WATERFORD TOWNSHIP
DEPARTMENT OF PUBLIC WORKS
2008 ANNUAL OPERATIONS REPORT

Respectfully Submitted February 23, 2009 to the
Honorable Charter Township of Waterford Board of Trustees

WATERFORD TOWNSHIP
DEPARTMENT OF PUBLIC WORKS
2008 ANNUAL OPERATIONS REPORT

Table of Contents:

Executive Summary:

The purpose of this annual report is to provide an overview of operational data related to the Waterford Township Department of Public Works (DPW). While the annual financial report prepared by the Township's auditors in conjunction with management provides the financial picture of the DPW, the goal of this report is to highlight the projects and operations underway by the DPW's various divisions and branches. The current economic situation facing our nation, State and local communities requires bold and innovative solutions to effectively and efficiently execute the DPW's mission. As always, advanced technology and techniques to assist in this endeavor are being investigated and deployed where feasible. Most SRF sewer projects were completed in 2008 and are now online. Substantial completion of the two (2) Water Treatment Plants and completion of water main construction under the DWRF water program was also realized in 2008. The DPW also has a new Water and Sewer Superintendent, David McKee, who replaces Tom Coburn who retired in August of 2008.

Background:

The DPW has multiple technical and administrative divisions involved in providing quality water and sanitary sewer services and facilities operations to Waterford Township Customers. The DPW maintains an estimated 360 miles of water and 360 miles of sewer lines respectfully. The water system was implemented in the second half of the 20th century and followed housing growth in the Township. In 1992 and 1994, iron filtration plants were constructed, which dramatically improved the quality of water provided to customers. The sanitary sewer system was primarily implemented in the late 1960's and 1970's, and continues to grow as residential and business development continues. The DPW currently has over 24,000 water accounts and 25,000 sewer accounts, which are billed quarterly. The system is estimated to serve a population of approximately 62,000 customers within the 36 square-mile Township service area. Operation and maintenance challenges continue to require more investment as infrastructure continues to age. The DPW continues to reinvest in the system and leverage new technology to aid in the effective and efficient administration its' responsibilities.

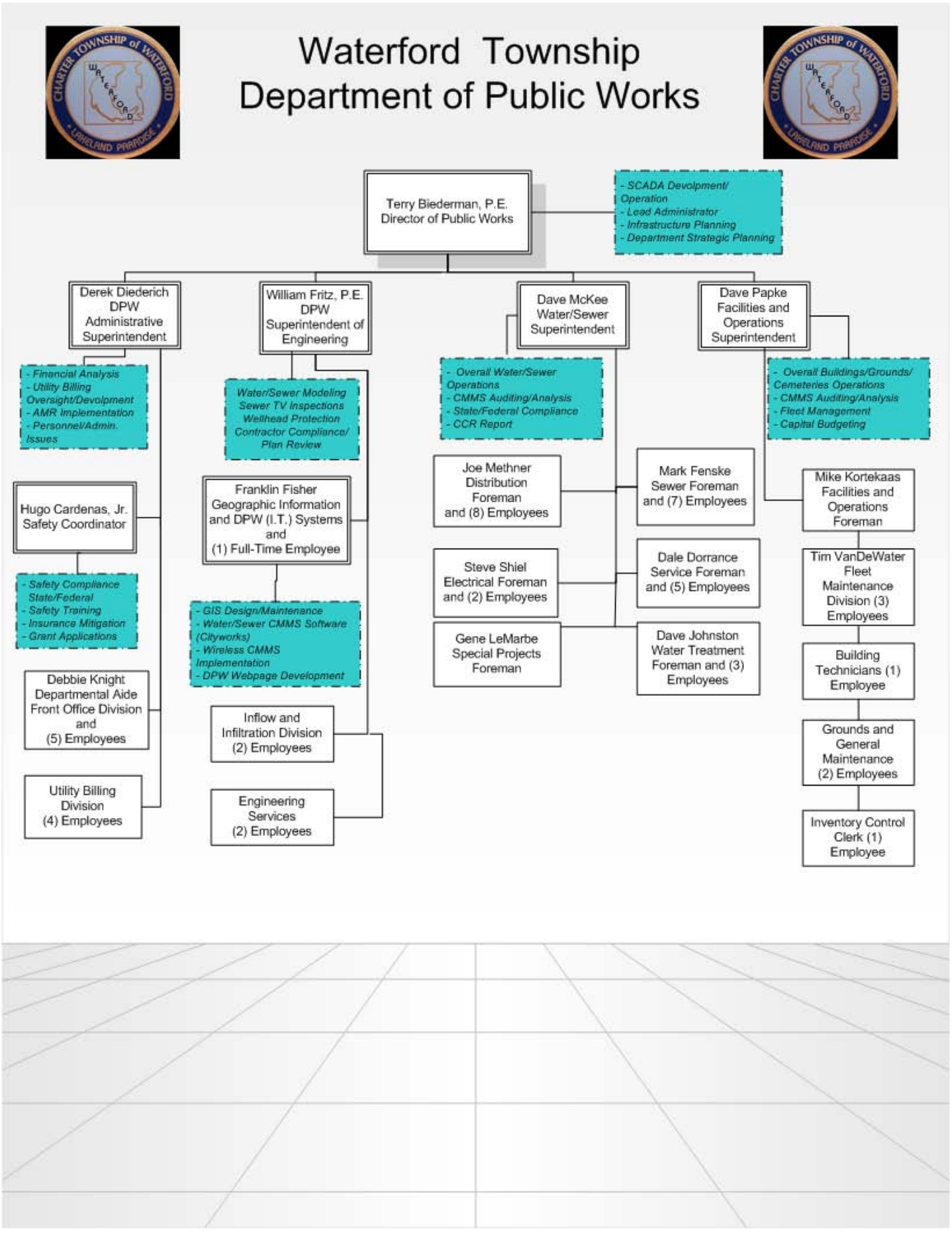
The DPW is almost unique in Southeast Michigan in that it solely provides drinking water to the Township independent of the Detroit Water and Sewerage Department (DWSD). On an average annual day, the DPW distributes 8,000,000 gallons of safe potable drinking water to customers. Peak summer day demands can exceed 22,000,000 gallons per day. The source of water is from fifteen active wells, located within the Township, which feed the iron treatment plants for processing and distribution to customers.

