

# **MANAGEMENT OF ONSITE SEWAGE DISPOSAL SYSTEMS: A COMPREHENSIVE APPROACH**

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## **INTRODUCTION**

Management of onsite sewage disposal systems (OSDS) is important if OSDS are to be considered a sustainable, safe method of sewage disposal. For watersheds, management of OSDS is important to protect public health and to meet water quality standards.

The Rouge River National Wet Weather Demonstration Project (Rouge Project) has brought communities together to take a comprehensive approach to achieving the goals of the Remedial Action Plan and to restore the Rouge River. The mission of the Rouge Project is to demonstrate effective solutions to water quality problems facing urbanized watersheds that can provide guidance to municipalities across the nation that face similar problems. In addition to providing funding to help construct separated sewers and retention basins for combined sewer overflow (CSO) control, the Rouge Project has funded projects by governmental units and non-profit organizations that demonstrate how other sources of pollution can be controlled.

Studies conducted by the Wayne County Rouge Program Office (RPO), Wayne County, Oakland County and Washtenaw County along with information provided by the Rouge River Remedial Action Plan (RAP), have clearly demonstrated that the Rouge River is being impacted by nonpoint source pollution. This form of pollution has been identified as the greatest contributing factor to the poor water quality in areas upstream of untreated combined sewer overflows (CSO). Nonpoint source pollution is contamination whose cause or source cannot easily be identified. Storm sewers or roadside ditches that carry onsite sewage system discharges as well as fertilizers and other contaminants from surface runoff are in this group. The studies in parts of Oakland and Wayne Counties have shown that 20 percent or more of the on-site sewage disposal systems are failing. These failures result in sewage system effluent being discharged to ditches or carried over land to storm sewers.

Wayne County, Washtenaw County and Oakland County, communities, and the Michigan Department of Environmental Quality (MDEQ), have been a party to a federal court action over the past 20 years concerning water quality of the Rouge River. Several actions and decisions by the federal court have resulted in a voluntary General Stormwater Permit being issued by the Michigan Department of Environmental Quality, in 1997.

The MDEQ issued a Voluntary General Stormwater Permit (MIG610000) for discharges from Municipal Separate Storm Sewer Systems. This permit offers an innovative approach to the National Pollutant Discharge Elimination System (NPDES) permit program by focusing on the concept of watershed management. Washtenaw, Wayne and Oakland Counties and 37 other communities and agencies in the Rouge River watershed received certificates of coverage under the MDEQ Voluntary General Stormwater Permit between November 1998 and January 2000. By receiving coverage under the Voluntary Permit and complying with the conditions of the permit, the communities and agencies will meet Clean Water Act requirements.

To receive a Certificate of Coverage under the Michigan General Stormwater Permit, communities and agencies had to submit to the Michigan Department of Environmental Quality an illicit discharge elimination plan and a public education plan. These plans identified the activities that communities would undertake during the term of the permit. OSDS are required to be addressed in the illicit discharge elimination plans submitted to MDEQ with the stormwater permit applications.

With the support of the communities in Oakland, Washtenaw and Wayne Counties, a model regulation for the evaluation and maintenance of OSDS at the time of sale was prepared. The input of the various stakeholders resulted in regulations that has a common approach but also have some different requirements.

## **WASHTENAW COUNTY'S TIME OF SALE PROGRAM**

Washtenaw County's Onsite Sewage Treatment and Disposal Program has historically focused the overwhelming amount of resources on siting and assuring proper construction of new sewage systems with the greatest consideration given to the ability of the site to handle the hydraulic load. In more recent years a variety of factors led to a review of the program, and a realization that large numbers of failing septic systems existed with little being done to address these problems. To resolve this issue, a regulation requiring the inspections of septic systems at the time of property sale was adopted in 1999 and became effective in January 2000.

