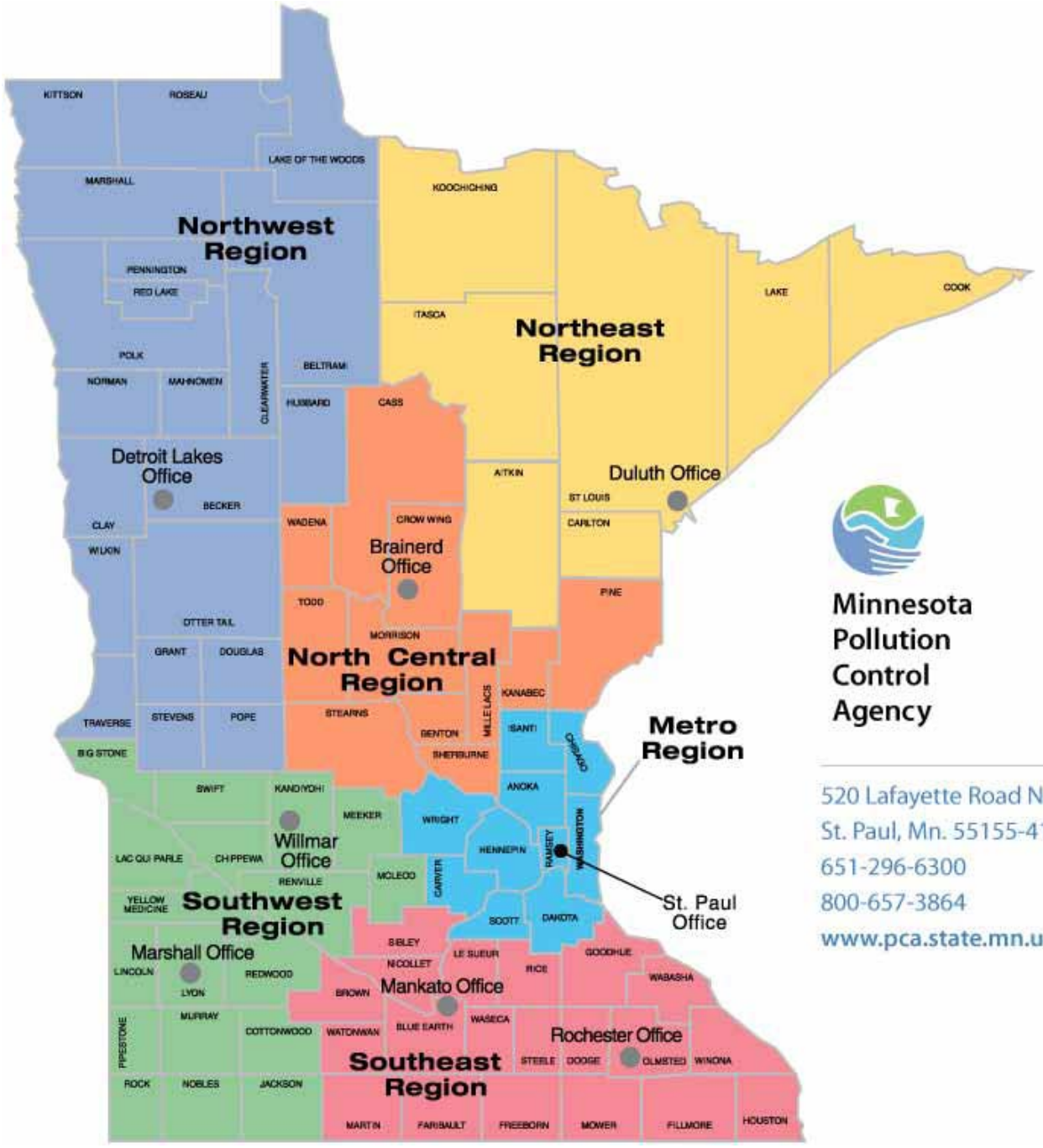
# Subsurface Sewage Treatment System
# 2010 Annual Report Summary





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## Draft - March 2011

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## Introduction

This report is a broad analysis of Subsurface Sewage Treatment Systems (SSTS) trends across Minnesota counties. It is based on the 2010 calendar year SSTS data submitted by the Local Government Units (LGUs) to the Minnesota Pollution Control Agency (MPCA). The data used to gain information about SSTS permitting and compliance trends across the state. The numbers reported are the "best estimates" from the LGUs.

The Annual Report Survey is distributed to Planning and Zoning officials, Environmental Services officials, and Health Department officials charged with implementing the local SSTS program. Some have county-wide jurisdiction, others are smaller government entities such as a city, township, or sewer district. 86 of Minnesota's 87 counties completed the Annual Report. Ramsey County was not surveyed; they are scheduled to implement their first SSTS ordinance in 2012.

Report data was also collected from townships, cities, and other government entities that administer SSTS programs; this report does not include their information but is available upon request.

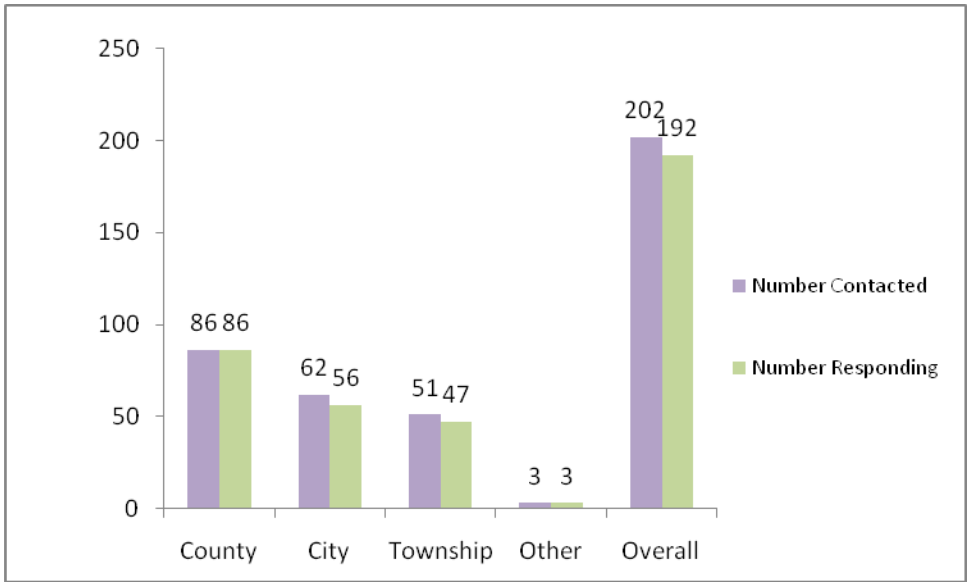
The LGUs received the 2010 Annual Report instructions and questionnaire in Excel spreadsheet format by email in December 2010. Each spreadsheet included prior years responses so LGUs can develop local analyses of their SSTS program. LGUs submitted their responses by February 1, 2011.

