Detroit Water and Sewerage Department

Wastewater Master Plan

DWSD Project No. CS-1314

Septage Transport and Disposal to the Detroit Wastewater System

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Septage Transport and Disposal to the Detroit Wastewater System

1. Introduction

The purpose of this technical memorandum is to provide information related to existing septage disposal practices and how changes in septage disposal and on-site sewage disposal may impact the Detroit sewerage system. There are other wastes transported to the Detroit Water and Sewerage Department (DWSD) sewerage system such as holding tank waste from boats, solids from other wastewater treatment plants and catch basin wastewater removed from storm and sanitary sewers. These other waste sources will be evaluated and reported on separately.

1.1 Definition

"Domestic septage is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device or similar storage or treatment works that receives only domestic sewage." Michigan Septage Management Guide, MDEQ.

1.2 Sources of Septage

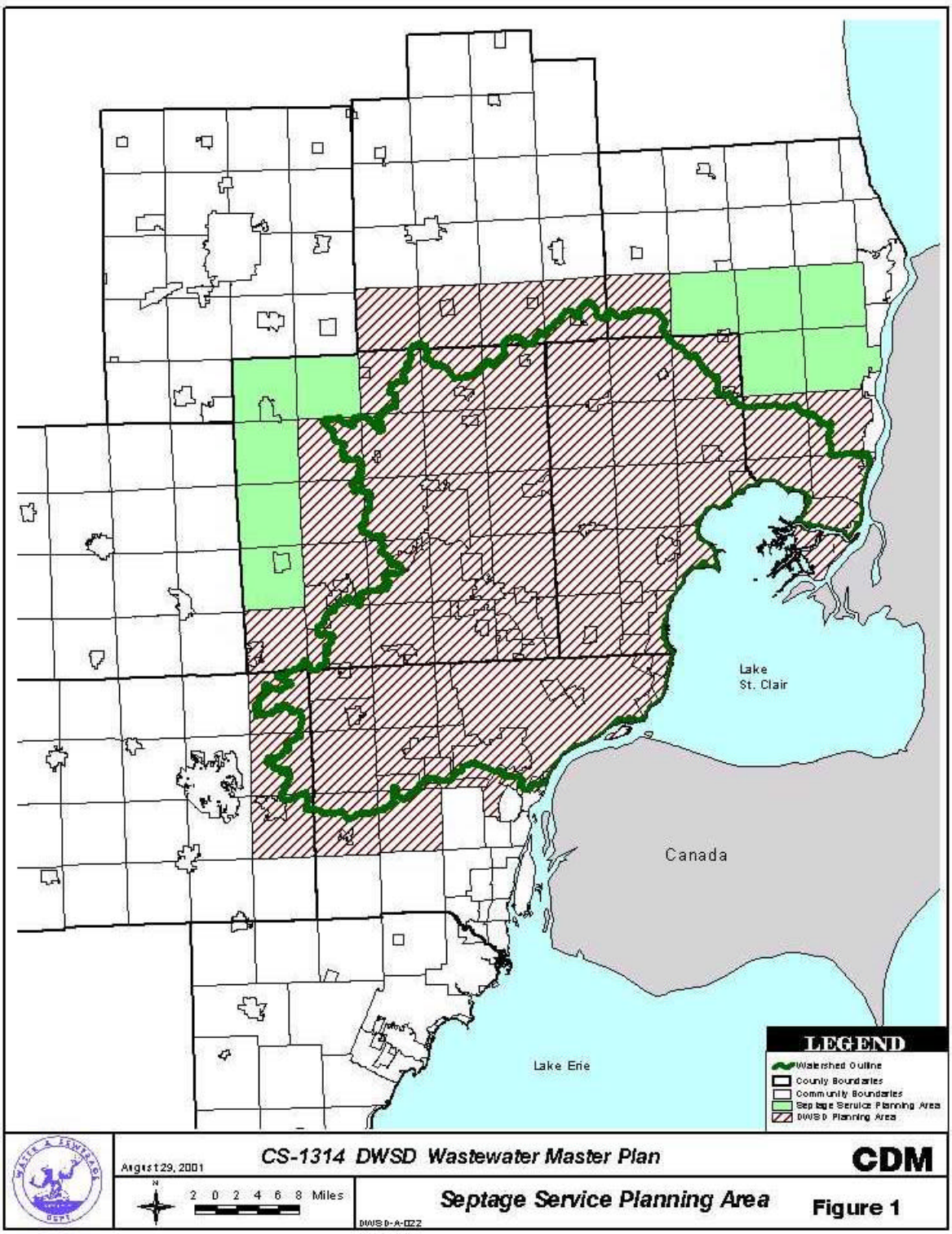
- Septic tanks
- Cesspools
- Portable toilets, privies
- Aerobic treatment units
- Holding tanks
- Marinas
- Recreational vehicles

1.3 Septage Disposal Options

- Disposal into a POTW sewerage system
- Land application
- Septage treatment plant

1.4 Septage Service Planning Area

A septage service area was developed taking into consideration existing patterns of septage hauling, septage disposal needs and the existing and proposed state law regulating septage servicers. The septage service planning area is shown on Figure 1.



The septage service planning area includes the DWSD sewer planning area, all of Macomb and Oakland counties and portions of Lapeer, Wayne and St. Clair counties. Based on the 1990 census information, there were 114,332 residential on-site sewage disposal systems in the septage service planning area. This compares to an estimated 133,600 on-site sewage disposal systems in 2000.

2. Regulation of Septage Transportation and Disposal

2.1 Federal Regulations

Treatment and Disposal of Septage is regulated by the U.S. Code of Federal Regulations (40CFR) Part 503, compliance date February 19, 1995.

The federal biosolids program, which includes septage, has recently been reviewed by EPA. (Ref.7) The Office of the Inspector General has released an Audit Report of Biosolids Management and Enforcement, March 2000 indicating that, "EPA has not taken necessary steps to reasonably ensure compliance with Part 503 requirements." Only three states have been delegated oversight of the septage program under the 503 regulations. EPA's response is to support the adoption of a biosolids environmental management system (EMS) by Publicly Owned Treatment Works (POTWs).

The Audit report goes on to say that EPA Clean Water Act enforcement priorities are CSOs, SSOs, animal feeding operations and storm water regulations. Biosolids and septage disposal are not a priority, as they are not thought to be as great an environmental risk. P.41

Enforcement by EPA may be changing. In 2001, three septage haulers in Michigan were cited for violations of the federal regulations. Fines of $20,000-100,000 have been levied. If the enforcement continues, it could result in major changes in the septage industry. Land disposal of septage would be more difficult and more expensive. Costs would go up for the consumer. More septage would go to POTWs.

2.2 Michigan Regulations

The transportation and disposal of septage is regulated in Michigan by Part 117, Act 451 of 1994. This law is currently under review to comply with U.S EPA 40 CFR Part 503, Standards for the Use and Disposal of Sewage Sludge. The proposed changes to Part 117 would increase requirements for land application of septage as compared to present practices. The new law would require land disposal of septage to be done so as to not create a health hazard or environmental concern. Proposed changes include:

- Reducing pathogens for land application;
- Reducing vector attraction for land application;
- Testing soil for phosphorous;

- Screening of septage if land applied;
- Requiring use of a septage receiving facility if one is within 25 miles of septage;
- Limiting annual application of septage to land;
- Restricting application of septage to frozen or snow-covered ground;
- Requiring a written plan if septage is obtained in the winter;
- Requiring quarterly reports to MDEQ on land application and complaints;
- Requiring descriptions of how pathogen requirement and vector attraction reduction standards are to be met;
- Requiring land application sites to be inspected at least four times a year;
- Increasing fees significantly to pay for inspections and oversight; and
- Creating the option to permit a domestic septage receiving facility to treat or store septage.

If this law passes MDEQ is likely to request delegation of 503 regulations.

2.3 Limitations on Land Disposal

Septage concentrates bacteria and chemicals and has an unpleasant odor. Disposal of septage on land increases the potential for groundwater contamination. It exposes wildlife, pets, insect vectors and humans to hazardous material, unpleasant odors, and pollution from runoff during precipitation and snowmelt. The runoff can contaminate surface water. Increasing land values make it difficult to afford land disposal sites. In addition complaints of odors and unsightly appearance of septage disposal sites have made them a community detriment.

The proposed law and difficulties in using land for disposal of septage will increase the demand for disposal of septage at POTWs. This is factored into projections in Chapter 4.

2.4 Other States

Wisconsin's regulation recognizes contracts for septage systems for reserve capacity at a POTW. Wisconsin allows grease waste to be land applied if the grease waste is mixed with septage. If grease waste composes 25 percent or less of total waste, the application rate is 13,000 gallons per acre per week. If grease waste composes all of the waste, the application rate is 4,300 gallons per acre per week.

2.5 Local Regulations/Considerations

Two counties in southeast Michigan (Wayne and Washtenaw) have passed regulations in 2000 requiring inspection of on-site sewage disposal systems at the time of transfer of a property. This has increased the amount of septage pumped in Wayne County, since the regulation requires pumping of the septic tank at the time of sale. Washtenaw County does not require that tanks be pumped and the amount of septage pumped has not increased there.

DWSD issues a Septage Hauler Unloading Permit to each hauler using the DWSD sewerage system for disposal of domestic waste. The permit sets hauler discharge limitations and monitoring requirements. Haulers are required to submit test results from domestic waste twice a year. In addition, DWSD collects samples from haulers on a random unannounced basis monthly. On July 18, 2001 at the Pontiac Septage Receiving station, one hauler turned away from the station when the DWSD truck was observed. DWSD maintains a Septic Waste Haulers database that tracks the permits and compliance. As of May 2001, there were 34 septage servicers permitted by DWSD to dispose of septage and portable toilet waste into the Detroit system.

3. Overview

Septage is generated when a septic tank is pumped as part of routine maintenance or when there is a problem with the on-site sewage disposal system. The regulation of on-site sewage systems is controlled by local health departments and the MDEQ.

MDEQ has recently released a review of the on-site wastewater industry in Michigan: "The Status of the On-site Wastewater Industry in Michigan, a Synopsis of the Regulation of On-site Wastewater Treatment and Disposal in Michigan." (Ref. 8)

In the report, it states there are an estimated 1.2 million on-site sewage disposal systems (OSDS) in Michigan based on the 1990 census. In 1990, over 30 percent of homes were served by an OSDS. The report continues:

> "At present it is estimated that over 50 percent of building permits issued for new single family homes are for those with on-site systems. This higher percentage of new construction served by on-site systems is consistent with the higher rates of growth exhibited by non metropolitan areas in Michigan." (Ref.8, P.1)

The amount of septage removed from septic tanks in Michigan was estimated to be 120 million gallons per year. (Ref 8 P.7) Septic tanks are pumped out an average of every 10 years. Half of septage goes to land and half goes to POTWs. The increased percentage of new growth using on-site sewage systems will result in more septage needing disposal. The growth in the 1990's will begin to result in increased septage quantities in 2000-2010. A review of building permits issued in Livingston County indicated that 55-65 percent of new houses are built with OSDS.

Proper maintenance of OSDS requires periodic removal of solids that have accumulated in the septic tank. Solids removal is primarily designed to protect the disposal field from plugging due to solids and biological growth blocking the soil structure. The inspection of OSDS as part of a property transfer often includes pumping the septic tank.

A new development in the on-site sewage industry is a warranty or insurance plan for OSDS. Warranties are available now in Pennsylvania and New Jersey. A national option is under development by the National On-site Wastewater Recycling Association. (Ref. 15, p.20) Issuance of a warranty or insurance policy increases the pumping of septic tanks. The warranty program requires that septic tanks be pumped every three years. This would increase the amount of septage pumped each year.

In 2000, DWSD estimated that 15,000,000 gallons of septage (12 percent of the state estimate) was deposited in the Detroit system.

Mercury in septage is a chemical of concern. The maximum allowable headwork's loading should be reviewed and the amount of mercury from septage should be part of the allowable loading. (Headworks are the front of the treatment plant. Headworks loading would be the amount of a chemical coming into the front of the plant.)

DWSD provides for the disposal of septage for facilities within the DWSD sewer service area and for facilities outside the sewer service area. There are four septage disposal sites in the DWSD sewer service area, three in Oakland County and one at the DWSD wastewater treatment plant. DWSD requires that haulers provide analytical testing of their septage twice a year. In addition, DWSD also collects samples from haulers' trucks on an unannounced basis.

Health departments are responsible for issuing permits for installation of OSDS. About 3,400 OSDS permits are issued each year in the septage service planning area to serve new buildings. For 2000, there are an estimated 133,600 OSDS in the septage service area. (Washtenaw County was not included in these projections since the septage servicers there are not using disposal stations in the DWSD service area.)

3.1 Community Information

Information was requested from the local health departments and other sources about on-site sewage in communities in the septage service area. The following summarizes those responses.

