

# Michigan 2011 State-Wide Failed Sewage System Evaluation Summary Report



June 2012



## **Introduction**

Calendar year 2011 represents the third year of failed system data collection by local health departments (LHDs). For the calendar year 2011, the major process change was the separation of residential and non-residential data collected by LHDs and submitted to the Department of Environmental Quality (DEQ) for summary.

In the fall of 2010, modifications to the failed system data collection process were formally adopted with support of LHDs to address each of these specific recommendations. These included:

- Development of a separate, two-page guidance document.
- A separate data collection form was established specific to non-residential systems.
- Modification of data collection forms reflective of the above suggestions.
- Modification of the DEQ database for data recording was completed to allow separate reports to be generated for residential and non-residential failures.

LHD accreditation reviews completed during the 2011 calendar year continued to identify instances where LHDs did not appropriately transition to the required data collection and submission process resulting in the indicator “Not Met”. The need for improved communications between the DEQ and LHDs and within the agencies themselves was recognized as the mechanism for statewide improvement.

## **Data Summary**

For 2011, the statewide failed system data has been summarized in two ways for residential and non-residential data. First, the total gross data received from each LHD is represented in numeric form for each data category. Secondly, the data is summarized in a graphical representation composed of histogram graphs reported in percentages.

Comparison of the residential data contained in this report compared to the 2009 and 2010 data shows a continued pattern of strong similarity between each data set collected yearly. The data continues reflect that failures, for the most part, are directly proportional to the number of installations meeting a specific parameter.

The first year for non-residential data collection has revealed some interesting patterns. First, 30% of the failures reported were for systems that failed in twenty years or less with 14.4% failing in less than 10 years. This compares to 13.1 % of residential failures occurring in 20 years or less. Although, it is difficult to draw conclusions on exactly what factors influence this disparity, it is the DEQ's belief that the higher waste strengths often associated with non-residential sources is a probable contributor.

Another observation drawn from the non-residential data is the number of failures occurring with a depth to water table of 24 inches or less. A total of 25% of all reported failures fell in this range. Again, it is the DEQs belief that increased waste strength is contributing to this failure category. It is easily understood that if a system is not designed and constructed properly, high groundwater elevations can decrease the movement of oxygen underneath the infiltrative surface greatly, causing premature system failures.

The review of 2011 data did not find any reported failures of alternative wastewater systems for both the residential or non-residential data sets. The higher degree of system oversight or just the luck of the draw are possible explanations for this result. By comparison, in 2010 there were 16 system failures with advanced treatment units and 13 were reported in 2009.

An initial meeting with the Michigan State University (MSU) Geographical Information Systems program was held in April of 2012. The topic of discussion was the utilization of failed system data to create an address level mapping layer of failed system data. This would allow for both local and state-wide trends to be identified and communicated clearly, thus making the data much more useful. In order to proceed with this process, LHD participation would be necessary. More specifically, LHDs utilizing the DEQ provided failed system database would need to provide their stored data to MSU. A discussion between DEQ and LHDs concerning voluntary participation is anticipated in the future.