Mary West is the primary author of this report.

## 2010 Annual Report Survey Analysis

Graph 1 indicates the survey response rate from LGUs. 202 LGUs received the survey, 29 fewer than in 2009. The decrease in the number of distributed surveys is the result of updated information reflecting the cities that have no SSTS in their jurisdiction, and the cities and townships that have returned SSTS jurisdiction to their respective counties.

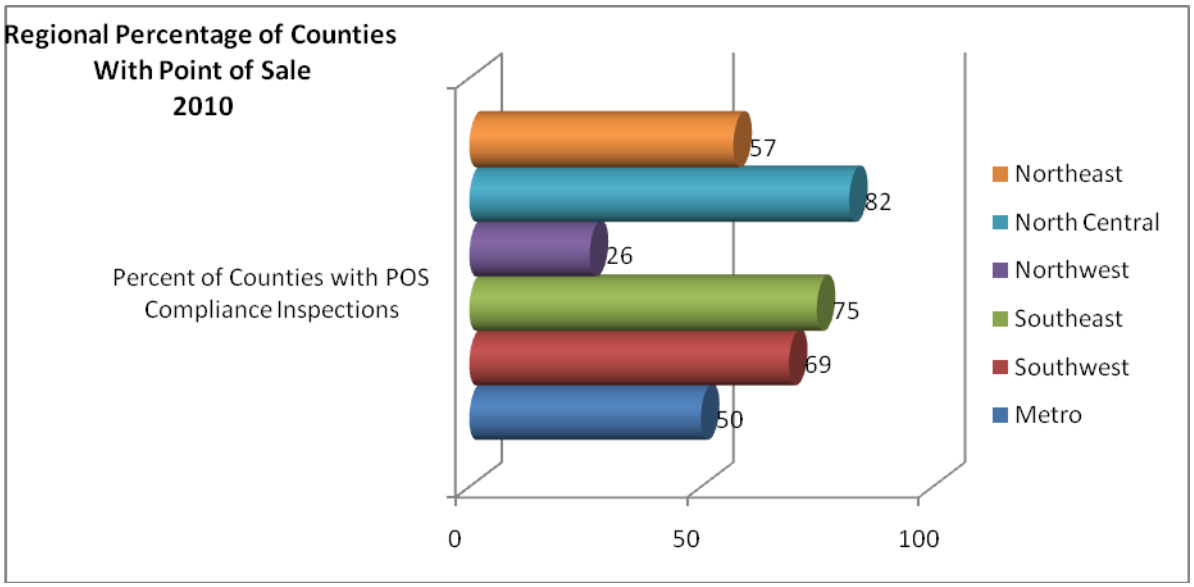
**Graph 1: 2010 LGU Response Rate**



Graph 2 indicates the percentage of counties within each region that require SSTS Compliance Inspections at Point of Sale (POS) for a property transfer. The North Central region has the highest percentage of LGUs implementing POS. The Northwest region indicates the lowest percentage of counties implementing POS.

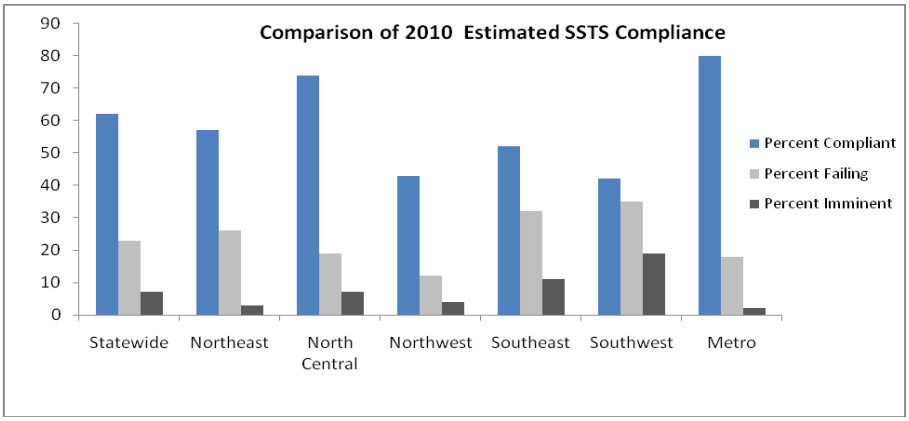
As more counties adopt POS provisions, it is expected the overall compliance figures will increase as non-compliant SSTS are identified and replaced with compliant SSTS.

**Graph 2. Point of Sale by Region**




Graph 3 shows a comparison of regional and statewide estimated SSTS compliance percentages. Due to regional variations the data is to be interpreted very broadly; for example a high percentage of IPHT systems may result from a new SSTS inventory program. As LGUs can set different upgrade timeframes for SSTS designated as Failing, this category may remain static for a period of time before decreasing. Finally, some counties do not have county-wide SSTS jurisdiction, and some within each region did not report in every category.