3.1.1 City of Detroit

The 1990 census identified several areas of Detroit that had on-site sewage systems. The question of where OSDS existed in Detroit was reviewed with the Detroit City Health Department and the DWSD water- billing department. The information from the Detroit City Health Department files regarding OSDS in Detroit is summarized in Attachment 1 in Appendix A. A more complete evaluation of OSDS in the City of Detroit is available in the Technical Memo, Onsite Sewage Disposal Systems in the City of Detroit. This Tech Memo identified 331 locations in the city that

are paying for water only but may not be paying for sewage disposal. There are 27 addresses that are likely to have an OSDS. The list of addresses receiving water bills only is in the Attachment 2 in Appendix A.

Figure 2, Possible On-site Sewage Locations, City of Detroit, plots locations from the lists from the City Health Department and from the DWSD water only accounts. The area of heaviest concentration for both lists is north of Fenkell Road and between Inkster Road and Telegraph. A second pocket is between I-96 and Plymouth Road near the River Rouge Municipal Golf Course. The map also shows that OSDS may be in many areas of the city. The water account only locations show even more scattering of locations where sewage disposal is unknown.

3.1.2 Wayne County

Wayne County issues about 200 OSDS permits per year. Of these 110 have been for new systems. Any significant growth in Wayne County is expected to occur with extension of sanitary sewers. The number of OSDS in the county within the DWSD service area is expected to decline from the 6,300 in 2000 to about 1,100 by 2050.
Areas needing sewers according to the health department are:

- All of Canton Township due to high water table and poor soils;
- Napier and Warren, 80 homes Pilgrim Estates;
- Franklin Road, Northville, 50-60 homes, Old Waterford subdivision;
- Lotz Road between Warren and Mich. Ave.;
- Livonia and
- Redford Township, Joy Road area.

3.1.3 Macomb County

The closing of beaches along Lake St. Clair has resulted in Macomb County investigating sources of E. coli bacteria. One conclusion that the Macomb County Blue Ribbon Commission and the draft 1998 Clinton River Watershed Remedial and Preventive Action Plan cited was the need to improve on-site sewage disposal system maintenance practices. Macomb County is preparing a county regulation that would require regular inspection of on-site sewage systems. When the regulation goes into effect, it is likely to increase the amount of septage pumped.

Much of the growth that is expected in the county will be served by new sanitary sewers. Four northern townships, Armada, Bruce, Ray and Richmond, however, will grow with OSDS. The northern townships are expected to add 23,538 residents from 2000 to 2050. This would add about 9,400 new OSDS.

There are about 25,000 OSDS in Macomb County. An average of 280 permits for new on-site sewage disposal were issued each year between 1995 and 1999. Five and one half million gallons of septage were pumped from 4,600 septic tanks in 1998, and 28.9 percent of septage pumped came from non-residential facilities. (Ref. 6 p. 4.)

Septage from Macomb County was disposed of at:

- Mt. Clemens treatment plant;
- Two Oakland County sites, one in Pontiac and one in Madison Heights, which drain to the Detroit Wastewater plant and
- Two land application sites in Lapeer County: Jay's Septic Service and Lawrence Farm.

There is no land application in Macomb County. The report, Septage Production, Transport and Disposal Macomb, Michigan, estimates that 1.7 million gallons of septage from Macomb County was transported to the DWSD system. The amount of septage pumped from each community in 1998 in Macomb County is shown in Table 1 (Ref. 6 p. 7)

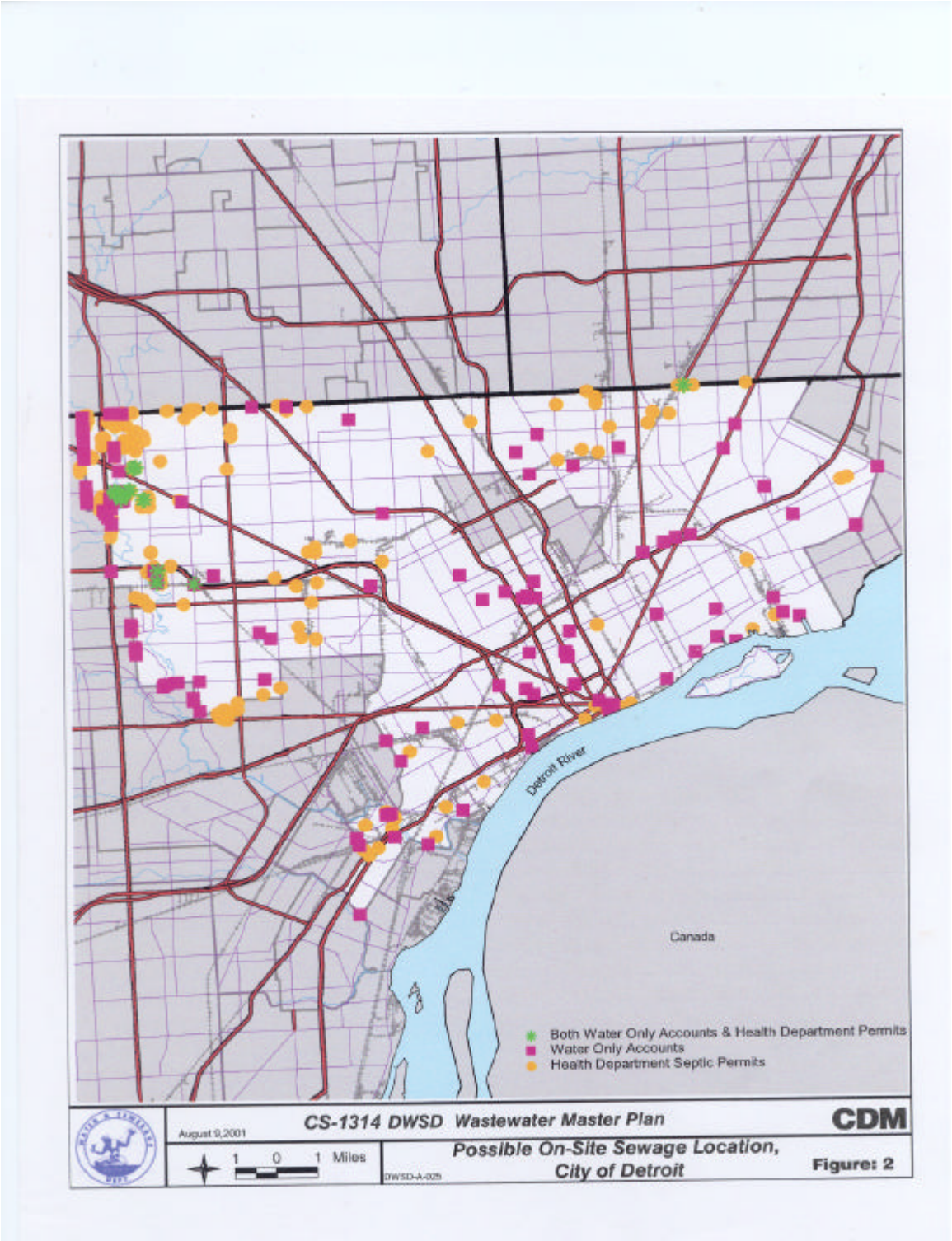

Detroit River
Canada
Both Water Only Accounts & Health Department Permits
Water Only Accounts
Health Department Septic Permits
August 9,2001
CS-1314 DWSD Wastewater Master Plan
CDM
1 0 1 Miles
Possible On-Site Sewage Location,
City of Detroit
Figure: 2

Table 1. Amount of Septage Pumped from Communities in Macomb County 1998 (Gallons)

Name	Septage Pumped Gallons
ARMADA	0
ARMADA TWP	208,000
BRUCE TWP	31,000
CENTER LINE	0
CHESTERFIELD TWP	341,000
CLINTON TWP	438,000
EASTPOINTE	6,000
FRASER	3,000
MT.CLEMENS	103,000
MEMPHIS	61,000
NEW BALTIMORE	50,000
NEW HAVEN	340,000
RAY TWP	139,000
RICHMOND	21,000
RICHMOND TWP	177,000
ROMEO VILLAGE	659,000
ROSEVILLE	12,000
SHELBY TWP	1,161,000
ST. CLAIR SHORES	4,000
STERLING HEIGHTS	195,000
UTICA	592,000
WARREN	16,000
WASHINGTON TWP	296,000
OTHERS	212,000
Total	5,588,000

Source: Septage Production, Transport and Disposal, Macomb County Health Department, Environmental Services Division, June 2000.

3.1.4 Lapeer County

All septage is land applied. Sewage plants are over capacity. The county issues 1,000 OSDS permits per year and 667 home transfers occurred in 2000. The population in the southern communities in Lapeer County is expected to double from 21,310 in 2000 to 42,727 by 2050. The majority of this increase will be served by OSDS.

3.1.5 Livingston County

Nine to 10 million gallons per year of septage is land applied in Livingston County with 10-20 percent coming from out of the county. Townships in Livingston would support no land application for septage.

Livingston County uses mostly land disposal sites. Two septage haulers use YCUA. The Health Department issues about 1,100 OSDS permits per year. Between 55-65 percent of new house construction was with OSDS between 1994-1999.

3.1.6 Oakland County

The Oakland County Health Department estimated that there were about 80,000 OSDS in the county in 2000. It issues 2,500-3,000 permits per year. Between 1,200-1,500 new OSDS are installed each year. Communities in the western and northern portions of the county plan to use OSDS to serve the majority of the population increase. There may be new decentralized sewage treatment systems to service areas of the county to accommodate some of the growth that is expected. Use of onsite sewage systems is expected to decrease from 80,000 in 2000 to 43,890 in 2050.

There is no land disposal for septage in Oakland County. There are three septage receiving stations in the county that discharge to the DWSD sewerage system.

3.1.7 St. Clair County

There is no future for land disposal sites in St. Clair due to soils and water table limitations. Most septage haulers go to Lapeer and Sanilac counties to land disposal sites. Some use the Oakland County septage disposal stations. One hauler uses the Algonac Wastewater Treatment Plant and one has a land disposal site in St. Clair County. St. Clair County generates 4 million gallons / year of septage (Ref. 5 p.3) from 3,600 sites. (Ref. 13) It has 25,000 OSDS and about 16,600 OSDS are in the septage service study area. It issues 1,000 permits per year in the entire county. Growth is occurring outside the sewer study area. POTWs have no capacity and will not accept septage. The county suggested a utility charge for all OSDS and the issuance of a voucher for use of a septage disposal site.

A disposal site is needed now. Lenox Township in Macomb County is a possible site for a dump station location.

Population is expected to grow in the area likely to be served by OSDS from 40,201in 2000 to 64,284 in 2050. Growth is expected to occur in the northern areas of St. Clair County since the POTWs have limited treatment capacities.

"Cleaning Up Lake St. Clair, The Need for Septage Disposal," is a joint report by the Macomb / St. Clair Watershed Management Advisory Group that describes the need for a septage disposal facility that could serve Macomb and St. Clair counties. The report focuses on sources of impairments to Lake St. Clair. Proper siting, operation and maintenance of OSDS is important to a healthy Lake St. Clair. "An adequate system for disposal and treatment of septage is a critical component of an on-site management program." (Ref 5, p.2.)

3.2 POTW Septage Disposal Locations

Kalamazoo Wastewater Treatment Plant, 1415 North Harrison St. Kalamazoo

Haulers are charged 6.74 cents per gallon of septage. Each load is weighed. About six million gallons per year are processed. The Wastewater Treatment Plant receives $300,000-400,000 per year. Screening of solids, where the septage enters the headworks, generates 45,000 pounds of solids / year. Screening slows down the emptying of the truck. All trucks are pre-weighed, so the ticket generated when entering the plant gives the weight of septage.

The hauler completes a form to identify where the septage came from. Officials believe that treatment of the wastewater plant is a better solution for septage than land application and provides a community service. POTW employees spend a lot of time on maintenance of the septage station. A remote camera would help.

Monroe Metro WWTP, 120 East First Street, Monroe
Haulers are charged 2.8 cents per gallon of septage. (MDEQ Web site)

Mt. Clemens Wastewater Treatment Plant, One Crocker Blvd, Mt. Clemens
It received about 3.26 million gallons of septage in 2000 and has the capacity to accept and treat additional septage. Each load is manifested. The plant samples every 30th load for toxics and other harmful substances. Haulers are charged 4 cents per gallon. (1, Attachment 2)

Saline City POTW
Effective April 15, 2002, the fee for septage disposal at the Saline POTW is 4.12 cents per gallon. It had been 3.8 cents per gallon. (Ann Arbor News article April 4, 2002)

Wyoming WWTP
Each load is measured to determine quantity being discharged to the plant.

YCUA (Ypsilanti Community Utility Authority)
The treatment plant is expanding but septage is currently limited to 50,000 gallons per week. The limitation went into effect when solids and odor problems were experienced. The current rate is 4 cents per gallon with an increase of 2 to 4 cents per gallon under consideration.

Land Disposal Sites in Southeast Michigan
Lapeer County
Jay's Septic Service - takes about 6.8 percent of Macomb's septage.
Lawrence Farm - takes about 4.1 percent of Macomb's septage.
All septage generated in Lapeer County goes to land disposal sites.

