

Wastewater

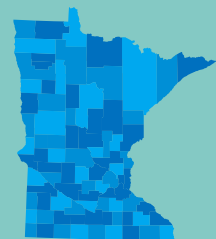
July 2023

2022 SSTS Annual Report

Subsurface Sewage Treatment Systems in Minnesota



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CONTROL AGENCY



Author

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Photo credit

MPCA photo

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 Cooperation Planning Association

Executive summary

There were 196 local governmental units (LGUs) who administered subsurface sewage treatment system (SSTS) programs in 2022 that submitted annual report data to the Minnesota Pollution Control Agency (MPCA). The 196 local SSTS programs consist of 86 counties, 74 cities, 32 townships, and 4 other special purpose units of government with permitting authority.

A total of 636,065 SSTS were reported across Minnesota, representing an estimated 43.5 billion gallons of wastewater treated by SSTS per year (assuming 2.5 person/permit; 75 gallons/person; 365 days/year).

LGUs issued 11,051 SSTS construction permits in 2022 for 5,483 new systems, and 5,568 replacement systems. Additionally, there were 599 permits issued for system repairs. Of the SSTS permitted in 2022, approximately 96% serve residential dwellings and 4% serve other establishments.

Approximately 70% of the SSTS permitted in 2022 were Type I systems, including 4,928 Type I mounds. There were 1,492 Type II systems, 1,305 Type III systems, 95 Type IV systems, and 19 Type V systems permitted in 2022.

The majority of SSTS construction permits issued in 2022 were for systems with a flow volume between 1-2,499 gallons per day (gpd); however, there were 42 new, and 33 replacement systems with a flow volume between 2,500-4,999 gpd, and 3 new, and 3 replacement systems with a flow volume between 5,000-10,000 gpd permitted.

LGUs reported that 15,075 sewage tanks were installed in 2022.

There were 14,550 existing system compliance inspections conducted in 2022. LGUs reported that 542 noncompliant properties were mitigated by centralized sewer connection, abandonment or removal, or a government buyout in 2022.

Of the 196 LGUs with SSTS programs in 2022, 96% approve SSTS designs before issuing construction permits, over 97% verify soils at some point during the review process, over 40% track SSTS maintenance activities, and approximately 79% have property transfer compliance inspection requirements.

Over 106,000 SSTS construction permits have been issued within the last ten years, indicating that over 16% of Minnesota's 636,065 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 425,000 systems in 2013 to approximately 520,000 systems in 2022.

Trends observed from the 2022 SSTS Annual Report suggest continued improvements in subsurface wastewater treatment across the state.

Introduction

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. Local SSTS programs occur at four governmental levels: 1) county, 2) city, 3) township, and 4) other special purpose units of government with permitting authority.

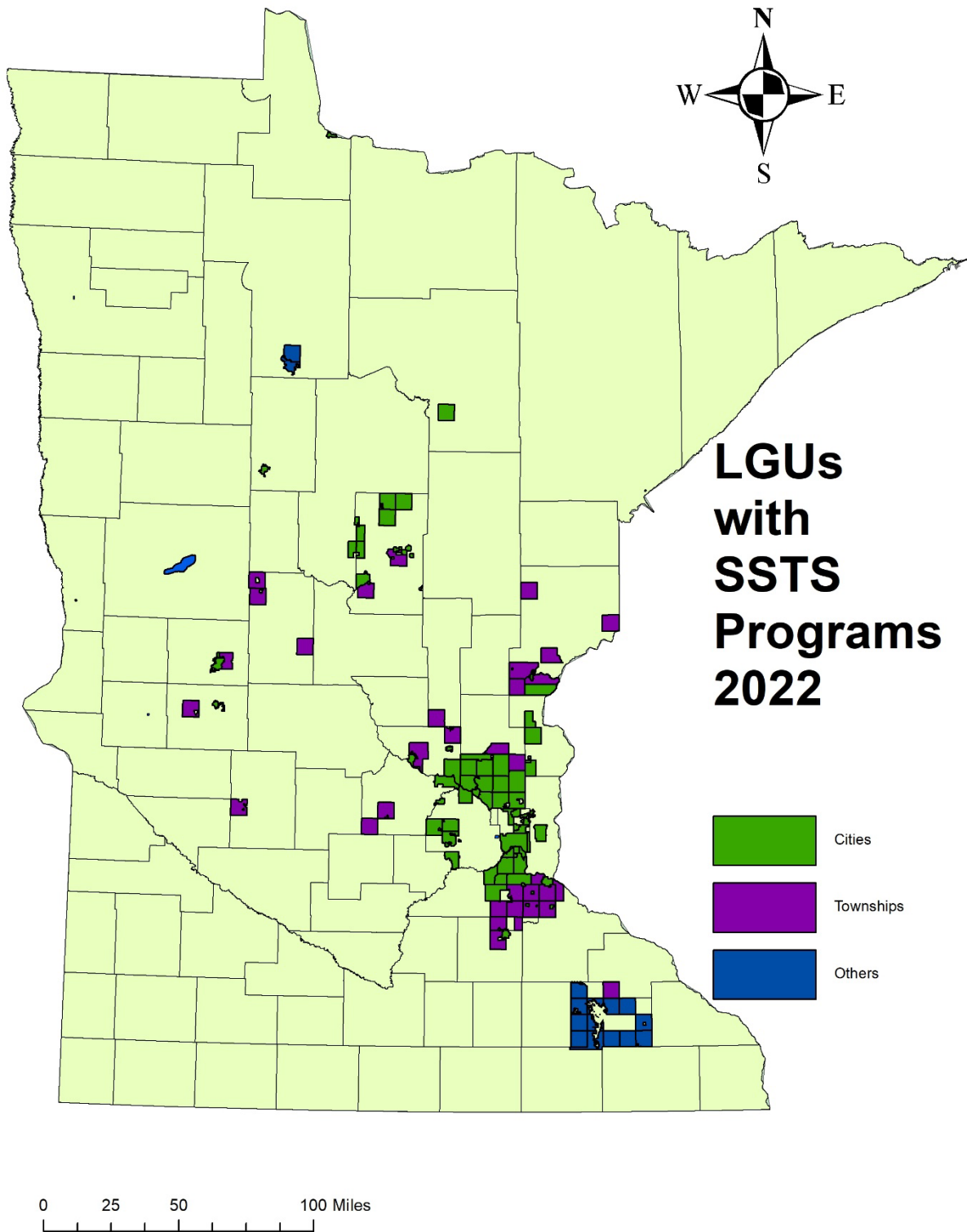
In December 2022, the MPCA sent out a web-based annual report survey to LGUs with known SSTS programs for them to complete. The annual report survey was used to obtain data from each local SSTS program so that relevant information could be summarized into a statewide 2022 SSTS Annual Report. The annual report survey is also used to track the number of sewage tanks installed and to ensure tank fee payments from licensed SSTS installers are made. Tank fees were approved by the Legislature in 2003 to help fund SSTS compliance efforts in the state.

The 2022 SSTS Annual Report generally follows the format used in the 2021 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 of the data is considered hard data, such as the reported number and types of permits issued. Other data is considered soft data, such as the estimates of SSTS compliance rates and the total number of SSTS in each jurisdiction. Additionally, the 2022 SSTS Annual Report includes information about SSTS certification and licensing, which was compiled by the MPCA's certification and training unit.

Annual report responses

In 2022, there were 196 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 2021. [Appendix B1](#) contains a list of cities with SSTS programs in 2022. [Appendix B2](#) contains a list of townships with SSTS programs in 2022. [Appendix B3](#) contains a list of other special purpose units of government with SSTS programs in 2022. The distribution of LGUs with SSTS programs in 2022 is displayed in [Figure 1](#).

Figure 1. LGUs with SSTS programs in 2022



LGU participation

In December 2022, the 200 LGUs that were reported to have SSTS programs in 2021 were contacted by the MPCA and requested to submit annual report data through a web-based survey. The 2022 surveys were sent electronically to each SSTS administrator email contact previously provided in the 2021 annual report survey. In 2022, five LGUs notified the MPCA that they no longer administer an SSTS program, and one LGU notified the MPCA that they adopted an SSTS ordinance and began administering an SSTS program. The 2022 SSTS Annual Report had a 99.5% response rate as 195 of the 196 expected annual report surveys were submitted. [Table 1](#) provides the 2022 SSTS Annual Report response rate by LGU type.

Recipients who didn't report by the deadline were contacted by MPCA staff to determine if the LGU no longer had an active SSTS program, or to identify who was the correct LGU SSTS program contact, or assist with submission of the survey.

Ensuring the annual report survey is sent to, and completed, by the right individual can be challenging. Common reasons for issues are: county staff are unsure of the local city or township contact for programs operating within the county boundaries, city and township programs with privately contracted inspection services changed, or annual report responsibilities were not transferred when LGU staff changed.

There were 86 counties, 74 cities, 32 townships, and 4 other special purpose units of government that made up the 196 LGUs with SSTS programs as of 2022 survey. Ramsey County is not required to submit an annual report survey as their entire jurisdiction is served by city and township SSTS programs. The 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. 2022 SSTS Annual Report response rate by LGU type

	County	City	Township	Other	Total
LGUs – contacted per 2021 reporting	86	77	33	4	200
LGUs – indicated no active program as of 2022	0	4	1	0	5
LGUs – submitted 2022 data	86	74	31	4	196
LGUs – no response	0	0	1	0	0

Number of SSTS

In 2022, LGUs estimated that there were 636,065 total SSTS in Minnesota. In 2022, 11,051 SSTS construction permits were issued across the state. Additionally, there were 599 repair permits issued in 2022. [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 2022.

The greatest number of total SSTS was reported in St. Louis County (40,030); the lowest number of total SSTS was reported in Traverse County (608). The greatest number of construction permits issued in 2022 was reported in St. Louis County (680); the lowest number of construction permits issued in 2022 was reported in Lincoln County (0). City, township, and other special purpose units of government data were consolidated into their respective counties to tabulate this information.

Table 2. Total number of SSTS reported and construction permits issued in 2022

	Total number of SSTS	Construction permits issued in 2022
Statewide	636,065	11,051
Highest county	40,030	680
Lowest county	608	0

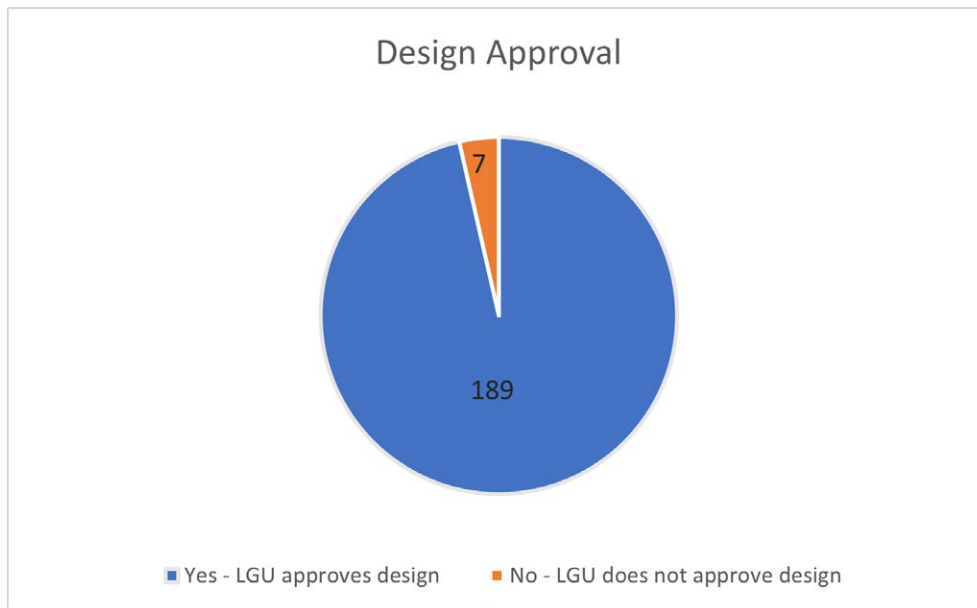
[Appendix A1](#) contains a countywide list of the following information:

1. Number of SSTS reported in 2022;
2. Number of SSTS construction permits issued in 2022;
3. Number of SSTS construction permits issued over the last 20 years (2003-2022);
4. Number of existing system compliance inspections conducted in 2022 countywide (private inspector and LGUs);
5. Percentage of existing SSTS inspected in 2022 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 196 LGUs with SSTS programs in 2022, 189 (96.4%) reported that they approve SSTS designs before construction permit issuance ([Figure 2](#)). The seven LGUs that reported not approving SSTS designs before construction permit issuance will be contacted to discuss rule requirements.

Figure 2. 2022 LGU status for SSTS design approval before construction permit issuance



Soil verification

The annual report survey asks LGUs to indicate when they most often perform infield soil verification during the review process. In 2022, over 98% of LGUs reported verifying soils at some time before, during, or after system construction. There were 138 LGUs that reported verifying soils before construction permit issuance, 38 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. Those jurisdictions that reported not verifying soils will be contacted to discuss the requirements of Minn. R. 7082.0500.

[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 most often perform infield soil verifications in 2022.

[Figure 5](#) displays the time of soil verification throughout the state by county.