**Graph 3. 2010 Estimated SSTS Compliance by Region**



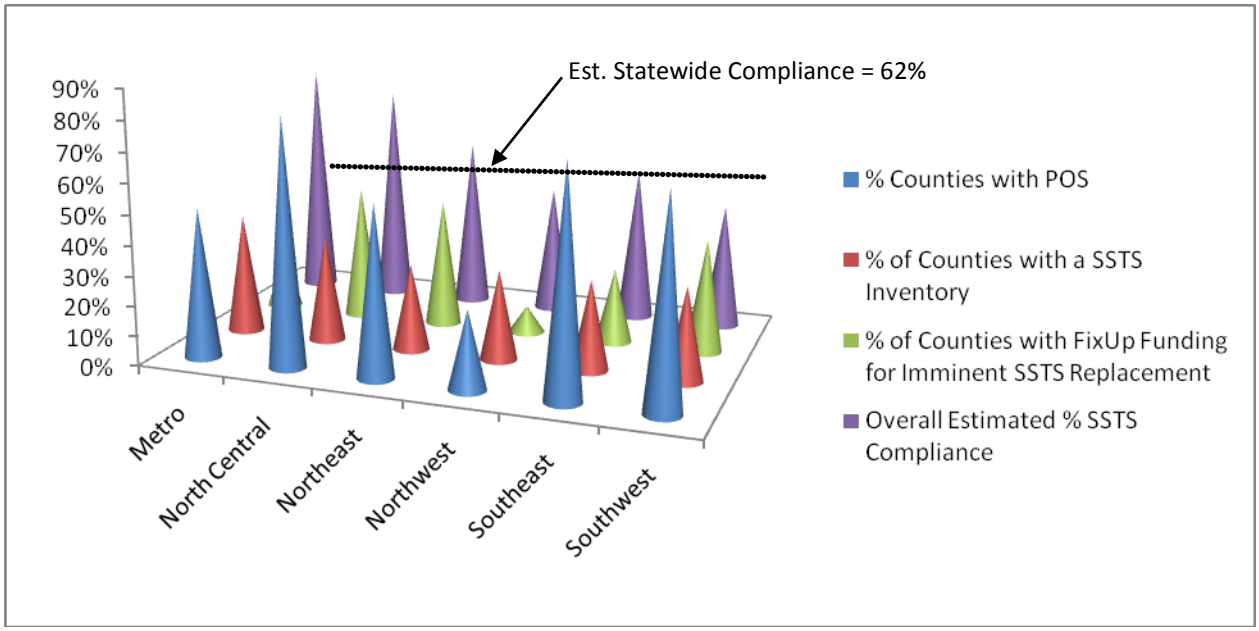
Graph 4 attempts to draw some parallels between statewide compliance and regional compliance/program enhancements. SSTS compliance is affected by many local program enhancements such as inspection triggers (Point Of Sale requirements [POS], SSTS inventories, building permits); funding for replacement systems (low-income loans and grants); local political support, and enforcement tools (local and state level).

The Metro and North Central regions indicate a higher SSTS compliance percentage than the statewide average. The North Central region also has the highest percentage of LGUs with available funding to replace systems for low-income applicants (45%). The North Central region also contains many of the state's popular lakes and resorts, creating high local incentive for compliant SSTS on vacation properties.

The Southeast, and Southwest regions also indicate high percentages of LGUs with POS requirements, however their compliance percentages are below the state average. These regions also have a high percentage of SSTS inventories; combining this with their high POS results in more systems being inspected and more non-compliant systems discovered. They also have some of the lowest percentages of available SSTS funding for low-income applicants – increased funding may result in increased compliance.

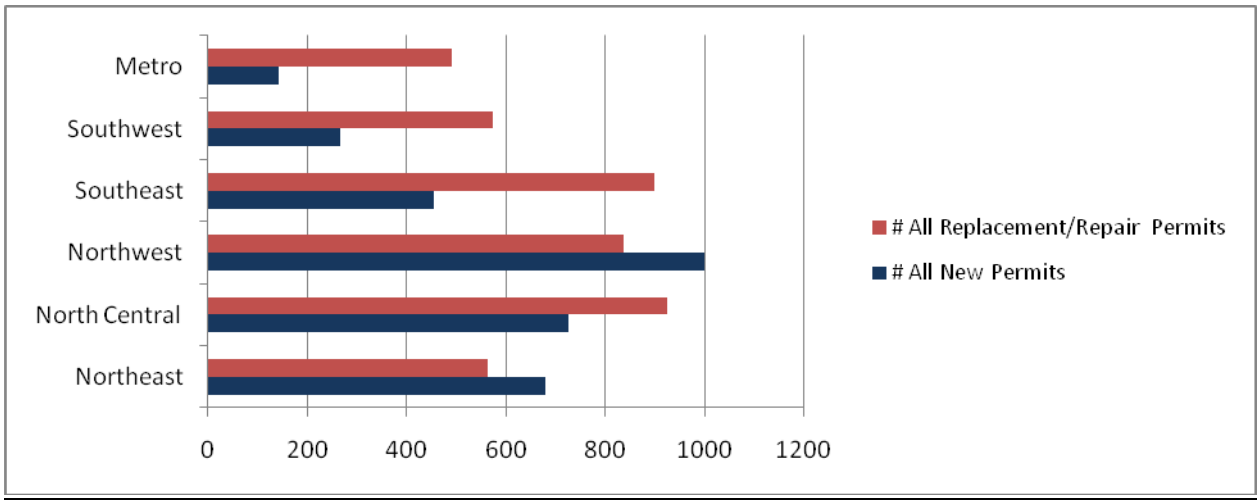
The Northwest region indicates SSTS Compliance much lower (42%) than the statewide average. This region also has the lowest percentages of counties with POS triggers (26%), SSTS inventories (30%), and available funding for SSTS replacement (9%).

