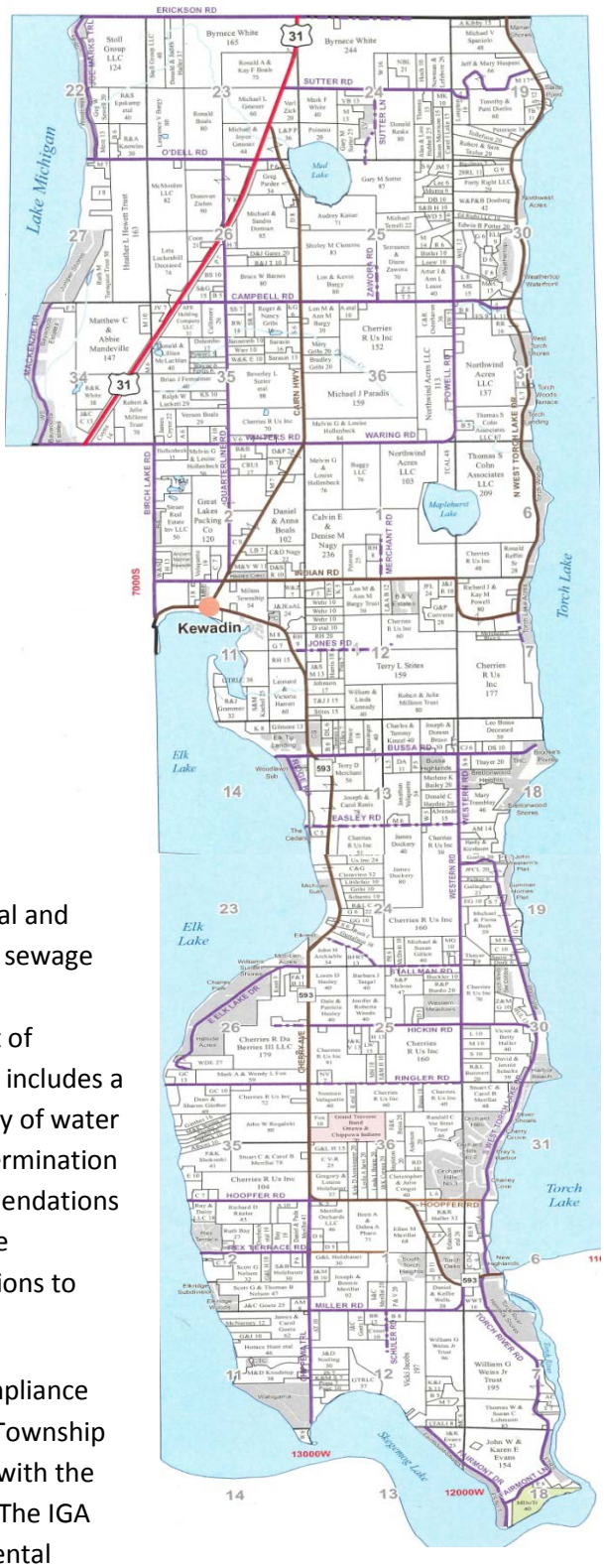
MILTON TOWNSHIP - TIME OF TRANSFER (TOT)

2016 Annual Report

"Protect public health and to prevent or minimize the degradation of groundwater and surface water quality by malfunctioning sewage treatment and disposal systems (STDS) and to assure safe water supplies".

HEALTH DEPARTMENT of Northwest Michigan

Introduction



Milton Township, located in Antrim County, is a sensitive ecological region due to the vast water resources of Lake Michigan, Elk Lake, Lake Skegmog, and Torch Lake. The richness of these water sources are a driving force behind the local economy, and the protection of these resources are critical to the area.

On October 8, 2012, Milton Township took an important step in the recognition of these resources by adopting the Septic Inspection and Property Transfer Ordinance (commonly referred to as Time-Of-Transfer (TOT) or point-of-sale (POS)). The adoption of this Ordinance was driven by the desire to protect these natural resources, to provide information to owners and purchasers of properties using on-site water and wastewater systems, and to raise awareness of ways to improve and extend the life expectancies of on-site systems.

