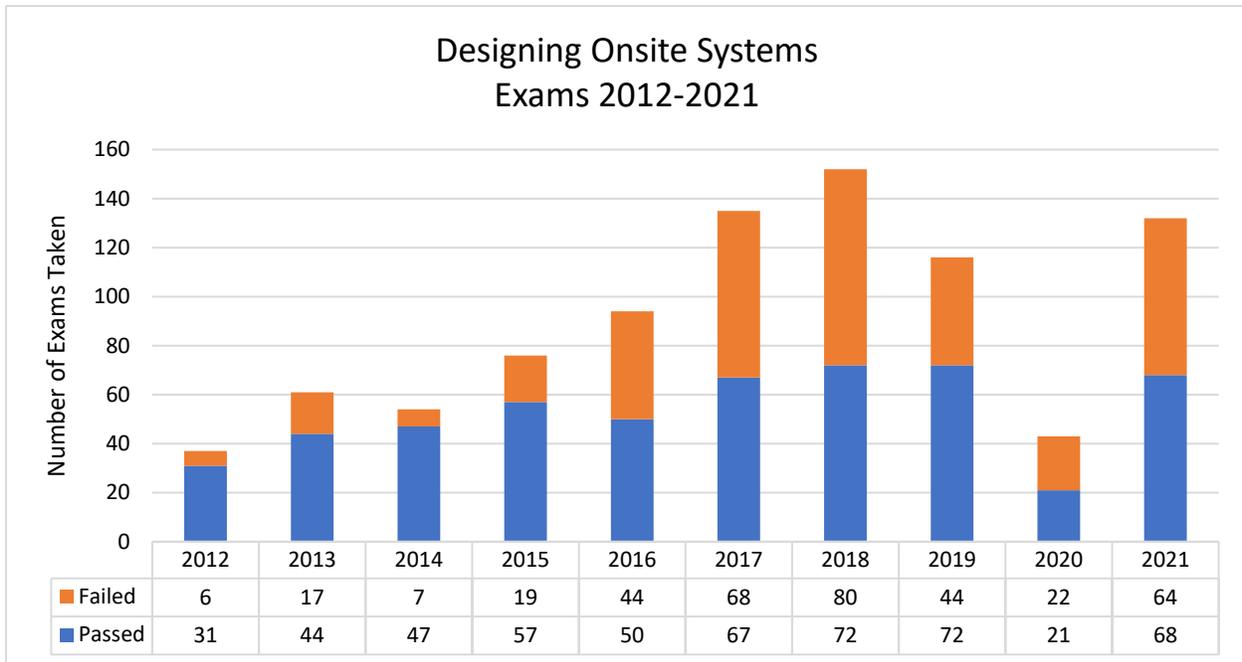


Figure 29. Inspecting Onsite Systems certification exams 2012-2021

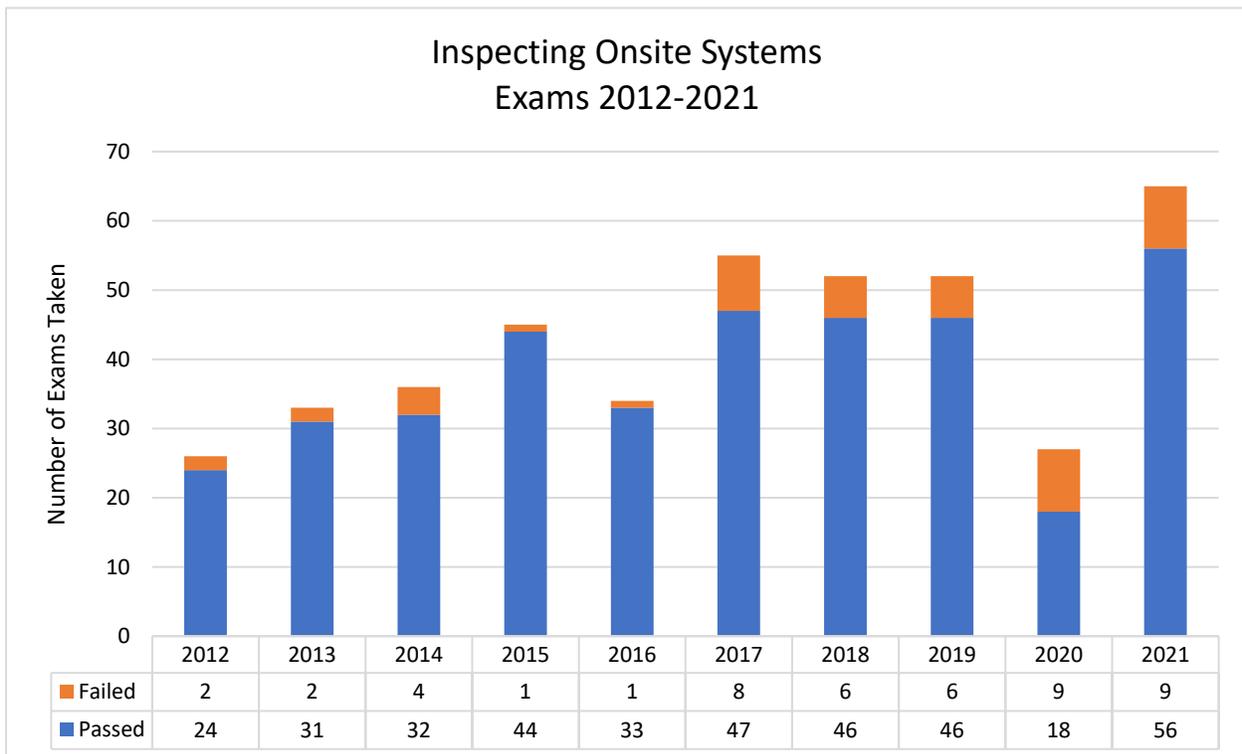