**Graph 4. Cross-reference of SSTS Compliance with Program Enhancements by Region**



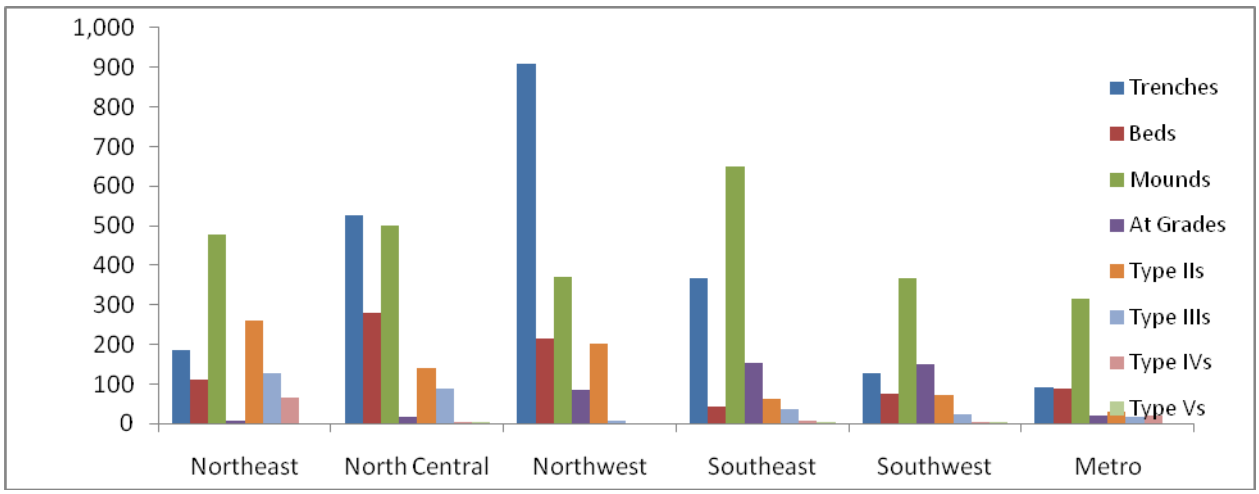
Graph 5 indicates the combined number of New and Replacement SSTS permits issued by region.

**Graph 5. New and Replacement SSTS Permits Issued by Region**




Graph 6 indicates a regional comparison of types of SSTS permits issued in 2010. Permits for in-ground trench and bed systems (Type I systems) were predominant in the Northwest region; mound systems were predominant in the Northeast, Southeast, Southwest, and Metro regions. At-grade systems were also prevalent in the Southeast region.

**Graph 6. Types of SSTS Permits Issued by Region**



## Future Strategies for SSTS Annual Report

The following strategies are suggested to improve the quality of data collected by the Annual Report.

- Continue review of data as it is submitted and contact LGUs to resolve discrepancies or inconsistencies.
- Where possible, compare reported SSTS compliance to local program enhancements to highlight program successes and determine areas where improvement is needed.
- Review pre- and post-compliance figures submitted by LGUs receiving Inventory and/or SSTS Replacement funding; share insights and successful strategies with other LGUs via the SSTS newsletter.
- Audit of local programs. Pending adequate funding and staffing, MPCA will meet with LGUs that report inconsistent, conflicting, or otherwise poor information to investigate implementation of their program.

## Conclusion

It is anticipated improved reporting will better reflect the successes of local SSTS programs. As SSTS compliance continues to increase across the state, it is hoped state legislators will begin to better understand the statewide differences in SSTS programs, the challenges faced by LGUs charged with implementing a program with minimal financial assistance, and reward the progress in SSTS compliance being made by counties through local inventory programs and enforcement measures.

# Appendix A. County-Specific Residential SSTS Permits Issued, 2010

**Northeast Region**

| County | Trench and Bed Systems | Mound Systems | At-grade Systems | Type II Systems | Type III Systems | Type IV Systems | Type V Systems |
|---|---|---|---|---|---|---|---|
| Aitkin | 34 | 59 | 0 | 35 | 9 | 0 | 0 |
| Carlton | 37 | 28 | 0 | 7 | 28 | 0 | 0 |
| Cook | 0 | 53 | 0 | 66 | 1 | 5 | 0 |
| Itasca | 97 | 110 | 2 | 44 | 0 | 0 | 0 |
| Koochiching | 0 | 9 | 1 | 0 | 0 | 0 | 0 |
| Lake | 9 | 61 | 0 | 4 | 0 | 0 | 0 |
| St. Louis | 119 | 147 | 5 | 97 | 87 | 61 | 0 |
| **Total** | **296** | **467** | **8** | **253** | **116** | **66** | **0** |

**North Central Region**

| County | Trench and Bed Systems | Mound Systems | At-grade Systems | Type II Systems | Type III Systems | Type IV Systems | Type V Systems |
|---|---|---|---|---|---|---|---|
| Benton | 18 | 20 | 0 | 1 | 6 | 0 | 0 |
| Cass | 164 | 124 | 1 | 18 | 0 | 0 | 0 |
| Crow Wing | 130 | 65 | 1 | 12 | 5 | 1 | 0 |
| Kanabec | 11 | 30 | 0 | 8 | 10 | 0 | 0 |
| Mille Lacs | 3 | 24 | 1 | 0 | 23 | 0 | 1 |
| Morrison | 62 | 65 | 0 | 5 | 4 | 0 | 0 |
| Pine | 23 | 13 | 1 | 9 | 4 | 0 | 0 |
| Sherburne | 72 | 10 | 5 | 3 | 0 | 0 | 0 |
| Stearns | 183 | 74 | 2 | 49 | 31 | 1 | 0 |
| Todd | 38 | 43 | 4 | 9 | 1 | 0 | 0 |
| Wadena | 79 | 21 | 0 | 15 | 0 | 0 | 0 |
| **Total** | **783** | **489** | **15** | **129** | **84** | **2** | **1** |