This is accomplished through evaluations of residential and commercial on-site water supply systems and on-site sewage treatment and disposal systems (STDS) by trained Environmental Health staff of the Health Department of Northwest Michigan. The resulting evaluation report includes a detailed assessment of the condition and functionality of water and wastewater facilities serving the property, a determination of compliance with relevant regulations, any recommendations to improve existing systems and, where threats to the environment or human health exist, required corrections to mitigate environmental and public health impacts.

In order to assure consistency of inspections and compliance with the federal, state, and local regulations, Milton Township entered into an Intergovernmental Agreement (IGA) with the Health Department of Northwest Michigan (HDNW). The IGA establishes a relationship between the two governmental entities and clearly defines the roles of each in executing the Ordinance. Outside of inspection activities, HDNW has an ongoing obligation to provide Milton Township with a report of its findings on an annual

basis. Annual reporting is intended to keep the Township informed on the outcomes of the evaluation process and to discuss where improvements can be made to the program.

Section I, Subsection A (2.) of the IGA states that HDNW is responsible for:

*"providing the Township with an annual report, at no cost to the Township, regarding the number of evaluations conducted in the Township the preceding year and the number of evaluations that failed to meet the standards of Section 5 and 7 of the Ordinance."*Section 5 of the Ordinance covers STDS evaluations required and exemptions, and Section 7 covers the evaluation application and fee.

This document serves as the 2016 annual report for the Milton Township TOT Ordinance, satisfying Section I of the IGA, and providing information beyond that required under the Ordinance in an effort to offer a more comprehensive understanding of the program, and its outcomes and recommendations for enhancement of data collection and program improvement.

Method

In 2016, the fourth year since the enactment of the Ordinance, 46 properties were evaluated. Since the implementation of the Ordinance in October 2012, a total of 189 evaluations have been performed by HDNW in Milton Township. Prior to sale or transfer, all properties in Milton Township must have a TOT evaluation unless one of the following conditions is met:

- a new STDS has been installed within the past 10 years
- the STDS has been evaluated within the past 5 years and found to be functioning properly
- the seller meets the requirement for an exemption under Section 5

When conducting evaluations, Environmental Health staff inspect the water supply system(s) and wastewater system(s) serving the property. Water supply systems are evaluated by determining compliance with Michigan's Water Well Construction and Pump Installers Code *(Part 127 of Act 368, PA 1978)*, the District Sanitary Code, and Michigan's Safe Drinking Water Act, *(Act 399 of Act 368, PA 1978)*. Water samples are collected and analytical results are compared against the Environmental Protection Agency (EPA) drinking water quality standards. Items of noncompliance are identified and required to be upgraded if the deficiency poses an imminent public health threat to those using the water supply system for potable use.

The sewage treatment and disposal system evaluation consists of determining the location, size, and condition of the existing septic tank(s), locating the existing drainfield and documenting the system design, size, and functional status, conducting a soil analysis, determining the seasonal high groundwater elevation, isolation to surface water(s), and future replacement options. These data, along with other requirements under the District Sanitary Code, are used to determine existing and future compliance with the Code with respect to the on-site systems.

Together, the information gathered for the water supply and wastewater systems are used to develop a comprehensive report and site plan, documenting existing facilities and indicating the compliance status

of these systems. Additionally, all reports are concluded with one or more of the three following categories:

> **Required Action** – Where items of non-compliance pose a direct threat to the environment and/or public health.
>
> **Recommended Action** – Where the enhancement of existing systems could bring systems into compliance, extend the life expectancy of systems, enhance the ability to maintain systems, increase the safety of systems, or reduce impacts to the environment.
>
> **Restricted Future Use** - Where the site is non-conforming and any future improvement of the property would require the use of an off-site location for wastewater disposal.

Discussion and Results

In January of 2017, a revision to the 2007 Sanitary Code was passed. In the 2017 Code change, several changes in Code requirements and definitions could possibly impact evaluation outcomes of this Ordinance. Most notably, the definition of **failure** has been changed to state, "Where the drainfield aggregate of a sewage treatment and disposal system has hydraulically saturated or effluent from a sewage treatment and disposal system is exposed to the surface of the ground, backing up into a structure, or is permitted to drain onto the surface of the ground or into any lake, river, storm sewer or stream, or where the seepage of effluent is endangering a public or private water supply or where a public health nuisance is created by a system improperly constructed or maintained."