The Township is a member of the Clinton-Oakland Sanitary Sewer System, which transports sewage to DWSD for processing. This system is a regional waste water collection system that involves the partnership of Oakland County and DWSD.

The Facilities and Operations Division (F&O) also falls under the direction of the DPW. F&O works in the background of the Township's operating groups to ensure that all buildings, buildings systems, equipment, cemeteries, bike paths and vehicle fleet are effectively and efficiently maintained. These responsibilities specifically include the operation and maintenance of 281,600 square feet, or 6.5 acres, of Township building floor space, 54 acres of Township owned grounds, 41 miles of bike path, 5 Township Cemeteries, and a vehicle fleet of over 250 vehicles.

The following chart outlines the DPW organization:

Waterford Township Department of Public Works



Administrative Branch

The mission of the Administrative Services Branch is to provide professional billing and customer service to both internal and external customers. Employees are called upon to leverage the latest in computing technologies, utilizing a variety of software packages and hardware to achieve quality information flow. Employees in this branch support every division within the DPW as well as interact and provide services to customers and contractors.

The Administrative Services Branch is headed by the Administrative Superintendent of DPW and is comprised of eight full-time employees. The positions and a brief description of their typical duties are listed below:

- DPW Administrative Superintendent
  Conducts the planning, research and evaluation necessary to keep the DPW's Utility Billing and Receivable Systems in good standing. Performs specific project management as related to the DPW's meter reading systems, Computerized Maintenance Management Systems (CMMS), creates and analyzes data to look for efficiencies. Prepares financial and operational schedules needed for the Township's Financial Audit. Creates and analyzes specialized reports. Performs the personnel and accounting functions of the DPW as required.

- Departmental Aide
  Serves as the office manager for the DPW's Administrative personnel and is responsible for the day to day functioning of the office. Oversees the DPW's daily payroll and accounts payable systems. Utilizes the DPW's CMMS package to ensure work orders and service requests are properly recorded. Prepares reports and oversees the DPW EFT-Auto-Debit payment program.

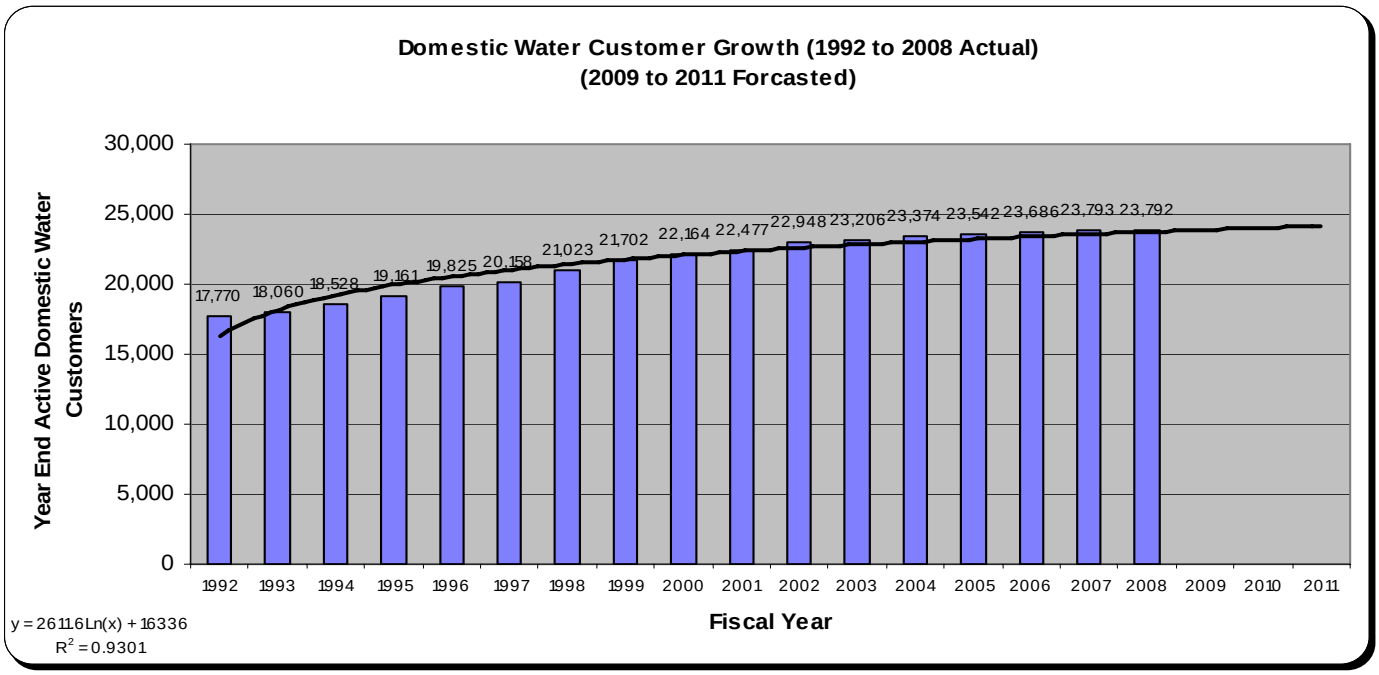
- Account Clerk II
  Responsible for DPW Accounts Payable and Payroll System. Also called upon to render customer service to both internal and external customers. Utilizes a variety of software programs to provide quality data to customers and employees.