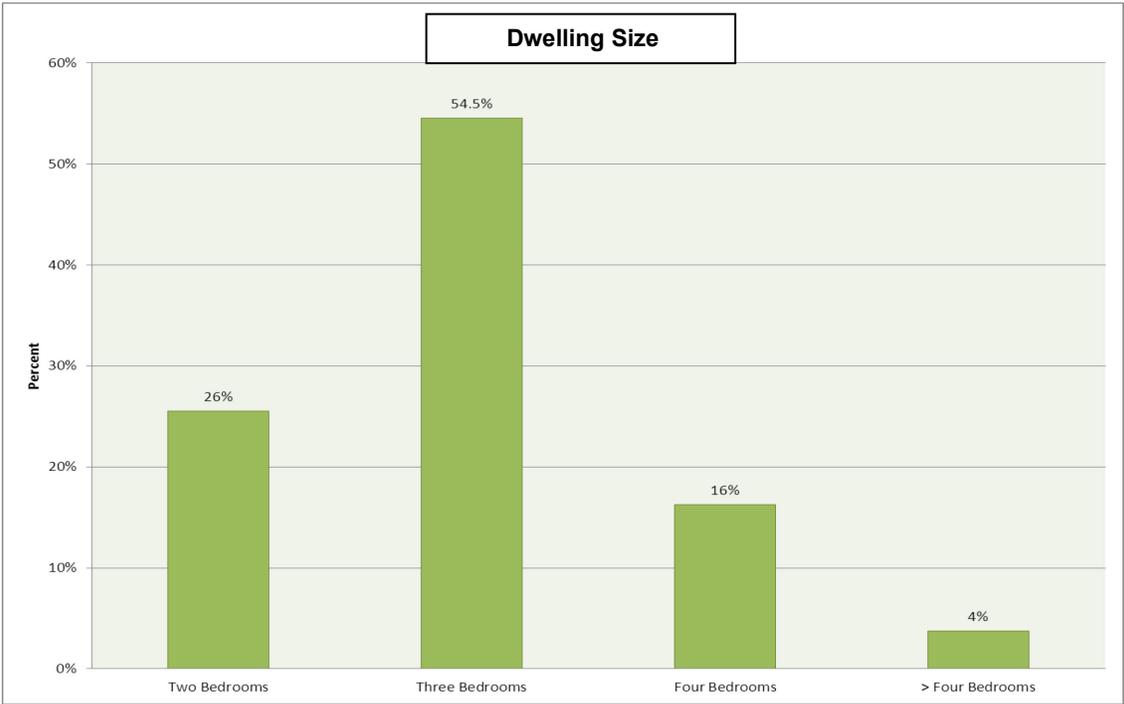
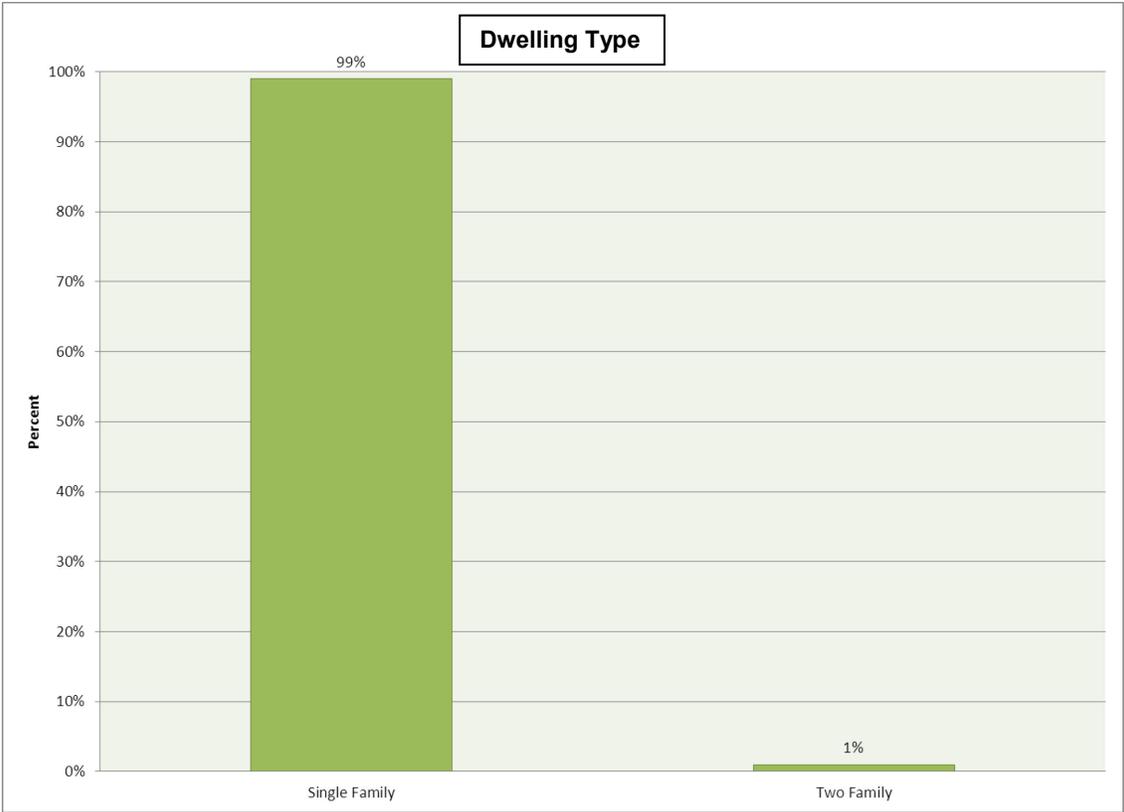
The total numbers of failures that were reported by each LHD in the State is show in Table 1. For the most part, the data reflects the population size served by the LHD. One exception is Washtenaw County, with 5 total failures reported. Staff contributes the lack of failures to their point of sale program and conservative system size requirements.