When reviewing results of the water and wastewater inspections, it is important to note that the District Sanitary Code has undergone several revisions since 1964. Sanitary Code changes impact regulatory approval criteria for properties, design, and construction requirements and can change the compliance status of water and wastewater systems. This is important to understand as many systems were installed lawfully under previous codes and regulations; non-compliance with current regulations does not imply that these systems are creating public health threats or environmental impairments. The strength of the evaluation process is to determine the functional status of existing systems and the potential future use of the property. Where existing systems are found to meet the definition of failure, a replacement septic permit will be required. If a replacement septic permit is not applied for, HDNW will enter into enforcement actions until the system has been replaced or an alternative solution has been identified.

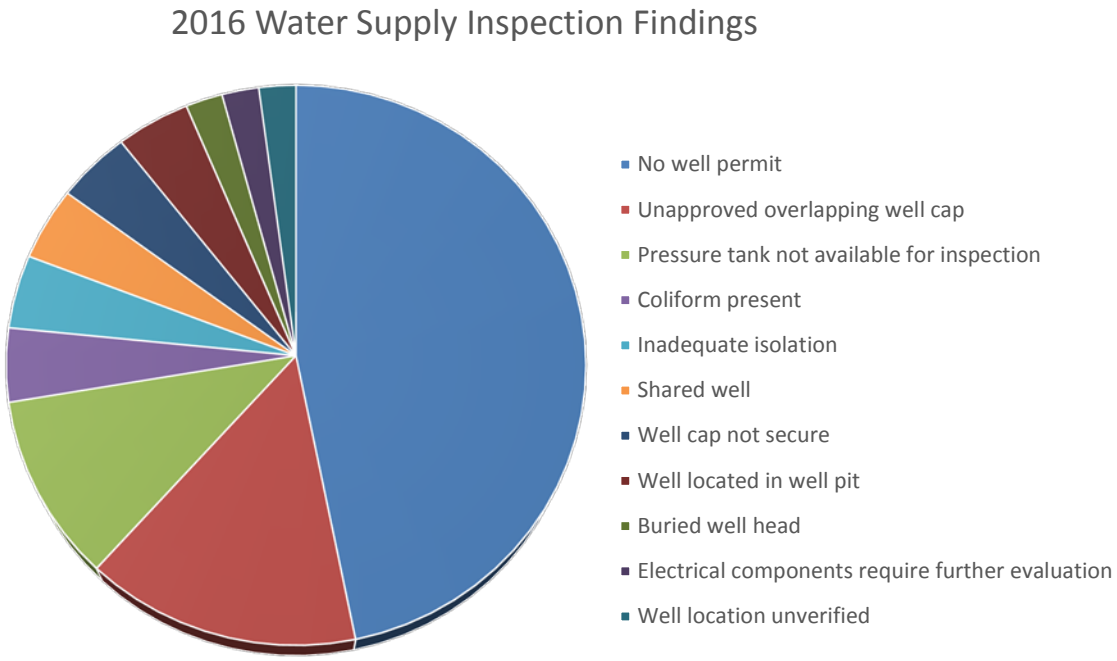
The changes in the District Sanitary Code impact both on-site water supply and on-site sewage treatment and disposal systems. One of the code changes over time is an increase in absorption area required per bedroom. With the introduction of these new requirements, most of the systems installed prior to 2007 do not meet current Code requirements. A water supply or wastewater system is only required to come into full compliance with the Code at the time changes of use are proposed to the home, most notably with living space additions or complete replacement and reconstruction activities.

Water Supply Systems

In 2016, 46 water supply systems were evaluated. Evaluations consist of a file review to determine whether the systems were installed under a permit through the Health Department, if there is a well log detailing the installation of the well, if the well is properly isolated from potential sources of contamination, if the construction of the well and pumping equipment meets State requirements, and includes the collection of a bacteriology and partial chemistry water quality samples. Table 1 shows the findings of the evaluations.