Septic tank cleaners in Wayne and Oakland Counties pump and haul septage from septic tanks and dispose of the majority of it at the sites listed below. Those sites are located at:

Site Location	Hours and Days of Operation
Detroit Wastewater Treatment Plant 9300 West Jefferson Detroit	24 hours/day, all year
Oakland County 22440 Eight Mile Road Southfield	8:00 a.m. - 4:00 p.m., Monday through Friday, Saturday 9 - 4 p.m., closed Sundays, holidays
Oakland County 1200 Telegraph Pontiac	This site permanently closed April 15, 2002
Site Location	**Hours and Days of Operation**
Oakland County 1155 Cesar Chavez Pontiac	24 hours/day all year. This new site opened March 15, 2002
Southeastern Oakland County 29132 Stephenson Highway Madison Heights	7:30- 3:30 p.m. Monday through Friday, Closed Saturdays, holidays
Ypsilanti Community Utilities Authority (YCUA) 2777 State Ypsilanti	8 a.m. - 4 p.m. Monday through Friday, Closed Saturdays, holidays

Figure 3 is a map of the Septage Receiving Stations locations in southeast Michigan. Included is the location of the Wyandotte Wastewater Plant that is expected to be open again in 2002 for septage disposal. The plant has not received septage since it began major construction work at the plant. The arcs around the plant locations represent 15 miles, the distance within which a hauler could be required to use a POTW, if it is available to accept septage.

Recreational vehicle waste can be taken to the following public locations.

- Detroit Wastewater Treatment Plant, 9300 West Jefferson, Detroit
- Southeastern Oakland County, 29132 Stephenson Highway, Madison Heights
- Feisters RV, 37401 Ford Road, Westland
- A & S RV Center Inc., 2375 Opdyke, Auburn Hills
- Walt Michal's RV Center, 44700 I-94 Service Drive, Belleville

3.3 Septage Disposal Sites Descriptions

Visits were made to each of the septage disposal sites tributary to the DWSD sewers. The following are observations from those visits.

3.3.1 Detroit Wastewater Treatment Plant

9300 West Jefferson Detroit

Septage trucks enter the plant and are weighed at a scale house. The hauler signs in and the truck weight is recorded. The truck is directed to a manhole along the fence near the railroad track. The manhole is over the Oakwood sanitary sewer. There is no sign to indicate this is the septage dumping location. The manhole did not have a lid on it. The manhole did have a 10-12 inch diameter flexible hose in the opening and a smaller hose. There is no water provided to clean up the area or wash off the hauler's hose after dumping the septage. A septage truck would block one lane of the road while it is dumping.

The septage truck is weighed after it dumps its load and the hauler provides an orange ticket for each 500 gallons dumped at the plant. DWSD charges $0.02 per gallon for septage disposal.

A weigh station attendant said that three to ten septage trucks dump there daily. Trucks hauling sludge from the plant must also be weighed at this station upon entering and exiting the plant. In the winter, there might be 10 septage haulers using the plant monthly. The attendant also indicated that if he suspected a problem with a load of septage, he would take a sample for testing.

A second manhole is provided as a back up for dumping septage. It is located at pump station #9. This manhole is in the middle of the road. The lid was on the manhole and it did not appear that the manhole had been opened for a long time.

3.3.2 Oakland County Septage Disposal Facilities

The Oakland County Drain Commission operates three septage disposal facilities that are tributary to the DWSD sewerage system. There is also a new septage receiving station under construction.

Haulers must buy tokens in order to use the septage disposal facilities. Tokens are sold at the Drain Office building at 1 Public Works Drive, off of Watkins Lake Road in Waterford Township. Oakland County charges septage haulers a fee for operation and maintenance of the sewer lines. The cost of a token includes the DWSD charge and the Oakland County operation and maintenance charge. The cost of septage disposal ranges from 2.8 cents per gallon (3000 gallon tank) to 4.8 cents per gallon (500 gallon tank). The full table of Oakland County Septage Waste Unloading Charges is in Attachment 3 in Appendix A.

The following is a description of each site.

1200 Telegraph
Pontiac

On July 18, 2001, DWSD was at the site to collect samples of septage from haulers. One truck entered the site and another septage hauler turned away after spotting the DWSD truck.

The site consists of a dirt driveway leading to the concrete disposal pad, token box, buried weight sensitive plate that raises the gate when a token is placed in the box, a gate with a wooden arm, a concrete pad sloped to the sewer drain, a wooden wall about three feet high on three sides of the pad, video camera on a pole, light on a pole, a garden hose that runs continuously and two wooden buildings to house the video equipment and parts. The sanitary sewer receiving the septage is about 24 inches in diameter.

To dispose of a load of septage, the hauler backs up to the token box, deposits a token in the box and backs over the buried plate. The gate rises and the truck continues to the concrete pad. At the pad the hauler places the hose from the truck into the sewer opening and opens the valve to discharge the septage into the sewer. The hauler washes the concrete pad and hose and leaves.

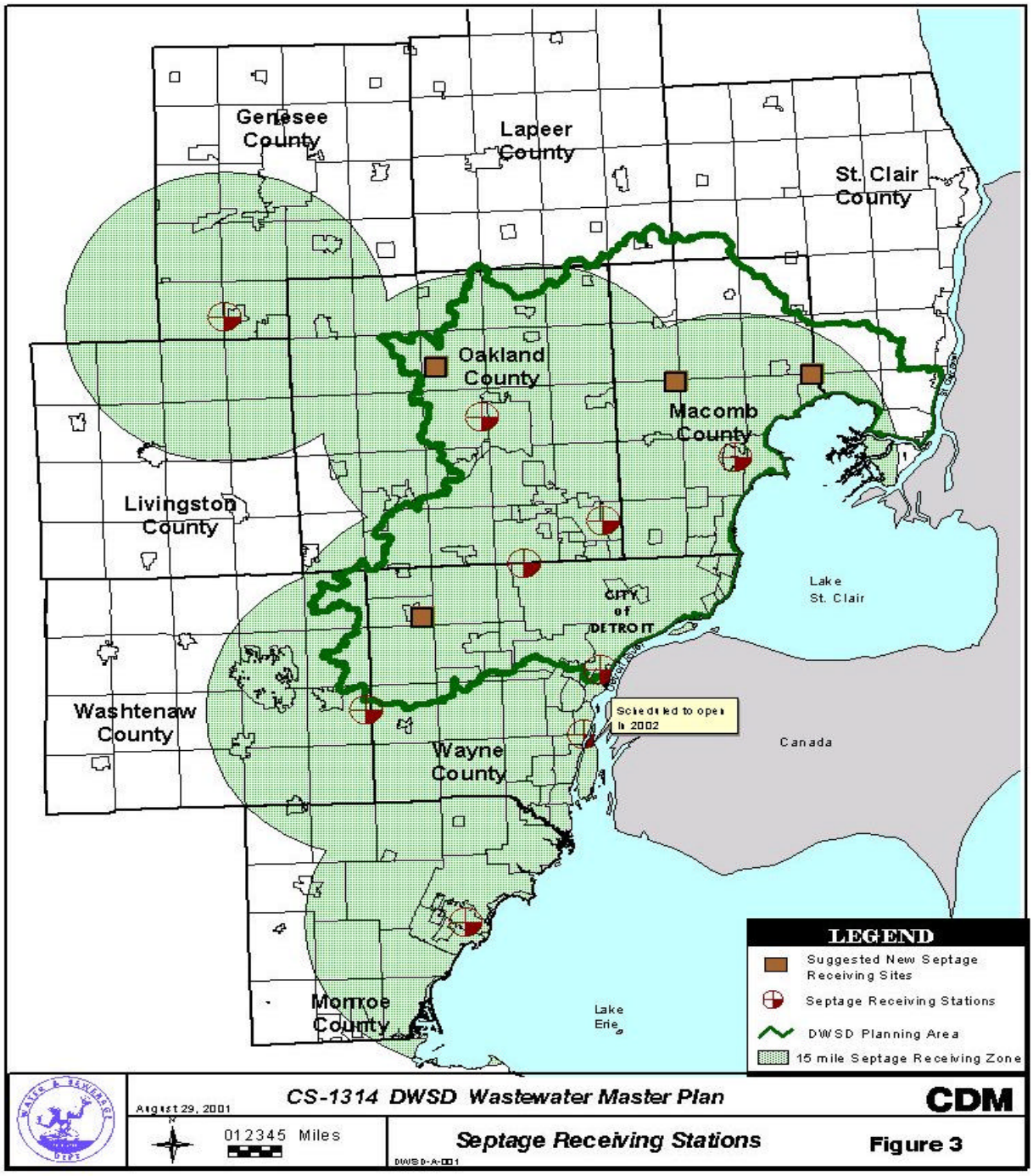
A videotape dedicated to the site is changed twice a week. Tokens are collected from the box about once a month.

The site needs grading occasionally to keep the pressure weight pad operating. The water hose has been stolen in the past. Freezing of the water line can be a problem. This site ceased receiving septage April 15, 2002. See the description of the new site that follows.

Pontiac Septage Disposal Facility
1155 Cesar Chavez, opened March 15, 2002

This site is just over the fence from the old site off Telegraph Road. The site consists of a concrete road, drying bed for catch basin cleaning waste, garage, toilet, video surveillance, fence, dumpster pad, four openings for septage dumping, two frost- proof hydrants for water, card-activated gate and automatic gate for exiting. Sewer openings are on either side of a concrete island that has two water spigots.

The site is designed to operate with minimal staff. The main duty consists of changing the videotape. To dispose of a load of septage, the hauler will enter a coded card into the entrance gate slot, drive forward to a sewer opening, place the hose from the truck in the sewer, open the valve on the truck and dump the load. The area should be washed down before the hauler exits through the exit gate. Four haulers could use the four sewer openings simultaneously.


Genesee County
Lapeer County
St. Clair County
Oakland County
Macomb County
Livingston County
Lake St. Clair
CITY of DETROIT
Washtenaw County
Scheduled to open in 2002
Canada
Wayne County
Monroe County
Lake Erie
LEGEND
Suggested New Septage Receiving Sites
Septage Receiving Stations
DWSD Planning Area
15 mile Septage Receiving Zone
August 29, 2001
012345 Miles
CS-1314 DWSD Wastewater Master Plan
CDM
Septage Receiving Stations
Figure 3

Southeastern Oakland County

29132 Stephenson Highway
Madison Heights

The site is at the 12 Towns treatment facility. It is in the northwest corner of 12 Mile and Stephenson Highway. The site is fenced, has a paved circular drive, an offset in the drive with a sloped concrete pad and sewer opening, video cameras and water spigot. The sewer lead connects to a combined sewer 15 feet wide. The septage forms a pile under the sewer lead in the 15-foot sewer since flow is low in dry weather. This can result in odors. There is a restaurant adjacent to the site that has complained of odors. The site has been in operation about 30 years. This site is likely to be abandoned during construction of the new drain that will go through this area.

To dispose of a load of septage, the hauler walks into the garage, puts tokens in the coffee can, signs the register and drives to the offset. The hose from the truck is placed in the sewer opening and septage is released to the sewer. Most of the entries in the register are from two haulers. Comparing the SOCSDS Dump Site Log Sheet against the list of tokens purchased by one hauler for January to May 2001 indicated that 88 loads were dumped but only 50 tokens had been purchased. The other hauler purchased 30 tokens and dumped 31 times. At least one token is required for every load dumped.

The site is also used to dispose of recreational vehicle (RV) waste. There is no charge for RV waste. RV users have a reputation for making a mess and leaving it to the septage services or county workers to clean it up. DWSD was at the site to collect samples from the haulers.

22440 Eight Mile Road
Southfield

The site is located on the north side of Eight Mile Road just west of Lahser at the site of an Oakland County Water building. The site has a paved road, token box, gate, video camera and concrete pad sloping to a sewer. There is no hose for washing down the area even though water is there for automatic sprinkling, a fire hydrant and outside spigots to the rear of the Water building.

To dispose of septage, the hauler drives in off of Eight Mile Road, backs onto the grass, pulls forward to the token box, and deposits a token. The gate raises and the hauler pulls forward to put the hose from the truck into the sewer opening. The hauler must back up to enter the site because of a fire hydrant location at the entrance.

Drain Office staff lock and unlock the lid over the sewer opening to open and close the facility. A staff person at the site said the lid is not on the sewer most Monday mornings. The video camera is not working. Since the exit gate is broken, a hauler could use the facility without depositing a token. DWSD was there to collect samples from haulers.

3.4 Revenue and Fees

The Oakland County Drain Office sends monthly payments of token sales to DWSD. The statement identifies haulers and the number of tokens each purchased. Oakland County collects a fee for each token sold based on tanker size. Total charges range from 4.8 cents per gallon for a 500 gallon tanker to 2.4 cents per gallon for an 8000 gallon tanker. Nationally the "median cost of disposal (tipping fee) typically ranges from 3 to 6 cents per gallon. " Septage Management, National Small Flows Clearinghouse, 1998.

DWSD also sells tickets at the first floor DWSD office, 735 Randolph, Detroit. The rate for disposal is $10 for every 500 gallons or 2 cents per gallon. Gallons are determined by truck capacity. A truck is charged for the total volume of the truck whether it is full or not. Haulers with various capacities are charged by average truck volumes.
Oakland County collects the tokens from boxes about once a month. Bogus tokens are occasionally found in the boxes. Total revenue from the sale of tokens and tickets for 2000 was $290,556.