### **Why Pursue a Time of Sale Ordinance?**

A number of efforts were underway that influenced Washtenaw County to pursue a Time of Sale Ordinance:

1. **Washtenaw County Business Improvement Process**  
Washtenaw County's Business Improvement Process required department managers to review all of their programs and processes to determine whether or not outcomes were aligned with goals of their program. A review of the goal of the Onsite Sewage program (that is, a safe and sanitary treatment and disposal of sewage) indicated that the goal was not being met with the failures that had been identified and that very little oversight of OSDS was occurring once a system had been constructed.
2. **MDEQ's Voluntary Stormwater Permit**  
MDEQ's Voluntary Stormwater permit requires communities to identify and eliminate illegal discharges, including those from failing septic systems. Working in cooperation with the Washtenaw County Drain Commissioner's Office, and those Washtenaw County communities within the Rouge River Watershed, a process for identifying these failing septic systems and their corrections was necessary.
3. **Michigan Department of Environmental Quality Minimum Program Requirements**  
A recent change to the Michigan Department of Environmental Quality Minimum Program Requirements for local health departments, indicated that at least ten (10%) percent of the number of on-site sewage system permits issued the previous year must be inspected.
4. **Problems Associated with Sand Filters**  
Washtenaw County conducted a survey of existing sand filters in use, and found 33% were failing or had significant problems. This prompted a further review of existing systems.
5. **Rouge Project**  
An initiative by the Rouge Project to write a regulation that would require inspections of existing septic systems was underway. The potential for monies to assist Washtenaw County in developing a program presented itself.
6. **NSF International**  
NSF International initiated a program to write a standard to credential onsite sewage and onsite water inspectors. Washtenaw County was asked to participate in the development of that standard.
7. **NOWRA**  
Recent training events and publications by NOWRA has emphasized the need for maintenance and monitoring of existing systems.
8. **Anecdotal Information**  
Washtenaw County received anecdotal information regarding inconsistencies within the private sector in the evaluation of existing sewage systems at the time of property transfer. These evaluations ranged from walking over a system to invasive procedures that almost invariably led to the replacement of the sewage system, depending upon whom the prospective buyer contracted with. Standards were needed for the evaluation of OSDS.

### **Considerations**

Several different approaches were considered before Washtenaw County decided on partnering with private inspectors for the time of sale program. The reasons for choosing the Time of Sale included:

- Inspections at time of sale were considered the least intrusive method as opposed to requiring inspections at given intervals. Furthermore, the time of sale approach allowed for the greatest opportunity for access to the property and for money to be available for correction.
- Staffing requirements – private inspectors were chosen instead of environmental health personnel conducting these inspections for a number of reasons.

- Washtenaw County had just undergone a bonding for a new building; to house the additional sanitarians necessary to conduct the expected 1000-5000 inspections a year was in conflict with the existing space plan.
- To avoid the appearance of “empire-building”, it was felt utilizing private inspectors would be better received by elected officials and the public.
- An industry that provided this service already existed. It was felt that these inspectors and other potential inspectors could be trained and certified to assure that the critical elements of an inspection were uniformly applied.
- Private inspector programs were in existence elsewhere in the country and the potential for national credentialing in the near future existed with NSF International’s efforts.

**Washtenaw County’s Transient Community**

A review of home sales in the County revealed that homes in Washtenaw County are sold, on average, every 5-7 years. It was felt that by limiting the scope of this program to time of sales, a reasonable number of homes would be inspected. Should data indicate the extent of the problem was larger than expected, this data could be used in the future.

**Research Process**

1. Determination of Need

Initially it was necessary to determine the need for the program. Data was reviewed from existing mortgage evaluations, surveys, reviews of property for building additions, and inspections required for licensure of day care facilities and adult foster care facilities. This review indicated a failure rate of approximately twenty (20%) percent throughout the County. In addition, another fifty (50%) percent were substandard for varying reasons. Regional and national statistics were also gathered and all pointed to the potential of widespread sewage failures occurring nationally, regionally and locally.