Figure 30. Soils and Onsite Systems certification exams 2012-2021

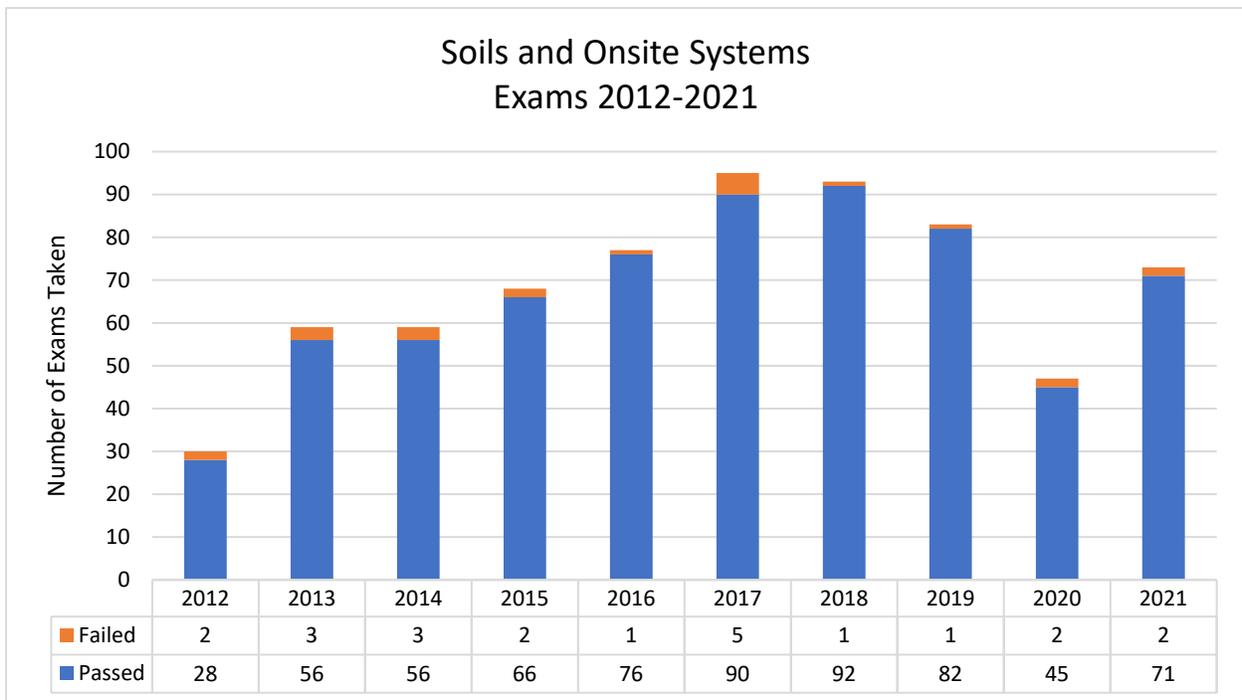


Figure 31. Soils (Field Portion) and Onsite Systems certification exams 2012-2021