- Utility Billing Account Clerk (4)
  Responsible for rendering 108,000 water-sewer bills annually to the Township's 25,000 customers on a prescribed schedule. Process the DPW's automated lock box system and utilizes the DPW's meter reading systems to interface with the Utility Billing System. Employees are called upon to utilize a variety of software applications.

- Account Clerk I (2)
  Responsible for Point of Sale (POS) Register and customer service. Processes a variety of customer payments and requests for service. Employees utilize the Computerized Maintenance Management System (CMMS) to record work orders.

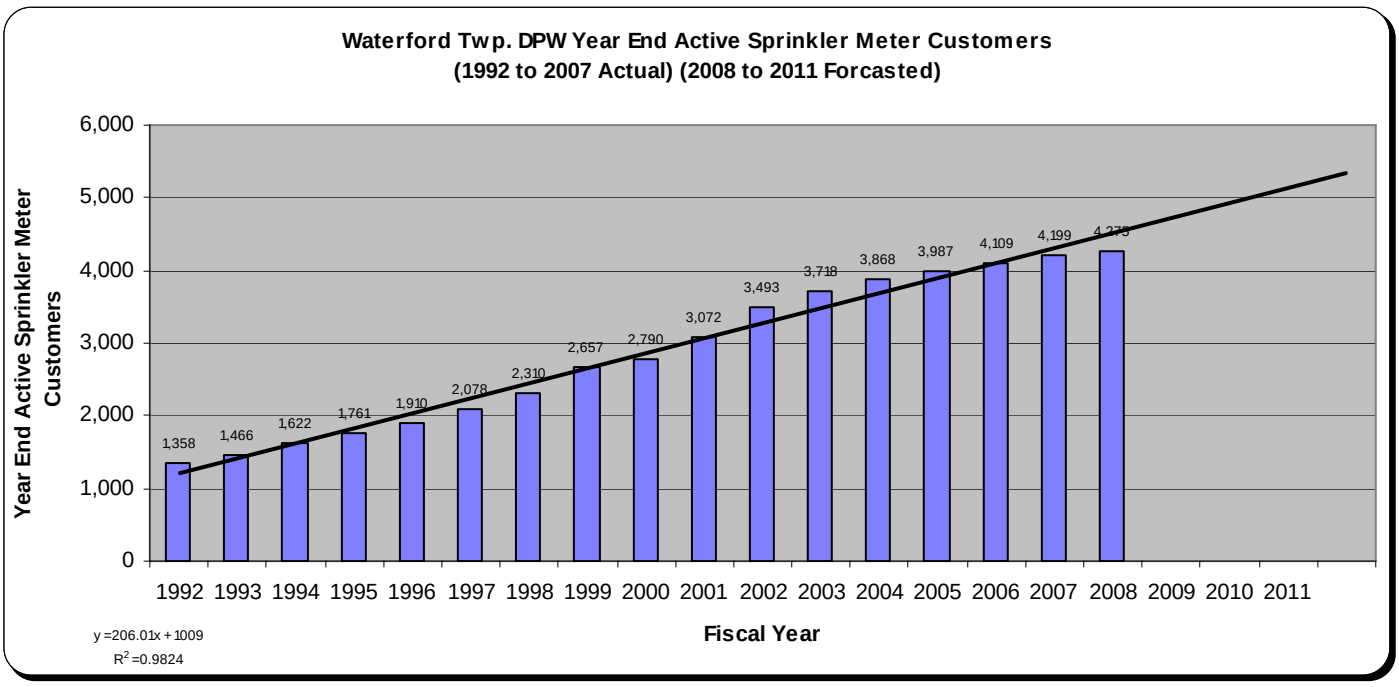
Water Customer Growth

Since 1992, the DPW has added an average of 390 water customers annually. In recent years that growth has steadily slowed. Since 2003, the DPW has added less than 200 new water customers annually. The projection model below indicates similar trends in the short term future. The graph below does not include sprinkler meters.