DWSD charges less than other Michigan disposal plants. The range of charges for disposal at plants in Michigan ranges from 2.8 cents to 6.74 cents per gallon.

The plotting of septage tokens and tickets sold gives a pattern of septage demand. Figure 5 compares 37 months of information on sales and gallons of septage. For all 37 months, the peak purchase months were May and June. January was the lowest month. Peak volume was in June (2,600,000 gallons) while January was about 550,000 gallons.

3.5 Septage Haulers Comments

In October 2001, Camp Dresser & McKee surveyed area septage haulers on their viewpoints on the current status of the industry in the planning area. The survey was conducted by mail and included questions on satisfaction of use of the existing septage disposal facilities, sanitary issues, condition of the facilities, funding, etc. Ten haulers responded.

Their main concerns were:

- Building new septage receiving facilities closer to areas that rely on OSDS now and nearer areas of anticipated growth that will use OSDS.
- Sanitary issues. Primarily ensuring proper cleanup tools at septage receiving stations.
- Gaining input from haulers when making systemic changes or building new septage receiving facilities.
- Instituting better monitoring processes.
- Exploring new methods, both public and private, of funding septage hauling.

The full survey and responses appear at the end of this report as Attachment 4 in Appendix A.

4. Future Projections

There are several variables that affect the amount of septage that is pumped by septage haulers and taken to the septage disposal sites tributary to the DWSD wastewater treatment plant. These factors include:

- Cost of disposal
- Distance and time to transport septage from the place pumped to the disposal facility
- Number of existing on-site sewage systems
- Age of the on-site systems
- Operational problems with on-site systems
- Time of the year
- Availability of land disposal sites
- Regulatory requirements
- Frequency of pumping individual septic tanks

Given these variables, the amount of septage to be generated yearly in the future is based on the following assumptions:

- Existing septic tanks will be pumped out either every five or 10 years.
- Land disposal sites will be not be used in the septage service area.
- Cost, age, distance, time of year, operational problems will not change enough to impact the annual amount of septage pumped.
- Regulatory requirements might result in pumping of septic tanks every five years.
- Population growth in relevant areas where growth will result in one OSDS for every 2.5 persons.
- In communities where partial sewerage is planned, half of the new construction will be served by OSDS.

4.1 Population Projections

Communities with on-site sewage systems were identified from the 1990 census. Database C90STF3A from the 1990 census provides the total number of housing units and the housing units served by septic tanks or cesspools. The Sewer Update map generated by SEMCOG based on surveys sent to communities was consulted for information on planned sewer extensions. Also consulted on community plans for sewer service was the report prepared for the DWSD Master Plan by Spalding DeDecker Associates, Inc. on Wastewater Services in Macomb and Oakland Counties. Population per household has decreased since 1990. An occupancy rate of 2.5 persons per household was assumed for 2000 to 2050.

To project the future amount of septage that will be generated, communities in each of the five counties likely to be served by OSDS were extracted from the SEMCOG population projections for 2000 to 2050. The five counties are Wayne, Oakland, Macomb, St. Clair and Lapeer. These counties were selected since they are the ones most likely to use the DWSD septage disposal stations. A septage service area was developed based on the distance a hauler would have to travel to dispose of septage. Figure 1 shows the septage service study area. Areas in St. Clair and Lapeer counties that are outside the DWSD sewer study area were included since these could be served by new septage disposal stations and are likely to need septage disposal if land disposal becomes more difficult. (See Chapter 2 on regulatory impacts on land disposal). In addition, the proposed amendments to the current state law on septage transporting would increase from 15 to 25 miles the distance where haulers are required to use a septage receiving facility.

A second list was prepared for communities planning to partially extend sanitary sewers. For these communities it was assumed that part of new construction would be served by OSDS.

The population sheets and lists are included in the Attachment 5 in Appendix A.

Table 2 lists the number of planning area OSDS that are expected to exist in each county by decade from 2000 to 2050. Lapeer and St. Clair counties are expected to increase the total number of OSDS, while Oakland, Macomb and Wayne are expected to have fewer. The amount of septage pumped at five or 10-year intervals at each house was estimated at 1,500 gallons.

In 2000, DWSD reported that it received approximately 15 million gallons of septage. Table 2 includes more than 600,000 gallons of waste from portable toilet servicers. (Some haulers pump both septic tanks and portable toilets.) Adding in the portable toilet waste to projections for septage quantities shows that the amount of septage likely be to be disposed of at the DWSD septage stations ranges from 20.5 million to 40.3 million gallons in 2020 to 15.5 to 32.2 million gallons in 2050. The difference in the two figures reflects pumping of septic tanks every five or 10 years.

Table 2. Projected OSDS 2010-2050

	2000	2010	2020	2030	2040	2050
Lapeer	6,230	7,070	8,668	10,015	11,363	12,710
Macomb	25,000*	23,288	22,244	21,387	20,448	19,320
Oakland	80,000*	76,662	72,478	67,863	63,089	43,890
St Clair	16,080	19,335	21,714	23,192	24,546	25,714
Wayne	6,300	5,300	4,300	3,300	2,200	1,100
	133,610	131,655	129,404	125,757	121,646	102,734
Amount of septage/year if tanks pumped once/10 yr Gallons/year						
(assumes 1500 gal./tank)	**15,000,000	19,748,250	19,410,600	18,863,550	18,246,900	15,410,100
Portable Toilet Waste		700,000	800,000	900,000	1,000,000	1,100,000
Total	**15,000,000	20,448,250	20,210,600	19,763,550	19,246,900	16,510,100
If tanks were pumped Every 5 years						
Total with portable toilets Gallons/year	**15,000,000	40,196,500	39,621,200	38,627,100	37,493,800	31,920,200

*Estimate of number of onsite sewage disposal systems by local health department

**Amount of septage received at DWSD septage disposal facilities

Figure 4 is a plot of gallons of septage disposal quantities that could be discharged to the DWSD septage receiving stations from 2010 to 2050. The volume would peak in 2020 and then gradually decrease.

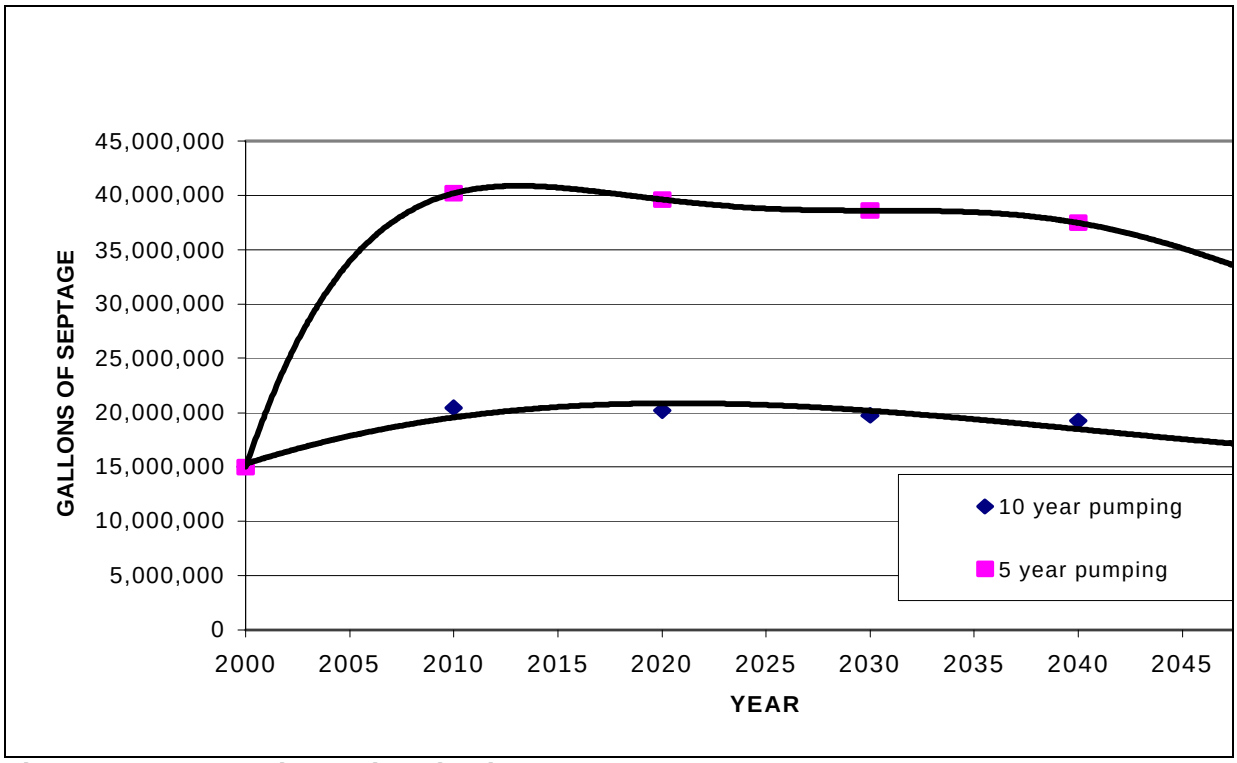


Figure 4. Septage Disposal Projections

The questionnaire sent to haulers in October 2001 asked them if they expected to increase or decrease the amount of septage taken to DWSD septage receiving facilities. Several haulers indicated they expect a 10% increase in the amount of septage they would be hauling in the future. Their responses appear in Attachment 4.

4.2 Septage Impact on the DWSD Sewerage System

Septage haulers' purchasing records of tickets and tokens for disposal of septage into the DWSD sewerage system were reviewed. The hauler records reviewed were for 37 months from January 1996 to August 1997 and from January 2000 to May 2001. Calculations were made of the impact that the quantity and quality of septage would have on the DWSD sewerage system.

4.3 Quantity

Based on the tickets sold and the average size of the haulers' trucks, volumes of septage were calculated for each month. Figure 5 is a graph of the monthly ticket purchases for septage disposal. The highest monthly volumes of septage calculated were for May and June 2000 at 2.6 million gallons (MG).

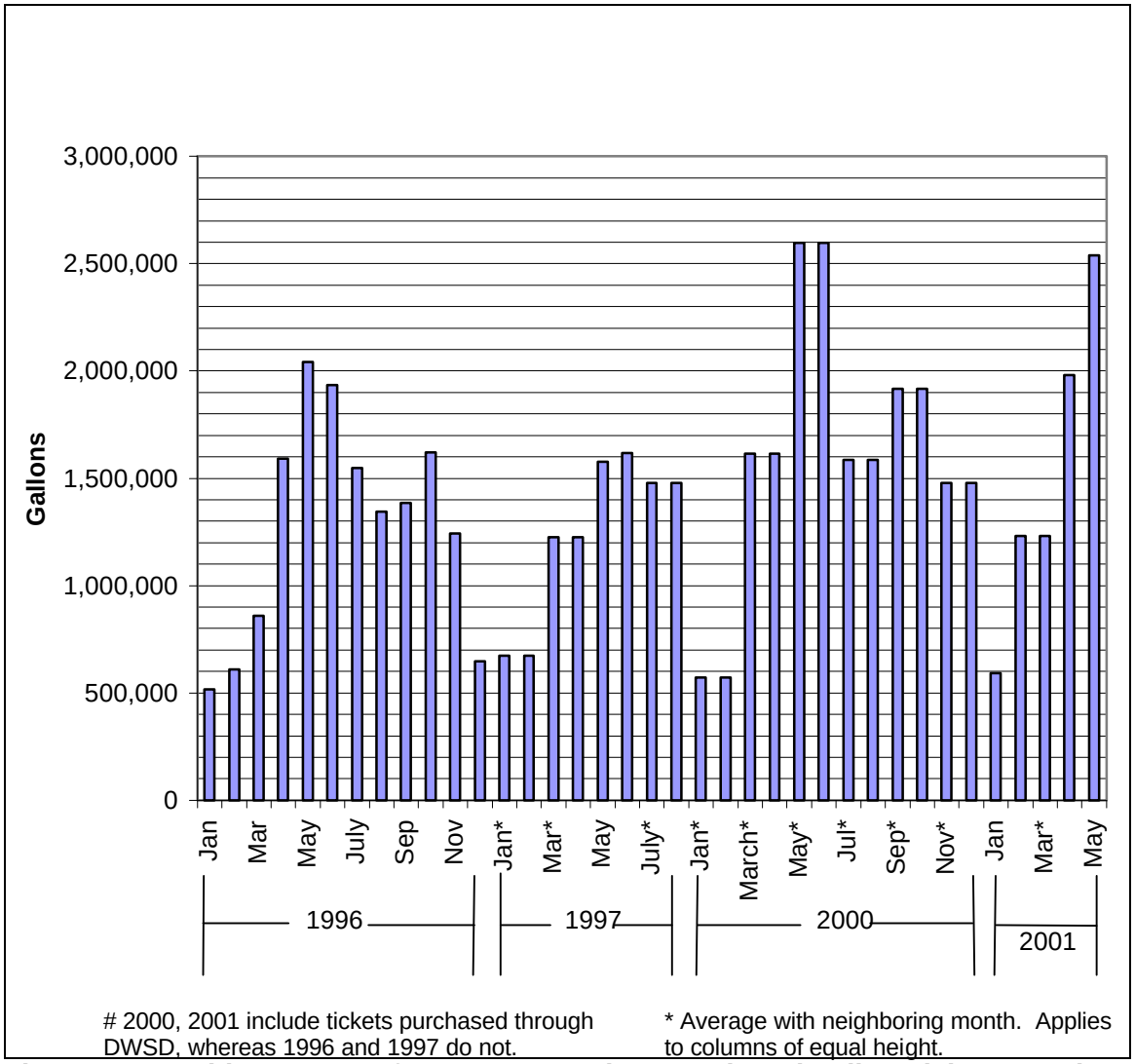


Figure 5. Monthly Amount of Septage Based on Septic Unloading Tickets Purchased

The average monthly volume for 1996-97 was 1.12 MG. For 2000-01 it increased to 1.6 MG. This is an increase of almost 0.5 MG per month from 1996-97. The estimated June 2000 septage quantities were compared to the information on the June 2000 DWSD Wastewater Treatment Plant Final Monthly Record. The total flow in June 2000 to the DWSD sewage treatment plant was 21,152 MG. Using the maximum monthly flow of May and June 2000, the 2.6 MG of septage would be about 0.01percent of the total wastewater flow.