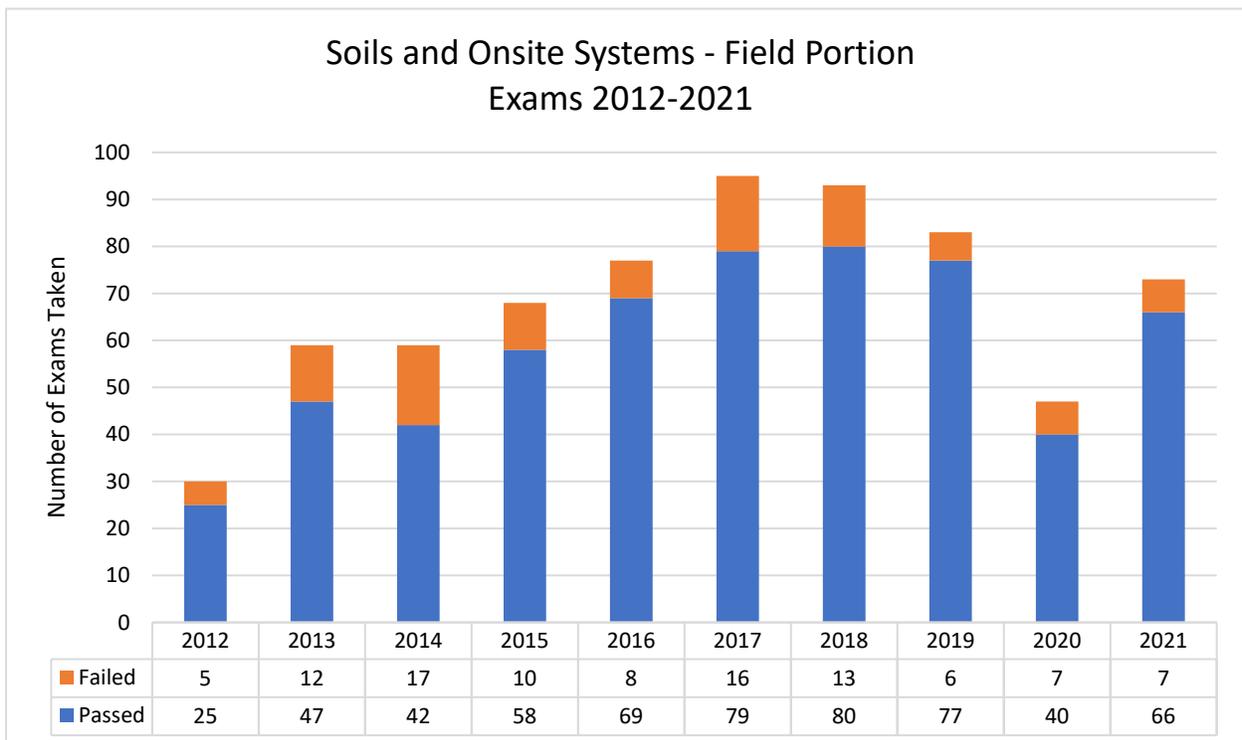
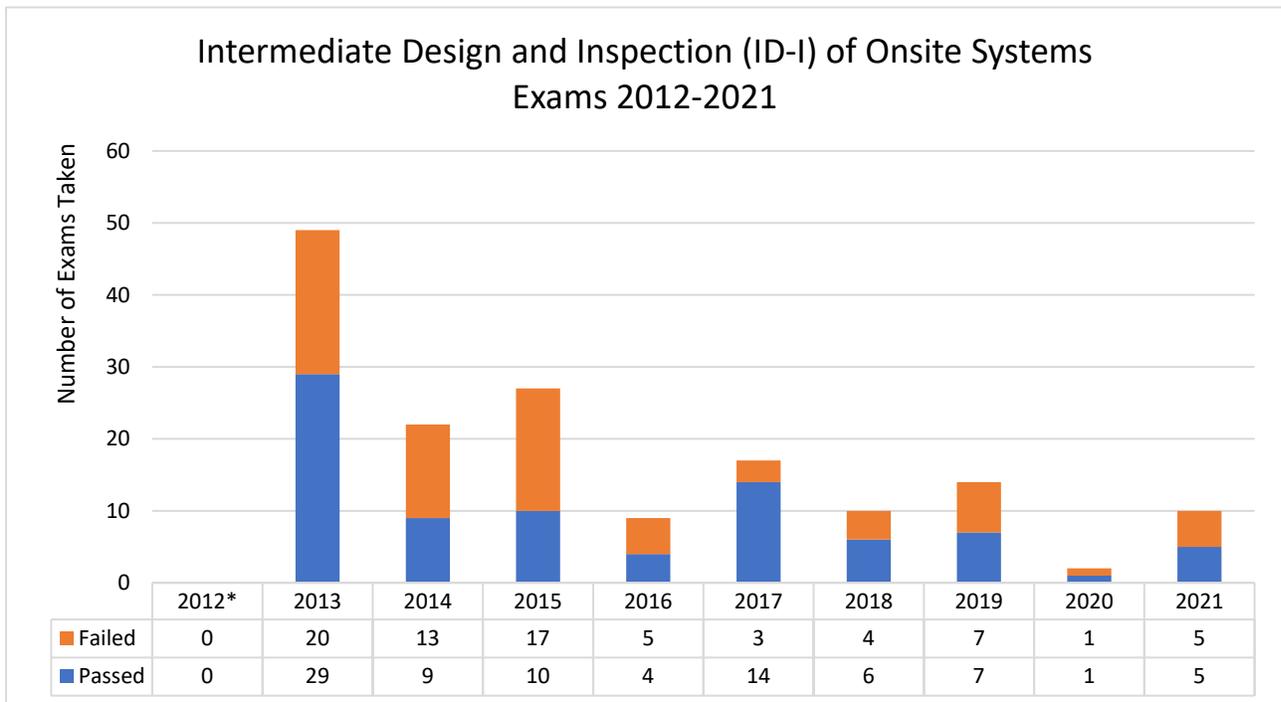