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



Figure 4. 2022 LGU status for soil verification timing

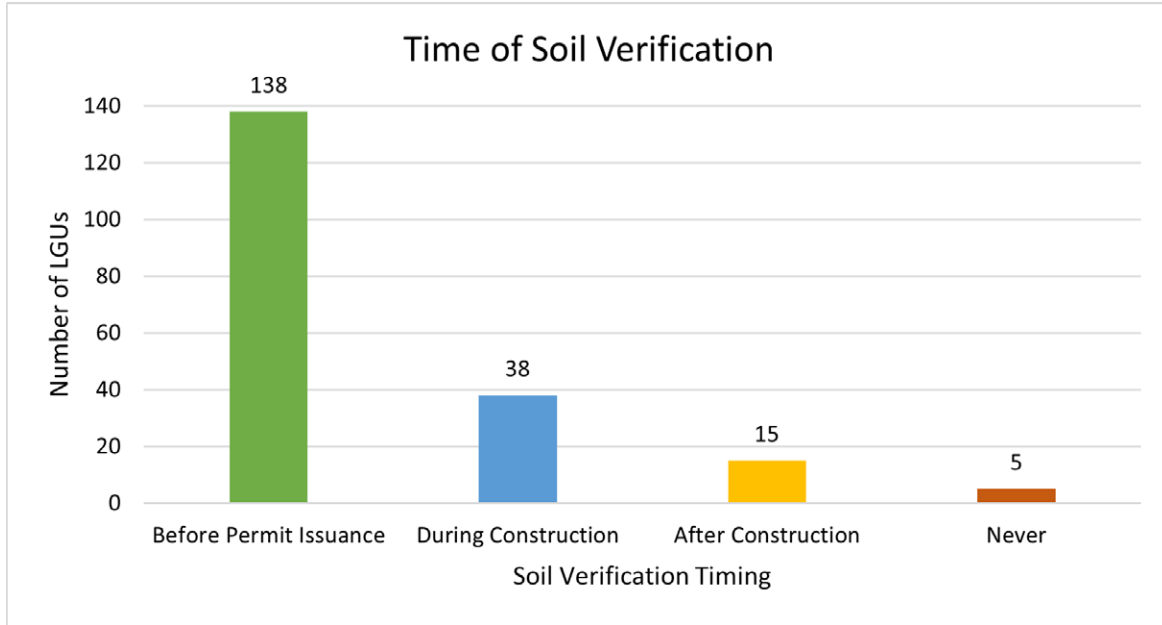
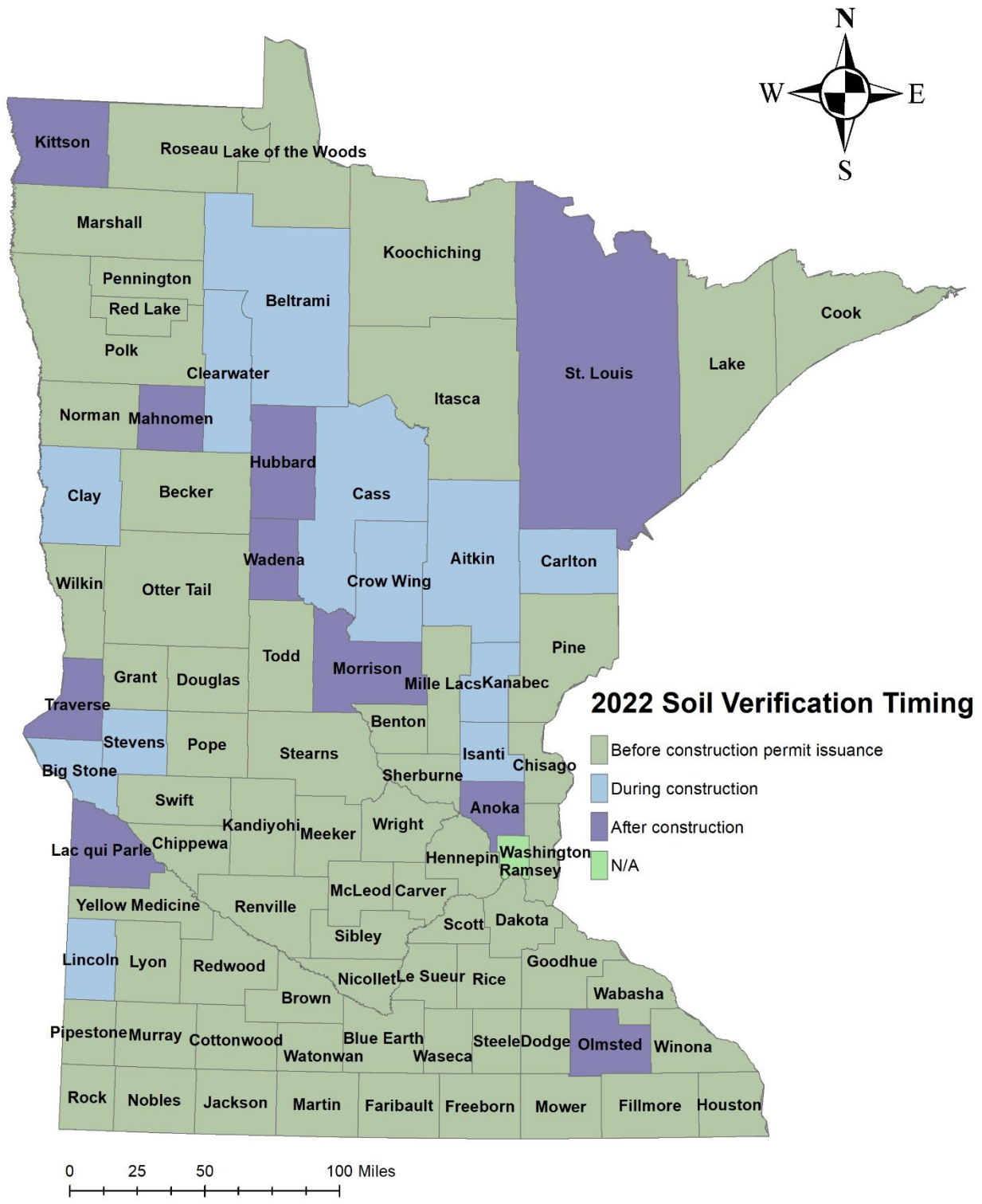


Figure 5. Timing of soil verification as of 2022 by county



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 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., floodplain) or special dwelling and “other establishment” situations (privy or holding tank).
- Requires a management plan.
- Has been termed “alternative systems”.
- Designed by a basic, intermediate, or 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 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 2022 were Type I systems; approximately 42% were mound systems. Over 5% of Type I systems permitted in 2022 contained proprietary distribution media (590 chamber trenches and 29 EZ Flow trenches).

There were 1,908 Type II systems, 1,305 Type III systems, 95 Type IV systems, and 32 Type V systems permitted in 2022.

Table 3. 2022 SSTS construction permits reported by system type

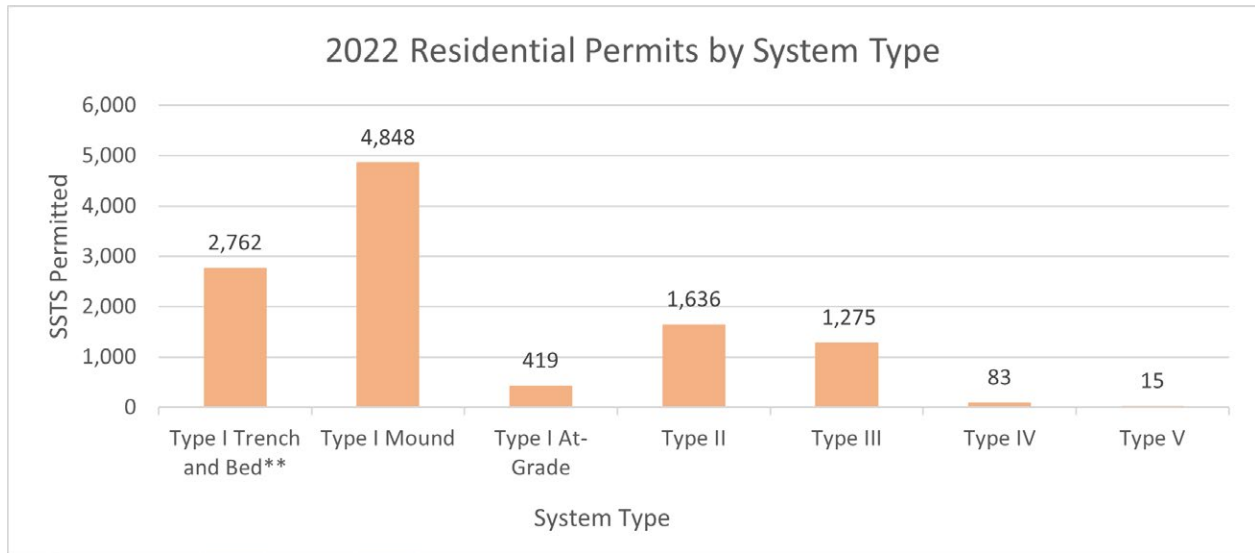
System Type	System Subtype	Residential	Other Establishment	Total	% Change From 2021
Type I	All	8,029	158	8,187	-15%
	At-Grade	419	6	425	-25%
	Chamber Trench	575	15	590	-18%
	EZ Flow Trench	26	3	29	4%
	Mound	4,848	80	4,928	-13%
	Rock Trench	742	18	760	-24%
	Seepage or Pressure Beds	1,419	36	1,455	-16%
Type II		1,636	272	1,908	12%
Type III		1,275	30	1,305	-14%
Type IV		83	12	95	-2%
Type V		15	17	32	540%
Total		11,038	489	11,527	-11%

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 2022 for residential dwellings, reported by system type, is presented in [Figure 6](#). A total of 11,038 residential SSTS were permitted in 2022. Type I systems accounted for approximately 72% of total residential SSTS permitted, including 2,762 trenches and beds, 4,848 mounds, and 419 at-grades. There were 1,636 Type II systems, 1,275 Type III systems, 83 Type IV systems, and 15 Type V systems permitted in 2022 for residential dwellings.

Figure 6. 2022 SSTS construction permits, reported by system type, for residential dwellings

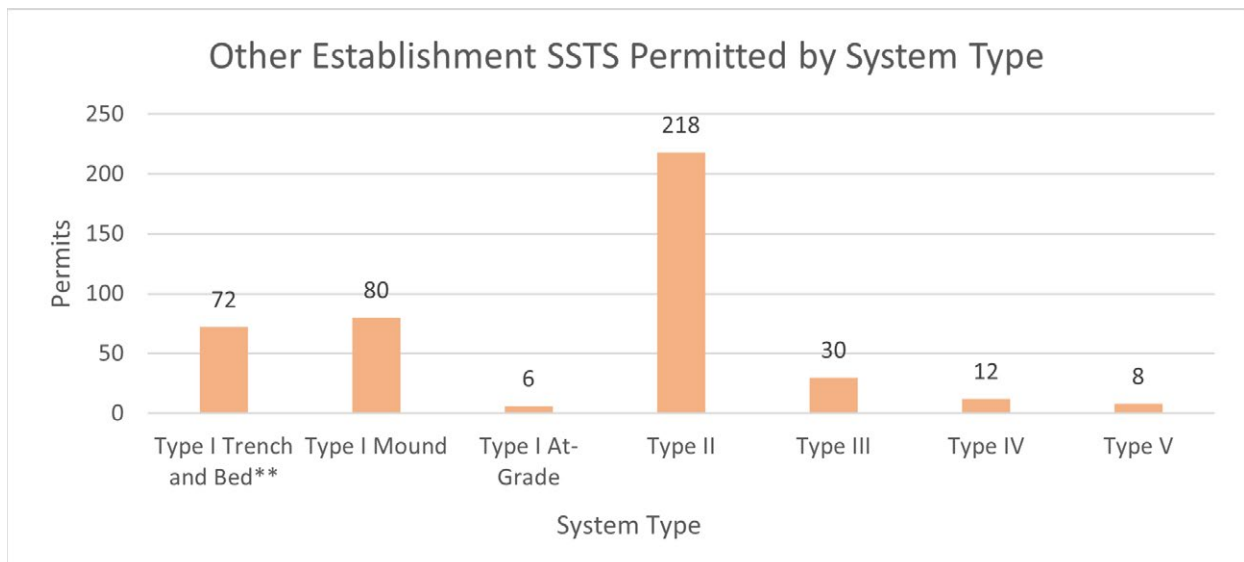


**Chamber Trench, EZ Flow Trench, Rock Trench, and Seepage or Pressure Bed Type I systems

Other establishment SSTS

The number of SSTS construction permits issued in 2022 for other establishments, reported by system type, is presented in [Figure 7](#). A total of 489 other establishment SSTS were permitted in 2022. Type I systems accounted for approximately 37% of total other establishment SSTS permitted, including 72 trenches and beds, 80 mounds, and 6 at-grades. There were 218 Type II systems, 30 Type III systems, 12 Type IV systems, and 8 Type V systems permitted in 2022 for other establishments.