Average daily flows were calculated by dividing the average monthly flows by 23 days. Twenty-three days were used for days of discharge as the majority of septage is disposed of during five days of the week. That would provide about 23 working days per month. The average daily flow for 1996-97 would be 48,683 gallons per day. The average daily flow for 2000-2001 would be 69,380 gallons per day.

4.4 Quality

Septage concentrates the solids in sewage. The Table 3 compares septage to wastewater and sewage sludge.

Table 3. Septage Characteristics

Parameter	Ratio of Septage to Wastewater [1]	Ratio of Septage to Sewage Sludge [2]
Total Solids	56	0.5
Biochemical Oxygen Demand	32	0.4
Chemical Oxygen Demand	30	
Total Kjeldahl Nitrogen	18	0.9
Total Phosphorous	31	0.5
Oil and Grease	80	

(1) From Metcalf & Eddy, Inc. 1991 (Ref 1)
(2) Septage Management In Ohio, 1995 (Ref. 2)

The peak months for septage hauling appear to be May and June. See Figure 6. The highest volume for those months was 2.6 million gallons.

Table 4 lists the amount of suspended solids, CBOD, ammonia nitrogen, phosphorous and mercury that would go to the DWSD sewerage system during the month of highest flows. Mercury amounts were also included since this has been a concern in the past.

Table 4. Maximum Monthly Septage Contributions to DWSD Sewage Treatment Plant

Parameter	Septage[1] Concentration (mg/l)	DWSD[2] Pounds	Septage[3] Pounds	Percent
Suspended Solids	34,100	30,764,000	738,377	2.4%
CBOD	31,900	15,671,000	690,740	4.4%
NH3-N	97	197,000	21,000	1.1%
Phosphorous	210	492,780	4,547	0.9%
Mercury	0.23	(No data)	4.98	---

1) Concentrations of septage parameters taken from Septage Handling Manual of Practice
2) June 2000 Primary Influent Quality, from DWSD Final Monthly Record
3) Based on maximum monthly flow of septage of 2,597,250 gallons, June 2000.

4.5 Sample Calculation

Flow of 2,597,250 gal / month x 34,100 mg / l s.s. x 3.785 liters / gal. X $\frac{\text{pounds}}{454{,}000 \text{ mg}}$ =

738,377 pounds of suspended solids for June 2000 from septage.

DWSD reported that the results of its septage sampling data were so variable that its use in this document was questionable.

5. Needs, Options and Recommendations

5.1 Possible Additional Septage Receiving Locations

DWSD, septage haulers and local health departments have requested that additional septage receiving stations be located in the areas nearer to where septic tanks are located. Having more convenient septage disposal stations would reduce demand for land disposal of septage. The locations suggested included six in Macomb County, two in Oakland County both west of Pontiac, and one in the Plymouth-Northville area in Wayne County.

Criteria to consider when siting a septage receiving station include:

- odor containment or isolation so odors are not a nuisance
- adequate capacity in the sewer line to transport septage so that solids are not a problem
- truck traffic routing and safety
- easy and efficient access by haulers
- ability to queue trucks so waiting lines are not a hazard
- local zoning
- year round availability

Macomb County has published a report of septage management practices titled "Septage Production, Transport and Disposal, Macomb County Health Department, June 2000." This report includes comments from cities and townships regarding possible septage disposal locations:

Chesterfield Township	Macomb DPW pump station, 26 Mile Road (DWSD issues of non-contract septage and portable toilet chemicals)
Clinton	Shook Road, 42 inch trunk sewer, septage plus vactor waste
Macomb	Station at Garfield and 21 Mile Roads

Mt. Clemens	Improve present dump station, present station is underutilized
Shelby and Washington	Willing to consider dump station,
Washington Twp.	Desired site for a new septage station according to Macomb County Health Dept.
Lennox Township	Possible septage disposal site

New Baltimore is also a location to consider for serving Macomb and St. Clair counties. The Mt. Clemens POTW is the only septage disposal site in Macomb County. Among other wastewater treatment plants in Macomb County, the cities of Romeo, Armada, Richmond and Memphis would likely need a holding basin to receive septage.

One of the 11 communities in Macomb County tributary to the DWSD system might be a location for a facility. Capacity in the trunk sewers may be a limitation for the Garfield Road pipe between 18 and 21 Mile Roads and in Chesterfield Township from Joy Boulevard to 26 Mile Road. Payment to the Macomb County Waste Water Disposal District may be necessary. A Macomb County site could be modeled after the Oakland County operation for septage disposal.

Wayne County septage haulers requested a disposal facility in the Plymouth- Northville area, at Henry Ruff DPW and at the Detroit Metro Airport. There are many OSDS south of the airport. When the Wyandotte Wastewater Treatment Plant again receives septage, it would serve the area south of Detroit Metro Airport.

DWSD related in its memo of August 16, 2001 that septage haulers were interested in sites in:

- North / central Macomb County
- North / western Oakland County
- Livingston County
- Southern Wayne County
- Northern Monroe County

A survey was sent to 53 septage waste haulers October 12, 2002. The septage haulers suggested additional septage disposal sites. The areas they suggested include:

- Northern Macomb
- Shelby

- Southeast Corner Wayne County
- None needed
- West side Oakland County
- Commerce Township
- Dequindre Road, dividing Oakland and Macomb Counties
- North of 30 Mile or 26 Mile and Hayes in Macomb County
- Eight Mile, west Oakland County at Wayne County border
- White Lake Township, M-59

5.2 Benefits of Using a Wastewater Treatment Plant for Septage Disposal

Some benefits of using a Wastewater Treatment Plant for Septage Disposal include:

- Revenue for the treatment plant
- Use of excess plant capacity
- Year-round availability to septage servicers
- Treatment plant becomes full service sewage treatment, servicing sewered and unsewered areas.
- Greater reliability and accessibility than land disposal sites.
- Elimination of groundwater and surface water contamination and odors related to land application of septage.

A biosolids handling company could provide septage disposal if it could take septage from several haulers. State law makes a joint receiving station illegal except as part of a POTW NPDES permit. The law would have to be changed to allow a transfer station to receive waste from several haulers.

5.3 Observations

The existing septage disposal locations are getting farther from the locations where septic tanks are used for waste disposal. This increases costs for labor and fuel and increases traffic and chances of accidents. Haulers are concerned about septage freezing in trucks in the winter when required to travel long distances to a disposal facility. A few new sites will provide better service to the septage customers, and reduce fuel use, labor costs and traffic. The closing of the Stephens

Highway location also provides an opportunity to explore other sites for a disposal facility. The joint report on septage disposal in Macomb and St. Clair counties provides suggestions for possible locations. Since there are many local issues related to a septage facility, following the Oakland County model would be a logical approach. The counties should work closely with DWSD staff in planning for a new facility. Items to consider in locating a site are; working with local communities to host a facility, meeting local requirements, handling financing and assuring flow capacity in the sewer.

State funding might be possible through the Clean Michigan Initiative or grant money for watershed-related projects.

Given the information gathered for this document, three areas are recommended for consideration for new septage receiving stations. One should be located near the Macomb County / St. Clair County line; one should be located in the northern part of Oakland County; the third should be located in the Plymouth / Northville area in Wayne County.

A review of the process for dumping at the Stephens Highway site might result in greater recovery of costs for dumping there.

Since the Eight Mile Road site has been left open from Saturday morning until Monday at 4:30 p.m., the video camera there is not working, and the exit gate has been broken, dumping may be occurring there without use of tokens. The locking of the manhole, replacing the exit gate and reinstating videotaping at the site in Oakland County should reduce unauthorized dumping.

The 15 MG of septage being discharged to the DWSD system in 2000 is likely underestimated. At least one hauler had dumped more loads than tokens purchased and there was possible unauthorized use of the septage receiving station on Eight Mile Road. The truck that Thorton Septic Haulers was taking to the Pontiac site was larger than the 2,000 gallon token they pay for. Bogus tokens are still being found in the Oakland County token box.

DWSDS also receives sludge from Oakland County wastewater treatment plants. In the year 2000, 437,500 gallons of sludge was discharged in the DWSD system from 15 facilities. This sludge can be taken to the Oakland County septage receiving stations or to the Lapeer Road site in Orion Township, the Freedom Road Site in Farmington Hills or the Road Commission Site in Pontiac. Chesterfield Township in Macomb County also has permission to discharge sediment dewatering wastewater to the DWSD system. In 2000, 250,000 gallons were authorized for disposal.

Septage should add 4 percent or less CBOD to the treatment plant during the month of highest discharge of septage. During other months, the impact would be less. Suspended solids, ammonia nitrogen and phosphorous are lower percentages of the wastewater flow.

If DWSD doubled its charge from two cents per gallon to four cents per gallon, and the cost was passed on to customers in Oakland County, it would increase the cost in Oakland County to a

range of 4.4 cents to 6.8 cents per gallon. This could provide funds to assist in the establishment of additional septage receiving sites.

The continuation of on-site sewage disposal systems in urban areas poses a health risk and introduces polluting substances in close proximity to many people. The waste also threatens surface water and groundwater. These reasons add to the financial factors for making use of existing infrastructure, and connecting on-site sewage systems to sanitary sewers when possible. The 331 possible sites in Detroit that may have on-site sewage systems should be investigated to determine their method of sewage disposal. If they are not connected to city sanitary or combined sewers, they should be connected. If they are connected they should be paying for sewage disposal.

Conferences or disciplinary action should be considered for septage haulers that fail to have trucks tested when DWSD is taking samples. Avoiding sampling is suspicious behavior and surveillance is needed to protect the sewer system from receiving wastes that could harm the system or create liabilities for DWSD and its customers.

Contact with the haulers indicates that they are interested in providing safe and sanitary disposal of septage, want to make a profit and support whatever can be done to improve the efficiency of hauling and disposing of septage.

6. References:

1. Septage Handling, Manual of Practice No. 24, 1997, NWEF
2. Septage Management in Ohio, 1995
3. Septage Management National Small Flows Clearinghouse, Fact Sheet 1998
4. Michigan Septage Management Guide, MDEQ
5. Cleaning Up Lake St. Clair The need for septage disposal, Macomb/St. Clair Intercounty Watershed Management Advisory Group.
6. Septage Productions, Transport and Disposal, Macomb County, Michigan June 2000.
7. Office of the Inspector General, Audit Report, Water, Biosolids Management and Enforcement, 2000-P-10, March 20, 2000.
8. Status of the On-site Wastewater Industry in Michigan Year 2001, A Synopsis of the Regulation of On-site Wastewater Treatment and Disposal in Michigan, MDEQ.
9. Handbook Septage Treatments and Disposal, EPA-625/6-84-009, October 1984.
10. Guides to Septage Treatment and Disposal, EP_/625/R-94/002, September 1994.
11. Macomb County Office of Public Works Preliminary Feasibility Report on a Septage Disposal Facility, March 13, 2001.
12 Septage Pumping and Disposal in St. Clair County, memo from Steve Demick, Program Coordinator to Ron Miller, St. Clair Environmental Health Director, August 10, 2000
13. Presentation made at Southeast Environmental Health Directors meeting, June 14, 2001.
14. Septic System Warranty Program Available, Small Flows Quarterly, National Small Flows Clearinghouse, Spring 2001, Volume 2, Number 2.
15. DWSD memo, April 2, 1999, Septic Tank Investigation, Larry Witt.

16. Wisconsin Department of Natural Resources, Chapter NR113, Servicing Septic of Holding Tanks, Pumping Chambers, Grease Interceptors, Seepage Bends, Seepage Pits, Seepage Trenches, Privies, of Portable Restrooms.