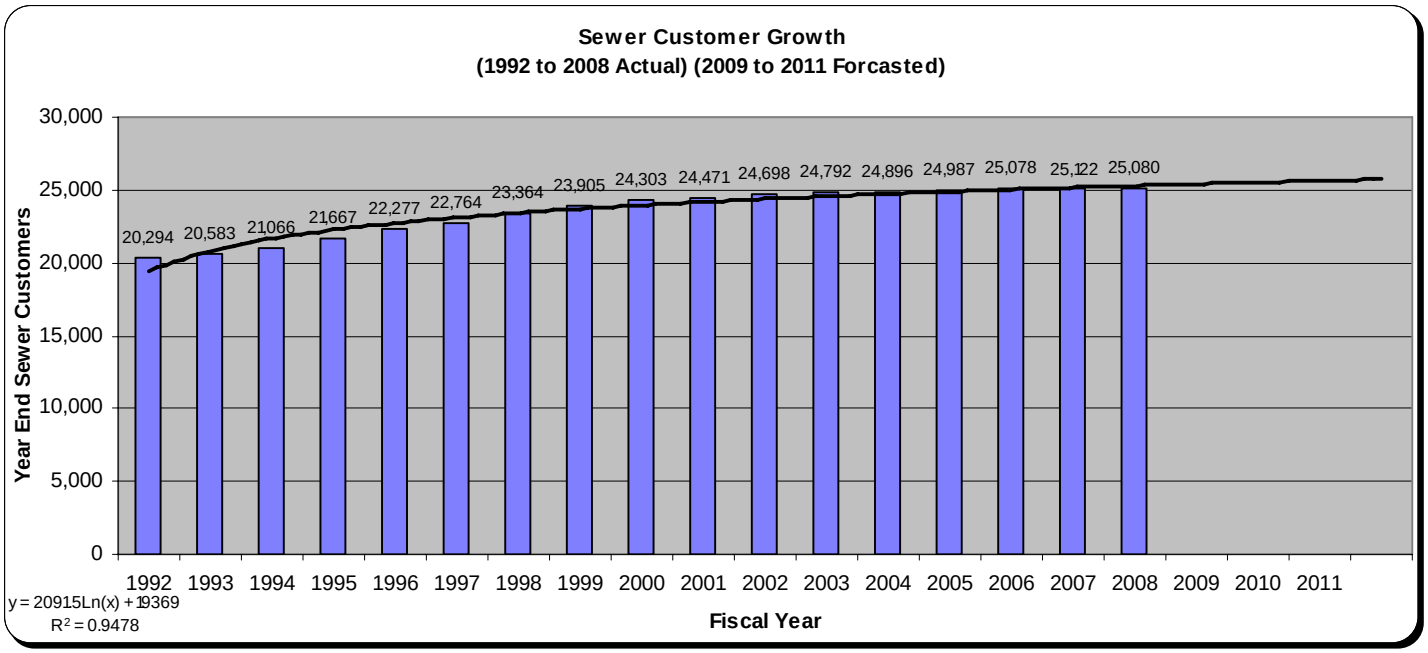
Sprinkler/Irrigation Meters

The DPW offers water customers the option of a separate water meter for outside watering and irrigation. This is a popular service with customers. The benefit to the customer is that sewer fees are not imposed on the secondary sprinkler meter. From 1992 to 2008 the DPW has installed an average of 159 sprinkler meters annually.



Sewer Customer Growth

Since 1992, the DPW has added an average of 334 sewer customers annually. In recent years that growth has steadily slowed. Since 2003 the DPW has added less than 150 new sewer customers annually. The projection model below indicates similar trends in the short term future.



The following table illustrates the method in which a customer sewer bill is generated in the DPW:

Waterford Township Sewer Bill Breakdown Diagram:

The Sanitary Sewer Network in Waterford involves (3) Agencies, each with their own respective charges. Example is based on average residential connection and 2008 empirical customer demand data.

In 2007, Waterford started getting charged for metered wastewater as opposed to the previous Residential Equivalency Units (R.E.U.) System that was used from the 1960's to 2007.

Waterford Township DPW

Sanitary Sewer System 2008 Financial Breakdown

As of September 1, 2008 the Sewer Rates for Waterford Sewer Customers with water were $41.16 'Ready to Serve Charge'. Then, $1.78 per 100 Cubic Feet thereafter.

Sanitary Sewer System Characteristics and facts

Waterford Twp. Currently has approximately 360 miles of Sanitary Sewer lines. These lines are maintained by Waterford DPW.

The average residential customer in 2008 used 2,200 C.F. of sewer per quarter. This resulted in a $80.39 average quarterly sewer bill. Of the average sewer bill Waterford Twp. retained $43.82 or 55.0%. The balance of $36.50 was distributed to Oakland County and Detroit Water and Sewer Dept. Waterford was charged at $16.59 per MCF or 1,000 C.F. based on the County's and City's Rate Systems.

Waterford Twp. has 25,934 Total Sewer Customers as of 1-26-09. Waterford was charged $16.59 per MCF by Oakland County Drain Office and the Detroit Water and Sewerage Dept.

55.0% of the Average 2008 Residential Sewer Bill Payment Retained by Waterford

Agency 1
Waterford Twp. DPW

Waterford Twp. Currently has 63 Sewer Lift Stations. These lift stations contain pumps and other Electro-Mechanical Devices that are maintained by Waterford DPW.

Waterford Twp. Sewer Lift Stations like the one pictured to the left (5025 Highland Rd. the Clinton River Sewer Station) convey wastewater to the Oakland County Sewer Interceptor.

Waterford Township Michigan

Sanitary Sewer System Financial Breakdown

Of the average $80.39 Quarterly Average Sewer Bill Waterford Customers paid, Oakland County received $4.25 or 5.0% of the total customer payment based on the average customer consumption of 2,200 C.F. and current OCDC and DWSD charge of $16.59 per 1,000 Cubic Feet or (MCF).