2. To gather information the county;

- Utilized a University of Michigan School of Public Health graduate student to conduct a national survey on regulations and methods of other agencies that have time of sale programs
- Conducted an internet search
- Participated on the NSF Steering Committee for the certification of onsite sewage and water inspectors

3. To build consensus the county;

- Met with septic system installers, design engineers, realtors, real estate attorneys, township officials, title companies, well drillers, home inspectors, Board of Commissioners members, other local government officials

**Responding to the Critics**

Several arguments were raised during the development of this regulation. These included

1. The regulation doesn’t go far enough to address failing septic systems
2. It’s not necessary; there is no problem
3. It will ruin the real estate industry
4. It’s unconstitutional

These were addressed in individual meetings as well as through the development of Frequently Asked Questions sheets, educational materials, letters, brochures, press releases, and radio interviews. Specifically, taken one by one, responses were:

1. THE REGULATION DOESN’T GO FAR ENOUGH TO ADDRESS FAILING SEPTIC SYSTEMS

It was pointed out that Washtenaw County is a transient community and unless a large staffing increase was undertaken, staff probably could not do more. Monies were available at the time of sale, and so this would result in a larger percentage of deficiencies being corrected. This is part of a larger, over-all program that looks at permitting, complaint

investigation, surveys, partnership with identifying illicit connections with the Drain Commissioner's office, property addition reviews, and it was stressed that this was the first step. Should data indicate the need for regulation changes, they would be pursued in the future.

2. IT'S NOT NECESSARY; THERE IS NO PROBLEM.

Data revealed an approximately twenty (20 %) percent failure rate within Washtenaw County. Survey of sand filters revealed a thirty-three (33%) percent failure rate. Complaint investigations often revealed long-standing problems. Complaints indicated an inconsistency in how those that were conducting inspections were performing them. Direct discharges of septic system effluent into lakes, rivers and streams that reach water supplies and bathing beaches have caused water-borne illness in the United States.

3. IT WILL RUIN THE REAL ESTATE INDUSTRY

To address the concerns of the real estate industry, Washtenaw County imposed upon itself a five-day turn-around time upon receipt of completed inspection reports. Failure on the part of Washtenaw County to approve or disapprove the home for sale would result in an automatic approval for the seller. It was stressed to the real estate community that there were both buyers and sellers, and the buyers would benefit from knowing there would be a functional sewage system. Washtenaw County removed from the draft regulation the requirement that realtors notify sellers of the requirement for inspection. This was to address the concern that we were regulating an already regulated industry. In discussions with real estate representatives, Environmental Health staff appealed to the sense of community that the real estate industry touted.

4. IT'S UNCONSTITUTIONAL.

Michigan Public Health Code is the enabling legislation for this regulation. This was reviewed by Washtenaw County Corporation Counsel, discussed with real estate attorneys, and later reviewed by the Michigan Attorney General's office.

### **Administrative Considerations**

Following the passage of the regulation by the County Board of Commissioners, an advisory group was formed. This advisory group had broad representation including an onsite sewage installer, a well driller, a home inspector, a realtor, a title company representative, a lending institution representative, a sewage system design engineer, a septic system inspector, a citizen-at-large and staff. This group referred to the model ordinance developed by the Rouge Project and developed the criteria used to determine whether properties were substantially compliant and could be sold or if corrective action would be required.

Recruitment of inspectors was necessary. A mailing to sewage contractors, design engineers, well drillers, home inspectors, the real estate community, and sanitarians was directly sent to over 300 recipients. Training modules were developed in cooperation with the Tollgate Onsite Wastewater Training Center and Michigan State University. This training was reviewed and endorsed by the Advisory Board. Forty-two (42) of forty-three (43) applicants completed the training and successfully passed an examination and became certified.