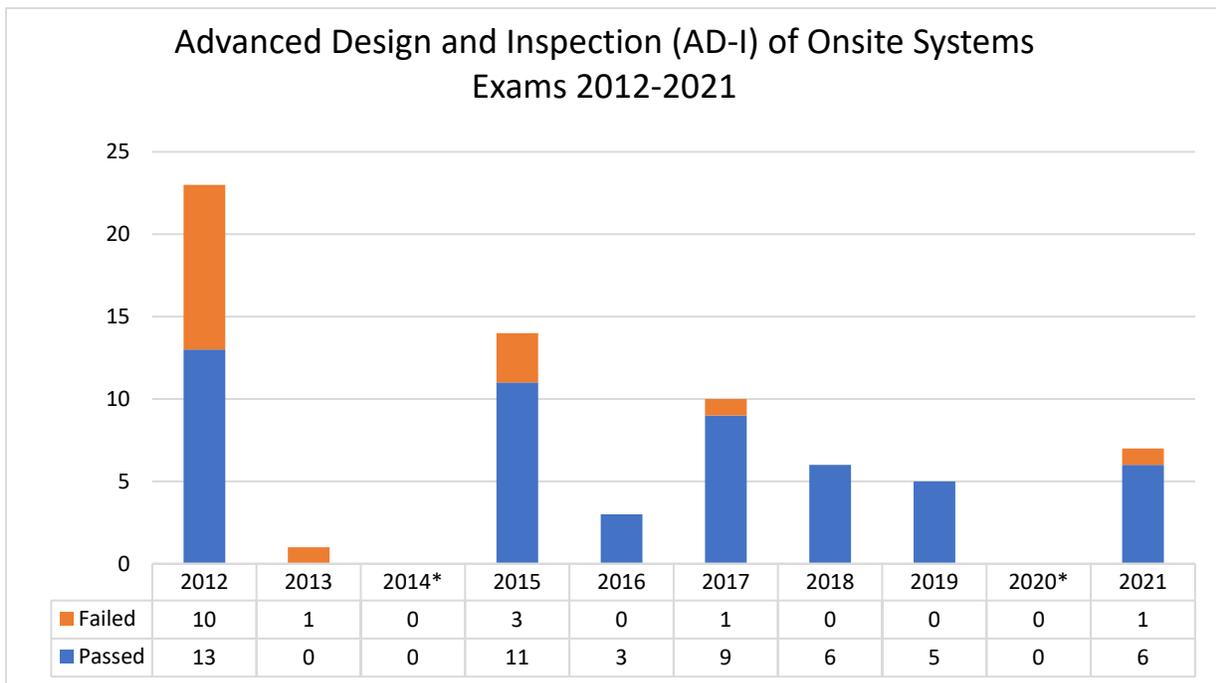