Figure 7. 2022 SSTS construction permits, reported by system type, for other establishments



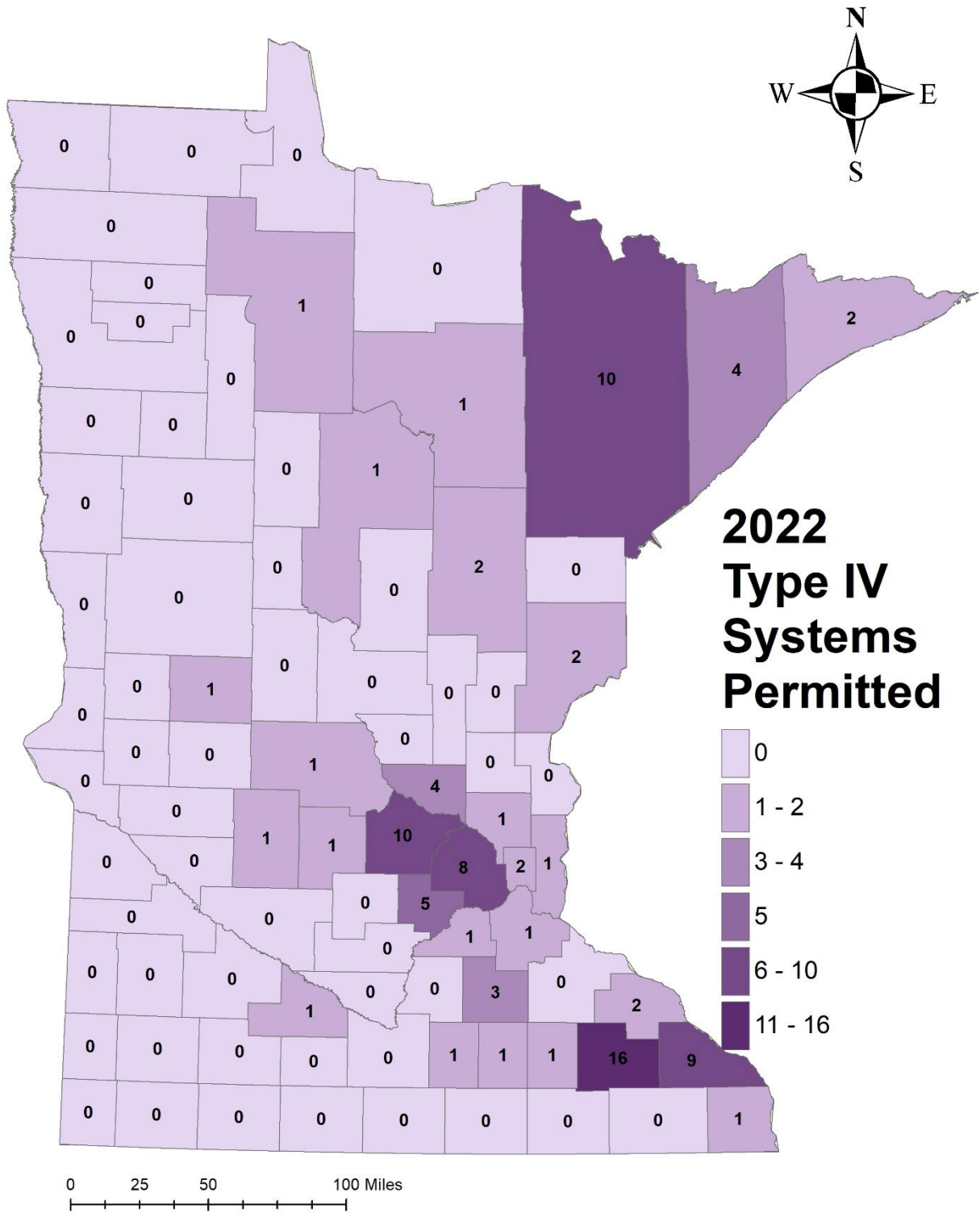
Type IV systems

A total of 95 Type IV systems were permitted in 2022, consisting of 83 residential SSTS and 12 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 Olmsted County (16). [Figure 9](#) presents the distribution of Type IV systems permitted in 2022 by county.

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



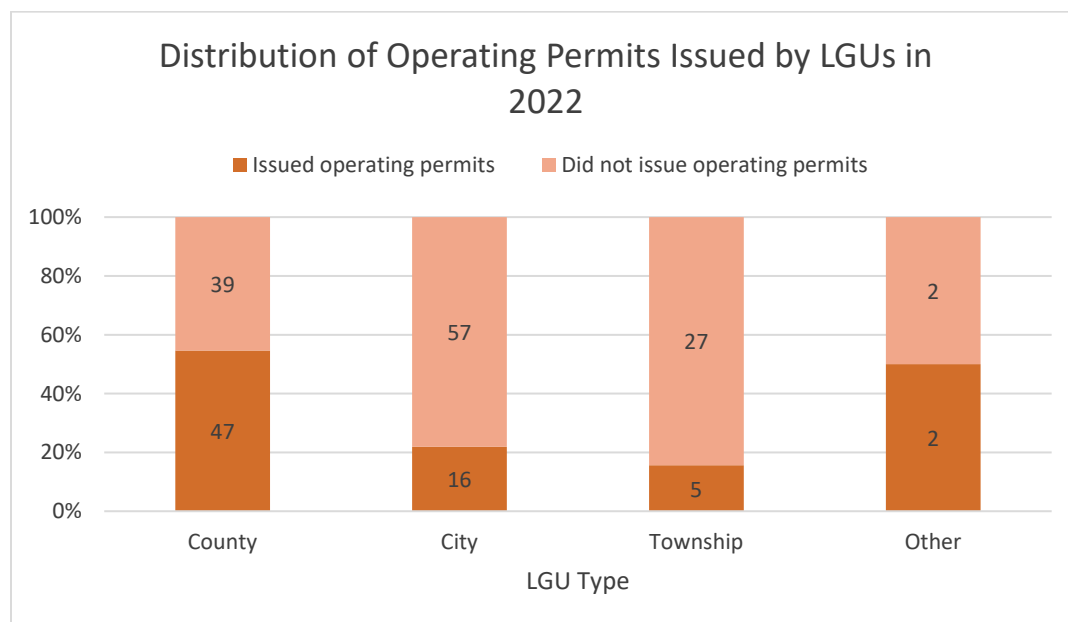
Figure 9. Type IV systems permitted in 2022 by county



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 621 operating permits were issued in 2022 for both residential and other establishment systems. The LGUs that issued operating permits in 2022 consist of 47 counties, 16 cities, 5 townships, and 2 other special purpose units of government. The distribution of LGUs who issued operating permits in 2022 is presented in [Figure 10](#).

Figure 10. LGU status for issuing operating permits in 2022



SSTS by wastewater flow volume

Over 99% of the total SSTS construction permits issued in 2022 were for systems with a flow volume between 1-2,499 gpd, consisting of 10,589 residential SSTS and 381 other establishment SSTS. Of the total SSTS with a flow volume between 1-2,499 gpd permitted, approximately 50% were replacement systems and 50% were new systems.

A total of 75 systems with a flow volume between 2,500 and 4,999 gpd were permitted in 2022, consisting of 56 residential SSTS and 19 other establishment SSTS. Of the total SSTS with a flow volume between 2,500 and 4,999 gpd permitted, 33 were replacement systems and 42 were new systems.

A total of 6 systems with a flow volume between 5,000 and 10,000 gpd were permitted in 2022. Of the total SSTS with a flow volume between 5,000 and 10,000 gpd permitted, 3 were new systems, consisting of 1 residential SSTS and 2 other establishment SSTS. All 3 replacement 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 2022 by wastewater flow volume.

Table 4. SSTS permitted in 2022 by flow volume

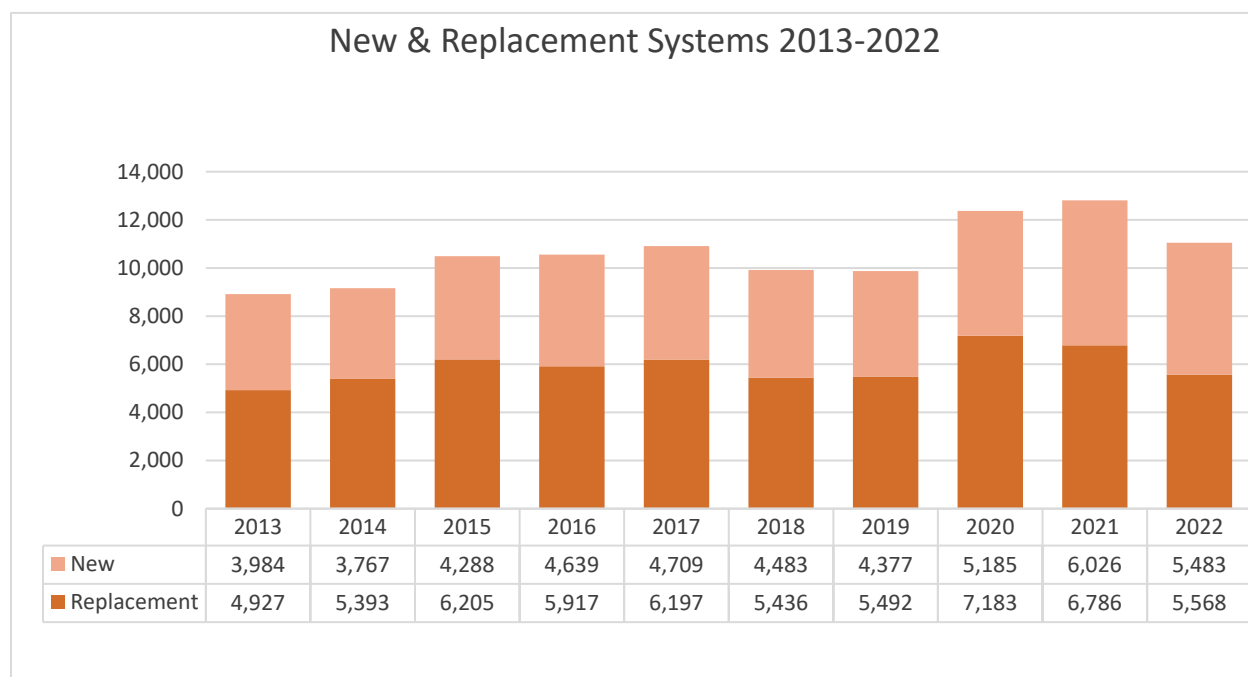
Construction Permits Issued in 2022 by Flow Volume					
	Residential		Other Establishment		
Flow Volume	New	Replacement	New	Replacement	Total
1 – 2,499 gpd	5,169	5,420	269	112	10,970
2,500 – 4,999 gpd	27	29	15	4	75
5,000 – 10,000 gpd	1	0	2	3	6
Total	5,197	5,449	286	119	11,051

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 106,000 construction permits have been reported by LGUs since 2013; approximately 56% were for replacement systems and 44% were for new systems.

LGUs issued 11,051 construction permits in 2022 for 5,483 new systems and 5,568 replacement systems. Existing systems may be replaced due to failing to protect groundwater (FTPGW) or posing an imminent threat to public health or safety (ITPHS). These conditions are typically identified through various local inspection 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 2013-2022



Sewage tanks installed

LGUs reported that 15,075 sewage tanks were installed in 2022, including 14,754 standard sewage tanks and 321 performance-based system tanks. Collecting tank installation data supports the administration of Minn. Stat. § 115.551, which requires 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.

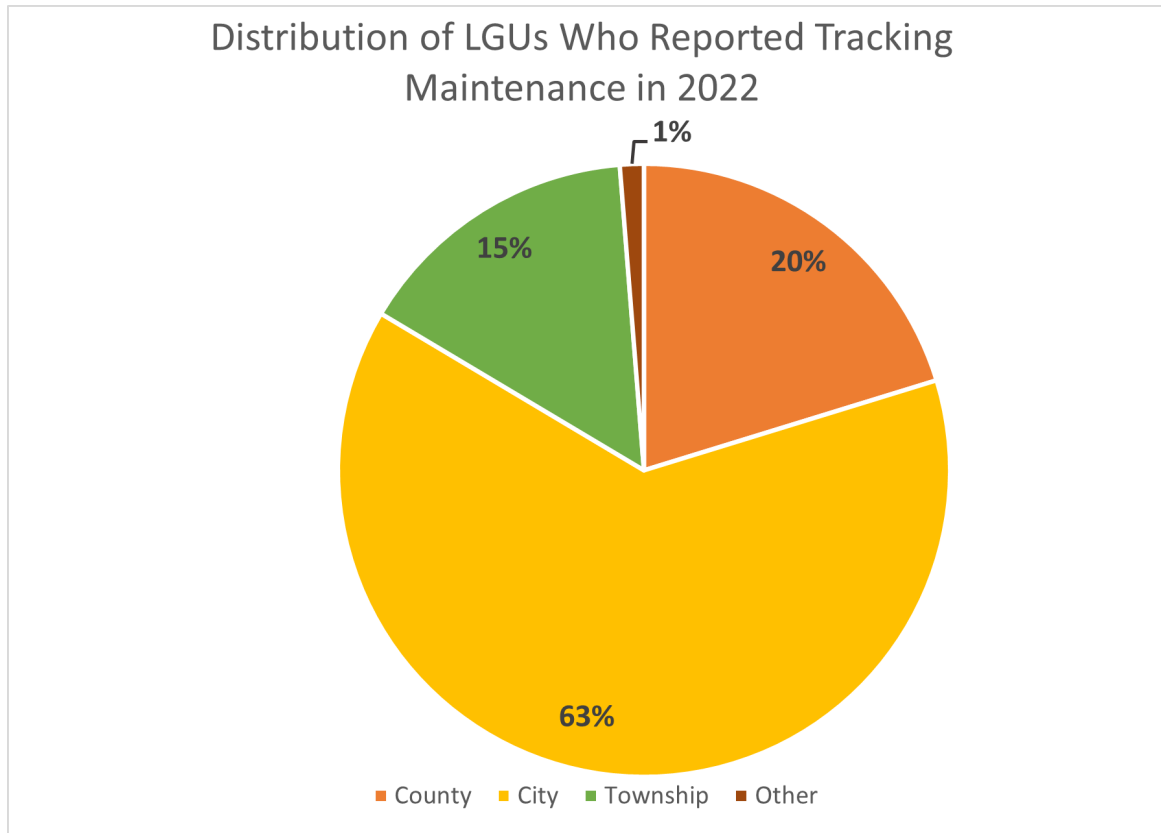
Figure 12. The installation of concrete sewage tank



Tracking SSTS maintenance activities

The annual report survey asks LGUs to indicate if they track SSTS maintenance activities. Of the 196 LGUs with SSTS programs in 2022, 79 (40.5%) reported that they track SSTS maintenance activities. There were 16 counties, 50 cities, 12 townships, and 1 other special purpose unit of government that reported tracking the maintenance of SSTS ([Figure 13](#)).The high proportion of city programs can be attributed to entities, such as the Met Council, requiring maintenance tracking in metropolitan areas.