**Northwest Region**

| County | Trench and Bed | Mound Systems | At-Grade Systems | Type II Systems | Type III Systems | Type IV Systems | Type V Systems |
|---|---|---|---|---|---|---|---|

| | Systems | | | | | | |
|---|---|---|---|---|---|---|---|
| Becker | 195 | 30 | 3 | 25 | 0 | 0 | 0 |
| Beltrami | 107 | 44 | 0 | 0 | 0 | 0 | 0 |
| Clay | 37 | 4 | 12 | 3 | 0 | 0 | 0 |
| Clearwater | 24 | 3 | 3 | 5 | 0 | 0 | 0 |
| Douglas | 31 | 85 | 11 | 18 | 1 | 0 | 0 |
| Grant | 20 | 1 | 1 | 0 | 4 | 0 | 0 |
| Hubbard | 159 | 24 | 0 | 15 | 0 | 0 | 0 |
| Kittson | 5 | 2 | 0 | 0 | 0 | 0 | 0 |
| Lake of the Woods | 8 | 13 | 0 | 2 | 0 | 0 | 0 |
| Mahnomen | 5 | 2 | 3 | 2 | 0 | 0 | 0 |
| Marshall | 4 | 3 | 0 | 0 | 0 | 0 | 0 |
| Norman | 2 | 2 | 2 | 3 | 0 | 0 | 0 |
| Otter Tail | 361 | 33 | 3 | 98 | 0 | 0 | 0 |
| Pennington | 9 | 6 | 11 | 0 | 0 | 0 | 0 |
| Polk | 34 | 25 | 11 | 18 | 1 | 0 | 0 |
| Pope | 33 | 19 | 2 | 3 | 0 | 0 | 0 |
| Red Lake | 7 | 1 | 1 | 0 | 0 | 0 | 0 |
| Roseau | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| Stevens | 11 | 8 | 0 | 0 | 0 | 0 | 0 |
| Traverse | 3 | 13 | 0 | 0 | 0 | 0 | 0 |
| Wilkin | 24 | 24 | 10 | 0 | 0 | 0 | 0 |
| **Totals** | **1,079** | **346** | **73** | **192** | **6** | **0** | **0** |

**Metro Region**

| County | Trench and Bed Systems | Mound Systems | At-Grade Systems | Type II Systems | Type III Systems | Type IV Systems | Type V Systems |
|---|---|---|---|---|---|---|---|
| Anoka* | 0 | 0 | 4 | 0 | 0 | 0 | 0 |
| Carver | 3 | 87 | 1 | 2 | 6 | 3 | 0 |
| Chisago | 10 | 34 | 2 | 6 | 3 | 2 | 0 |
| Dakota* | 3 | 2 | 0 | 0 | 0 | 0 | 0 |
| Hennepin* | 2 | 20 | 0 | 0 | 1 | 0 | 0 |
| Isanti | 24 | 20 | 3 | 0 | 2 | 0 | 0 |
| Ramsey** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Scott | 13 | 52 | 1 | 0 | 0 | 0 | 0 |
| Washington | 92 | 42 | 2 | 0 | 0 | 2 | 0 |
| Wright | 31 | 50 | 6 | 13 | 5 | 12 | 0 |
| **Total** | **178** | **307** | **19** | **21** | **17** | **19** | **0** |

*Anoka, Dakota, and Hennepin Counties have SSTS jurisdiction only in the designated shoreland areas of each county. Individual cities and townships regulate their own SSTS programs within these counties.

**Ramsey County is on track to implement its first SSTS Ordinance in 2012.

**Southeast Region**

| County | Trench and Bed Systems | Mound Systems | At-grade Systems | Type II Systems | Type III Systems | Type IV Systems | Type V Systems |
|---|---|---|---|---|---|---|---|
| Blue Earth | 10 | 69 | 8 | 3 | 15 | 4 | 0 |
| Brown | 5 | 22 | 16 | 8 | 3 | 0 | 0 |
| Dodge | 23 | 36 | 3 | 8 | 0 | 0 | 0 |
| Faribault | 26 | 49 | 21 | 1 | 0 | 0 | 0 |
| Fillmore | 52 | 23 | 14 | 0 | 0 | 0 | 0 |
| Freeborn | 26 | 67 | 22 | 8 | 0 | 0 | 3 |
| Goodhue | 37 | 10 | 4 | 4 | 2 | 0 | 0 |
| Houston | 27 | 9 | 9 | 2 | 0 | 0 | 0 |
| Le Sueur | 7 | 37 | 3 | 5 | 4 | 1 | 0 |
| Martin | 11 | 7 | 13 | 1 | 1 | 1 | 0 |
| Mower | 20 | 37 | 3 | 0 | 5 | 0 | 0 |
| Nicollet | 17 | 31 | 6 | 0 | 0 | 0 | 0 |
| Olmsted | 13 | 13 | 0 | 1 | 0 | 0 | 0 |
| Rice | 22 | 76 | 4 | 7 | 6 | 0 | 0 |
| Sibley | 0 | 51 | 1 | 1 | 0 | 0 | 0 |
| Steele | 9 | 37 | 4 | 0 | 1 | 0 | 0 |
| Wabasha | 60 | 7 | 2 | 2 | 0 | 0 | 0 |
| Waseca | 6 | 38 | 5 | 0 | 0 | 0 | 0 |
| Watonwan | 11 | 4 | 7 | 2 | 0 | 0 | 0 |
| Winona | 24 | 14 | 5 | 0 | 0 | 0 | 0 |
| **Totals** | **412** | **637** | **150** | **54** | **37** | **6** | **3** |

**Southwest Region**

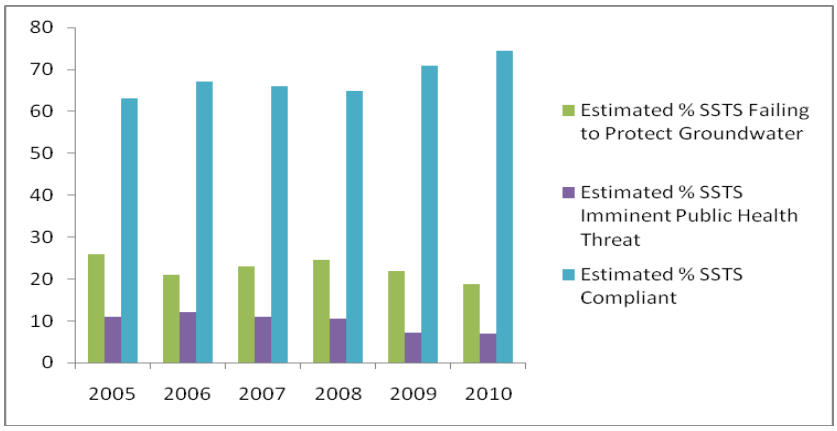
| County | Trench and Bed | Mound Systems | At-grade | Type II Systems | Type III Systems | Type IV Systems | Type V Systems |
|---|---|---|---|---|---|---|---|