Figure 32. Intermediate Design and Inspection (ID-I) of Onsite Systems certification exams 2013-2021



*Intermediate Design and Inspection of Onsite Systems was not offered prior to 2013.

Figure 33. Advanced Design and Inspection (AD-I) of Onsite Systems certification exams 2012-2021



Summary and conclusions

Minn. R. 7082.0040 requires local SSTS programs to submit annual reports to the MPCA by February 1 documenting their SSTS activities for the previous calendar year. In December 2021, the MPCA sent out a web-based annual report survey to LGUs with known SSTS programs to complete. The annual report survey was used to obtain data from each local SSTS program so that relevant information could be summarized into a statewide 2021 SSTS Annual Report.

There were 200 LGUs (86 counties, 77 cities, 33 townships, and 4 other special purpose units of government with permitting authority) who administered SSTS programs in 2021 that submitted annual report data.

A total of 630,087 SSTS were reported across Minnesota, representing an estimated 43.1 billion gallons of wastewater treated by SSTS per year (assuming 2.5 person/permit; 75 gallons/person; 365 days/year).

Local governmental units issued 12,812 SSTS construction permits in 2021 for 6,026 new systems and 6,786 replacement systems. Of the 12,812 SSTS permitted in 2021, approximately 96 % are serving residential dwellings and 4 % are serving other establishments.

Over 74% of the SSTS permitted in 2021 were Type I systems, including 5,641 Type I mounds and 3,473 in ground systems. There were 1,701 Type II systems, 1,520 Type III systems, 79 Type IV systems, and 5 Type V systems permitted in 2021.

The majority of SSTS construction permits issued in 2021 were for systems with a flow volume between 1-2,499 gallons per day (gpd); however, there were 20 systems with a flow volume between 2,500-4,999 gpd and 7 systems with a flow volume between 5,000-10,000 gpd permitted.

LGUs reported that 16,758 sewage tanks were installed in 2021.

There were 15,876 existing system compliance inspections conducted in 2021. LGUs reported that 733 noncompliant systems were mitigated by centralized sewer connection, abandonment or removal, or a government buyout in 2021.

Of the 200 LGUs with SSTS programs in 2021, 99% approve SSTS designs before issuing construction permits, 98% verify soils at some point during the review process, 41% track SSTS maintenance activities, and 80% have property transfer compliance inspection requirements.

Over 100,000 SSTS construction permits have been issued within the last ten years, indicating that over 16% of Minnesota's 630,087 SSTS have been constructed within the last ten years or contain components that are less than ten years old

The number of estimated compliant SSTS has increased over the last ten years, from approximately 420,500 systems in 2012 to 522,650 systems in 2021. This data suggests an overall positive trend in SSTS compliance in Minnesota.

Appendix A

Countywide statistics

County	Total SSTS reported in 2021	Construction permits reported in 2021	Total construction permits issued 2002-2021	Number of compliance inspections of existing SSTS conducted countywide (private inspector and LGU)	Percent of total existing SSTS inspected in 2021 out of total SSTS	Counties with compliance inspections for property transfer
Aitkin	14667	288	5336	559	3.8%	Yes
Anoka*	29939	548	9234	607	2.0%	No
Becker	17079	445	6755	372	2.2%	No
Beltrami*	13743	288	4400	366	2.7%	Yes
Benton	4068	98	2103	117	2.9%	Yes
Big Stone	1729	30	574	37	2.1%	Yes
Blue Earth	5474	137	2738	197	3.6%	Yes
Brown	2344	56	1138	26	1.1%	Yes
Carlton	9699	182	2842	82	0.8%	No
Carver*	5016	108	2105	220	4.4%	Yes
Cass*	25579	496	9560	654	2.6%	Yes
Chippewa	2173	30	634	10	0.5%	No
Chisago*	11825	218	4165	403	3.4%	Yes
Clay	3902	80	1704	64	1.6%	Yes
Clearwater	3588	33	791	9	0.3%	No
Cook	5759	151	2780	86	1.5%	No
Cottonwood	1543	45	715	21	1.4%	Yes
Crow Wing*	40027	647	10089	1545	3.9%	Yes
Dakota*	6468	110	3299	111	1.7%	Yes
Dodge	3127	95	1489	67	2.1%	Yes
Douglas*	6202	211	4020	286	4.6%	Yes
Faribault	2206	34	1380	30	1.4%	Yes
Fillmore	4586	116	1921	107	2.3%	Yes
Freeborn	3958	61	2011	46	1.2%	Yes
Goodhue	5289	139	2355	121	2.3%	Yes
Grant	1260	45	638	13	1.0%	Yes
Hennepin*	9330	126	2799	407	4.4%	No
Houston	2316	48	1137	20	0.9%	No
Hubbard*	13178	318	5568	271	2.1%	No
Isanti*	13201	303	3584	303	2.3%	Yes
Itasca*	20223	321	6637	353	1.7%	Yes
Jackson	1882	57	900	19	1.0%	Yes
Kanabec	5459	162	1775	106	1.9%	Yes