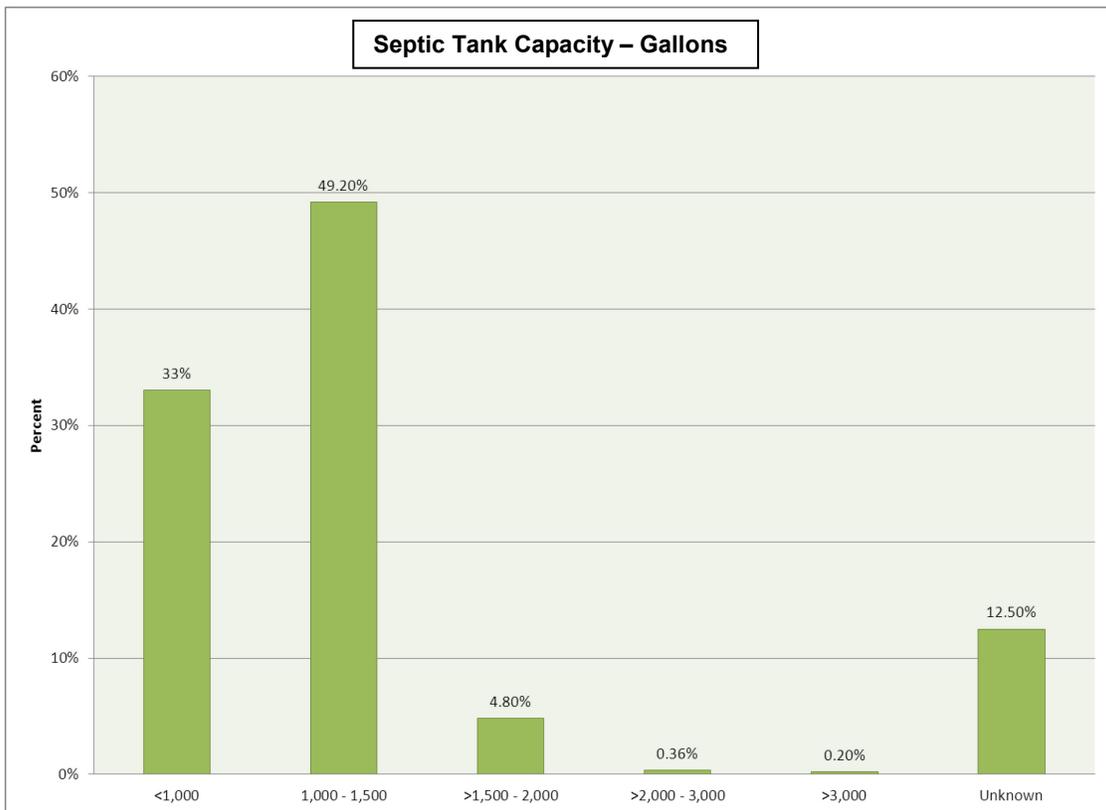
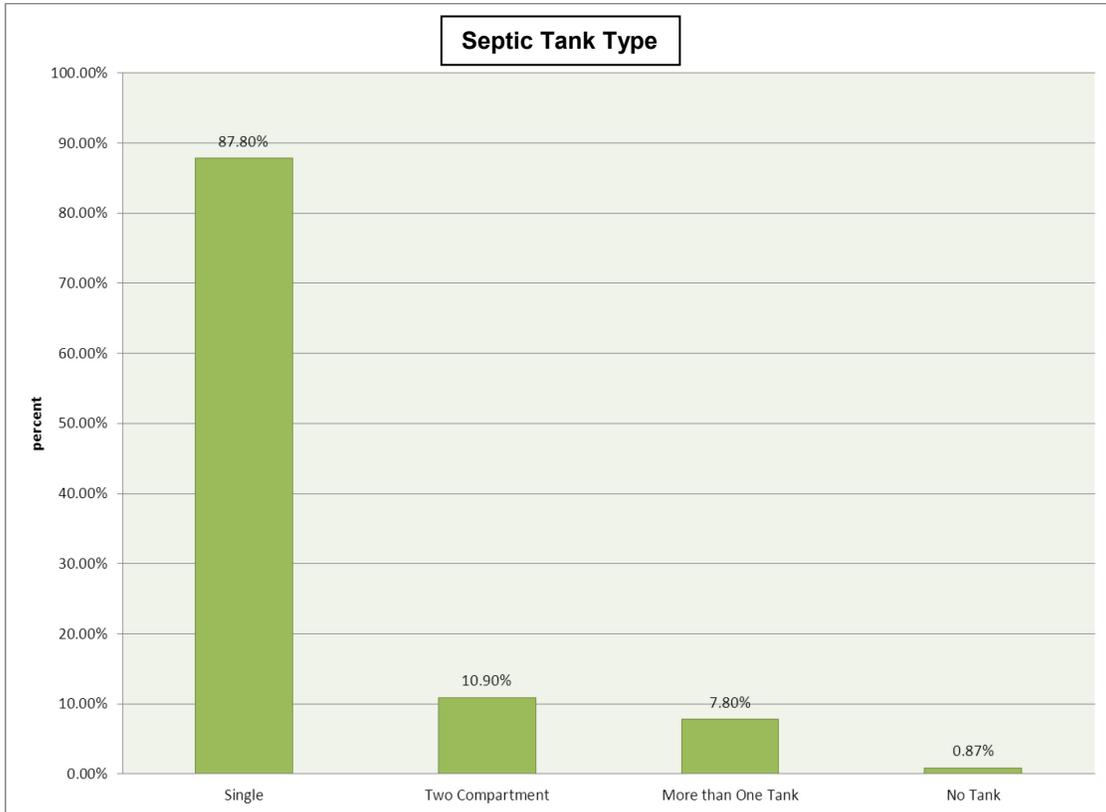
Overall, this process of collecting and reporting data for failed sewage systems is recognized as a success. While there are limitations to the amount of specific analysis that can be done with the state-wide compiled data, the main objectives to simplify the overall data collection and reporting, combined with warehousing the data all in one central location continues to improve consistency in the process.