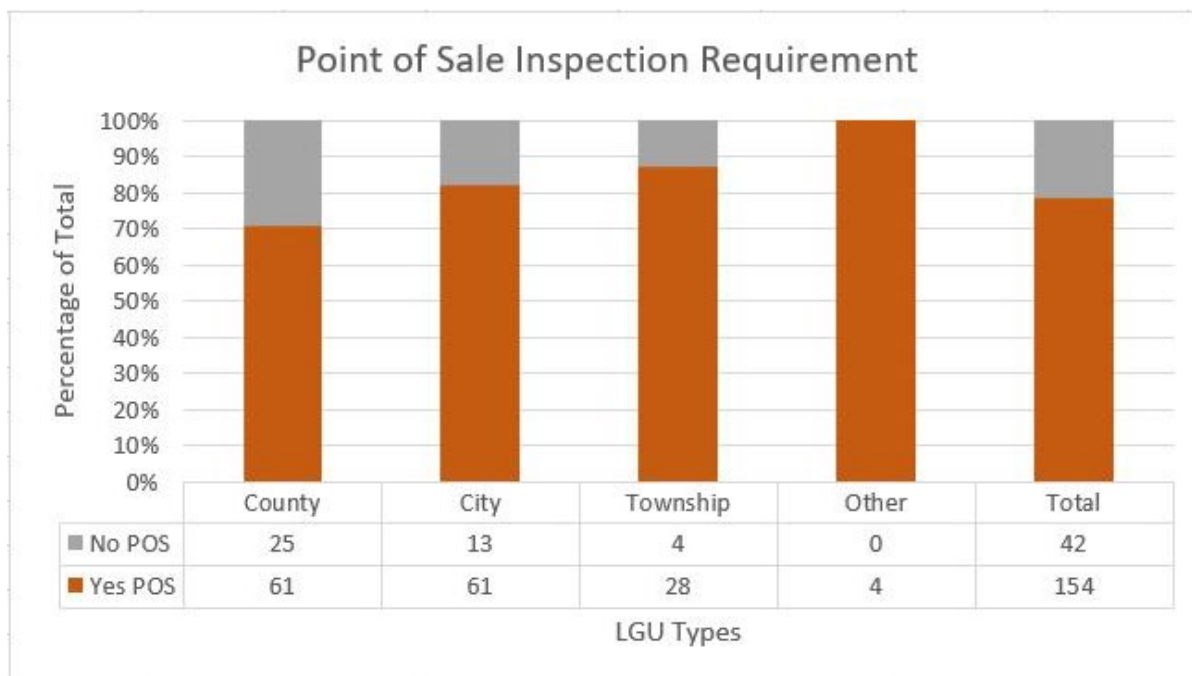
Figure 13. 2022 LGU status for tracking SSTS maintenance activities



Compliance inspections for property transfers

There is currently no state-level requirement for LGUs to require compliance inspections for property transfers; 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 196 LGUs with SSTS programs in 2022, 153 (78 %) reported that they require compliance inspections for property transfers. The LGUs with property transfer compliance inspection requirements consist of 61 counties, 60 cities, 28 townships, and 4 other special purpose units of government ([Figure 14](#)).

Figure 14. 2022 LGU status for requiring compliance inspections for property transfers



Existing system compliance inspections

LGUs reported that there were 14,550 existing system compliance inspections in 2022, representing an 8% decrease from 2021 (15,876). 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 12,218, cities reported 1,769, townships reported 344, and other special purpose units of government reported 219. [Figure 15](#) displays the total number of existing system compliance inspections reported countywide. [Figure 16](#) displays the amount of existing system compliance inspections for 2022 as a percentage of total SSTS reported countywide.

Table 5. 2022 existing system compliance inspections by LGU type

Local unit of government	Number of existing system compliance inspections	LGU percentage of total compliance inspections
County	12,218	84.0%
City	1,769	12.1%
Township	344	2.4%
Other	219	1.5%
Total	14,550	100%

Figure 15. 2022 existing system compliance inspections per county

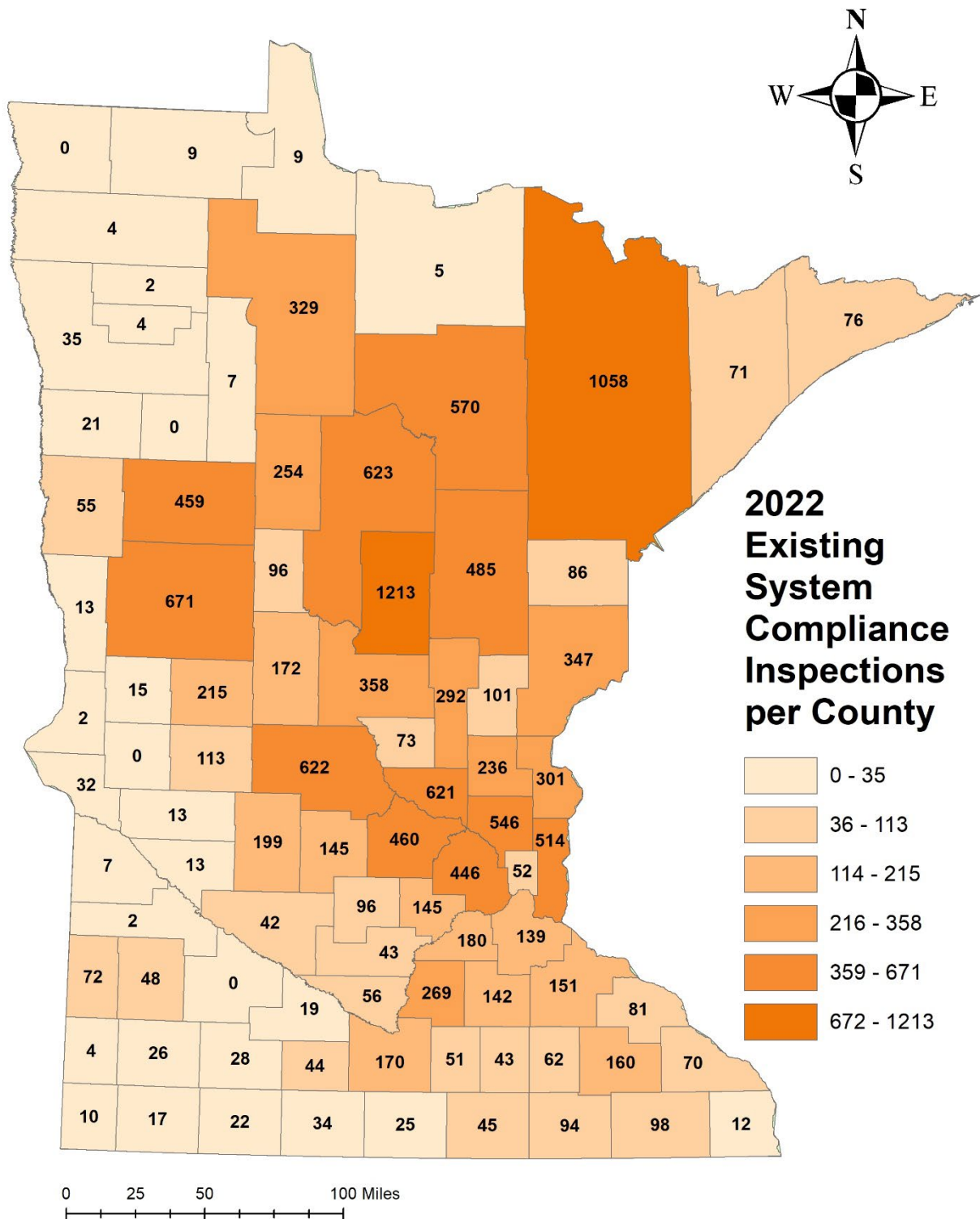
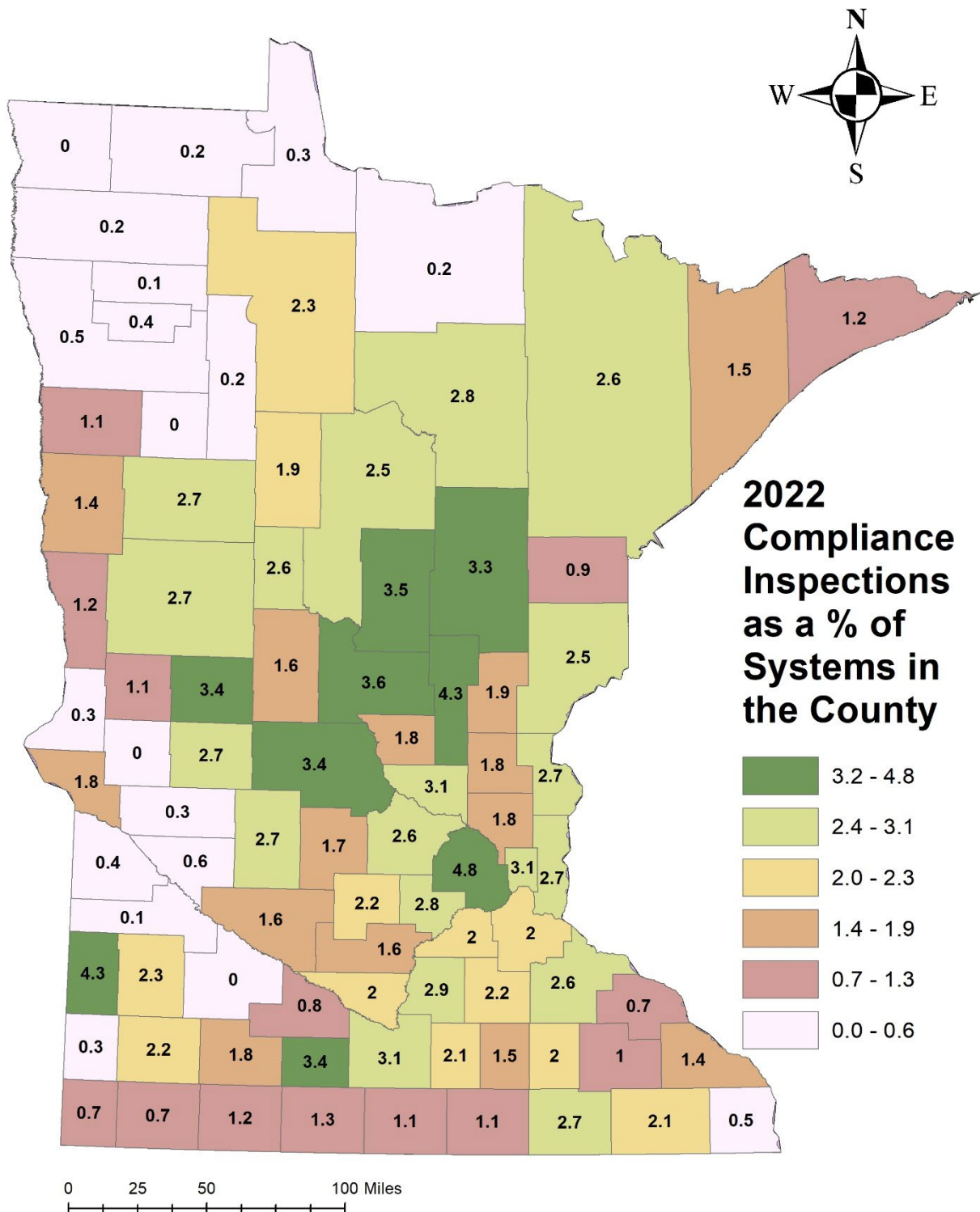


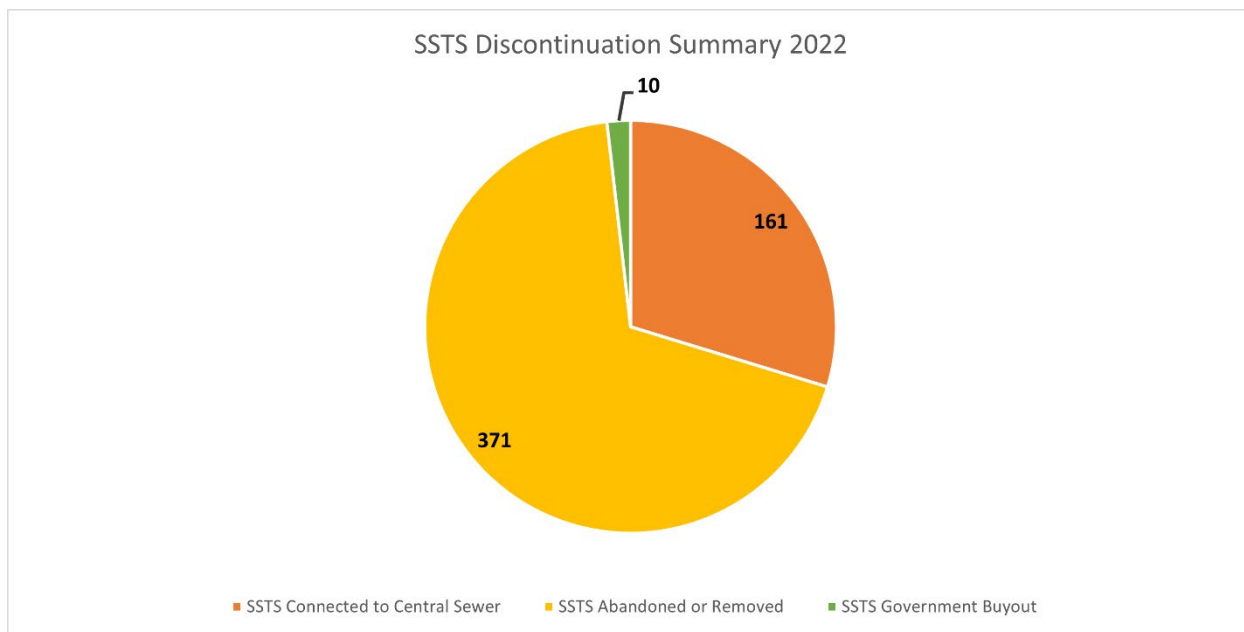
Figure 16. 2022 existing system compliance inspections presented as a percentage of total systems in county