One item that was overlooked was how to pay for the program. A return to the Board of Commissioners resulted in the passage of fees to finance the program. Approval was obtained from the Board of Commissioners to hire one support staff, one program coordinator and on an as-needed basis, based on available funding, three sanitarians.

### **Educating the Public**

Educational material in the way of brochures describing the program, identification of failing septic systems, proper use of septic systems, and maintenance of septic systems was developed and provided to township officials, the real estate community and local media. Media stories explaining the new regulation occurred in all local newspapers. Environmental Health staff made guest appearances on several radio shows and attended meetings held by township boards, title company associations, real estate attorneys and real estate agents.

A kick off meeting (which over 300 people attended) was held in December of 1999 to further advertise the program and to answer questions from concerned citizens and the real estate community.

### **Results to Date**

From January 3 through June 30, 2000, Washtenaw County processed a total of 512 property inspections. The failure rate of onsite sewage systems was eighteen (18%) percent. This closely met our expectations of twenty (20%) percent. Of these, all have now been corrected. One of the biggest concerns going into the program was what to do with those properties where monies were not available to make the necessary repairs. To date, this is proving not to be a major concern. Invariably, the property values in Washtenaw County are high enough to support people willing to buy the property and make the necessary repairs to keep the property livable. In each case, price could be negotiated, taking into account the necessary repairs and a settlement reached that allowed those repairs to be made.

One of the unique aspects of Washtenaw County's program is that it also requires the inspections of onsite water supply and the correction of substantial deficiencies when found. To date, seventeen (17%) per cent of those properties inspected had significant problems with the water supply that required correction before the property could be sold. This was higher than anticipated, and compares to background information where action by the department to address water supply occurred during surveys or required inspections, were only ten (10%) per cent. In addition, nitrates were observed to be above 10 ppm in six (6%) per cent of the homes tested.

### **Weaknesses of the Program**

One area that needs improvement is the identification of those properties that are being sold without inspections. The regulation places the burden on the property seller to contract for an inspection. There are no penalties levied against realtors, title companies or lending institutions if an inspection is not performed. It is, therefore, incumbent upon the department to seek every means possible to identify when a transaction is proposed or has occurred. Recent steps to improve this aspect of the program include contacting all township assessors' offices and requesting their cooperation in notifying the department when a sale has occurred, a review of organizations that publish property sales (such as credit bureaus, the Ann Arbor News, and others). This has increased the number of inspection reports that have been submitted.

After six (6) months of experience, we have found the need to begin decertification procedures against two inspectors. To date, action has been limited to sending notices of concern and a requirement of revised inspection reports and in one case, an administrative conference to show cause why certification should not be revoked. It is necessary to provide oversight and periodic quality control inspections to assure private inspectors are acting in conformance with the requirements of the regulation.

Another weakness in the program is that the fees charged do not fully support the cost of the program. Washtenaw County currently charges \$40 per inspection report, \$120 to conduct plan reviews of corrective actions, and \$50 per site visit to assure compliance with the corrective action plan. These fees will need to be revised and/or restructured to fully fund the program.

Currently the program reviews residential properties with OSDS that are sold. Properties that are not sold will not be evaluated nor will non-residential properties be evaluated. When more experience is gained with the residential time of sale program, these exclusions will be reconsidered.

### **Conclusion**

Washtenaw County's Time of Sale program has been successful in identifying nearly 100 properties with failing or substantially substandard onsite sewage systems. These systems have been upgraded to the point where they no longer present a threat to the public health or the environment. A trained and certified work force is in place that can uniformly and consistently provide a determination as to the functional status of individual sewage and water systems and can provide consumer protection to individuals purchasing property in Washtenaw County. This program is an important component in the overall protection of Washtenaw County's watersheds.

## **WAYNE COUNTY'S ONSITE SEWAGE DISPOSAL SYSTEM EVALUATION AND MAINTENANCE ORDINANCE**

In January 1999, Wayne County Environmental Health staff met to determine an overall timeline and components necessary to develop and implement a Wayne County ordinance on on-site sewage disposal system evaluation and maintenance program. Three key elements were identified; an ordinance, revenue and implementation.