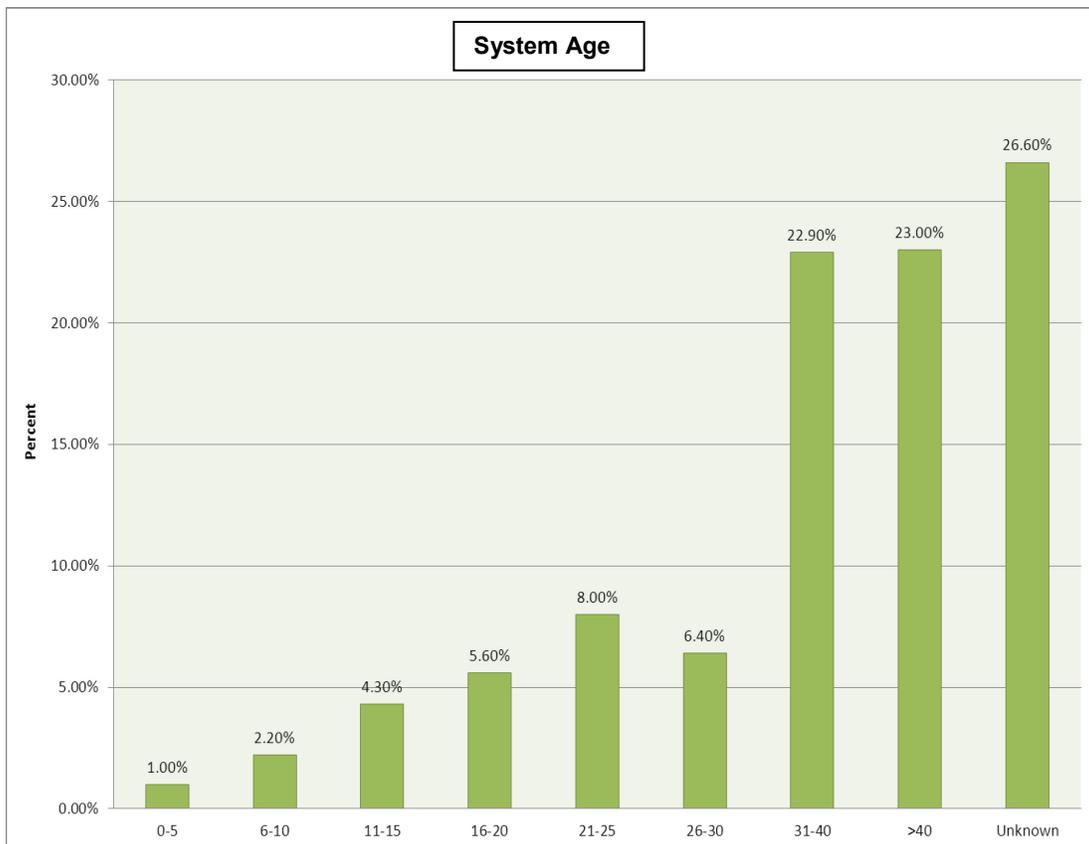
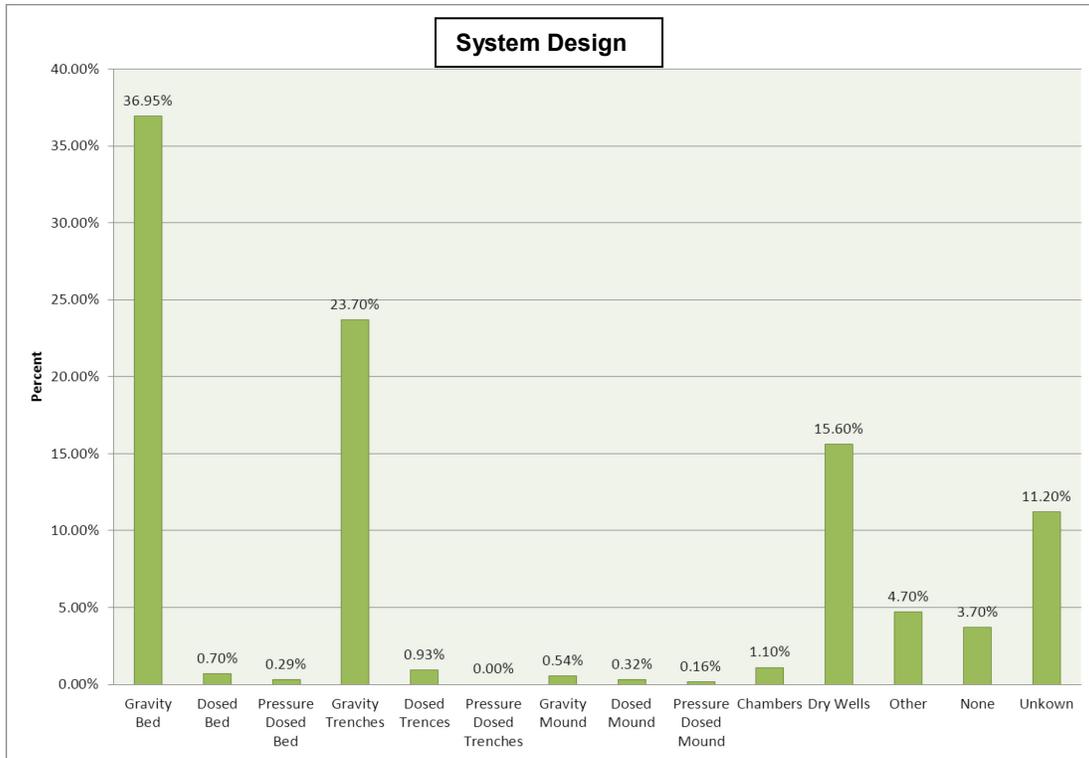
## Total Residential Failures by County