Table 1: Results of 2016 Water Supply Evaluation

Finding	Number of Cases	Percentage of Total
No well permit	22	47.8%
Unapproved overlapping well cap	7	15.2%
Pressure tank not available for inspection	5	10.9%
Coliform present	2	4.4%
Inadequate isolation	2	4.4%
Shared well	2	4.4%
Well cap not secure	2	4.4%
Well located in well pit	2	4.4%
Buried well head	1	2.2%
Electrical components require further evaluation	1	2.2%
Well location unverified	1	2.2%



When reviewing compiled water sample results, it was determined that nitrates ranged from <0.1 to 10.95 parts per million (ppm). The Environmental Protection Agency (EPA) has established a Maximum Contaminant Level (MCL) of 10ppm for nitrates in drinking water, which was exceed in only one (1) of the water samples. Coliform bacteria were present in two (2) of the bacteriology samples collected, and both water supplies tested negative in follow up samples, following chlorination and/or flushing the system.

In five (5) of the homes, the pressure tank and associated water well plumbing was not available for inspection. In the majority of these cases, the pressure tank was located in the crawl space and was not accessible for inspection without an undue burden on the homeowner/realtor to make the crawl space accessible. Overall, the majority of pumping equipment, pressure tanks, and water plumbing inspected appear to be in good working condition.

Wastewater Systems

In 2016, 46 wastewater systems were evaluated. The evaluation included a record search and an assessment of the various components of the system, including any of the following; septic tank(s), pump chamber(s) and components, dry wells, block trenches, conventional trenches, drainbeds, elevated systems (mounds), off-site systems, or advanced treatment systems. Inspections included determinations of horizontal and vertical isolation compliance with the District Sanitary Code, evaluation of soil conditions, and the functional status of the system at the time of inspection. Table 2 shows the findings of these evaluations.

Table 2: Results of 2016 STDS Evaluation

Finding	Number of Cases	Percentage of Total
Drainfield undersized compared to current Code	26	56.5%
Tank not available for inspection	21	45.7%
No septic permit on record	17	37.0%
Recommend high water alarm	10	21.7%
Recommend riser over pump chamber	9	19.6%
Recommend trim/remove vegetation over field	8	17.4%
Future use requires property line survey	6	13.0%
Seasonal high groundwater non-compliant	5	10.9%
Drywell	3	6.5%
Inlet of septic tank uncovered	3	6.5%
Non-conforming site	3	6.5%
Soils not in compliance	3	6.5%
Surface water isolation non-compliance	3	6.5%
ATS required if change of use	2	4.4%

Drainfield not located or identified	2	4.4%
Community drainfield	1	2.2%
Drainfield in state of failure	1	2.2%
Legal easements questionable	1	2.2%
Part of drainfield in road right of way	1	2.2%
Verify tank integrity	1	2.2%

Of the wastewater systems evaluated in 2016, 17 of the 46 (37%) were found to have no records of permitting or installation. Of the systems where records exist, the average age of systems evaluated was 20 years. Assuming the systems without records represent those that were installed prior to the first sanitary code in 1964, the continued operation of these systems would suggest that these systems are greater than 50 years old. Historically, many of the properties evaluated have experienced only seasonal use, thus being used at a fraction of their system design capacity. Other potential explanations for the lack of information may be the result of poor record keeping or systems installed without permitting. In these cases, it is impossible to accurately determine the age of the system.

The graph below shows the 2014 distribution of failed systems, by system age, for the state of Michigan. This data was compiled by the Michigan Department of Environmental Quality (MDEQ) and represent failed system reporting from 44 Local Health Departments (LHDs).