| | Systems | | Systems | | | | |
|---|---|---|---|---|---|---|---|
| Big Stone | 5 | 8 | 4 | 1 | 0 | 0 | 0 |
| Chippewa | 6 | 8 | 6 | 0 | 0 | 0 | 0 |
| Cottonwood | 4 | 6 | 7 | 0 | 0 | 0 | 0 |
| Jackson | 8 | 8 | 16 | 0 | 0 | 0 | 0 |
| Kandiyohi | 45 | 61 | 3 | 19 | 0 | 0 | 1 |
| Lac qui Parle | 5 | 8 | 9 | 4 | 0 | 0 | 0 |
| Lincoln | 1 | 15 | 12 | 6 | 0 | 0 | 0 |
| Lyon | 1 | 23 | 27 | 4 | 0 | 0 | 0 |
| McLeod | 13 | 55 | 8 | 0 | 11 | 0 | 0 |
| Meeker | 29 | 47 | 5 | 6 | 10 | 1 | 0 |
| Murray | 10 | 20 | 6 | 0 | 0 | 0 | 0 |
| Nobles | 16 | 20 | 5 | 6 | 0 | 0 | 0 |
| Pipestone | 2 | 21 | 9 | 0 | 0 | 0 | 0 |
| Redwood | 0 | 28 | 17 | 10 | 0 | 0 | 0 |
| Renville | 21 | 29 | 11 | 0 | 0 | 0 | 0 |
| Rock | 20 | 6 | 2 | 1 | 0 | 0 | 0 |
| Swift | 14 | 5 | 0 | 3 | 0 | 0 | 0 |
| Yellow Medicine | 11 | 8 | 13 | 7 | 0 | 0 | 0 |
| **Totals** | **211** | **376** | **160** | **67** | **21** | **1** | **1** |

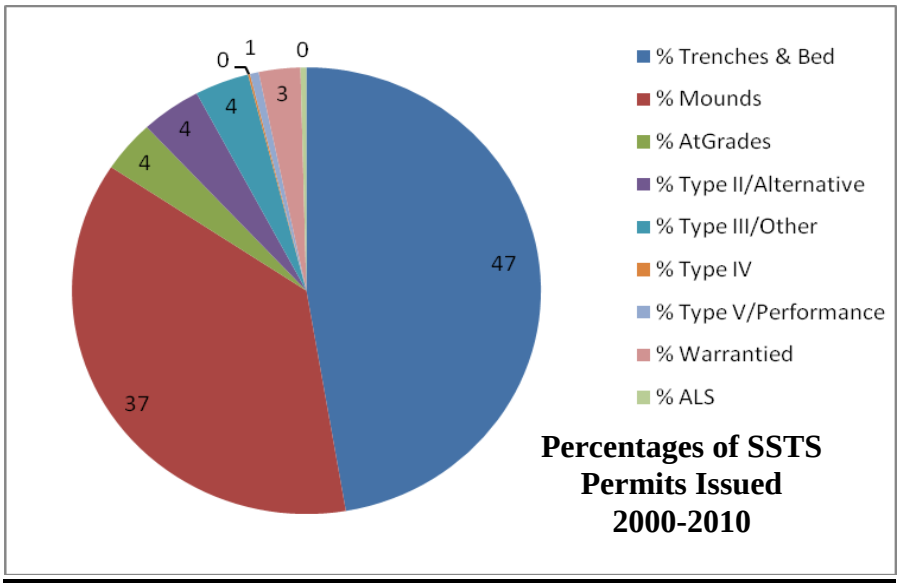
# Appendix B. General Statewide Trends

The 2005-2010 timeframe was selected for some of the following graphs in order to make them easier to read; data from 2000-2010 is readily available.

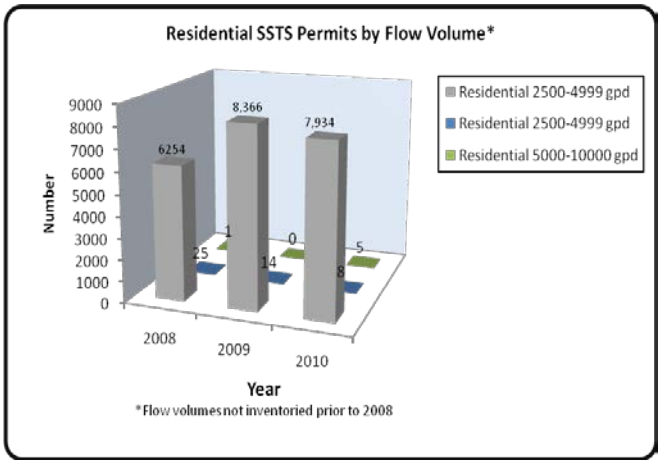
**Estimated SSTS Compliance Percentages:** SSTS compliance percentages have been increasing since 2005.

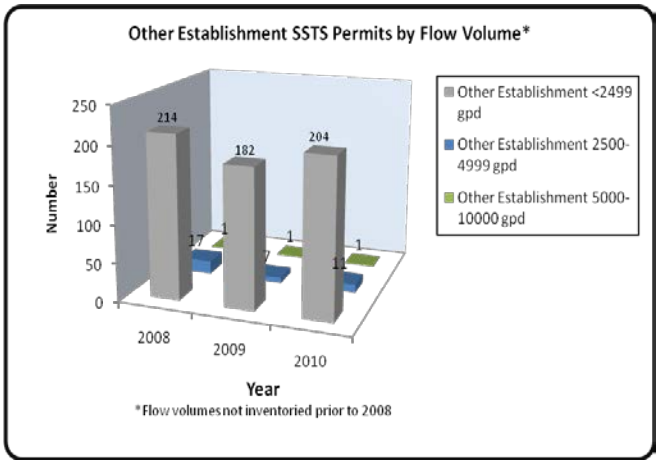



**Percentages of SSTS Permits Issued by Type:** In-ground trench systems (drainfield rock, gravelless pipe, chambers) and above-ground mound systems remain the majority of systems installed in Minnesota. Permitting of Type II and Type III systems each increased by 1% from 2009.