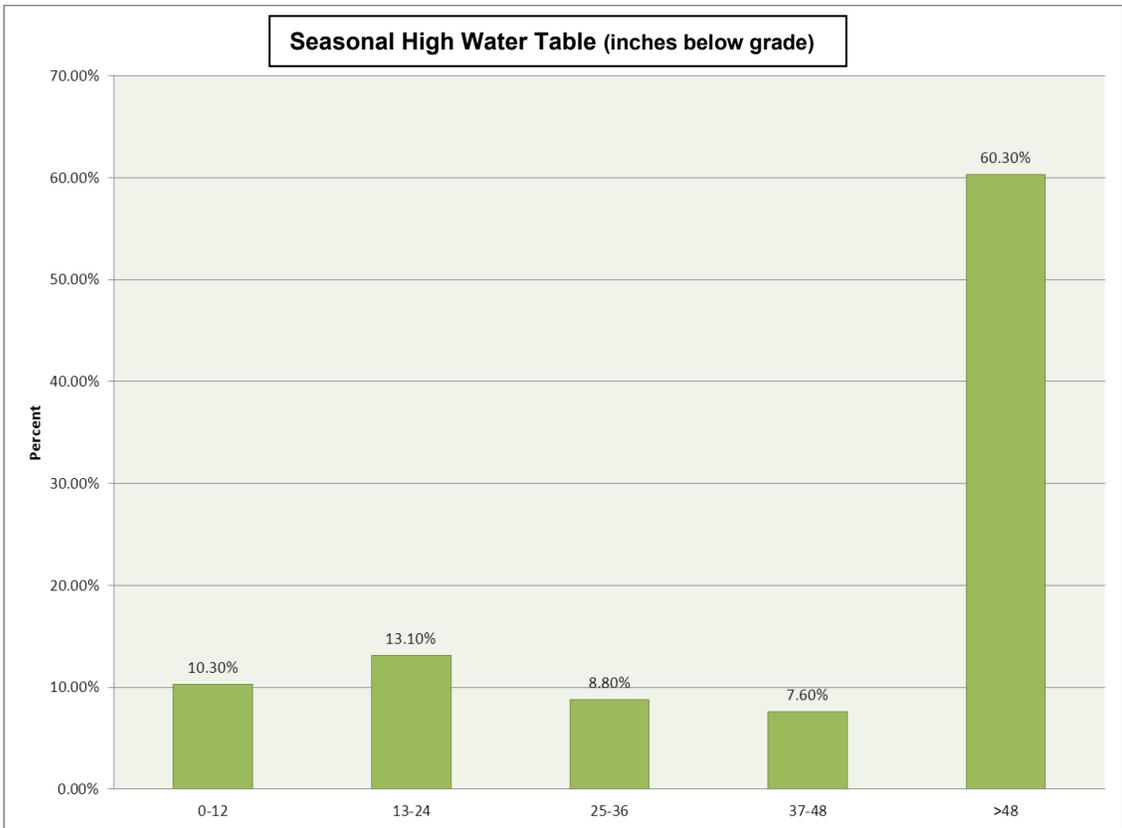
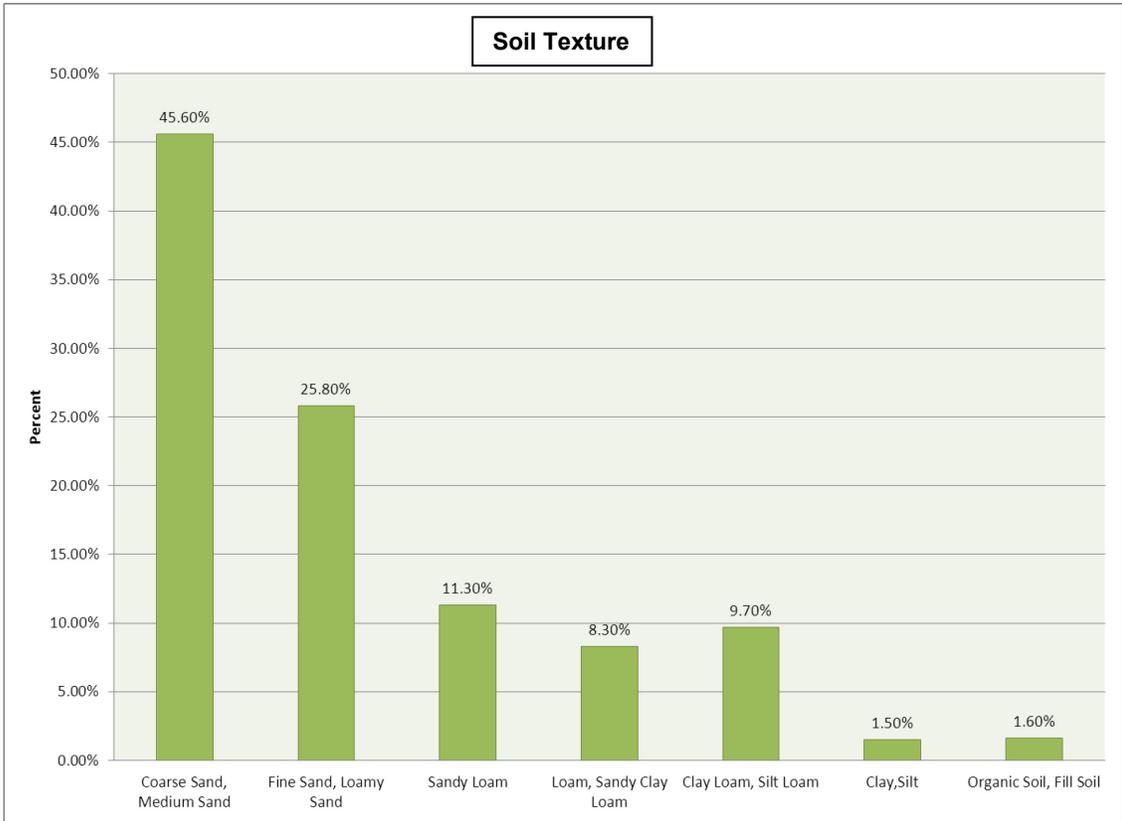
|                     | <u>Single Family</u> | <u>Two-Family</u> |
|---------------------|----------------------|-------------------|
| Allegan             | 43                   | 1                 |
| Barry-Eaton         | 132                  | 1                 |
| Bay                 | 27                   | 0                 |
| Benzie-Leelanau     | 49                   | 0                 |
| Berrien             | 145                  | 3                 |
| Branch-Hillsdale-SJ | 153                  | 1                 |
| Calhoun             | 172                  | 1                 |
| Central Mich.       | 430                  | 4                 |
| Chippewa            | 27                   | 0                 |
| Delta-Menominee     | 8                    | 0                 |
| Dickinson-Iron      | 25                   | 0                 |
| District # 2        | 43                   | 1                 |
| District # 4        | 2                    | 2                 |
| District #10        | 324                  | 1                 |
| Genesee             | 75                   | 0                 |
| Grand Traverse      | 63                   | 0                 |
| Huron               | 49                   | 0                 |
| Ingham              | 65                   | 0                 |
| Ionia               | 36                   | 0                 |
| Jackson             | 48                   | 0                 |
| Kalamazoo           | 116                  | 1                 |
| Kent                | 227                  | 2                 |
| Lapeer              | 49                   | 0                 |
| Lenawee             | 22                   | 1                 |
| Livingston          | 70                   | 1                 |
| LMAS                | 66                   | 0                 |
| Macomb              | 185                  | 1                 |
| Marquette           | 22                   | 0                 |
| Mid - Michigan      | 144                  | 0                 |
| Midland             | 105                  | 0                 |
| Monroe              | 53                   | 0                 |
| Muskegon            | 119                  | 0                 |
| Northwest Mich      | 207                  | 0                 |
| Oakland             | 407                  | 3                 |
| Ottawa              | 228                  | 2                 |
| Saginaw             | 61                   | 1                 |
| Sanilac             | 44                   | 0                 |
| Shiawassee          | 87                   | 16                |
| St. Clair           | 91                   | 0                 |
| Tuscola             | 31                   | 0                 |
| VanBuren-Cass       | 90                   | 0                 |
| Washtenaw           | 4                    | 1                 |
| Wayne               | 12                   | 0                 |
| Western UP          | 53                   | 0                 |