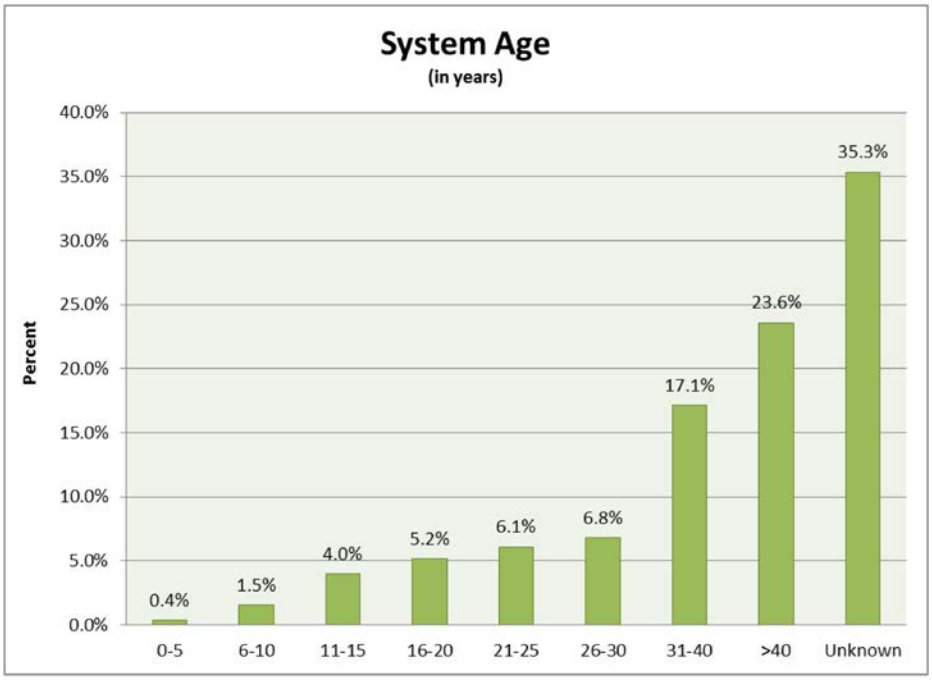


Figure 1: Statewide Age Ranges of Failed Systems (2014)

The high number of septic tank outlets that were not uncovered for inspection is primarily due to two factors. First, if the septic tank has been pumped within five (5) years of the evaluation, the septic tank is not required to be pumped again. Very few of the septic tanks pumped within this five (5) year span were available for inspection. Second, the inlet of the septic tank was left uncovered more often than the outlet lid, which does not allow for a complete evaluation of the outlet baffle and filter (if present).

In 26 of the 46 evaluations (56.5%), the existing STDS was undersized for the home. This can be attributed to several different factors with the primary factor being the changes in the Sanitary Codes. In addition, several of the homes had an increased number of bedrooms from when the system was originally permitted. And finally, several of the systems were not adequately sized for the soil conditions found on-site, at the time of inspection.

Of the 46 home sites evaluated in 2016, 28 of the homes (60.9%) were waterfront properties, which have a greater chance of potentially contaminating surface water and have higher seasonal groundwater levels. Eight (8) of the evaluated systems were improperly isolated from groundwater and/or surface water and, of these eight (8) sites, seven (7) of them were waterfront lots. In many of these cases, the groundwater elevation noted on the original permit differs from what was measured on-site. Overall, HDNW has found that groundwater and surface water levels have been increasing in the past several years compared to the last decade. In addition, several of evaluated STDS could have been replacement systems. If an existing home is present, a replacement system can be issued with variances to groundwater and surface water levels if strict compliance with the Code cannot be met.

Table 3: Number of Required, Recommended, and Restricted Actions

Finding	Number of Cases	Percentage of Total
Required	0	0%
Recommended	21	45.6%
Restricted	4	8.7%
See additional notes	3	6.5%

Overall, 21 (45.6%) of the homes evaluated had associated recommendations to extend the life expectancy of the on-site systems (Table 3). These recommendations ranged from installing a high water alarm to alert homeowner of pump failure, to trimming vegetation to reduce root intrusion into the drainfield, and installing risers on septic tanks and pump chambers for ease of maintenance. Specific recommendations were made for each home evaluated, along with a general comment for all homes that HDNW recommends pumping the septic tank every 3 to 5 years. The recommended pump-out for STDS maintenance was not commonly known among homeowners and regular pump-outs can help maintain longevity of the system.

Out of the 46 evaluations conducted, four (4) sites (8.7%) had restricted future use (Table 3). In these cases, there were site factors that did not allow the expansion of the existing home or replacement of the home without a suitable off-site drainfield location. The site factors included high groundwater conditions, unavailable isolation to surface water, and a lack of suitable drainfield area located on-site.

The restricted future use of the site provides information for the buyer and seller and is only relevant when changes to the use of the existing home are proposed. Typically, this category is used when the existing home and STDS are operationally functional and there is no requirement to upgrade or replace the system at the time of evaluation.

Regarding functional status, the majority of homes inspected under this Ordinance are not year-round, full-time residences. That is an important factor in determining functionality of the existing wastewater disposal system. Many of the homes inspected had not been occupied for quite some time, or had only seen seasonal, weekend occupancy for the life span of the septic system. A full functional analysis of the STDS cannot be completed for a system that has not been utilized under normal operating conditions, or has not seen peak demand use.