Agency 2
Oakland County (O.C.D.C.)

5.0% of Average Quarterly Waterford Residential Sewer Bill Payment Retained by Oakland County

Sanitary Sewer System Characteristics and facts

Oakland County Michigan

All of Waterford's wastewater is received by the Oakland County Interceptor. The lift station (at the corner of Elizabeth Lake Rd. and M-59 in Waterford Twp.) contains large sewer pumps and other Electro-Mechanical Devices that are maintained by the Oakland County Drain Office (O.C.D.C.).

Waterford belongs to the Clinton-Oakland Sewer System. This is a contract between the Township and Oakland County. Waterford pays quarterly invoices to the County, who in turn sends an allotment to the City of Detroit (D.W.S.D.).

After receiving the wastewater from one of Waterford's Lift Stations, Oakland County pumps all of Waterford's Wastewater onto the City of Detroit.

Agency 3
Detroit Water and Sewer Dept. (D.W.S.D.)

Detroit Water and Sewerage Department

40% of Average 2008 Sewer Bill Payment Retained by Detroit (D.W.S.D.)

Sanitary Sewer System Characteristics and facts

Sanitary Sewer System Financial Breakdown

Of the $80.39 average quarterly sewer bill Waterford Customers paid in 2008, Detroit (D.W.S.D.) received the balance of $32.25 or 40% of the average residential individual sewer customer payment based on 2,200 C.F. of consumption.

All of Waterford's Wastewater is ultimately received by the City of Detroit for treatment and is ultimately returned to the environment in the Detroit River. Detroit's Wastewater Treatment Plant at 9300 W. Jefferson Avenue is the single largest Wastewater Treatment Plant in the United States. This plant is estimated to serve 35% of Michigan's population. (According to the D.W.S.D. Website).

The Detroit River is the final discharge point for all of Waterford's Sanitary Sewer System after much conveyance, treatment and the diligence of the (3) agencies involved.

Utility Billing Revenue

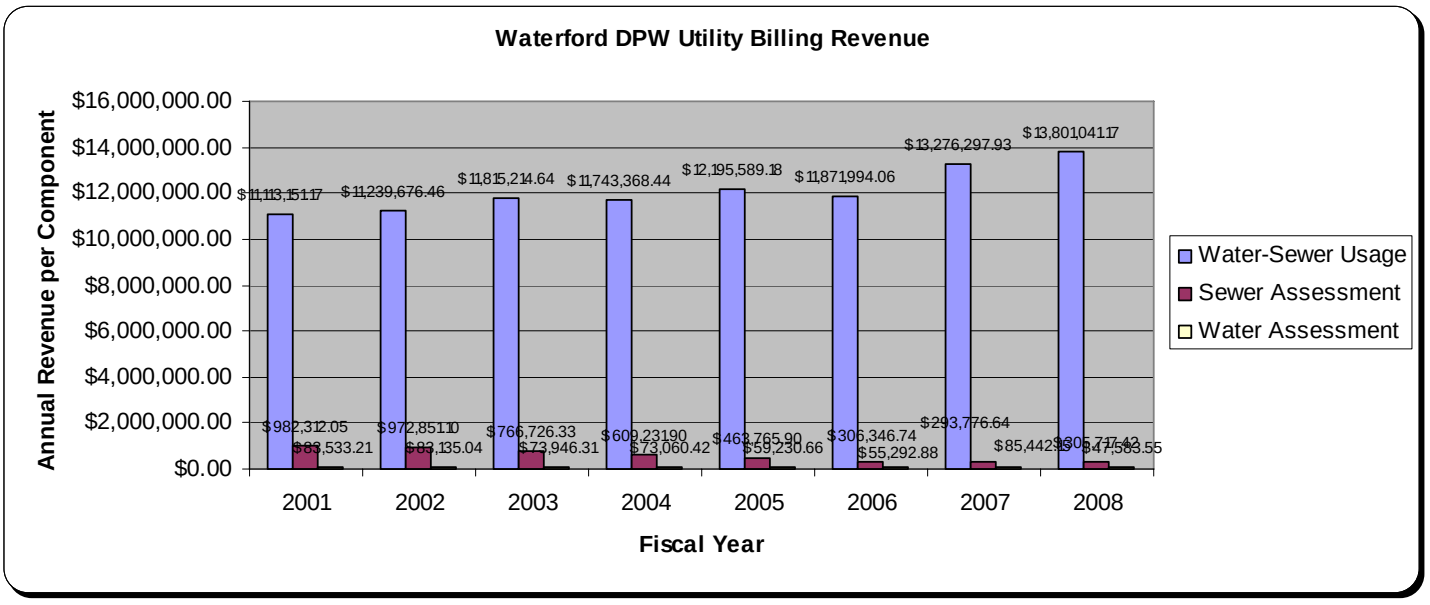
The DPW's Water-Sewer Fund has three main sources of revenue. These sources of revenue are generated from water-sewer usage billing (largest category), water assessment revenue and sewer assessment revenue. The assessment revenue is generated from customers whom have elected to defer their connection charges over a set number of years. Assessment revenue has been on the decline as the Township continues to age and nears build-out. This has had the affect of putting more fiscal importance on the water-sewer usage revenue component of the operation. Traditionally, every summer DWSD raises user sewer rates. Since the Township belongs to the Clinton-Oakland Sewer System, cost increases have been traditionally passed through to the sewer customer base.