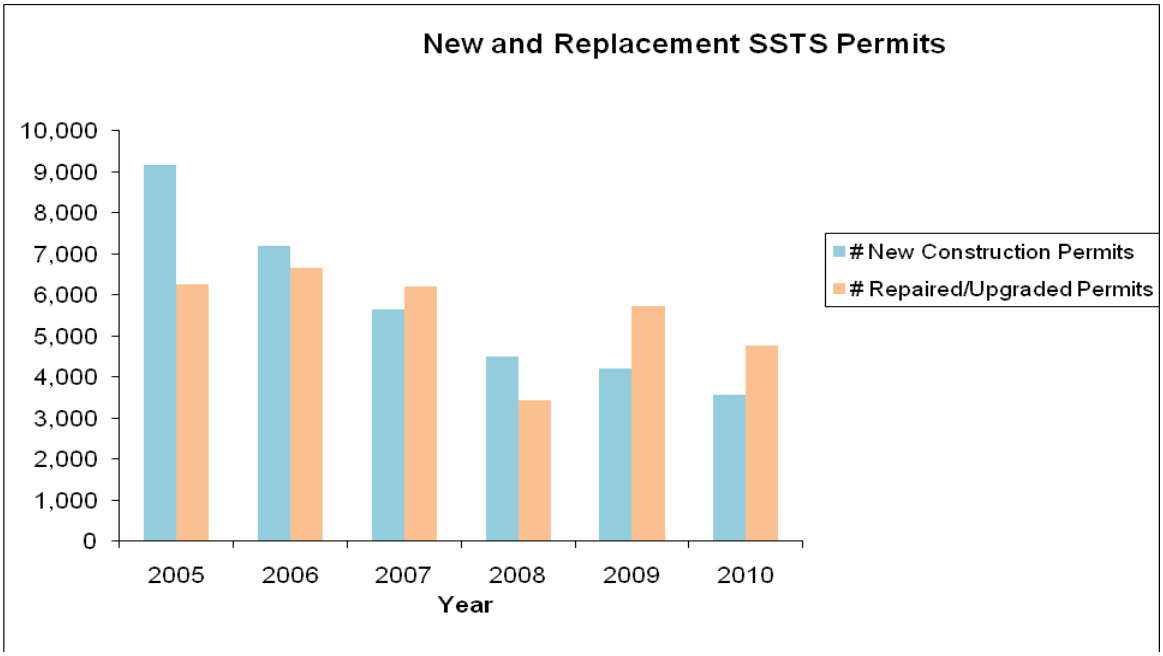



**SSTS Permits Issued by Flow Volume:** These graphs compare the number of SSTS (flows <5,000 gpd) and Midsize SSTS (MSTS, flows from 5,000-10,000 gpd) permitted since 2008. To date, the overwhelming majority of SSTS permits issued for residential and other establishment systems are for flow volumes less than 2499 gallons per day.