Program Improvement

Since the inception of the program in October of 2012, several changes to the reporting, fees, and availability of information has been made by the Health Department. First, the evaluation has been broadened to include not only the water supply/sewage disposal evaluation checklist, but also a sketch of the property with dimensions to on-site system locations, and a customized report that covers water supply, septic, future use of the property, and any recommendations to improve either on-site system. Most recently, the report has included a statement that the average life expectancy of on-site wastewater systems across the state is 25 years and that this Department cannot guarantee the functionality of the system. While the majority of the STDS inspected did not have any signs of failure, many of the homes are vacant or are only used seasonally. It is the intent of the life expectancy and functionality statement to highlight the fact that while the STDS is functioning adequately at the time of the inspection, that this Department cannot guarantee the system will function in a trouble free manner once the home is occupied. Any recommendations to extend the life expectancy of the system are noted on the report.

In addition to the report, other changes to the program include the bacteriology re-sample fee, a FAQs brochure, and a webpage on HDNW's website. As of 2016 a $70 fee (including a bacteriology water sample) has been charged to collect a repeat water sample in the case of an initial coliform or *E. coli* positive sample. In the majority of the evaluations, the first water sample is non-detect for coliform bacteria and a repeat sample is not required. All efforts are made at the initial water sample collection to minimize the chance of contamination.

While this Ordinance is going into its fifth year, there is still some misinformation or lack of information regarding what the Ordinance is and what the Health Department is responsible for and requires at the time of evaluation. Due to many frequently asked questions regarding the TOT, a brochure has been created and is available online and in HDNW offices that explains the evaluation is not pass/fail, and the process and procedures of the evaluation. In addition to the brochure, information regarding the TOT can be found online at http://www.nwhealth.org/tot.html. With the creation of the brochure and

webpage, realtors, homeowners, and buyers can access the information and plan their TOT evaluation and closing date accordingly.

In an effort to enhance the evaluation process, HDNW will be utilizing geographic information systems (GIS) in 2017 to create overlays of collected data. Data collection and mapping efforts will develop resources for HDNW, Milton Township, and make information available to the public. Information such as system location, system age, water quality, systems with/without permits, seasonal high water table elevation, soil characteristics, and other data could be used to generate a variety of maps. Mapping efforts could be used to determine vulnerabilities with respect to ground and surface waters, and to understand where there are data gaps that should be explored.

Conclusion

Over the past four years, the evaluation and evaluation process has been generally well received by buyers, sellers, and realtors. While very few required actions have resulted from the inspections, the TOT Ordinance has helped raise awareness regarding the installation, use, operation and maintenance of on-site systems. Homeowner education has been one of the positive outcomes of the Ordinance and evaluation findings serve as a broad indicator of the overall status of on-site systems in Milton Township.

Beyond the status of existing water and wastewater systems, the determination of compliance with the current District Sanitary Code and the future uses of the property has put relevant information in the hands of buyers and sellers. On some sites, the existing structure cannot be replaced or added on to due to non-compliance of the property, with respect to current regulatory requirements. This information is critical to buyers wanting to establish a home in Antrim County, and it also encourages the home to be advertised and priced accordingly. One local realtor commented, *"The Ordinance has been well received in my opinion by buyers and sellers. . . . .Sellers are ok with the process as long as it's not brought up at the last minute and buyers generally like the idea since it puts the burden on the sellers."*

In addition to property owner and buyer benefits, Milton Township and HDNW have also benefited by having a better understanding of how existing systems are functioning and what impacts they are having on public health and the environment. The on-site systems evaluation findings indicate that there are relatively low rates of on-site septic system failures with life expectancies that commonly exceed statewide averages, and on-site water supply systems are largely compliant with state regulations and are providing safe water for domestic uses. While the District Sanitary Code serving Antrim, Charlevoix, Emmet, and Otsego counties is one of the more restrictive Sanitary Codes in the state, it appears that the Code encourages system longevity and minimizes impacts to public health.

The success of the Milton TOT Ordinance relies heavily on collaboration between township officials, HDNW staff, realtors, land surveyors, and homeowners and would not achieve the same effectiveness without strong community support.