In March of 2008, water rates were adjusted from $1.05 per 100 C.F. to $1.25 per 100 C.F. on the 2nd Tier, or 'overage' component of the water charge system, to provide required revenue to repay the low interest Drinking Water Revolving Fund loan from the Michigan Department of Environmental Quality (MDEQ).

In September 2008, the Ready to Serve sewer charge was adjusted from $38.16 to $41.16 per quarter and the Volume Charge was adjusted from $1.40 per 100 cubic feet (CF) to $1.78 per 100 CF to provide required revenue to match the rate increase by the DWSD and Oakland County Drain Commissioner (OCDC) for wastewater treatment and conveyance.

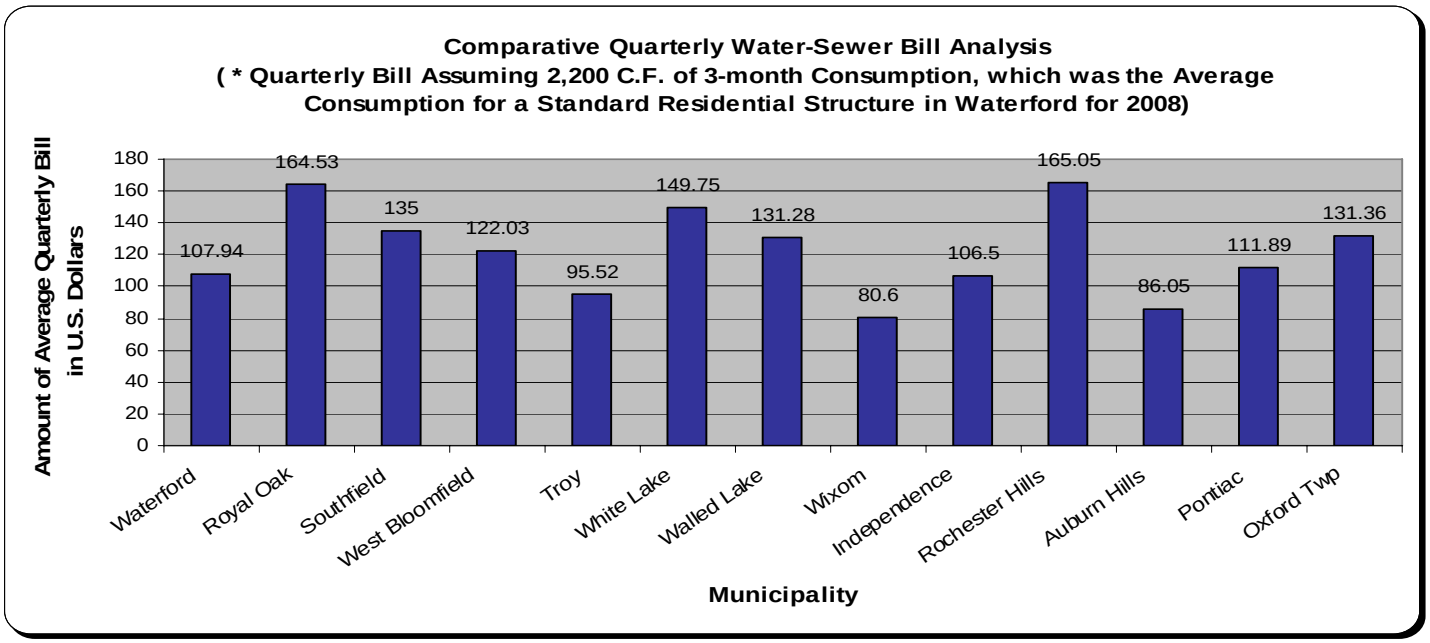
The graph below shows the Water/Sewer Division revenue stream since 2001. Assessment revenue is expected to continue to decline in the coming years. It should also be noted that the climate and weather conditions have an impact on water-sewer usage billing. This is to say, an extremely wet and/or cool summer would result in less water consumption and consequently less water/sewer sales revenue.

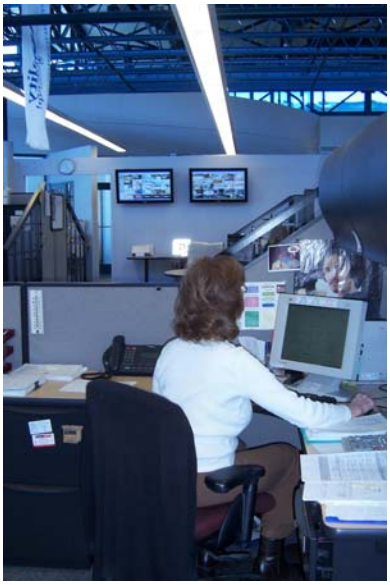
The following table illustrates the Revenue Streams and their changes from 2001 forward.



Water-Sewer Rate Comparison

Many factors influence the utility rate structure within a given community. The age of the system and need for capital improvements, a rate structure that encourages conservation and rate structures of supporting agencies that help provide the service are all factors. The following graph depicts what an average residential water-sewer customer in 2008, with an average consumption of 2,200 C.F. per quarter, would pay in surrounding communities for the same services. As a whole, the Township rate structure is positioned very competitively with one of the lowest rate structures compared to surrounding communities.