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

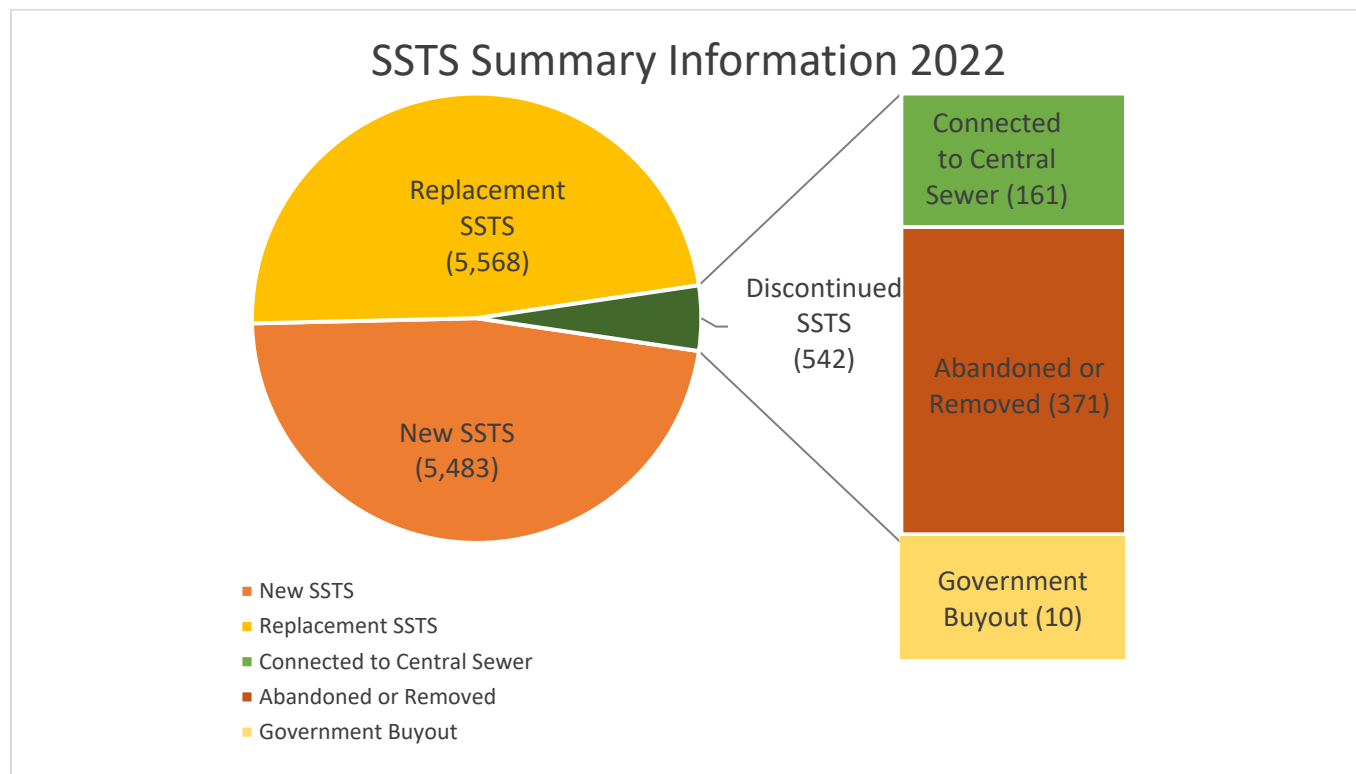
The number of noncompliant properties mitigated in 2022 by 1) connecting to centralized sewer, 2) abandonment or removal, or 3) a government buyout is provided in [Figure 17](#). LGUs reported that 542 noncompliant properties had SSTS discontinued through one of these three mechanisms. Of the noncompliant properties with SSTS discontinued in 2022, 161 were connected to centralized sewer, 371 were abandoned or removed, and 10 were part of a government buyout program.

Figure 17. Noncompliant properties with discontinued SSTS in 2022



[Figure 18](#) presents a summary of SSTS activity for 2022, 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 2022 was 11,593.

Figure 18. Summary of new SSTS, replacement SSTS, noncompliant properties with discontinued SSTS in 2022



SSTS compliance trends

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

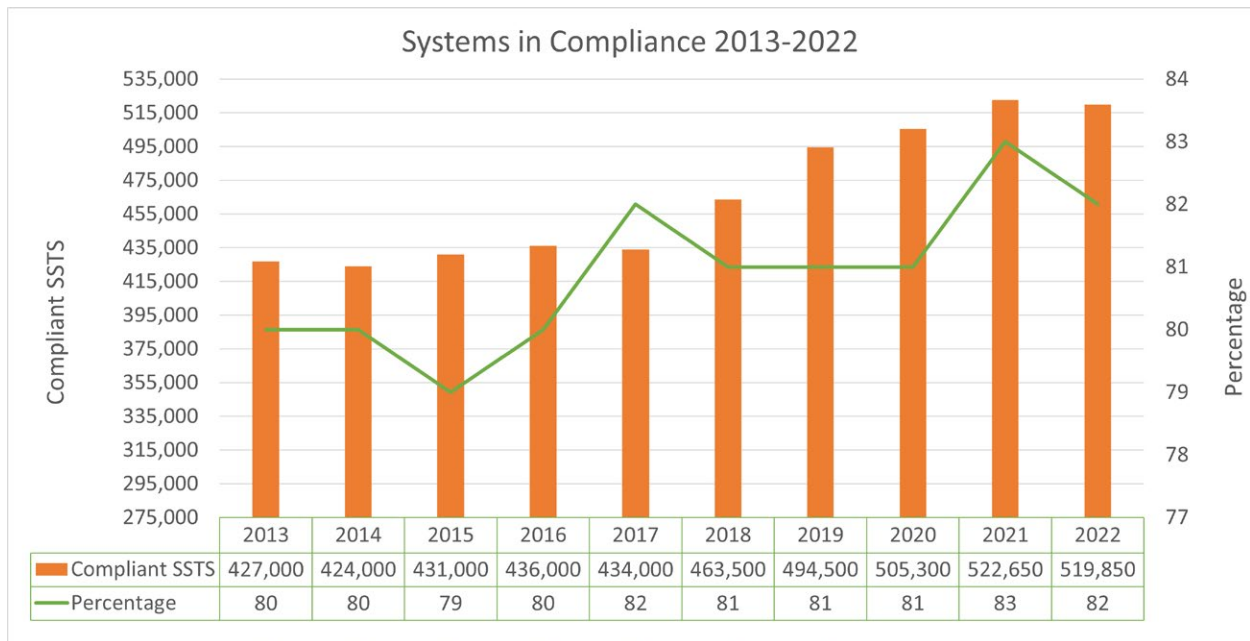
- Total number of SSTS in jurisdiction;
- Number of SSTS estimated to be compliant;
- Number of SSTS estimated to be an ITPHS; and
- Number of SSTS estimated to be FTPGW.

Figures [19](#), [20](#), and [21](#) present annual estimates of SSTS compliance status from 2013 to 2022.

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 involved with developing databases, reviewing old files, completing inventories, and other processes that facilitate more accurate data.

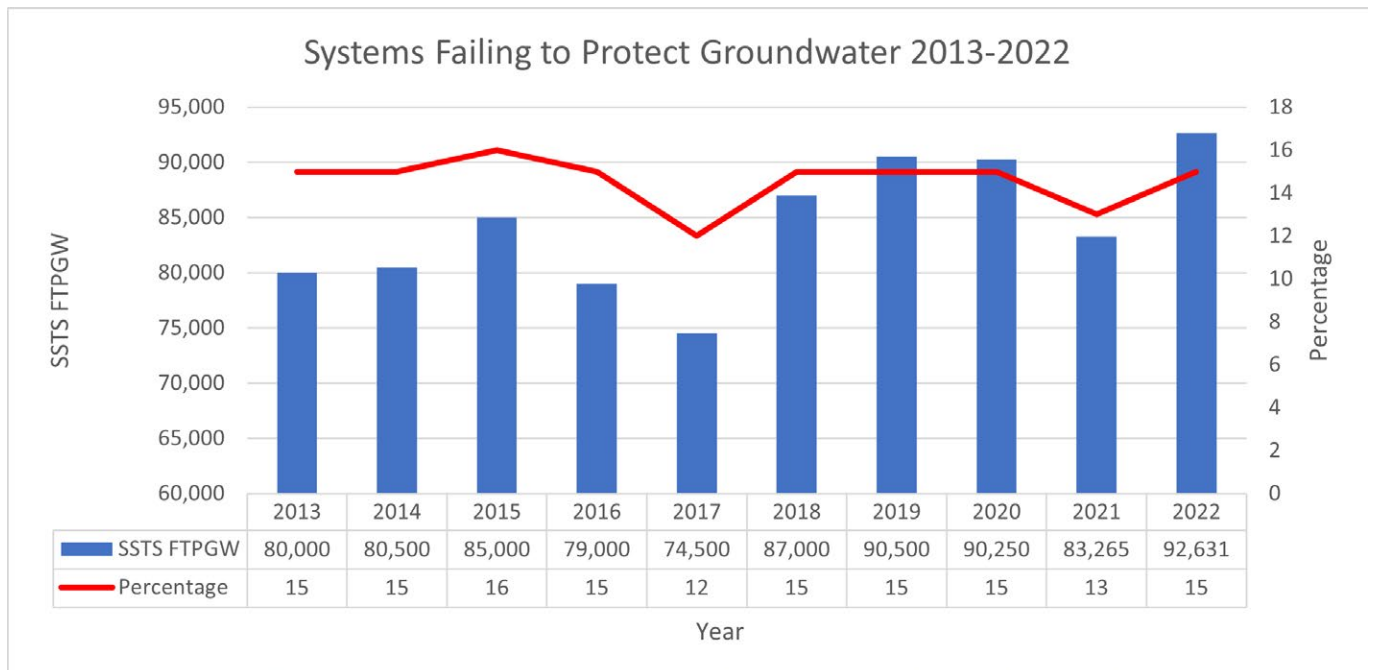
The number of estimated compliant SSTS has increased over the last ten years, from approximately 427,000 in 2013 to 519,850 systems in 2022. Additionally, the estimated percentage of compliant SSTS out of total SSTS increased from 80% in 2013 to 81.75% in 2022. [Figure 19](#) displays the number and percentage of SSTS with compliant status estimated by LGUs over the last ten years.

Figure 19. Estimated SSTS with compliant status 2013-2022



The estimated number of SSTS FTPGW has on average stayed about the same over the last ten years, from approximately 80,000 systems in 2013 (15%), to 92,631 systems in 2022 (14.5%). Some of the significant changes in percentage from this time frame can be attributed to changes in how LGUs report these data. [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 2012-2022



The estimated number of SSTS with an ITPHS status has decreased over the last ten years, from approximately 27,000 (5%) systems in 2013 to 23,590 (3.75%) systems in 2022. [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 2013-2022

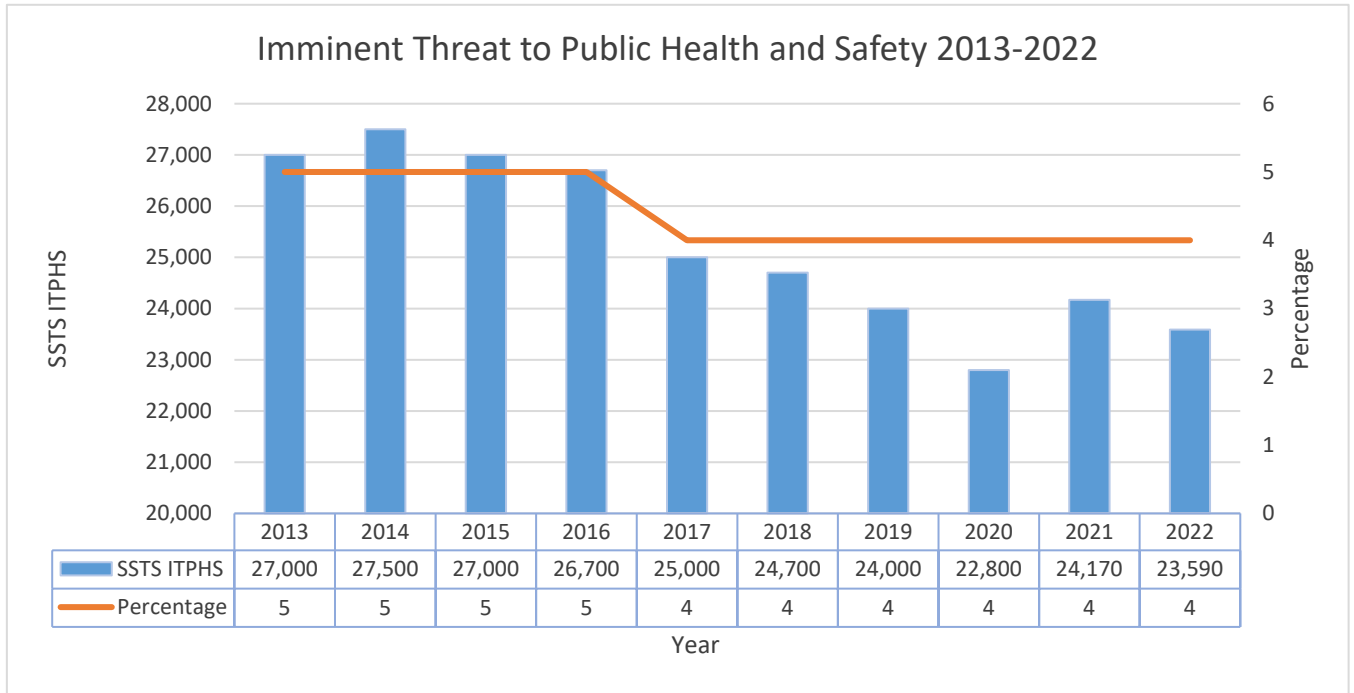


Figure 22. A surfacing system which is an ITPHS



SSTS certification and licensing

In 1978, the MPCA Citizens' Board adopted standards for Individual Sewage Treatment Systems, and in cooperation with the University of Minnesota, voluntary Onsite Sewage Treatment System workshops began. In 1994, the Minnesota Legislature made it mandatory for SSTS professionals to be certified and licensed.