### **Ordinance Development**

There were a number of stakeholders involved not only in the process, but in the ultimate outcome of the successful passage of the ordinance. Paramount to this was the support by the Rouge River Watershed communities that would be immediately impacted by the ordinance. To this end, in the spring of 1999, an initial meeting was held with the watershed communities and their legal representation for presentation of a draft ordinance. Taking the feedback from that meeting and revising the proposal resulted in another meeting with the communities whereby, as a group, they could support what would ultimately be submitted to the Board of Commissioners for approval.

The real estate industry serves as a focal point, as designated by the ordinance, and several meetings were held with representatives of both the real estate industry and financial institutions for their feedback on the ordinance. Additional revisions were made to those sections affecting their industry, which served as a basis for supporting the ordinance by the industry. This is not to say that there is complete agreement with the ordinance and the real estate industry. There are some within the industry that feel the ordinance places an undue burden upon them as an enforcement mechanism. Others see the ordinance as a positive force, whereby it helps protect them and their client.

The ordinance requires that septage servicers provide reports to the health department regarding quantities of septage hauled and final disposal. Because of the potential impact upon this industry segment, there were two meetings held with representatives of the septage servicers to once again solicit their support of the ordinance. The septage servicers felt that this would be burdensome to their operations. Once purpose of the ordinance was explained and what the ordinance required of the septage servicers, that being that part of the E & M evaluation required that the septic tank be pumped, they could see the potential expansion of their business. A few adjustments were made to their particular segments of the ordinance but, in general, they supported the ordinance.

Meetings were also held with third party home inspectors. The ordinance requires that any on-site sewage disposal system be evaluated prior to sale of the property. It was hoped that the bulk of the inspections and reports would be performed by third party home inspectors. However, the health department retained the responsibility to continue such inspections as in the past. While the home inspectors had a number of questions and concerns, all seemed to agree that this would be both beneficial to the environment and to their business. The ordinance does require that any inspector providing these services within Wayne County be registered with the Environmental Health Division.

Numerous meetings and input was received by various other agencies. The Wayne County Department of Environment had a major impact upon shaping the ordinance and, along with the Rouge Project Office, made sure the process of development of the ordinance kept on track. The Wayne County Office of Corporation Counsel provided on numerous occasions legal counsel and advice and support from the initial development of the proposal, through various community meetings, and ultimately submittal of the proposed ordinance to the Wayne County Board of Commissioners by the Department of Environment. The Michigan Department of Environmental Quality and the federal court were both informed periodically of the progress during the development stage. And finally, other agencies such as Michigan State University and NSF International were partners in both undertaking the development of the ordinance and its implementation.

The ordinance went into effect in February 2000. It initially applies to the 16 communities in the Rouge River watershed. The rest of the county will be covered by the ordinance in September 2003.

### **Revenue**

Both the home inspector industry and the septage service industry felt that the proposed fees that would be charged by the health department would not only be reasonable, but would be very competitive with what their fees may be, which would give some indication of growth opportunities for their business.

## Implementation

In order for the ordinance to be a success, that is identify failing on-site sewage disposal systems and get them repaired, it required a great deal of training and education of various stakeholders. The first major training of the various stakeholders began during the first meetings with the individual stakeholders as to what their responsibilities were in the framework on the total ordinance. The educational efforts were focused upon the procedures which are utilized within their respective business operations, how the ordinance may change or refocus those operations and how this ordinance could better serve their business. Part of this education was also understanding their perspective and to work within their frame of reference regarding failing on-site sewage disposal systems.