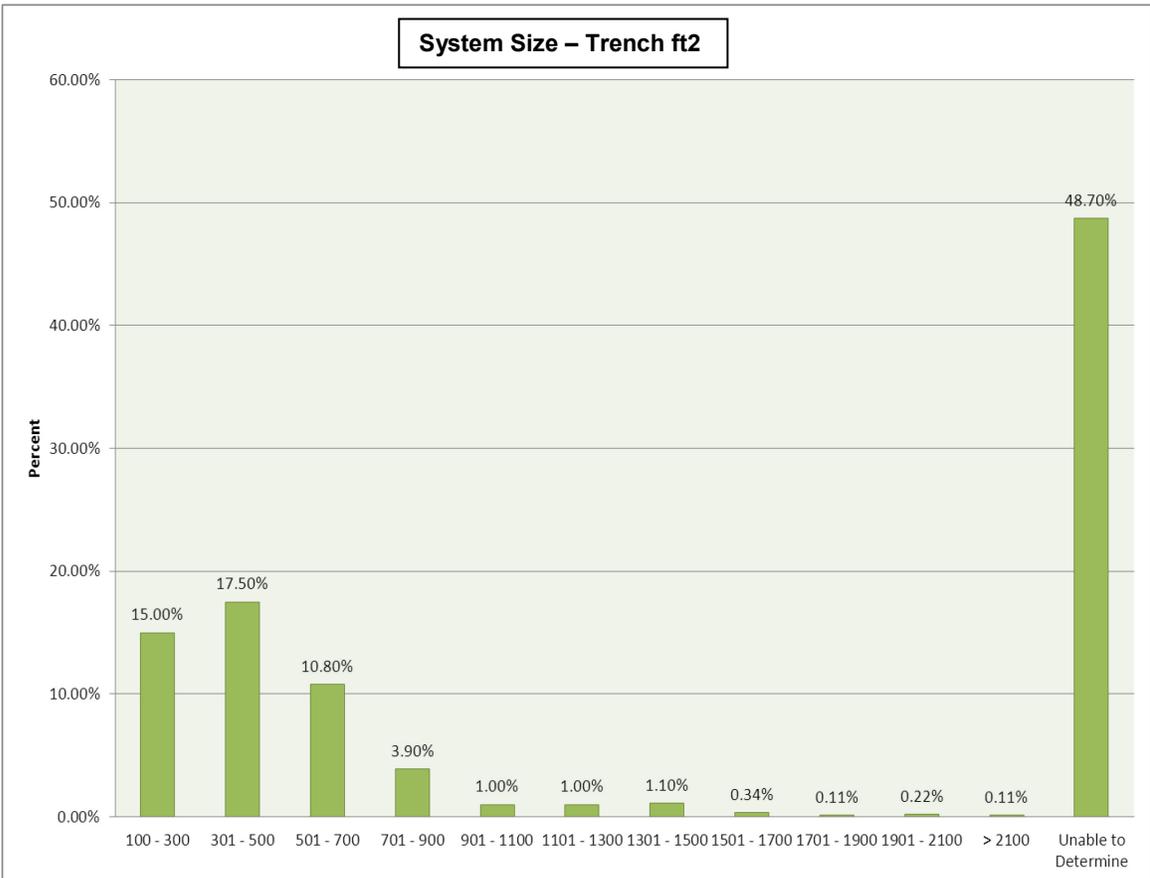
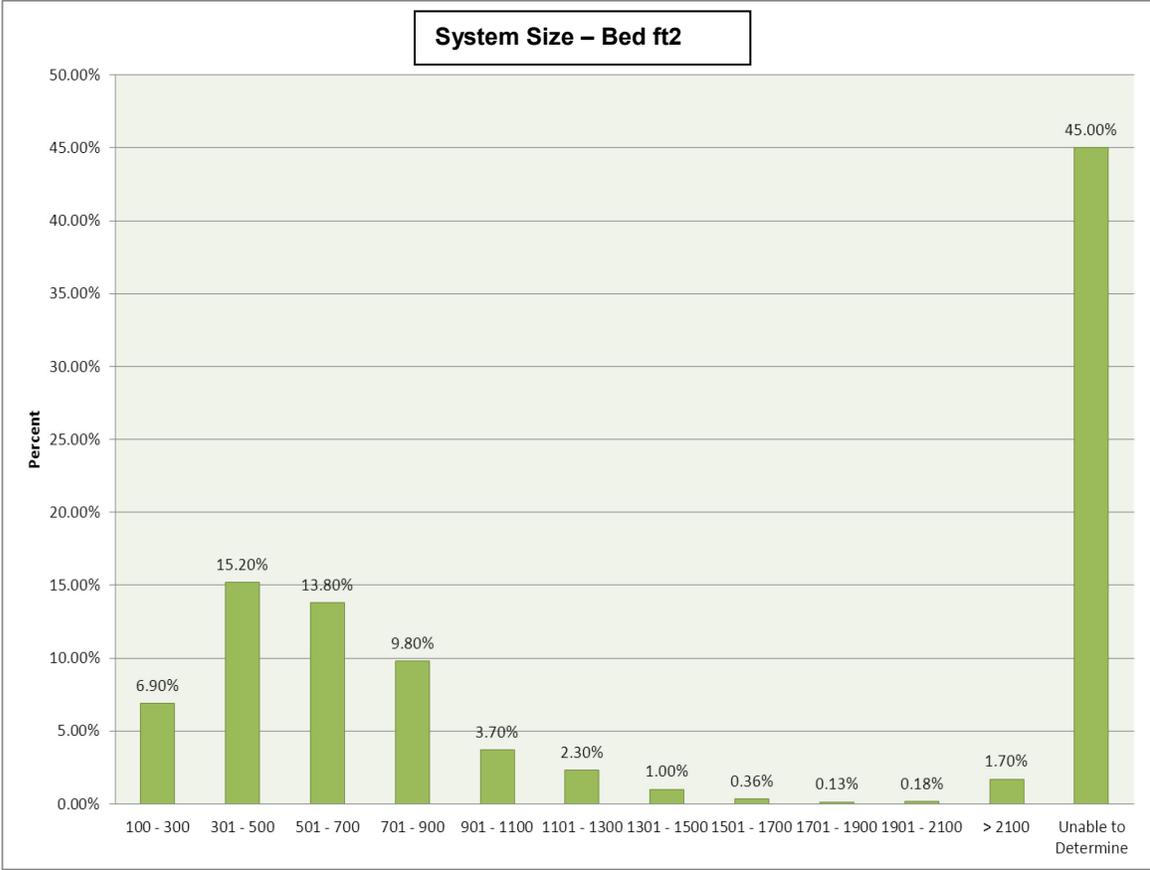
# Residential Data Summary