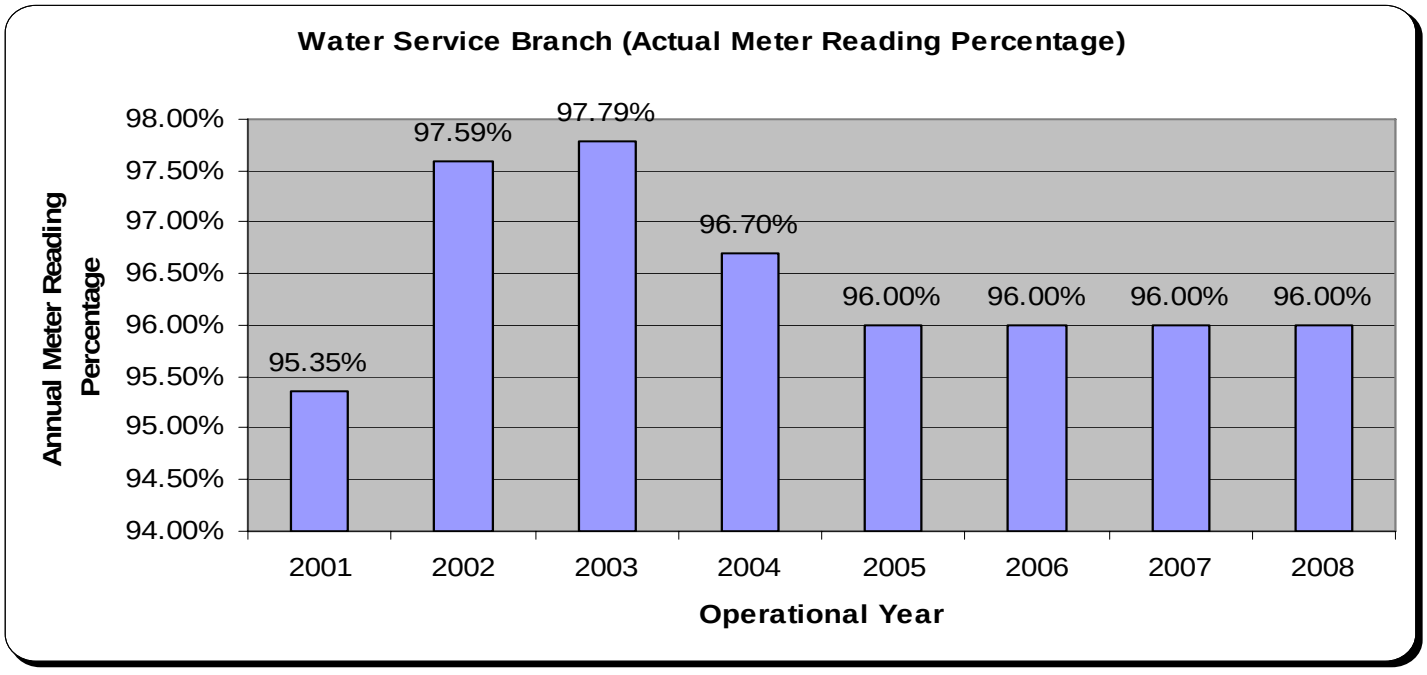


DPW Billing Branch Employee Helen Warren working in the Billing Branch. This branch is called upon to use a wide variety of software and technology systems to prepare water and sewer bills.

Meter Reading

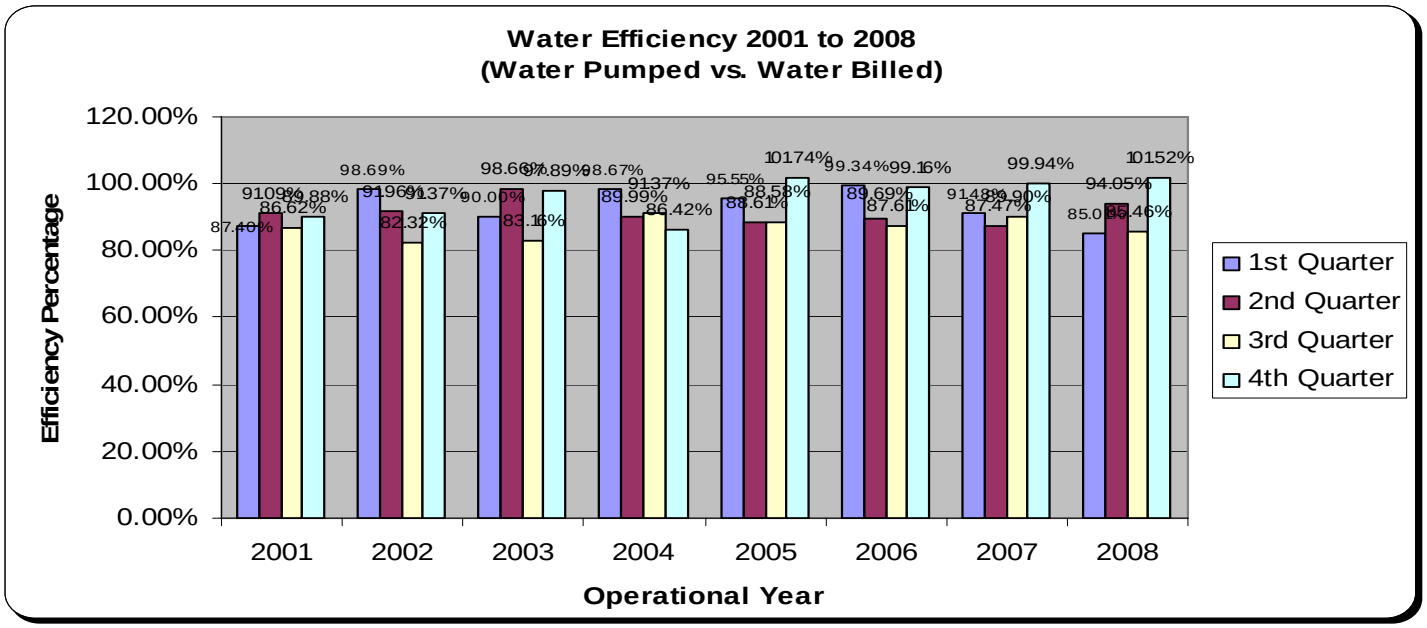
Meter reading is a vital part of the DPW operation and is referred to as the "cash box" component. This is because meter readings are ultimately imported into the electronic billing system to create utility bills and the revenue they generate. The DPW strives to collect as many actual reads as possible because they permit maximum billable services. Actual reads are also important to customers for accurate and timely billing. The Utility Billing and the Water Service Branches work hand in hand to achieve a high actual meter reading percentage. Historically, the DPW has achieved 95% or more actual reads and 2008 continued with a high percentage of reads. The graph below indicates the actual meter reading percentage achieved annually since 2001.