A good example of gaining mutual understanding involved the real estate industry and one of the requirements of the ordinance, which states that a realtor or agent has a duty to inform a seller of certain responsibilities that the seller has under the ordinance. The initial feeling was that this places the real estate industry in an enforcement mode versus a service mode to their client. The ordinance only obligates the agent to inform the seller of their responsibilities, but in no way requires that the agent or realtor follow up to see if the seller has met their obligations. On the other hand, if their client is a purchaser they could see where the ordinance would help disclose information so the purchaser could make a better informed decision about purchasing a property.

Another positive force that has come about because of the ordinance is the upgrading of the information system for the on-site and sewage disposal program from a manual record keeping system to development an electronic database. This will be beneficial both to the health department and to the communities it serves. The obvious advantage is that there will be up-to-date, accurate records on active on-site sewage disposal systems because of the communications shared between the health department and individual communities regarding sewer connections. This will result in a cleaner filing system at the health department and more accurate information in the communities as to where on-site systems are located in their community.

## Results to Date

Wayne County's Evaluation and Maintenance Ordinance currently is only effect in those communities within the Rouge River Watershed. The rest of the County will be covered by the ordinance in September, 2003. With this in mind, the following information is for the time period February through July, 2000:

Number of evaluation reports reviewed	67
Number of failed systems	17
Percentage of systems failed	25.3%
Evaluations completed by Wayne County staff	9

The above information comes as no surprise. A survey conducted in 1997 by the Wayne County Environmental Health Division for on-site sewage disposal systems in selected communities within the watershed, revealed over a 20 percent failure rate. The 25 percent failure rate, as noted by the information above, helps validate this information since the Evaluation and Maintenance Program requires a much more extensive review of the on-site sewage disposal system.

In addition, it was intended that the majority of the evaluation and maintenance reports would be conducted by third party home inspectors, although the health department would still maintain a work force that would continue to do the inspections. The fact that the health department is currently providing 13 percent of the inspections shows that private enterprise is a partner and plays a part in reducing illicit discharges within Wayne County. It also allows the staff the time necessary to bring failing on-site sewage disposal systems into compliance even through those systems and the number of systems have increased their workload.

## Septage Servicers

Septage servicers are required to file reports anytime a septic tank is pumped. The report includes the estimated amount of septage pumped, condition of the outlet device, any backflow that occurs, date of pumping, location of the final disposal site and any other relevant or unusual observations. Few reports have been received by the health department. One report included information indicating some potential problems with the OSDS. Other servicers

have not submitted reports. Some of the septage haulers feel that disclosure of the information, which includes their customers name and address, would be available to their competitors and would therefore place them in a position of losing customers. While this may be a shortcoming of the program, we must not lose sight of the intent of the ordinance which is to identify failing on-site sewage disposal systems and get them corrected before they can impact upon public health or our streams.

**Non-residential OSDS**

Wayne County's ordinance requires that all OSDS be inspected at the time of sale. This includes non-residential properties. Washtenaw's regulation does not include non-residential. Through July 2000, no reports have been submitted for non-residential properties.

**Strengths and Weaknesses**

Some weaknesses of the ordinance have been identified, such as evaluating an OSDS for a building that has been vacant for an extended period of time. Currently the ordinance allows the set aside of the inspection until after the property is sold. The new owner of the property is required to have the inspection completed after occupancy. This presents problems in providing the best possible evaluation of the on-site sewage disposal system under operational conditions and could result in financing problems and litigation.

Another weakness, although not necessarily of the ordinance but in fact in its implementation, would be the amount of training resources available so that there is a competent source of evaluators for on-site sewage disposal systems. This is where Michigan State University and Washtenaw County Department of Human Services have been very active in training both private and public sector individuals.

Strengths of the ordinance involves identifying failing on-site sewage disposal systems and remediating those failures in a much more timely fashion, thus reducing the duration of illicit discharges finding their way into the Rouge River. Another strength would be the education of the public, both the seller and the buyer, of the importance of maintaining their on-site sewage disposal system.

A third strength would be better information on on-site sewage disposal systems, tracking and location of those systems, and better data over time regarding their functionality.