7. Appendix A:

Attachment 1 Detroit Health Department Reports Related to Onsite Sewage
Attachment 2 Detroit Water and Sewerage Department Water Only Accounts
Attachment 3 Oakland County Septage Waste Unloading Charges
Attachment 4 Septage Haulers Questionnaire and Responses
Attachment 5 Population Projections for OSDS Communities

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
16580	Ridge	Road	48219	low area needing sewers, 1964 letter
16596	Ridge			drawing from DWSD on sewer 1962
16610				
16625				
16643				
16650				
16653				approximate house #
16661				
16674				
23315	South Riverdale		48219	approximate house #
23329				
22837	McNichols	Road		
22861				
22801	West Six Mile	Street	49219	septic tank collapsed, to surface
18301	Redfern		48219	sewer too low, 1994
16905				
	Six Mile and	Riverdale		septic tank reported, 1989
23500	West Seven	Mile		Edgewater Park, some plumbing to ST1961
14649	Riverside	Drive		worn out septic tank, 1957
122	Fort			sewer feasibility study, 1966
12736	Denmark		48217	sewer too expensive 1966
12740				unlawful discharge 1966
12746				
12750				
12902				
12910				
12916				
12930			48217	
13196	Powell			odor complaint 1964,sewer too expensive
13166				
641	Heidt			south of Fordson Island, sewer too expensive
101	Hastings			Jefferson Terminal Wareh.,privy, 1961
700	East Atwater			lakeshore Warehouse, sewage to drain 1961
	Brush	Street		Yard at GTRR septic tank to river, 1961

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
22153	Verne			waste to ground, 1962
22205	Verne			septic tanks failure, 1962
22211	Verne			septic tanks failure, 1962
22221	Verne			septic tanks failure, 1962
5747	Neff			no sewers behind homes
12805	Chapel	Avenue		5 houses with exposed sewage, ST

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

12831	Chapel	Avenue		1956
12875	Chapel	Avenue		
12931	Halley	Street		
12623	Chapel		sewage out top bank, 1956	
12647	Chapel		sewage out bank bottom	
12671	Chapel		sewage out top of bank,	
12725	Chapel		sewage off right corner, 1956	
600	Atwater		septic tank permit 1973	
	Annchester		E. side of Annchester ST permit1948,between 8 mile and Hissel	
20570	Annchester		E. side of Annchester ST permit1948	
19410	Archdale		ST permit 1944	
	Archdale		W. side of Archdale, permit 1939 between Pembroke and St. Martens	
19773	Archdale		permit, 1938	
	Artesian		lot 159, permit 1941, Kirkwood & Ford	
5661	Artesian		permit 1950	
5682	Artesian		permit 1942	
6000	Ashton		permit 1950	
6240	Ashton		permit 1942	
1440	Atwater		permit 1938	
	Beaverland		permit 1964,between Curtis & Dead End	
12064	Beaverland		permit 1947	
19631	Beland		permit 1945	
19205	Berg		permit 1941	
19437	Berg		permit 1946	
20134	Berg		permit 1945	
20441	Berg		permit 1941	
5660	Artesian		permit 1947	

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
5601	Brace			permit 1946
5710	Brace			permit 1941
5771	Brace			permit 1943
5784	Brace			permit 1938
5814	Brace			permit 1948
6010	Brace			permit 1940
20466	Grandview			permit 1947
13684	West Buena Vista			permit 1949
13811	West Buena Vista			permit 1948
13870	Chadwick			p. 1941
14100	Chadwick			p. 1945
12681	Chapel			p. 1950, no evidence of sewage
12895	Chapel			p. 1946
20003	Cherokee			p. 1950

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

20310	Cherokee			p. 1950
20385	Cherokee			p. 1952
	Chippewa			p. 1946, Betw. Berg & McIntyre
	Chippewa			p. 1937, bet. Berg & Farmington Rd.
23071	Chippewa			p.1940
	Connors			p. 1937 ,lot 534, 535
	4220 Connors			bet. Pech &Waveney
4230	Connors			p. 1937
19430	Cooley			p. 1938
14875	Dale			p. 1961
15721	Dale			p. 1948
29	Dale			p. 1949
7650	East Davison	Avenue		p. 1948
20072	Dean			p. 1943
19603	Derby			p. 1943
	Dix			north side of Dix, p. 1953
8800	Dix			p. 1952
910	Dix			request for permit 1982, office
13601	Dolphin			p. 1932

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
12670	Dolson	Street		septic tank complaint 1956, failed 1963
12684	Dolson	Street		p. 1955
12859	Dolson	Street		p. 1937
6030	East Eight Mile	Road		p. 1946
11000	East Eight Mile	Road		p. 1953
11176	East Eight Mile	Road		p. 1951
11400	East Eight Mile	Road		p. 1948
11500	East Eight Mile			p. 1951, 3 permits
11540	East Eight Mile			p. 1951
12250	East Eight Mile			p. 1955
14858	East Eight Mile			p. 1954
14617	West Eight Mile			p. 1942
23605	West Eight Mile			p. 1962
14645	West Eight Mile			p. 1950
14835	Eight Mile			p. 1943
18605	West Eight Mile			p. 1937
19245	West Eight Mile			p. 1951
19601	West Eight Mile			p. 1949 for two permits for 19623 WEMile
19645	West Eight Mile			p. 1951
20771	South Eight Mile	Road		p. 1947
20771	West Eight Mile			p. 1948
22241	West Eight Mile			p. 1950

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

22901	West Eight Mile			p. 1946
24605	West Eight Mile			p. 1952
24737	Eight Mile	Road		p. 1946
12490	Evergreen			p. 1951
20250	Evergreen			p. 1949
23900	Fenkell			p. 1949
23914	Fenkell			p. 1953
24530	Grand River			p. 1966
19156	Filer			p. 1948
18728	Five Point			p. 1940
20520	Five Point			p. 1941

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
	Ford	Road		p. 1946
	Ford	Road		p. 1947
18610	Ford			p. 1941
18650	Ford	Road		p. 1947
18730	Ford	Road		p. 1942
1825	East Forest,			p. 1959
1845	Dorest	Avenue E.		p. 1951
1321	South Fort			p. 1951
1321	South Fort	Avenue		p. 1945
	Frederick			p. 1948,outlot 28
11990	Freud			p. 1946
24829	Grand River			p. 1946
20465	Grand River			p. 1953
18244	Grayfield			p. 1949
18297	Grayfield			p. 1942
18304	Grayfield			p. 1940
18311	Grayfield			p. 1946
18334	Grayfield			p. 1946
18362	Grayfield			p. 1939
18374	Grayfield			p. 1948
18414	Grayfield			p. 1945
6720	Greenfield			permit no date
12645	Greenfield			p. 1948
12704	Greenfield			p. 1952
5651	Greenview			p. 1946
5681	Greenview			p. 1949
12899	Greydale			p. 1965, two permits, p. 1950
12901	Greydale			septic tank with waste to surface,1970
24239	Grove			p. 1943
13589	Halley			p. 1944

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

17911	Hamilton			p. 1949
3140	Hammond			p. 1944
No. 4	Harper			p. 1948

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
19344	Houghton			p. 1945
19712	Houghton			p. 1944
2475	Hubbard			p. 1937
9330	Hubbell			p. 1946
12264	Hubbell			p. 1927
20470	Hubbell			p. 1945
	Ilene			p. 1942, bet.Penn RR& Lyndon
14380	Ilene			p. 1941
9125	Jefferson			p. 1951
12908	Lasher			p. 1948
12918	Lasher			p. 1942
16290	Lasher			p. 1944
16626	Lasher			p. 1941
16730	Lasher			p. 1942
16742	Lasher			P. 1947
16844	Lasher			p. 1948
19447	Lasher			p. 1941
22137	Kessler			p. 1940
22191	Kessler			p. 1939
16159	Lenore			p. 1947
16200	Lenore			p. 1950
16220	Lenore			p. 1946
16661	Lenore			p. 1949
	Livernois			p. 1967, bet. W. Fort & W. Jefferson
10-Feb	Lycaste			p. 1944
21170	margaretta			p. 1949
18319	McIntyre			p. 1950
22625	McNichols			p. 1940
22633	McNichols			p. 1940
22801	McNichols			p. 1946, needed sewer 1964
22821	West McNichols			p. 1955
23641	West McNichols			p. 1952
18401	McIntyre			p. 1949

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
100	Meadowbrook	Avenue		p. 1946

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

8374	Meadowdale		p. 1938
8378	Meadowdale		p. 1938
23210	Meadow Park		p. 1950
8400	Melville	Street	p. 1950
6481	Mettetal		p. 1941
17825	Mound	Road	p. 1948
20101	Mound	Road	p. 1946
20400	Mound		p. 1948
5200	East Nevada	Avenue	p. 1948
	Nevada		p. 1946, Allied Materials Corp.
23050	Norfolk		p. 1945
	Outer Drive		p. 1942,bet RailRoad St & Rolyat
4989	Outer Drive		p. 1941,Sibley Lumber Co.
13572	West Outer Drive		p. 1949, Bert Smokler Co.
11995	West Outer Drive		p. 1940
12003	West Outer Drive		p. 1940
12011	West Outer Drive		p. 1940
12027	West Outer Drive		p. 1933
12457	West Outer Drive		p. 1946
13554	West Outer Drive		p. 1949
22301	Pembroke		p. 1946
22410	Pembroke		p. 1941
20520	Plymouth		p. 1948
22444	Plymouth		p. 1945
18285	Redfern		p. 1952
	Redfern		p. 1949, Redford Golf Course
19214	Redfern		p. 1941
19461	Redfern		p. 1950
19475	Redfern		p. 1948
19500	Redfern		p. 1946
19570	Redfern		p. 1949
	Farmington	Drive	p. 1938, 1/2 mile tile to Rouge River

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
				Bonnie Brook Golf Course
16630	Ridge			p. 1948
16696	Ridge			p. 1955, septic inspection requested 1990
16706	Ridge			p. 1955
16933	West Riverdale			p. 1949
16991	West Riverdale	Drive		p. 1955
23225	South Riverdale			p. 1944
23327	South Riverdale			p. 1954
23339	South Riverdale			p. 1954

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value				
	South Riverdale			p. 1955
14480	Riverside			p. 1944
14444	Riverside			p. 1945
17600	Ryan			p. 1939
22049	St. Martens			p. 1946
20111	Salem			p. 1937
	Schaffer			p. 1940, 8 mile &Chippewa
	Schaffer			between Mellon & Oakwood
201	South Schaefer			p. 1953
377	Schaefer			p. 1948
475	Schaefer			p. 1947
12375	Schaefer	Road		p. 1944
14141	Schaefer			p. 1948
14245	Schaefer	Road		p. 1946
	Schoolcraft			CFSmith Co. bet. Burt&Trinity
21741	Schoolcraft			p. 1950
20839	East Seven Mile	Road		p. 1945
22380	West Seven Mile			p. 1949
	Shiawassee			p. 1941, bet. 7 Mile & Clarita
18961	Shiawassee		48219	p. 1954, existing septic tank 1995
17385	Southfield			p. 1955
5811	Stahelin			p. 1949
6004	Stahelin			p. 1939
13962	Stansbury			p. 1943

Attachment 1 Detroit Health Department Reports Related to On-site Sewage

Numeric Value	Street Name	Street Type	Zip Code	Remarks
13972	Stansbury			p. 1948
	Stocker	Street		p. 1949,Wabash Railroad Co.
12460	Stocker			p. 1947, Trumbull Asphalt Co.
8827	Strathmore			p. 1945
8305	Suzanne			p. 1950
19695	Telegraph			p. 1945
201	Third	Street		p. 1947, New York CentralRR
	12th	Street		p. 1947, Wabash RR
115	12th	Street		p. 1947, Wabash RR
5710	University			p. 1939
5785	Warwick			p. 1946
9001	Westparkway			p. 1951
19000	Winston			p. 1938
19275	Woodbine			p. 1944
19505	Woodbine	Avenue		p. 1940
19511	Woodbine			p. 1942
16621	Wormer			p. 1944
16841	Wormer			p.
16861	Wormer			p. 1941
23880	Dehner			requested sewer connection 1998
11701	Burt Road			8/01 Rouge golf course failure

`

Attachment 2: DWSD WATER ONLY ACCOUNTS

Address	Code
13301 14TH	M
34801 TRUMBULL	M
5129 SELDEN	M
64149 WOODWARD	M
83929 WOODWARD	M
137175 CLAYTON	M
1412891 ARTESIAN	M
1512480 EVERGREEN	M
1612869 ARTESIAN	M
1723501 GRAND RIVER	M
207701 HARPER	M
21678 CLAIRPOINTE	M
2210412 HARPER	M
249650 HARPER	M
258815 HARPER	M
2617171 MACK	M
2718035 SHERWOOD	M
298330 JOHN R	M
3017233 HEALEY	M
3119940 WYOMING	M
3220623 BERG	M
4216942 RIVERVIEW	M
4323880 DEHNER	M
4423850 DEHNER	M
4516110 RIVERVIEW	M
4723642 DEHNER	M
4823600 DEHNER	M
4923570 DEHNER	M
5023564 DEHNER	M
5916658 RIDGE	M
6016551 RIDGE	M
6116601R HAZELTON	M
6223610 DEHNER	M
6518951 SHIAWASSEE	M
6813196 POWELL	M
6913166 POWELL	M
7012380F SANDERS	M
719050 DIX	M
7212851 GREYDALE	M
7313500 GREYDALE	M
749419 HAZELTON	M
929425 HAZELTON	M
939590 HAZELTON	M
9423250 MEADOW	M