Since then, just under 1,300 workshops have taken place throughout Minnesota, with almost 60,000 participants. More than 28,000 certification exams have been taken, resulting in over 1,200 business licenses and just under 2,500 individual certifications being awarded by the MPCA to SSTS designers, installers, maintainers, service providers, and inspectors.

[Figure 23](#) presents 2022 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. 2022 SSTS certification exams by specialty area

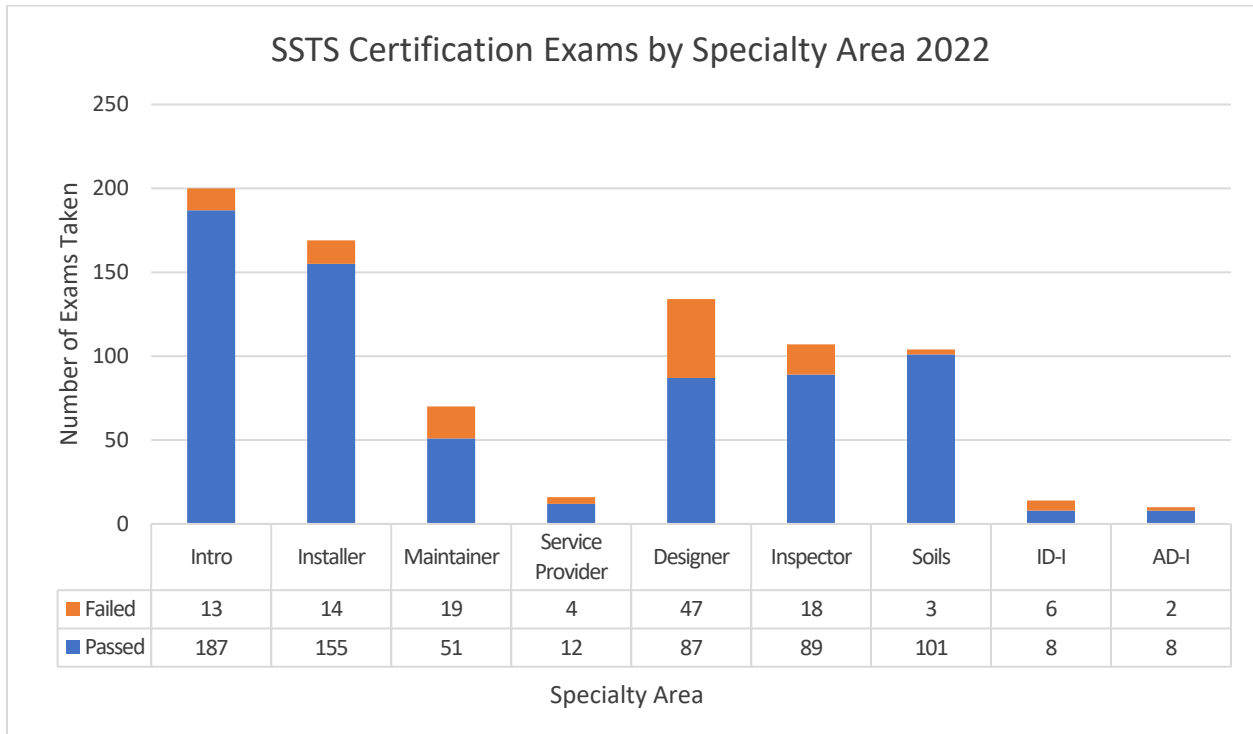


Figure 24. Introduction to Onsite Systems certification exams 2013-2022

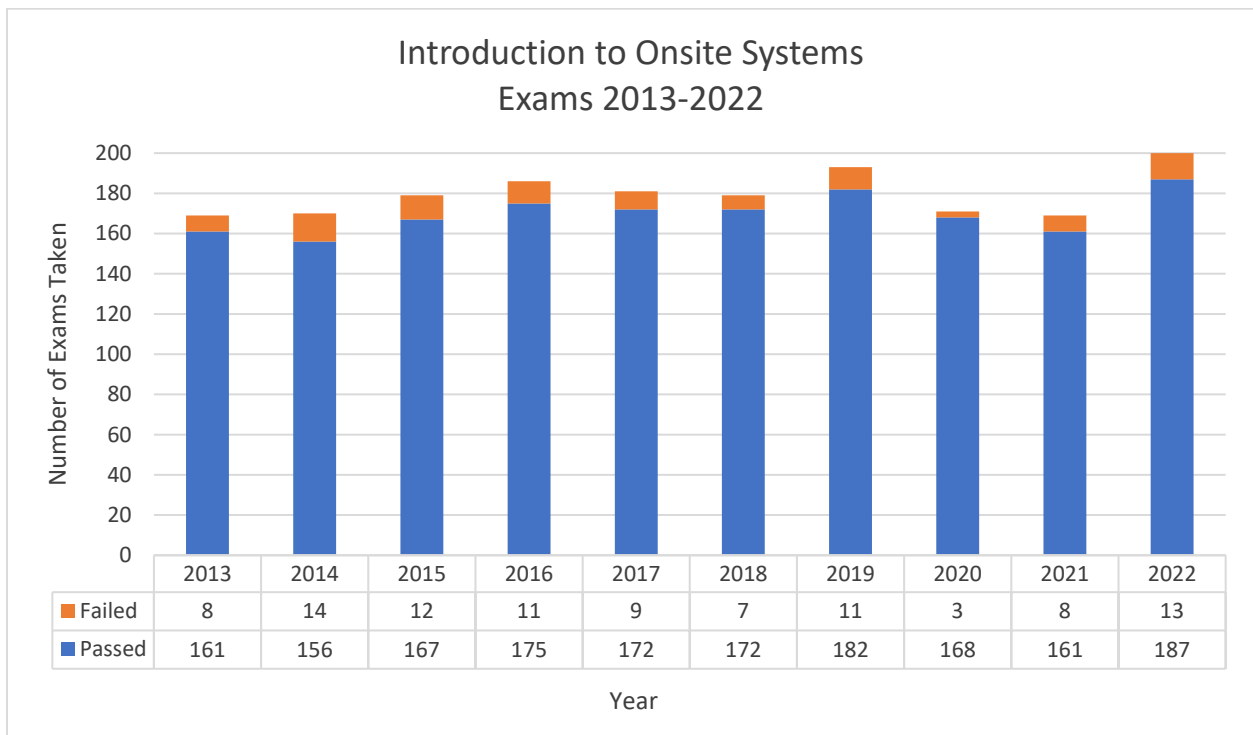


Figure 25. Installing Onsite Systems certification exams 2013-2022

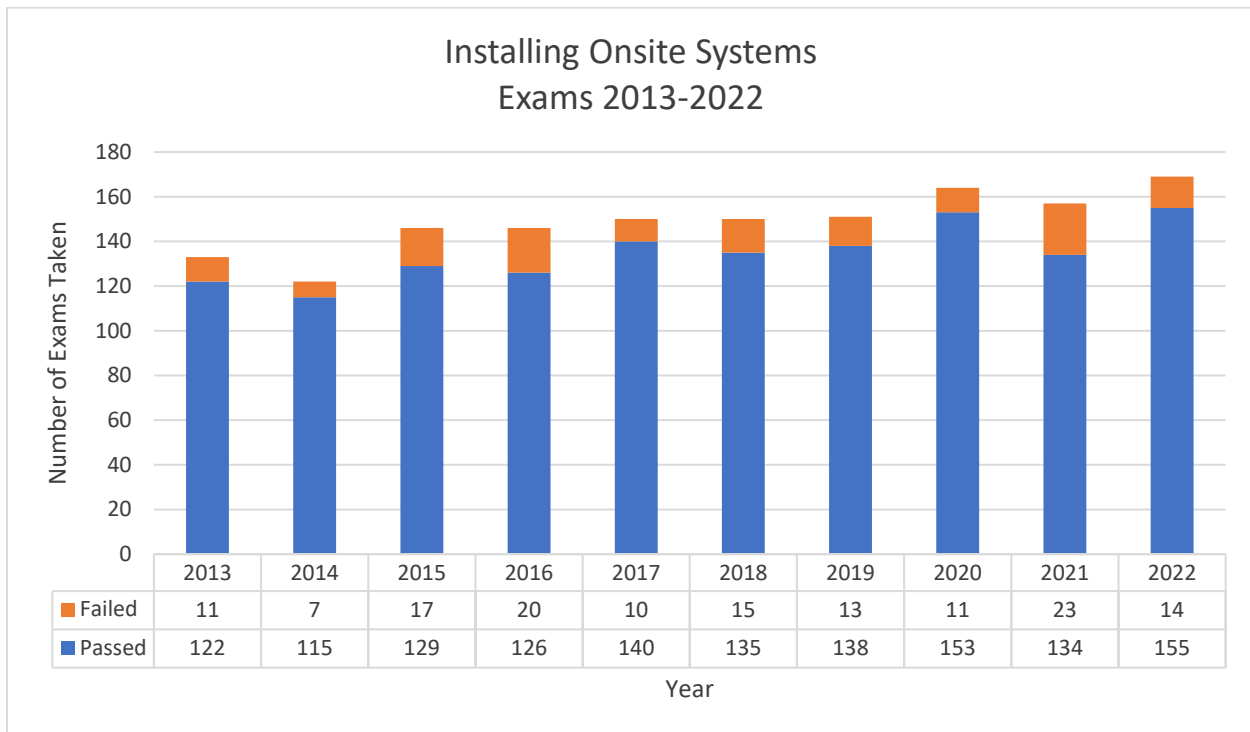