County	Total SSTS reported in 2021	Construction permits reported in 2021	Total construction permits issued 2002-2021	Number of compliance inspections of existing SSTS conducted countywide (private inspector and LGU)	Percent of total existing SSTS inspected in 2021 out of total SSTS	Counties with compliance inspections for property transfer
Kandiyohi*	7666	172	3587	227	3.0%	Yes
Kittson	980	10	194	0	0.0%	No
Koochiching	2220	21	787	3	0.1%	No
Lac qui Parle	1833	35	609	8	0.4%	Yes
Lake	4006	103	1798	150	3.7%	Yes
Lake of the Woods*	2964	56	2851	7	0.2%	No
Le Sueur	9099	134	2695	180	2.0%	Yes
Lincoln	1775	0	747	3	0.2%	Yes
Lyon	2125	46	980	46	2.2%	Yes
Mahnomen	1496	3	334	37	2.5%	No
Marshall	2100	16	321	4	0.2%	No
Martin	2444	49	1124	40	1.6%	Yes
McLeod	4286	96	2095	91	2.1%	Yes
Meeker	8711	113	2719	130	1.5%	Yes
Mille Lacs	6665	267	3686	388	5.8%	Yes
Morrison	9336	201	5208	377	4.0%	Yes
Mower	3471	111	1746	35	1.0%	Yes
Murray	1162	29	793	18	1.5%	Yes
Nicollet	2722	64	1288	74	2.7%	Yes
Nobles	2555	38	729	18	0.7%	Yes
Norman	2015	26	266	65	3.2%	No
Olmsted*	15006	179	2616	201	1.3%	Yes
Otter Tail*	24534	804	10183	797	3.2%	Yes
Pennington	1817	18	394	0	0.0%	No
Pine*	13937	364	4102	454	3.3%	Yes
Pipestone	1141	24	538	3	0.3%	Yes
Polk	6663	120	1772	35	0.5%	No
Pope*	4195	86	1648	95	2.3%	Yes
Ramsey*	1644	25	377	66	4.0%	N/A
Red Lake	891	7	224	1	0.1%	Yes
Redwood	1534	48	983	13	0.8%	No
Renville	2580	73	1323	43	1.7%	Yes
Rice*	7790	169	2933	141	1.8%	Yes
Rock	1368	20	485	10	0.7%	No
Roseau	3627	38	317	14	0.4%	No
Scott	8782	158	2943	221	2.5%	No
Sherburne*	17515	215	10797	822	4.7%	Yes
Sibley	2692	48	1250	43	1.6%	Yes

County	Total SSTS reported in 2021	Construction permits reported in 2021	Total construction permits issued 2002-2021	Number of compliance inspections of existing SSTS conducted countywide (private inspector and LGU)	Percent of total existing SSTS inspected in 2021 out of total SSTS	Counties with compliance inspections for property transfer
St. Louis	35149	994	13734	821	2.3%	Yes
Stearns	17985	358	8533	713	4.0%	Yes
Steele	2918	42	1270	69	2.4%	Yes
Stevens	2027	19	475	6	0.3%	No
Swift	3965	30	543	20	0.5%	Yes
Todd*	10323	186	3655	204	2.0%	Yes
Traverse	606	21	285	2	0.3%	Yes
Wabasha	12266	82	1383	85	0.7%	No
Wadena	3608	94	1900	102	2.8%	Yes
Waseca	2390	65	1141	64	2.7%	Yes
Washington*	19626	374	5394	608	3.1%	Yes
Watonwan	1287	33	588	63	4.9%	Yes
Wilkin*	1053	22	569	11	1.0%	Yes
Winona	5075	94	1865	91	1.8%	Yes
Wright*	17914	362	6135	519	2.9%	Yes
Yellow Medicine	1709	24	646	3	0.2%	No
Total	630,087	12,812	232,734	15,876	2.52%	Yes (62)

*County, City, Township, and other special purpose units of government data were added to their respective counties to tabulate this information.