U= PLACED MANUALLY
M= GEOCODED

Attachment 2: DWSD WATER ONLY ACCOUNTS

	Address	Code
95	23925 SCHOOLCRAFT	M
96	15778 TELEGRAPH	M
97	15752 TELEGRAPH	M
98	15475 DALE	M
99	23900 KEELER	M
100	15883 WOODBINE	M
101	15880 WOODBINE	M
102	15879 WOODBINE	M
103	24255 PURITAN	M
104	24135 PURITAN	M
106	25025 GRAND RIVER	M
107	19996 IMPERIAL	M
108	20581 FIVE POINTS	M
109	20561 FIVE POINTS	M
110	20541 FIVE POINTS	M
111	20521 FIVE POINTS	M
112	20503 FIVE POINTS	M
113	20493 FIVE POINTS	M
114	20483 FIVE POINTS	M
115	20473 FIVE POINTS	M
116	20463 FIVE POINTS	M
117	20453 FIVE POINTS	M
118	20441 FIVE POINTS	M
119	20431 FIVE POINTS	M
120	20421 FIVE POINTS	M
121	20411 FIVE POINTS	M
122	20097 FIVE POINTS	M
123	20093 FIVE POINTS	M
124	20061 FIVE POINTS	M
125	20025 FIVE POINTS	M
126	20015 FIVE POINTS	M
127	20005 FIVE POINTS	M
128	19985 FIVE POINTS	M
129	19945 FIVE POINTS	M
130	19925 FIVE POINTS	M
131	19919 FIVE POINTS	M
132	19889 FIVE POINTS	M
133	19877 FIVE POINTS	M
134	19865 FIVE POINTS	M
135	19853 FIVE POINTS	M
136	19841 FIVE POINTS	M
137	19829 FIVE POINTS	M
138	19817 FIVE POINTS	M
139	19551 FIVE POINTS	M

Attachment 2: DWSD WATER ONLY ACCOUNTS

Address	Code
14019543 FIVE POINTS	M
14119535 FIVE POINTS	M
14219525 FIVE POINTS	M
14319519 FIVE POINTS	M
14419497 FIVE POINTS	M
14519487 FIVE POINTS	M
14619475 FIVE POINTS	M
14719465 FIVE POINTS	M
14819455 FIVE POINTS	M
14919445 FIVE POINTS	M
15019435 FIVE POINTS	M
15119423 FIVE POINTS	M
15219413 FIVE POINTS	M
15319401 FIVE POINTS	M
15419399 FIVE POINTS	M
15519395 FIVE POINTS	M
15619331 FIVE POINTS	M
15719319 FIVE POINTS	M
15819307 FIVE POINTS	M
15919295 FIVE POINTS	M
16019283 FIVE POINTS	M
16119277 FIVE POINTS	M
16219261 FIVE POINTS	M
16319253 FIVE POINTS	M
16419247 FIVE POINTS	M
16519219 FIVE POINTS	M
16619207 FIVE POINTS	M
16719155 FIVE POINTS	M
16818835 FIVE POINTS	M
16918815 FIVE POINTS	M
17018805 FIVE POINTS	M
17118715 FIVE POINTS	M
17218703 FIVE POINTS	M
17318689 FIVE POINTS	M
17418681 FIVE POINTS	M
17518671 FIVE POINTS	M
17618667 FIVE POINTS	M
17718655 FIVE POINTS	M
17818647 FIVE POINTS	M
17918639 FIVE POINTS	M
18018631 FIVE POINTS	M
18118623 FIVE POINTS	M
18218617 FIVE POINTS	M
18318603 FIVE POINTS	M

Attachment 2: DWSD WATER ONLY ACCOUNTS

Address	Code
18417301 FIVE POINTS	M
18517249 FIVE POINTS	M
18617243 FIVE POINTS	M
18717233 FIVE POINTS	M
18817225 FIVE POINTS	M
18917217 FIVE POINTS	M
19017209 FIVE POINTS	M
19117201 FIVE POINTS	M
19217189 FIVE POINTS	M
19317175 FIVE POINTS	M
19417167 FIVE POINTS	M
19517157 FIVE POINTS	M
19617141 FIVE POINTS	M
19717125 FIVE POINTS	M
19816935 FIVE POINTS	M
19916925 FIVE POINTS	M
20016913 FIVE POINTS	M
20116901 FIVE POINTS	M
20216889 FIVE POINTS	M
20316877 FIVE POINTS	M
20416865 FIVE POINTS	M
20516853 FIVE POINTS	M
20616841 FIVE POINTS	M
20716829 FIVE POINTS	M
20816817 FIVE POINTS	M
20916805 FIVE POINTS	M
21016661 FIVE POINTS	M
21116651 FIVE POINTS	M
21216639 FIVE POINTS	M
21316627 FIVE POINTS	M
21416601 FIVE POINTS	M
21516593 FIVE POINTS	M
21616579 FIVE POINTS	M
21716553 FIVE POINTS	M
21816543 FIVE POINTS	M
21916531 FIVE POINTS	M
22016519 FIVE POINTS	M
22116503 FIVE POINTS	M
2229300 SOUTHERN	M
22326560 OUTER DRIVE	M
2243902 HURON	M
2253901 HURON	M
2266457 HEYDEN	M
2276445 HEYDEN	M

Attachment 2: DWSD WATER ONLY ACCOUNTS

Address	Code
2286439 HEYDEN	M
2296433 HEYDEN	M
2306429 HEYDEN	M
2316415 HEYDEN	M
2326401 HEYDEN	M
2336393 HEYDEN	M
2346383 HEYDEN	M
2356373 HEYDEN	M
2366355 HEYDEN	M
2376349 HEYDEN	M
2386343 HEYDEN	M
2396335 HEYDEN	M
2406325 HEYDEN	M
2416315 HEYDEN	M
2426311 HEYDEN	M
2436000F EVERGREEN	M
2443902 WILLIAMS	M
24816545 OUTER DRIVE	M
252100F PARKVIEW	M
2533747F CONCORD	M
25410001 HAYES	M
25517145 MACK	M
25714240F ARLINGTON	M
25812118 NORTHLAWN	M
2595223 BARHAM	M
26015387 SAN JUAN	M
26118823 FIVE POINTS	M
26218829 FIVE POINTS	M
26318914F MITCHELL	M
26619103F MACK	M
268600F PALLISTER	M
269761F PALLISTER	M
273555F BRUSH	M
27420F ATWATER	M
27514175 FORDHAM	M
2768841 PREVOST	M
2779121 METTETAL	M
27820342 GRAND RIVER	M
2792420 CALVERT	M
28013535 GRATIOT	M
2811227 TWENTY FIRST	M
28220517 HUBBELL	M
283600F TOWNSEND	M
2842507 CASS	M

Attachment 2: DWSD WATER ONLY ACCOUNTS

Address	Code
285420 HENRY	M
286270 ADAIR	M
28748 LOTHROP	M
28818010F DEQUINDRE	M
28974F MONROE	M
29119272 SHIAWASSEE	M
09300 Vernor	U
022 Willis	U
07819 Jefferson	U
012270 Jefferson	U
01191 Philadelphia	U
02092 Pingree	U
016200 Warren	U
0450 Warren	U
023601 8 mile	U
023621 8 mile	U
023641 8 mile	U
023501 8 mile	U
023401 8 mile	U
023321 8 mile	U
023301 8 mile	U
022909 8 mile	U
022925 8 mile	U
023485 Mcnichols	U
025025 Mcnichols	U
016811 Riverdale	U
016889 Riverdale	U
016855 Riverdale	U
016825 Riverdale	U
016905 Riverdale	U
016951 Riverdale	U
016967 Riverdale	U
016985 Riverdale	U
017010 Riverdale	U
023321 Riverdale	U
0316 Heidt	U
0232 Heidt	U
08701 Parkway	U
08685 Parkway	U
08677 Parkway	U
08667 Parkway	U
08665 Parkway	U
08647 Parkway	U
08625 Parkway	U

Attachment 2: DWSD WATER ONLY ACCOUNTS

Address	Code
08615 Parkway	U
08601 Parkway	U
08469 Parkway	U
08459 Parkway	U
08449 Parkway	U
08439 Parkway	U
08427 Parkway	U
08417 Parkway	U
08479 Parkway	U
08489 Parkway	U
0100F continental	U
021655 Warren	U
021547 Warren	U
020217 Warren	U
020651 Warren	U
023050 8 mile	U
016100 8 mile	U
08650 E Jefferson	U
03355F W Jefferson	U
09300F W Jefferson	U
0333F E Jefferson	U
08691 Parkway	U
023201 8 mile	U
019825F W Warren	U
01375 dix	U
01415 shaefer	U
01500 shaefer	U

226 of 291 Geocoded
other 65 were placed manually using address index from 'waynenad83' local street file.

Attachment 3. Oakland County Septage waste uploading Charges

OAKLAND COUNTY DRAIN COMMISSIONER
Operations and Maintenance Division

Oakland County Septage Waste Unloading Charges

Tanker Size	Current DWSD Charge	Revised O&M Charge	Total Charge
0 - 500	$10	$14	$24
501 - 1,000	20	21	41
1,001 - 1,500	30	20	50
1,501 - 2,000	40	21	61
2,001 - 2,500	50	22	72
2,501 - 3,000	60	23	83
3,001 - 3,500	70	25	95
3,501 - 4,000	80	26	106
4,001 - 4,500	90	27	117
4,501 - 5,000	100	28	128
5,001 - 5,500	110	29	139
5,501 - 6,000	120	30	150
6,001 - 8,000	160	34	194

Oakland County Operation and Maintenance charges increase due to the cost and maintenance expense of the new dump site.
See attached worksheet.

Oakland County Operation and Maintenance charges increase $5.00 - $6.00 per token due to the relocation and construction of a new facility and the operation and maintenance expenses related to the septage waste dump site.
See attached worksheet.

Effective Date of Septage Waste Unloading Charge Increase: **January 1, 2001**

Approved:
Robert D. Burke, Financial & Adm. Support

Recommended:
Douglas A. Buchholz, P.E.
Deputy and Manager

Recommended:
James E. Porter, P.E.
Chief Deputy Drain Commissioner

Approved:
George W. Kuhn

Attachment 4

As part of the review of septage disposal needs related to the DWSD Wastewater Master Plan a questionnaire was sent to 53 septage waste haulers in the southeast Michigan area. The questionnaire was developed with the assistance of the Industrial Waste Division of DWSD. Input was received on the questions as well as the names and addresses of haulers using septage receiving stations that drain to the Detroit wastewater treatment plant.

There were 38 septage waste haulers that had received permits from DWSD to use the septage receiving stations in 2001. Additional haulers in southeast Michigan were identified from the Michigan Department of Environmental Quality, Surface Water Quality Division website and from listings in the telephone system. The questionnaire went to haulers in Wayne, Oakland, Macomb, Livingston, Saginaw, Oceola and Lapeer counties and in the City of Detroit. The septage haulers list includes those that transport portable toilet waste.

The questionnaire and an envelope with return postage was mailed October 12, 2001 to the haulers. Follow up phone calls were made to the largest haulers to encourage completion of the questionnaire. Ten haulers returned the questionnaire.

RESPONSES TO THE QUESTIONNAIRE

The questionnaire that was sent is included at the end of this attachment. The questions are listed below. The dashes indicate one hauler's response. Some haulers did not answer each question.

1. Are there locations within the DWSD sewer service area where septage receiving stations are needed? A map is enclosed with this memo that locates the septage waste receiving stations in southeast Michigan. The arcs represent a fifteen mile radius around each station.

   Three answered yes.
   Two answered no.
   Three answered with specific locations
   a. Northern Macomb County
   b. Eight Mile, west Oakland County at Wayne County Border
   c. White Lake Township, M-59

2. If additional stations are needed, where should they be located?

   - Northern Macomb
   - Shelby
   - Southeast Corner Wayne County
   - None needed
   - West side Oakland County
   - Commerce Township

- Dequindre Road, dividing Oakland and Macomb Counties
- North of 30 Mile or 26 Mile and Hayes in Macomb County

3. New septage receiving stations will be expensive to build. The station in Pontiac will cost about $1 million (it also includes drying beds for catch basin waste). How do you suggest new receiving stations be paid for?

- A dumping fee could be added to cleaning charges with a tax deduction given on the persons income tax at the end of the year.
- Include in dump fees like Oakland County.
- Taxpayers
- Consumers
- State of Michigan, or assess all homes in county on septic systems a fee to cover costs.
- The money (profit) has already been made (tenfold) by DWSD.
- Tax base from increases the county (?) use the sites the most.

4. What changes to the existing septage receiving stations do you suggest?

- Better cleanup at 8 Mile site.
- Longer water hose for cleanup.
- Multiple discharge stations.
- Ypsilanti Comm. needs a manhole without a grate so it doesn't make such a mess.
- The old dumping station in Pontiac which we use has the right idea as far as the level trucks back into to dump. You can empty the whole truck from this level. - The size of the opening you dump in is great and prevents many spills plus running water is always available.