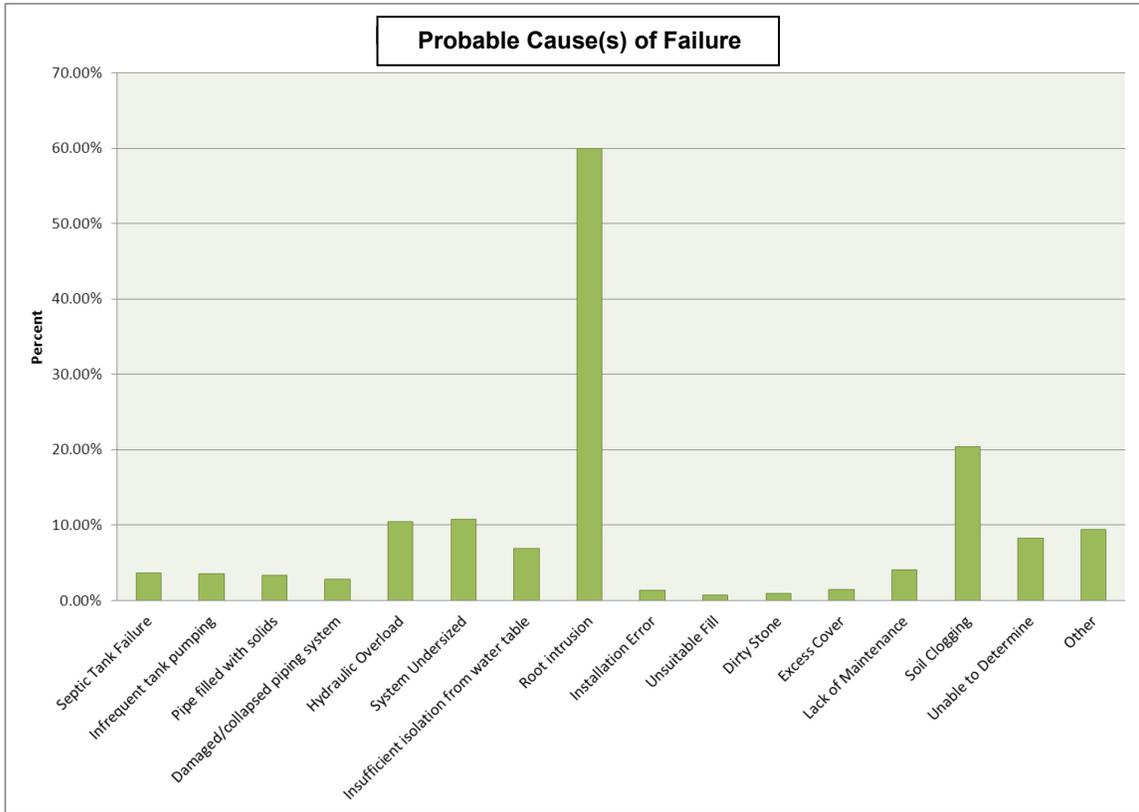












# Non-Residential Data Summary