Appendix B

Appendix B1

City programs

County Name Number of cities with SSTS programs	City Submitted Annual Report
Anoka County (12)	Andover City
	Anoka City
	Blaine City
	Columbus City
	Coon Rapids City
	East Bethel City
	Ham Lake City
	Lino Lakes City
	Nowthen City
	Oak Grove City
	Ramsey City
	Saint Francis City
Beltrami (1)	Wilton City
Carver County (1)	Chanassan City
Cass County (2)	East Gull Lake City
	Lake Shore City
Chisago County (5)	North Branch City
	Shafer City
	Stacy City
	Taylor's Falls City
	Wyoming City
Crow Wing County (13)	Baxter City
	Crosby City
	Crosslake City
	Cuyuna City
	Deerwood City
	Emily City
	Fifty Lakes City
	Garrison City
	Jenkins City
	Manhattan Beach City
	Nisswa City
Pequot Lakes City	
Trommald City	
Dakota County (17)	Apple Valley City

County Name Number of cities with SSTS programs	City Submitted Annual Report
	Burnsville City
	Coates City
	Eagan City
	Farmington City
	Hampton City
	Hastings City
	Inver Grove Heights City
	Lakeville City
	Lilydale City
	Mendota Heights City
	Miesville City
	Rosemount City
	South Saint Paul City
	Sunfish Lake City
	Vermillion City
	West Saint Paul City
Douglas County (1)	Alexandria City
Hennepin County (5)	Dayton City
	Independence City
	Medina City
	Orono City
	Woodland City
Hubbard County (1)	Park Rapids City
Itasca County (1)	Cohasset City
Lake of the Woods (1)	Baudette City
Pine County (2)	Rock Creek City
	Pine City
Pope County (1)	Glenwood City
Ramsey County (7)	Gem Lake City
	Little Canada City
	Maplewood City
	North Oaks City
	Saint Paul City
	Shoreview City
	White Bear Lake City
Rice County (1)	Northfield City
Sherburne County (3)	Becker City
	Elk River City
	Zimmerman City
Washington County (1)	Dellwood City

County Name Number of cities with SSTS programs	City Submitted Annual Report
Wilkin County (1)	Doran City
Wright County (1)	Otsego City

Appendix B2

Township programs

County Name Number of townships with SSTS programs	Township Submitted annual report
Anoka County (1)	Linwood Township
Chisago County (1)	Lent Township
Crow Wing County (2)	Crow Wing Township
	Irondale Township
Dakota County (11)	Castle Rock Township
	Douglas Township
	Empire Township
	Eureka Township
	Greenvale Township
	Hampton Township
	Marshan Township
	Nininger Township
	Ravenna Township
	Scotia Township
	Vermillion Township
Douglas County (1)	Alexandria Township
Isanti County (1)	Athens Township
Kandiyohi County (1)	Saint Johns Township
Mille Lacs County (1)	Greenbush Township
Pine County (7)	Arlone Township
	Arna Township
	Bremen Township
	Munch Township
	Pine City Township
	Pokegema Township
	Royalton Township
Ramsey County (1)	White Bear Township
Rice County (1)	Bridgewater Township
Sherburne County (1)	Becker Township
Todd County (3)	Bertha Township
	Bruce Township
	Stowe Prairie Township
Wright County (1)	Middleville Township

Appendix B3

Other special purpose units of government programs

County Name	Other Programs that Submitted a 2021 Annual Report
Beltrami County (1)	Bemidji Joint Powers Board
Olmsted County (1)	TCPA
Otter Tail County (1)	Otter Tail Water Management District
Other (1)	University of Minnesota

Appendix C

List of 2021 SSTS Annual Report questions

1. General program information – Yes or No answer.

- a. Alternative Local Standards (ALS) for existing systems?
 - i. ALS are standards that are less restrictive than Minn. R. chs. 7080-7083, do not confuse them with the old system category of 'Alternative Systems' (floodplains, holding tanks, privies).
- b. ALS new or replacement SSTS using a minimum of two foot of separation in allowable areas of the LGU?
- c. ALS new or replacement SSTS using 2006 Rules?
- d. Do you track SSTS maintenance/pumping?
- e. Do you have jurisdiction-wide compliance inspections for property transfer?
- f. Do you approve SSTS design before issuing permit?
- g. When in your permitting process do you verify soils?

2. Residential SSTS by system type – Write number of permits issued for each category.

- a. # permits issued for Type I/Rock Trenches.
- b. # permits issued for Type I/EZflow.
- c. # permits issued for Type I/Chamber Trenches.
- d. # permits issued for Type I/Seepage or Pressure Beds.
- e. # permits issued for Type I/Mounds.
- f. # permits issued for Type I/At-Grades.
- g. # permits issued for Type II/Privies, Holding Tanks, and Floodplain Areas.
 - i. # Holding tank operating permits issued.
 - a) The number of holding tank operating permits should be the same as the number of holding tanks entered in Type II/ Privies, Holding Tanks, and Floodplain Areas above if the LGU issues operating permits for holding tanks.
- h. # permits issued for Type III.
- i. # permits issued for Type IV/Registered Product Systems.
 - i. # Type IV Operating Permits issued.
- j. # permits issued for Type V.
 - i. # Type V Operating Permits issued.