- At the opening ceremony of the new dumping station in Pontiac I had a chance to talk with many of the other haulers and I would like to share some of our concerns about this new station.

The level of the area does not appear to be deep enough to allow you to completely empty our trucks. In speaking with one of the engineers who constructed the new dump site I mentioned this and he told me that a hundred gallons or so left on the truck should not make that much difference! It certainly will with the next tank you pump!

The four new dumping holes allow only a six inch hose …All the haulers stated that the area … of a garden hose for cleanup. We were not sure if there would be enough pressure to wash the spills down the drain. These hoses also have shut-off valves on them which may cause them to freeze in the winter.

The new site requires the truck to back into the dumping area with two on each side back-to-back.

If this area should be snow-covered or icy, the trucks would possibly slide into the back of the truck on the opposite side. Perhaps a guard rail installed between the four stations would be a safety feature.

- Fresh water / Let pumpers help design not engineers who don't drive trucks.

a. DWSD suggests that there be a meter to measure the volume of septage being discharged to the sewer, emergency telephone and sanitary facilities. What are your suggestions?

- Measuring flow would be a great idea if there was a way to pay for only the quantity discharged rather than truck capacity.

- If metered will we be charged according to meter or continue to be charged according to truck capacity, even if not full?

- I am not sure the expense of a meter to measure the amount volume would be worth the expense. Since all trucks are charged by the full truck, no waste hauler would be coming in to dump with only half a load when paying for a full load. An emergency phone number should be a good idea in case of any emergencies.

- The facilities need to be kept clean. I would like to see a penalty / fine assessed to companies who do not keep facilities clean.

- A meter is going to be one more thing to break & slow s down at the dump site even more.

- Would this allow for exact charge (Payment) when companies dump short, ie. tank 3800 gallons dump 2800. More hours of access late evenings during peak times of the year.

- I like your ideas.
- Sounds good.

5. Do you expect to increase or decrease the annual amount of septage taken to DWSD septage receiving stations?

Four haulers indicated in an increase of 7-10% to 10-20% or 16,000 to 30,000 per year. Five indicated that would remain the same.

a. What percent increase or decrease do you expect or how many gallons more a year would the increase or decrease be?
   - 10-20% or 16,000 to 30,000 gallons or more

- should stay the same.
- 7 to10%
- 18,000 gallons
- same
- I would guess approximately an increase of about 25,000 gallons could be possible in the future.
- 10%
- 40,000-50,000 gal.

6. What comments do you have that should be considered in planning for septage disposal in the future?

- None

- Dump sites open 24/7. Septic systems have emergencies too!
- I would strongly suggest a planning meeting with the waste haulers before any future stations are built.
-
- As growth continues, a facility located to serve the northern portion of both Oakland and Macomb Counties would be very beneficial. Currently there is only one facility in Macomb County which is located in the south east section of the county.

- Better monitoring
-
- A site near western Oak. Co. would be beneficial. Novi, South Lyon (if possible) maybe Walled Lake.

7. Do you have any specific concerns about health or safety when using the septage disposal sites connected to the sanitary sewer?

No (3)
- Facilities must be kept clean. A clean facility reduces most of my concern regarding health and safety.
- Not at this time.
-
- The guys in Pontiac do not clean up after themselves. Sewage all over the ground.

8. Are the clean-up facilities adequate?

Yes (3)
- Better hose for clean up at site for after dumps - more water pressure.
-

- No, Eight Mile has no fresh water to rinse pad down if spill occurs.
-

  Additional Comments.

- Need water turned on at 8 Mile Disposal facility.
-
- Is the platform at the new dump site going to be adequate for dump overflow to enter the drain - i.e., not enough slope.
-
- All the problems I listed above could be solved by permanent manning of the dump sites. Cameras and gates only break. Human monitoring would work. It would definitely keep some of the less than honest pumpers on their toes.
-
- At the Pontiac facility. Am not sure about the new facility since we are not using it.
-
- Keep cost of disposal as low as possible. If the cost of pumping septic tanks rise too much, many people will choose not to service and maintain their septic systems

  References:
  http://www.deq.state.mi.us/swq/asp/septage haulers by county

Attachment 5: Population Projections and Onsite Sewage Systems Projected by Decade

Lapeer County	**OSDS**	**Households**		**Population**										
Name	1990	1990	1990	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Dryden Village	172	204	636	632		626		619		619		619		619
Almont Twp.	725	1623		3694	3976	4258	5049	5585		6658		7731		8804
DRYDEN TWP	1103	1161		4438	4723	5007	5962	6582		7821		9061		10300
HADLEY TWP	1294	1304		4266	4634	5002	5129	5376		5870		6365		6859
METAMORA TWP	1152	1284		4950	5266	5583	6644	7333		8710		10088		11465
Metamora Village	136	162	450	433		444		433		430		426		422
Total Population #		5738		16566		18791		23136		26779		30425		34067
Number of OSDS*	4582			6626.4	0	7516.4	0	9254.2	0	10712	0	12170	0	13627
# assumes 50% of population growth will be served by OSDS in Almont Twp., 100% in other areas														
* assumes 2.5 persons per house							per house							

Attachment 5:						
Oakland County Communities Relying on Onsite Sewage Disposal Systems in the DWSD Study Area						
NAME	2000	2010	2020	2030	2040	2050
Addison Twp	6107	7091	7973	9440	10690	11570
Groveland	6150	6592	6961	7239	7542	7796
Lake Angelus	326	305	282	264	268	271
Leonard	332	316	336	332	338	342
RoseTwp.	6210	7412	8516	8934	9442	9874
Total Population	19125	21716	24068	26209	28280	29853
Number of OSDS*	7650	8686.4	9627.2	10483.6	11312	11941.2
Communities where 50% or more of growth will be with OSDS						
Brandon Twp.	13230	15176	16924	18509	19667	20680
population on OSDS, 90%	11907	13658.4	15231.6	16658.1	17700.3	18612
Holly Twp.	3902	6743	7002	7206	7454	7666
population on OSDS 50%	1951	3371.5	3501	3603	3727	3833
Independence Twp.	32572	37305	38343	38103	38753	39320
60%of population on OSDS	19543.2	22383	23005.8	22861.8	23251.8	23592
Springfield Twp.	13338	15527	17888	20326	22263	23708
Population on OSDS	46739.2	54939.9	59626.4	63448.9	66942.1	69745
Number of OSDS (Population on OSDS divided by 2.5 people/OSDS)	18695.68	21975.96	23850.56	25379.56	26776.84	13949

Total OSDS	26345.68	30662.36	33477.76	35863.16	38088.84	25890.2
OSDS rest of county	53654	46000	39000	32,000	25000	18000
Total OSDS in Co.	80,000	76662.36	72477.76	67863.16	63088.84	43890.2
*2.5 persons/OSDS						

Attachment 5: Population Projections and Onsite Sewage Systems Projected by Decade								
St. Clair County	**OSDS**	**Households**						
Name	**1990**	**1990**						
ALGONAC	17							
BERLIN TWP (St. Clair)	789							
CASCO TWP	1174	1455						
CHINA TOWNSHIP	765							
CLAY TWP	1901							
COLUMBUS TWP	1016	1029						
COTTRELLVILLE TWP	605							
EAST CHINA TWP	41							
KIMBALL TWP	1491							
IRA TWP	274	2143						
MARINE CITY	0	1674						
MARYSVILLE	0	3518						
MEMPHIS	47	128						
RILEY TWP	652	655						
ST. CLAIR SHORES	24							
ST. CLAIR TWP	1139							
WALES TWP	752							
Total OSDS 1990	10687							
			Population					
Longterm OSDS Communities			2000	2010	2020	2030	2040	2050
BERLIN TWP (St. Clair)	789	760	8344	12858	14074	14805	15620	16306
CASCO TWP	1174	1455	4748	4836	5128	5302	5563	5788
CHINA TOWNSHIP	765	817	3340	3683	4082	4200	4395	4560
COLUMBUS TWP	1016	1029	4615	5352	6396	7089	7671	8204
RILEY TWP	652	655	3046	3751	4579	5120	5536	5899
ST. CLAIR TWP	1139	1883	6423	7207	8298	8941	9383	9758
WALES TWP	752	719	2986	3485	3927	4263	4575	4846
	6287	7318	33502	41172	46484	49720	52743	55361

Attachment 5: Population Projections and Onsite Sewage Systems Projected by Decade								
Half of growth with OSDS								
CLAY TWP	1901	3365	9822	10510	11432	11982	12376	12685
COTTRELLVILLE TWP	605	1171	3575	3820	4172	4540	4870	5161
	2506	4536	13397	14330	15604	16522	17246	17846
Total	8793	11854	40201	48337	54286	57981	61366	64284
OSDS by decade	**10687**		**16080**	**19335**	**21714**	**23192**	**24546**	**25714**
OSDS rest of County			8920	7300	5700	4100	2500	900
Total OSDS by decade			25000	26635	27414	27292	27046	26614

Attachment 5:

Population Projections and Onsite Sewage Systems Projected by Decade - Macomb County							
NAME		2000	2010	2020	2030	2040	2050
ARMADA TWP		3695	4329	5292	6198	6925	7580
BRUCE TWP		6395	7878	9909	12362	15224	17792
RAY TWP		3744	4330	5293	6055	6616	7102
RICHMOND TWP		3429	4184	5117	6352	7354	8327
Total Pop.		17263	20721	25611	30967	36119	40801
Growth with OSDS*		6905.2	8288.4	10244.4	12386.8	14447.6	16320.4
OSDS rest of county		18095	15000	12,000	9000	6000	3000
Total OSDS by decade		25000.2	23288.4	22244.4	21386.8	20447.6	19320.4
*assumes 2.5 persons per OSDS							

Attachment 5: Population Projections													
Wayne County													
Name	**1797093**	**1869038**	**1942654**	**2020955**	**2086939**	**2113659**	**2197584**	**2214187**	**2294610**	**2312508**	**2411064**		**1990**
GROSSE POINTE SHORES	2773	2673	2596	2525	2461	2429	2413	2405	2401	2399	2399		27
GROSSE POINTE	5186	5152	5106	5093	5098	5096	5095	5095	5094	5094	5094		0
PLYMOUTH	8773	8600	8517	8946	9339	9532	9730	9930	10134	10344	10557		0
GROSSE POINTE FARMS	9320	9117	8894	8727	8586	8511	8475	8456	8447	8442	8441		0
RIVER ROUGE	9494	9085	8873	8777	8729	8694	8676	8667	8663	8661	8659		19
MELVINDALE	10095	9606	9358	9361	9517	9570	9617	9665	9727	9814	9932		8
GROSSE POINTE PARK	11708	11560	11381	11268	11190	11143	11120	11107	11102	11099	11098		0
HARPER WOODS	13563	13400	13245	13143	13074	13031	13012	13001	12996	12993	12993		6
GROSSE POINTE WOODS	16224	16010	15767	15603	15500	15436	15403	15386	15378	15373	15372		15
HIGHLAND PARK	17074	15920	15251	14805	14534	14369	14286	14244	14224	14216	14210		47
WAYNE	18872	18910	18906	18979	19091	19149	19201	19256	19326	19421	19552		5
ROMULUS	22731	22496	22258	22155	22173	22153	22143	22135	22135	22133	22133		464
HAMTRAMCK	22976	22355	21877	21559	21339	21209	21146	21115	21099	21092	21088		37
VAN BUREN TWP	24304	25243	26162	27093	27939	28555	29112	29687	30450	31524	33020		1155
NORTHVILLE CITY													32
NORTHVILLE TWP	915	21568	23822	26038	27970	29478	30686	31799	32967	34418	35086	35767	915
PLYMOUTH TWP	27258	28887	30491	31324	31894	32365	32789	33221	33793	34487	35192		478

Attachment 5: Population Projection												
Wayne County												
INKSTER	27756	26516	25390	24614	24280	24017	23887	23821	23788	23773	23766	26
ALLEN PARK	28443	27946	27582	27377	27255	27176	27136	27116	27107	27100	27100	0
GARDEN CITY	29534	28995	28361	27925	27741	27589	27513	27476	27457	27448	27444	34
REDFORD	49732	49262	49032	49056	49167	49212	49249	49290	49340	49413	49506	19
DEARBORN HEIGHTS	55680	54192	53131	52338	51964	51680	51540	51470	51435	51418	51412	44
CANTON	75457	81693	88178	94856	101007	105844	110344	113357	115547	117782	120062	1170
WESTLAND	85214	87304	87681	87466	87619	87605	87597	87593	87589	87590	87590	266
LIVONIA	97322	96322	95153	94311	94104	93848	93723	93656	93629	93610	93600	294
DEARBORN	97775	97662	98177	98919	99584	100051	100465	100884	101436	101490	102516	92
DETROIT	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	1000000	26
	2000	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**	**5179**
OSDS assuming 100 permits												
per year 1991-2030 and con-												5179
nections to sewers by existing												
OSDS of 1100/year												