Figure 26. Maintaining Onsite Systems certification exams 2013-2022

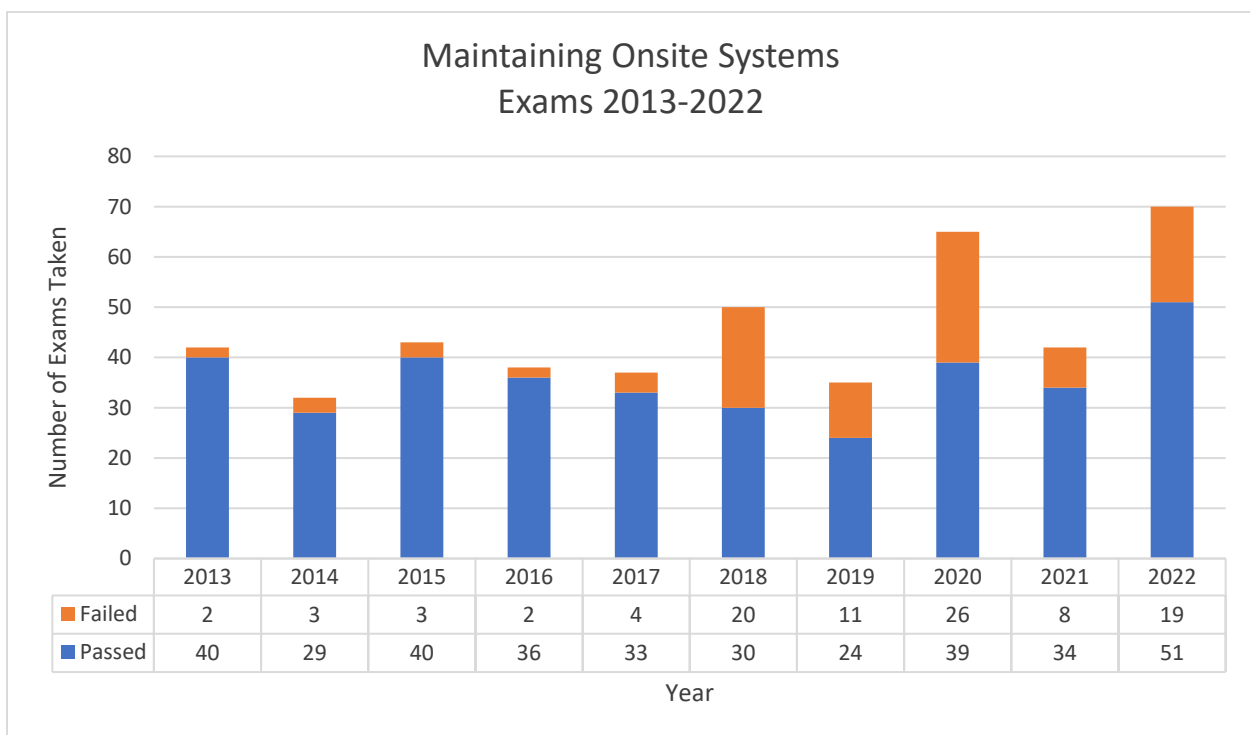


Figure 27. Service Provider for Onsite Systems certification exams 2013-2022

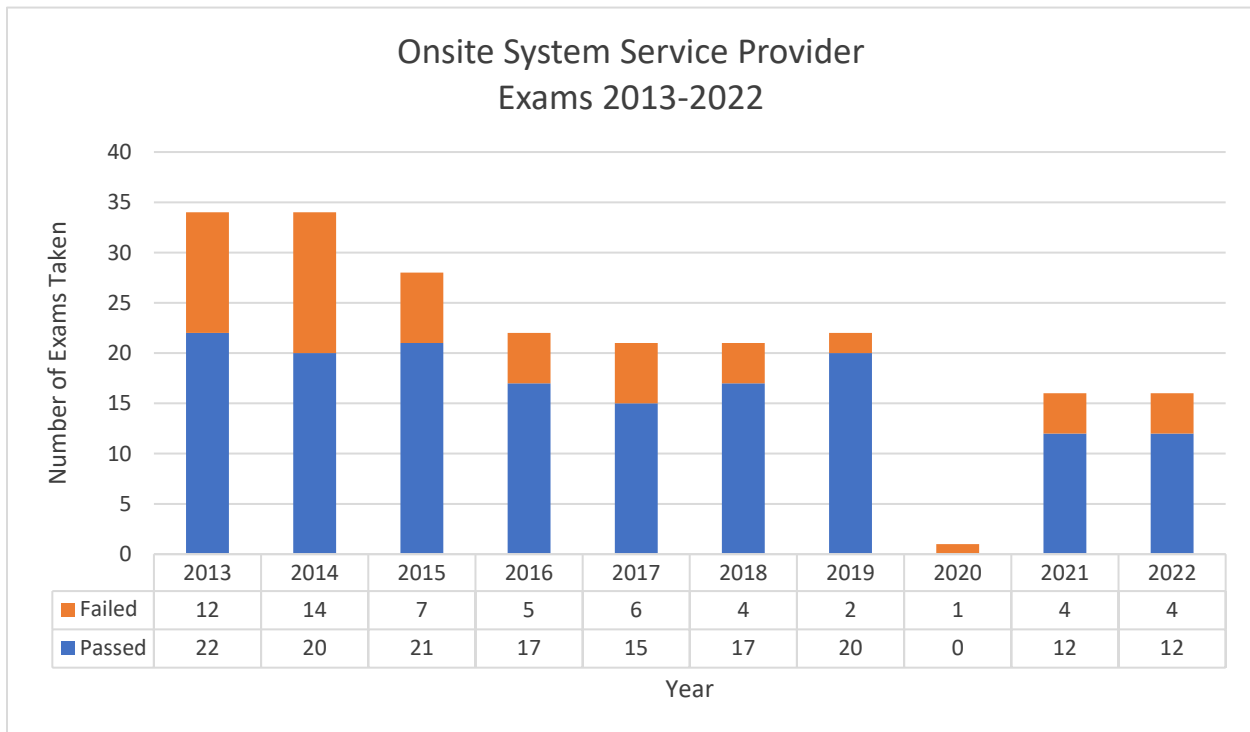


Figure 28. Designing Onsite Systems certification exams 2013-2022

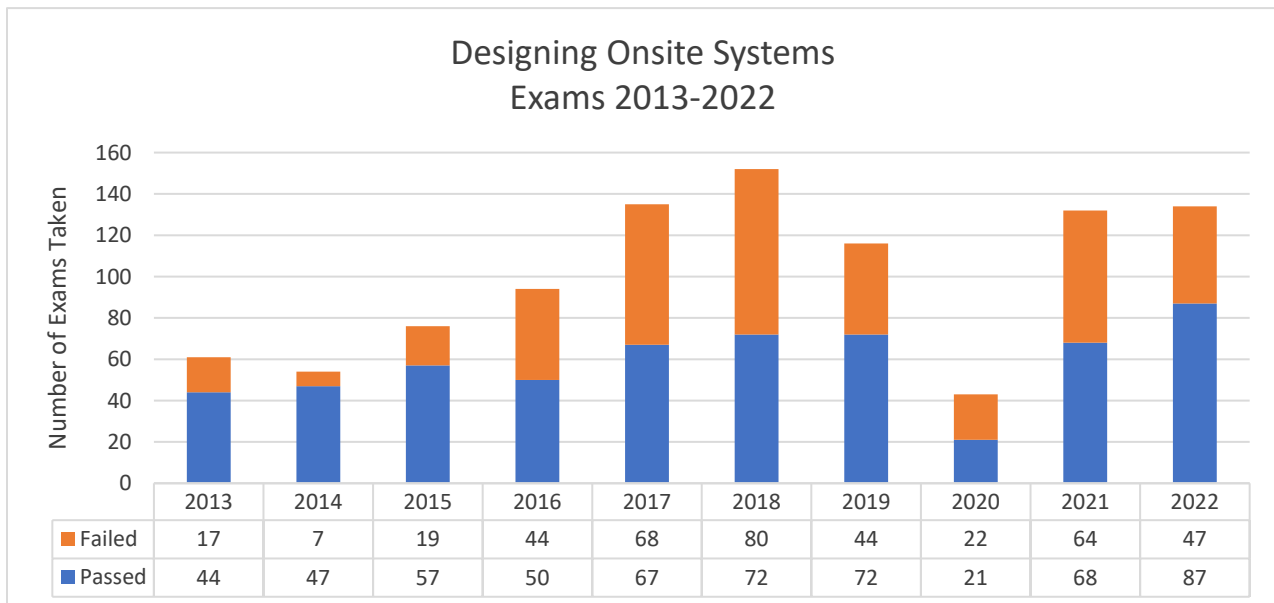


Figure 29. Inspecting Onsite Systems certification exams 2013-2022

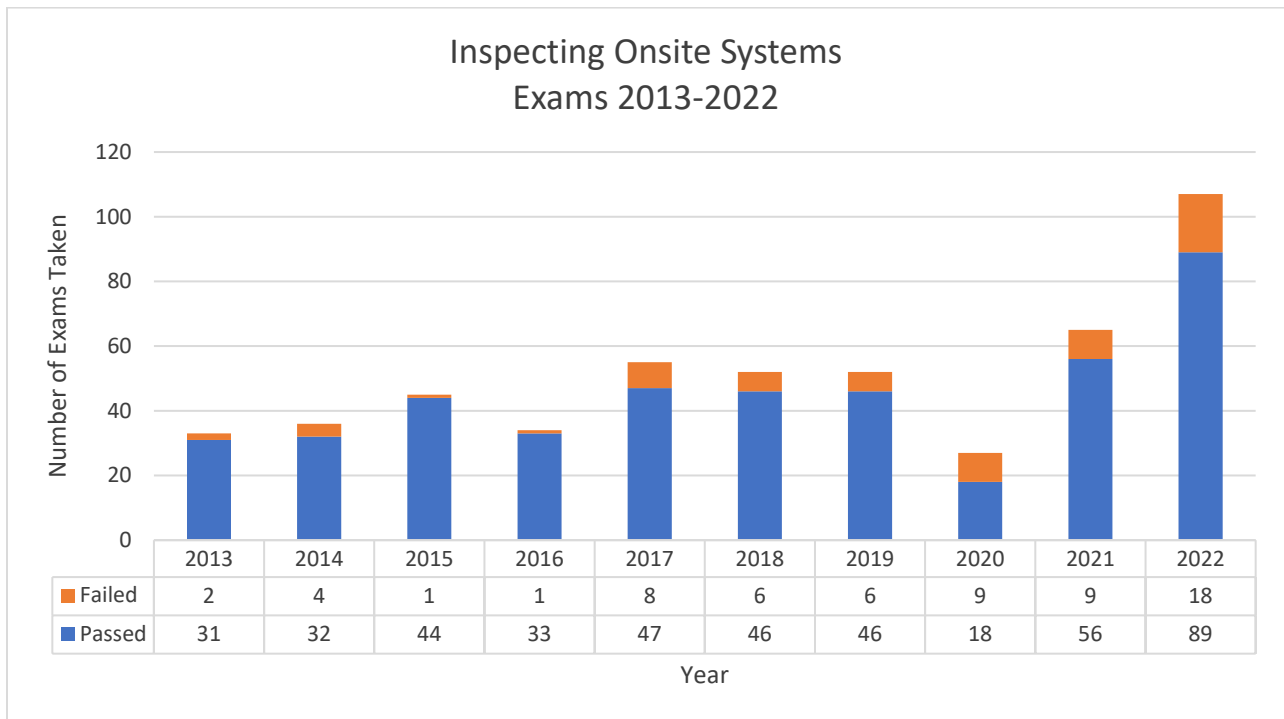


Figure 30. Soils and Onsite Systems certification exams 2013-2022

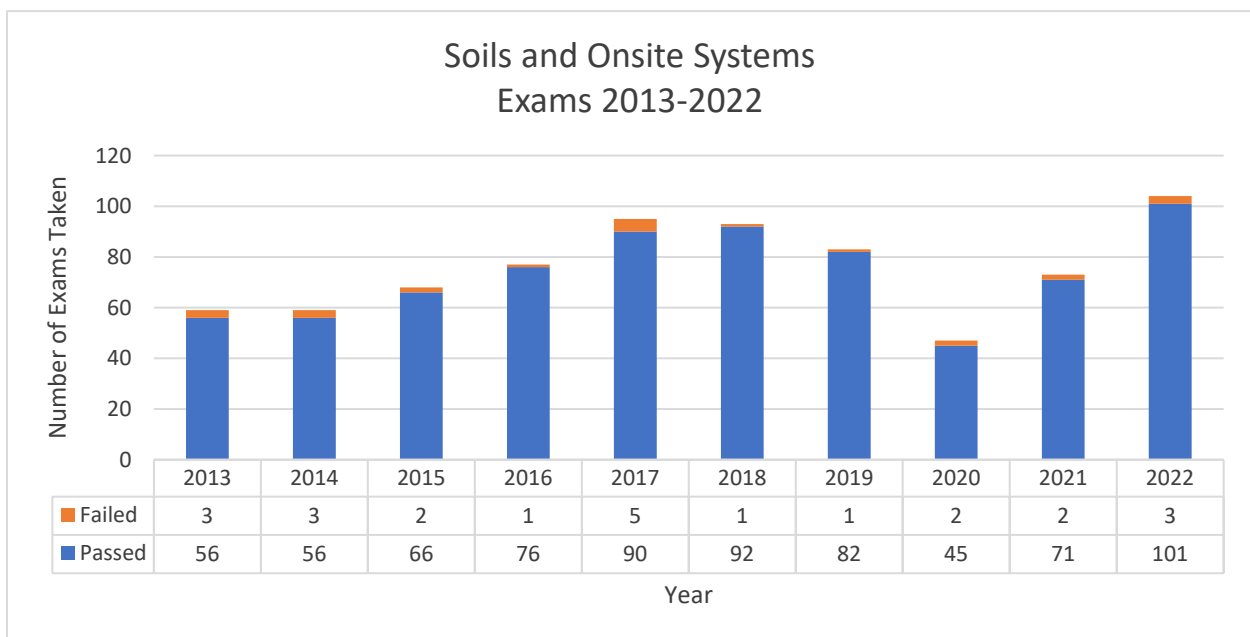


Figure 31. Soils (Field Portion) and Onsite Systems certification exams 2013-2022

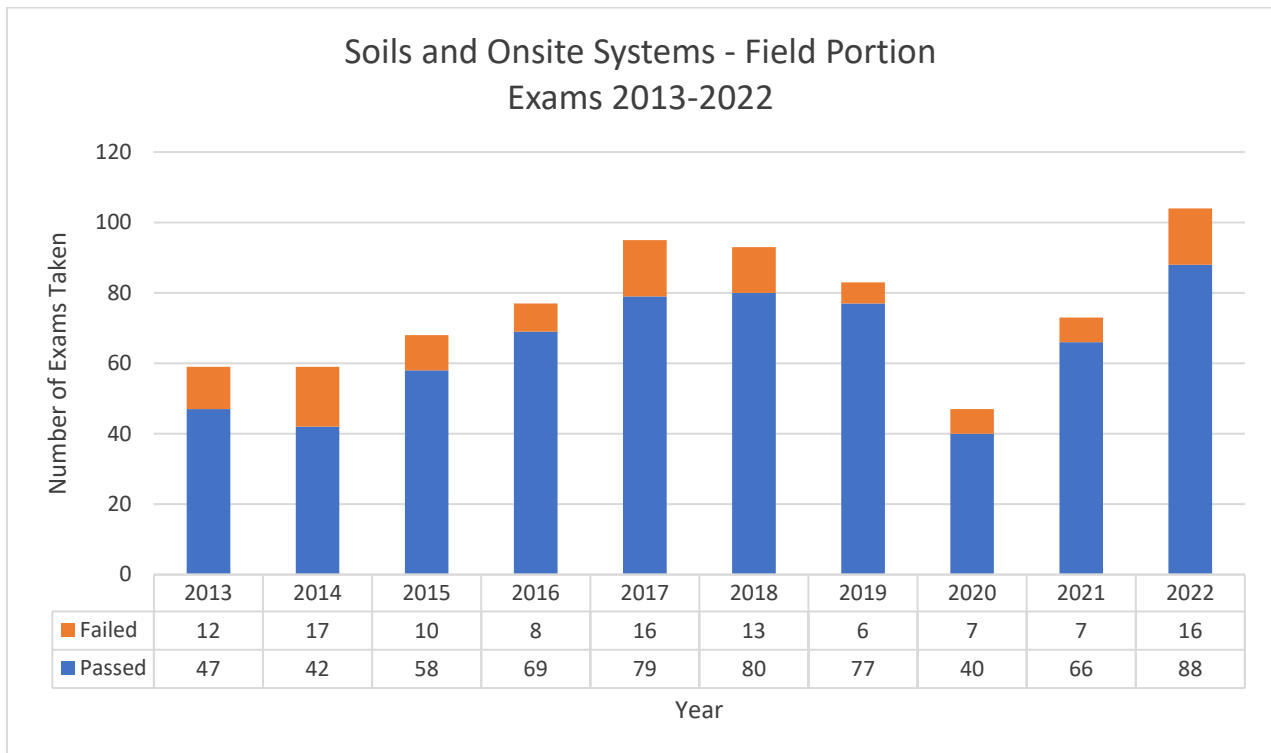


Figure 32. Intermediate Design and Inspection (ID-I) of Onsite Systems certification exams 2013-2022