**COMMUNITY INVOLVEMENT AND COMMITMENTS**

While Washtenaw and Wayne Counties have adopted regulations for inspection of OSDS at the time of sale, communities in the Rouge River watershed have also indicated specific actions they will take as part of their Illicit Discharge Elimination Plans that were included in the General Storm Water Permit applications. The variety of items in the plans illustrates the communities' flexibility to address OSDS within the context of their community and resources. The following table lists the commitments and actions 36 communities and 3 counties identified in their permit applications to address OSDS.

OSDS Permit Activities	Number of Communities
Request Health Department assistance to find and eliminate failing OSDS	20
Submit annual report of improperly functioning OSDS	16
Support county ordinance for evaluation of OSDS at time of sale	11
Provide incentives to connect to available sewers	9
Will map areas in community with OSDS	9
Will adopt local ordinance for inspection in no county ordinance	8
Requires sewer connection for failing OSDS if sewer available	7
Will extend sewer or require OSDS maintenance on regular basis	4
Will sewer all unsewered areas in community	3
Will provide education materials to OSDS owners	3
Prohibit OSDS in community	2

What is significant in these activities is that for the first time, many communities are addressing OSDS issues in cooperation with health departments, supporting maintenance and evaluation programs and identifying areas in their communities that are served by OSDS.

## **SUMMARY**

In response to water quality problems identified in the Rouge River and studies demonstrating that OSDS were failing in several areas of the Rouge River watershed, communities, counties and stakeholders involved with onsite sewage disposal, came together to develop approaches that address the operation and maintenance of OSDS.

Washtenaw County's program requires inspection of OSDS at the time of sale of a residential property. This program has identified and corrected nearly 100 failing or substantially substandard OSDS. An additional provision of the county regulation is the inspection of well water supplies at the same time. The significant problems identified with the water supply systems and their correction will improve the health and safety of the people living of these properties. The 17% problem rate for water supplies is higher than expected.

Wayne County's program requires inspection of all OSDS at the time of sale. The county ordinance currently applies to the 16 communities in the Rouge River watershed. The 25% failure rate is somewhat higher than past studies indicated. Septage servicers have provided useful information in the reports that are completed when they pump a septic tank.

The use of the MDEQ storm water permit has resulted in communities becoming more involved in OSDS. The support for health department regulations on OSDS, the mapping of OSDS they have performed, the support on complaint investigations and assistance in providing educational materials to the public about OSDS, that has greatly strengthened the OSDS programs in both counties.

The comprehensive approach taken in the Rouge River watershed to manage OSDS has involved three counties, 37 communities, MDEQ, realtors, septage servicers, NSF International, Michigan State University Onsite Wastewater Training and Educational Center, private septic system evaluators, elected officials, engineers, onsite sewage disposal system installers and others.

The time of sale program is identifying OSDS that are experiencing problems and achieving correction of the problems. The actions by the counties and communities are meeting the goals of the Rouge River Remedial Action Plan and the requirements of the Michigan Voluntary Storm Water Permit. The program is being accomplished with the use of private evaluators and being done at a time when access to the property is least intrusive and when corrections can be paid for. It is a program that is not finished and will continue to evolve as a part of the priorities that are reviewed on a regular basis for protection, restoration and improvement of the water quality of the Rouge River.

### References:

1. 1994 and 1995 Rouge River Headwaters On-Site Sewage Disposal Systems Survey, RPO-NPS-SR05.00 and RPO-NPS-SR04.
2. Wayne County Department of Public Health, Environmental Health Division, Report of the On-site Sewage Disposal Systems Project Within the Tonquish Creek Basin and Middle 3 Subwatershed Area-Rouge River, January 1, 1997 Thru December 31, 1997.
3. 1994 Rouge River Remedial Action Plan Update, Michigan Department of Natural Resources (now Michigan Department of Environmental Quality)

8/14/00 draft