Note – If you have 'tank only' installations (ex: drainfield is compliant but tank needed replacement) please enter this in the 'Repair' column and note as such on the spreadsheet.

3. Residential SSTS by flow volume – Write number of permits issued for each category.

- a. New systems 1-2,499 gpd.
- b. New systems 2,500-4,999 gpd.
- c. New systems 5,000-10,000 gpd.
- d. Replacement systems 1-2,499 gpd.
- e. Replacement systems 2,500-4,999 gpd.
- f. Replacement systems 5,000-10,000 gpd.

4. Other establishment SSTS by system type – Write number of permits issued for each category.
 - a. # permits issued for Type I/Rock Trenches.
 - b. # permits issued for Type I/EZflow.
 - c. # permits issued for Type I/Chamber Trenches.
 - d. # permits issued for Type I/Seepage or Pressure Beds.
 - e. # permits issued for Type I/Mounds.
 - f. # permits issued for Type I/At-grades.
 - g. # permits issued for Type II/Privies, Holding Tanks, and Floodplain Areas.
 - i. # Holding tank operating permits issued.
 - a) The number of holding tank operating permits should be the same as the number of holding tanks entered in Type II/ Privies, Holding Tanks, and Floodplain Areas above if the LGU issues operating permits for holding tanks.
 - h. # permits issued for Type III.
 - i. # permits issued for Type IV/Registered Product Systems.
 - i. # Type IV Operating Permits issued.
 - j. # permits issued for Type V.
 - i. # Type V Operating Permits issued.

Note – If you have ‘tank only’ installations (ex: drainfield is compliant but tank needed replacement) please enter this in the ‘Repair’ column and note as such on the spreadsheet.

5. **Other establishment SSTS by flow volume – Write number of permits issued for each category.**
 - a. New systems 1-2,499 gpd.
 - b. New systems 2,500-4,999 gpd.
 - c. New systems 5,000-10,000 gpd.
 - d. Replacement systems 1-2,499 gpd.
 - e. Replacement systems 2,500-4,999 gpd.
 - f. Replacement systems 5,000-10,000 gpd.
6. **Permits issued for SSTS repairs – Write number of permits issued for each category.**
 Complete this part only if you issue repair permits or if you have ‘tank only’ installations.
 - a. Residential SSTS repairs.
 - b. Other establishment SSTS repairs.
7. **Jurisdiction-wide SSTS questions – Write number for each category.**
 - a. # Fulltime dwellings with SSTS.
 - b. # Seasonal dwellings with SSTS.
 - c. # Cluster SSTS.
 - i. # Dwellings served by Cluster SSTS.
 - d. # Other establishments with SSTS.
8. **SSTS compliance – Write whole numbers only, do not use a decimal or use the percent sign. For example, if your answer is <1%, enter 1.**
 - a. Percentage of failing systems within jurisdiction.
 - b. Percentage of imminent systems within jurisdiction.

- c. Percentage of compliant SSTS within jurisdiction.
- d. Total percentage SSTS – You do not enter anything here, the spreadsheet will calculate this answer.
 - i. This should total 100, if it does not check your answers to a, c, and/or e and adjust accordingly.

9. The number of compliance inspections of existing SSTS conducted in their jurisdiction.

10. The number of noncompliant properties connected to centralized sewer.

11. The number of noncompliant properties mitigated by abandonment or removal of a dwelling.

12. The number of noncompliant properties mitigated through government buyout.

13. Inspector information.

- a. Name of department head.
- b. Name of Trained Administrator.
- c. Name and email address of SSTS contact.
- d. Inspector(s) name(s) and;
 - i. License numbers if inspections are contracted out to a licensed SSTS inspection business.
 - ii. Certification numbers if inspections are done in-house by LGU staff certified as SSTS inspectors.

14. Tank Installation Report.

- a. Installer name.
- b. Installer license number.
- c. Number of septic tanks installed.
 - i. This includes pump/lift tanks and holding tanks.
- d. Number of Performance/Type V systems installed.
 - i. Minn. Stat. § 115.551 limits the number of septic tanks for Performance/Type V systems to one per household.
- e. Number of tanks installed by homeowners (if allowed in your jurisdiction).
 - i. Name of homeowner.
 - ii. Address.