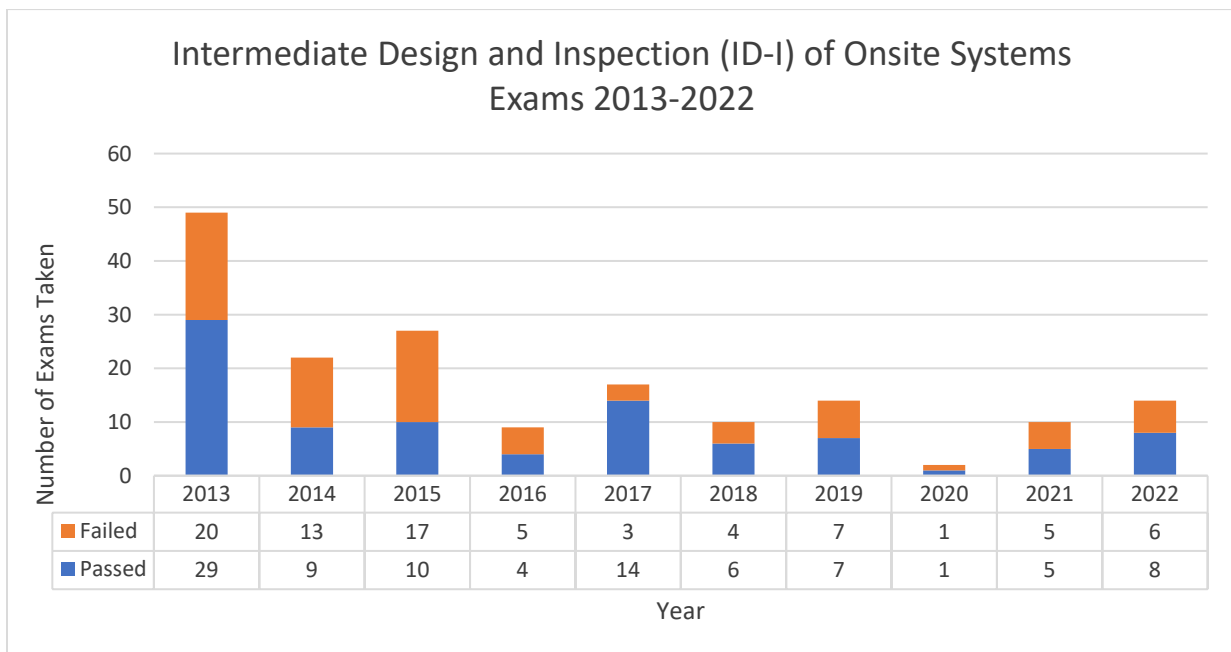
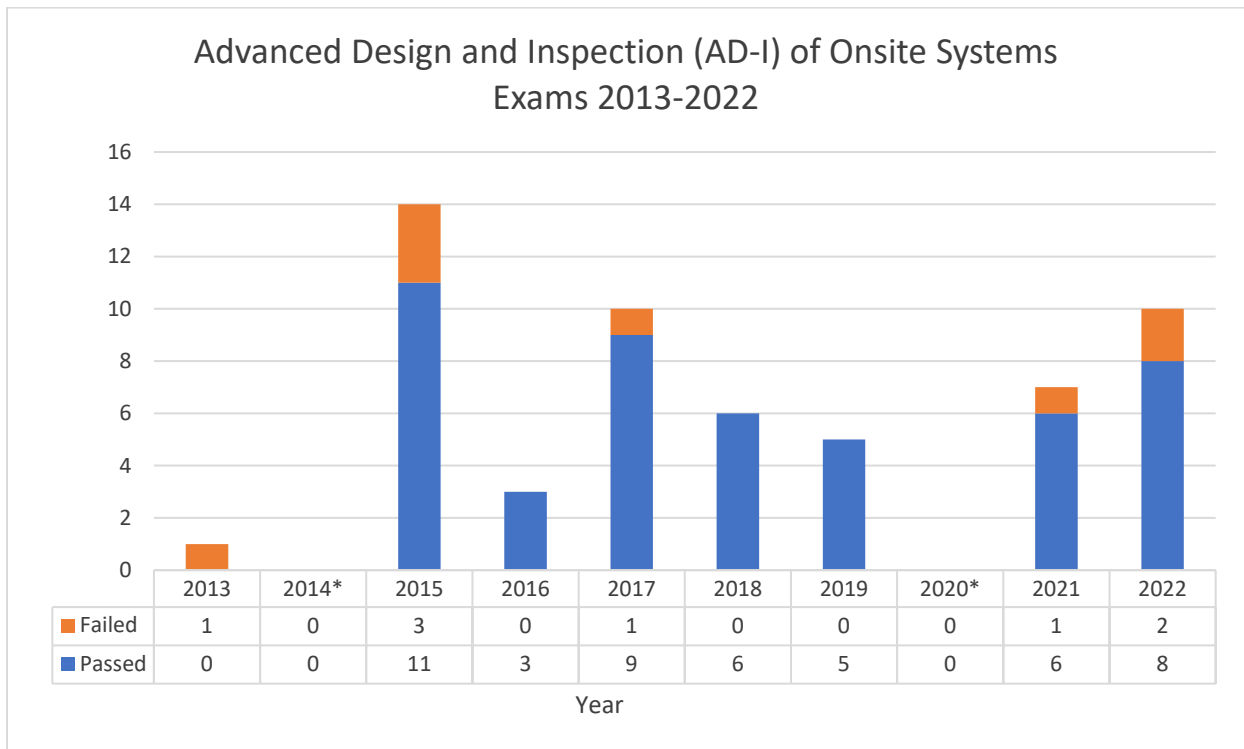


Figure 33. Advanced Design and Inspection (AD-I) of Onsite Systems certification exams 2013-2022



*Advanced Design and Inspection (AD-I) of Onsite Systems was not offered in the years 2014 & 2020.

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 2022, the MPCA sent out a web-based annual report survey to LGUs with known SSTS programs. The annual report survey collected data from each local SSTS program so that relevant information could be summarized into the statewide 2022 SSTS Annual Report.

There were 196 LGUs (86 counties, 74 cities, 32 townships, and 4 other special purpose units of government with permitting authority), who administered SSTS programs in 2022, that submitted annual report data.

A total of 636,065 SSTS were reported across Minnesota, representing an estimated 43.5 billion gallons of wastewater treated by SSTS in 2022 (assuming 2.5 person/permit; 75 gallons/person; 365 days/year).

LGUs issued 11,051 SSTS construction permits in 2022 for 5,483 new systems and, 5,568 replacement systems. Additionally, there were 599 permits issued for system repairs. Of the 11,051 SSTS permitted in 2022, approximately 96% serve residential dwellings and 4% serve other establishments.

Over 70% of the SSTS permitted in 2022 were Type I systems, including 4,928 Type I mounds and 2,832 in ground systems. There were 1,492 Type II systems, 1,305 Type III systems, 95 Type IV systems, and 19 Type V systems permitted in 2022.

The majority of SSTS construction permits issued in 2022 were for systems with a flow volume between 1-2,499 gpd; however, there were 42 systems permitted with a flow volume between 2,500-4,999 gpd and 3 systems permitted with a flow volume between 5,000-10,000 gpd.

LGUs reported that 15,075 sewage tanks were installed in 2022.

There were 14,550 existing system compliance inspections conducted in 2022. LGUs reported that 542 noncompliant properties were mitigated by centralized sewer connection, abandonment or removal, or a government buyout in 2022.

Of the 196 LGUs with SSTS programs in 2022, 96% approve SSTS designs before issuing construction permits, over 97% verify soils at some point during the review process, over 40% track SSTS maintenance activities, and approximately 79% have property transfer compliance inspection requirements.

Over 106,000 SSTS construction permits have been issued within the last ten years, indicating that over 16% of Minnesota's 636,065 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 an estimated 322,800 systems in 2013 to approximately 519,850 systems in 2022.

Trends observed from the 2022 SSTS Annual Report suggest continued improvements in subsurface wastewater treatment across the state.

Appendix A

Countywide statistics

County	Total SSTS reported in 2022	Construction permits reported in 2022	Total construction permits issued 2002-2022	Number of compliance inspections of existing SSTS conducted countywide (private inspector and LGU)	Percent of total existing SSTS inspected in 2022 out of total SSTS	Counties with compliance inspections for property transfer
Aitkin	14714	230	5566	485	3.3%	Yes
Anoka*	30090	583	9817	546	1.8%	No
Becker	17220	312	7067	459	2.7%	No
Beltrami*	14034	230	4630	329	2.3%	Yes
Benton	4074	86	2189	73	1.8%	Yes
Big Stone	1735	21	595	32	1.8%	Yes
Blue Earth	5497	118	2856	170	3.1%	Yes
Brown	2354	44	1182	19	0.8%	Yes
Carlton	9829	136	2978	86	0.9%	No
Carver*	5133	81	2186	145	2.8%	Yes
Cass*	25322	472	10032	623	2.5%	Yes
Chippewa	2173	36	670	13	0.6%	No
Chisago*	11171	195	4360	301	2.7%	Yes
Clay	3902	65	1769	55	1.4%	Yes
Clearwater	3613	39	830	7	0.2%	No
Cook	6131	120	2900	76	1.2%	No
Cottonwood	1578	31	746	28	1.8%	Yes
Crow Wing*	34916	614	10703	1213	3.5%	Yes
Dakota*	7021	109	3408	139	2.0%	Yes
Dodge	3137	82	1571	62	2.0%	Yes
Douglas*	6312	188	4208	215	3.4%	Yes
Faribault	2212	38	1418	25	1.1%	Yes
Fillmore	4656	118	2039	98	2.1%	Yes
Freeborn	3964	61	2072	45	1.1%	Yes
Goodhue	5855	103	2458	151	2.6%	Yes
Grant	1347	42	680	15	1.1%	Yes
Hennepin*	9343	116	2915	446	4.8%	No
Houston	2340	47	1184	12	0.5%	No
Hubbard*	13326	278	5846	254	1.9%	No
Isanti*	13458	226	3810	236	1.8%	Yes
Itasca*	20275	303	6940	570	2.8%	Yes
Jackson	1882	36	936	22	1.2%	Yes
Kanabec	5459	160	1935	101	1.9%	No

County	Total SSTS reported in 2022	Construction permits reported in 2022	Total construction permits issued 2002-2022	Number of compliance inspections of existing SSTS conducted countywide (private inspector and LGU)	Percent of total existing SSTS inspected in 2022 out of total SSTS	Counties with compliance inspections for property transfer
Kandiyohi*	7418	130	3717	199	2.7%	Yes
Kittson	1006	10	204	0	0.0%	No
Koochiching	2220	25	812	5	0.2%	No
Lac qui Parle	1836	26	635	7	0.4%	Yes
Lake	4596	58	1856	71	1.5%	Yes
Lake of the Woods*	3028	41	2892	9	0.3%	No
Le Sueur	9146	111	2806	269	2.9%	Yes
Lincoln	1685	0	747	72	4.3%	Yes
Lyon	2125	36	1016	48	2.3%	Yes
Mahnomen	1508	9	343	0	0.0%	No
Marshall	2100	13	334	4	0.2%	No
Martin	2660	63	1187	34	1.3%	Yes
McLeod	4401	77	2172	96	2.2%	Yes
Meeker	8728	119	2838	145	1.7%	Yes
Mille Lacs	6792	190	3876	292	4.3%	Yes
Morrison	10006	215	5423	358	3.6%	Yes
Mower	3471	98	1844	94	2.7%	Yes
Murray	1166	40	833	26	2.2%	Yes
Nicollet	2781	57	1345	56	2.0%	Yes
Nobles	2540	39	768	17	0.7%	Yes
Norman	1903	1	267	21	1.1%	No
Olmsted*	15240	196	2812	160	1.0%	Yes
Otter Tail*	24865	655	10838	671	2.7%	Yes
Pennington	1819	21	415	2	0.1%	No
Pine*	13931	288	4390	347	2.5%	Yes
Pipestone	1169	33	571	4	0.3%	Yes
Polk	6446	81	1853	35	0.5%	No
Pope*	4257	65	1713	113	2.7%	Yes
Ramsey*	1661	19	396	52	3.1%	N/A
Red Lake	892	17	241	4	0.4%	Yes
Redwood	1568	41	1024	0	0.0%	No
Renville	2593	59	1382	42	1.6%	Yes
Rice*	6545	148	3081	142	2.2%	Yes
Rock	1374	15	500	10	2.7%	No
Roseau	3627	31	348	9	0.0%	No
Scott	8848	153	3096	180	0.2%	No
Sherburne*	20347	315	11112	621	0.4%	Yes
Sibley	2693	51	1301	43	1.5%	Yes

County	Total SSTS reported in 2022	Construction permits reported in 2022	Total construction permits issued 2002-2022	Number of compliance inspections of existing SSTS conducted countywide (private inspector and LGU)	Percent of total existing SSTS inspected in 2022 out of total SSTS	Counties with compliance inspections for property transfer
St. Louis	40030	680	14414	1058	2.6%	Yes
Stearns	18116	309	8842	622	3.4%	Yes
Steele	2921	48	1318	43	1.5%	Yes
Stevens	2038	15	490	0	0.0%	No
Swift	3975	33	576	13	0.3%	Yes
Todd*	10498	147	3802	172	1.6%	Yes
Traverse	608	16	301	2	0.3%	Yes
Wabasha	12303	84	1467	81	0.7%	No
Wadena	3624	98	1998	96	2.6%	Yes
Waseca	2402	39	1180	51	2.1%	Yes
Washington*	19280	262	5656	514	2.7%	Yes
Watonwan	1292	27	615	44	3.4%	Yes
Wilkin*	1053	18	587	13	1.2%	Yes
Winona	5115	74	1939	70	1.4%	Yes
Wright*	18032	313	6448	460	2.6%	Yes
Yellow Medicine	1714	22	668	2	0.1%	No
Total	636065	11051	243785	14550	2.3%	Yes (61)

*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 (1)	Lake Shore City
Chisago County (3)	North Branch City
	Stacy 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
	Burnsville City
	Coates City
	Eagan City

County Name Number of cities with SSTS programs	City Submitted Annual Report
	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
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
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 (6)	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 (2)	Baldwin Township
	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
Number of townships with SSTS programs	Submitted 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 2022 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.
- j. # Type IV Operating Permits issued.
- k. # permits issued for Type V.
- l. # 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.
- h. # 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.
- i. # permits issued for Type III.
- j. # permits issued for Type IV/Registered Product Systems.
 - i. # Type IV Operating Permits issued.
- k. # 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.

- l. New systems 1-2,499 gpd.
- m. New systems 2,500-4,999 gpd.
- n. New systems 5,000-10,000 gpd.
- o. Replacement systems 1-2,499 gpd.
- p. Replacement systems 2,500-4,999 gpd.
- q. Replacement systems 5,000-10,000 gpd.

2. 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.

3. 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.

4. 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.

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

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

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

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

9. 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.

10. 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.