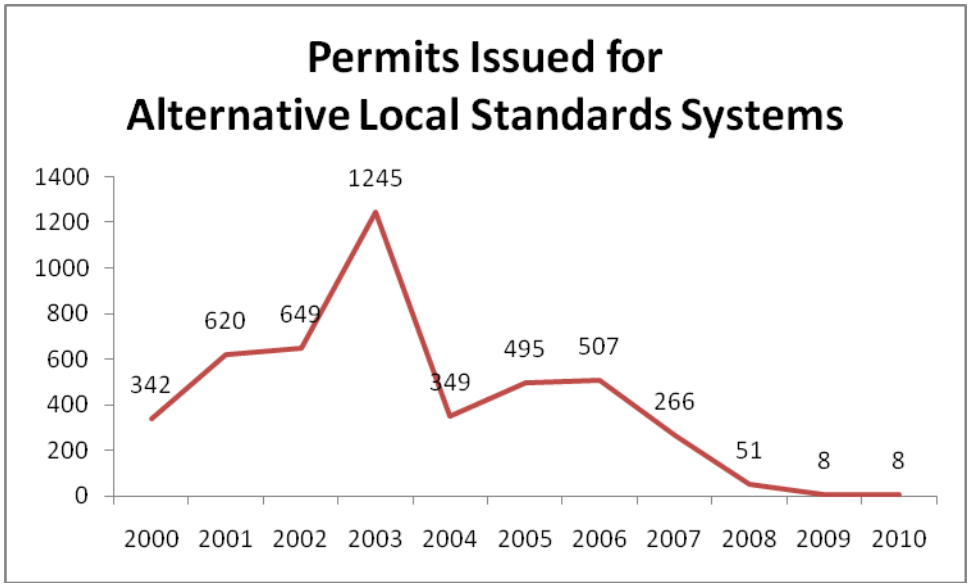


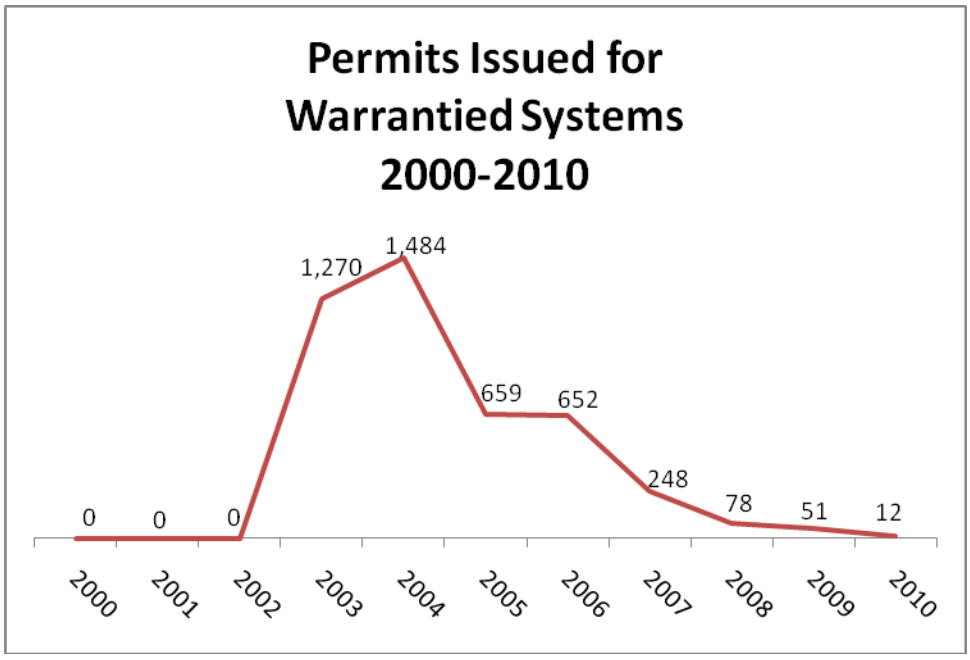

**New and Replacement SSTS Permits Issued 2005-2010:** New SSTS permits are generally triggered by new home construction; replacement permits by existing home remodeling or to meet local point of sale requirements. It is believed the reported numbers are reflective of the combined influence of these triggers.




**Alternative Local Standards Systems (ALS):** The numbers of ALS permits issued have been steadily decreasing since 2006. They remain an option, however as new treatment technologies continue to enter into the SSTS industry, it is expected ALS use will continue to decline.




**Warrantied Systems:** Warrantied Systems were first introduced in 1998 as another SSTS option; LGUs have the discretion to allow their use. As seen with ALS systems, there has been a steady decrease in the number of Warrantied Systems permitted in the last five years due to the influx of new treatment technologies.



# Appendix C. SSTS Annual Report Questions

**1. General Program Information**

a. Alternative Local Standards (ALS) for Existing Systems?
b. ALS for New/Replacement Systems?
c. Do you track SSTS Maintenance/Pumping?
d. Do you have a Septage Ordinance?
e. Do you have jurisdiction-wide Compliance Inspections for Property Transfer?
f. Do you have Compliance Inspections for Shoreland Properties Only?
g. Do you approve SSTS design before issuing permit?
h. When in your permitting process do you verify soils?

2. **Residential SSTS by System Type**

a. # permits issued for Type I/Rock Trenches
b. # permits issued for Type I/Gravelless Trenches
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/Alternative Systems
h. # Holding Tank Operating Permits Issued
i. # permits issued for Type III/Other Systems
j. # permits issued for Type IV/Registered Product Systems
k. # permits issued for Type V/Performance Systems
l. # Type V Operating Permits issued
m. # permits issued for Warrantied Systems
n. # permits issued for Alternative Local Standards Systems

**3. Residential SSTS by Flow Volume**

a. New Systems 1-2499 gpd
b. New Systems 2500-4999 gpd
c. New Systems 5000-10000 gpd
d. Replacement Systems 1-2499 gpd
e. Replacement Systems 2500-4999 gpd
f. Replacement Systems 5000-10000 gpd

4. **Other Establishment SSTS by System Type**
    a. # permits issued for Type I/Rock Trenches
    b. # permits issued for Type I/Gravelless Trenches
    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/Alternative Systems
    h. # Holding Tank Operating Permits Issued
    i. # permits issued for Type III/Other Systems
    j. # permits issued for Type IV/Registered Product Systems
    k. # permits issued for Type V/Performance Systems
    l. # Type V Operating Permits issued
    m. # permits issued for Warrantied Systems
    n. # permits issued for Alternative Local Standards Systems

**5. Other Establishment SSTS by Flow Volume**
    a. New Systems 1-2499 gpd
    b. New Systems 2500-4999 gpd
    c. New Systems 5000-10000 gpd
    d. Replacement Systems 1-2499 gpd
    e. Replacement Systems 2500-4999 gpd
    f. Replacement Systems 5000-10000 gpd

6. **Total # Permits Issued for all Systems** – Automatically calculated

7. **Permits Issued for SSTS Repairs**
    a. Residential SSTS Repairs
    b. Other Establishment SSTS Repairs

8. **Grand total SSTS Permits Issued –** Automatically calculated

9. **Jurisdiction-wide SSTS Questions:**
    a. # Fulltime Dwellings with SSTS
    b. # Seasonal Dwellings with SSTS
    c. # Cluster SSTS
    d. # Dwellings served by Cluster SSTS
    e. # Other Establishments with SSTS
    f. Total # SSTS – Automatically Calculated
    g. # Systems with Operating Permits - Automatically Calculated

10. **SSTS Compliance**:
    a. Percentage of Failing Systems within jurisdiction
    b. Calculated # of Failing – Automatically calculated
    c. Percentage of Imminent Systems within jurisdiction
    d. Calculated # of Imminent – Automatically calculated
    e. Percentage of Compliant SSTS within jurisdiction
    f. Calculated # of Compliant – Automatically calculated
    g. Total Percentage SSTS – Automatically calculated

**11. Inspector Information**
    a. Name of Department Head
    b. Name and email address of SSTS Contact
    c. Inspector(s) Name(s)
    d. License Numbers if inspections are contracted out to a licensed SSTS inspection business
    e. Certification numbers if inspections are done in-house by certified LGU staff

12. **Jurisdiction Information**
    a. Contact information for LGU(s) within the county with their own SSTS program

**13. Tank Installation Report**
    a. Installer Name
    b. Installer License Number
    c. Number of septic tanks installed
    d. Number of Performance/Type V systems installed
    e. Number of tanks installed by homeowners (if allowed by LGU)
        i. Name of homeowner
        ii. Address