DPW Employee Julie Griffin reading a conventional Meter Reading Interface Unit. The Handheld Device is later downloaded and interfaced with the DPW's Meter Reading and Billing Software.



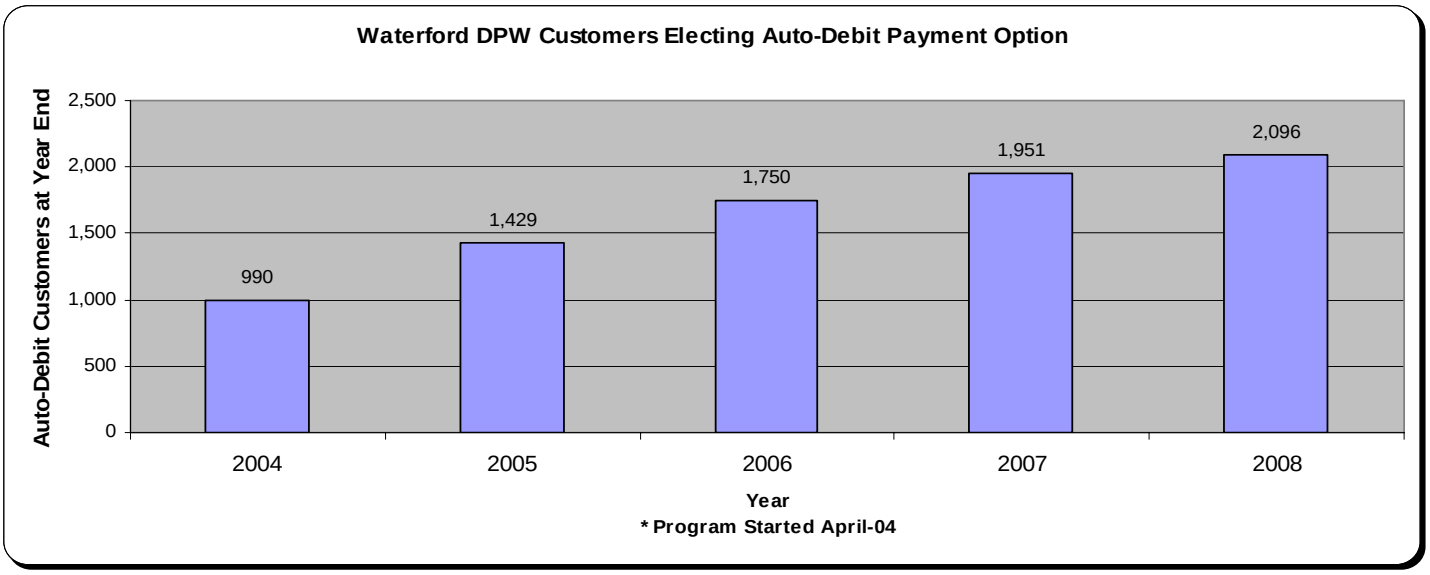
Water Efficiency

An important benchmarking statistic of any water utility is Water Efficiency, which measures the ratio of water produced to water sold. Meter readings are collected at the Water Treatment Facilities and compared against the customer account reads. In addition, other factors for water loss are taken into account including water used by the fire department, sewer jetting, hydrant flushing and tank maintenance. Other factors affecting water efficiency include the age of the distribution system, water main breaks, and composition of the pipe installed in the distribution system. With 100% water accountability as the goal, the DPW strives for the highest efficiency possible. Efforts have continued to improve with advanced SCADA monitoring, water modeling, and water main rehabilitation to identify and correct system deficiencies, which will increase the efficiency. The graph below depicts the water efficiency benchmarking statistics by quarter since 2001. It must be noted that anything over 90% is considered superior in the water industry. In 2008, the DPW realized very good water efficiency results.



Auto-Debit Payment Option:

Starting in April 2004, the DPW began offering an Auto-Debit payment option for water-sewer customers. This service allows customers to have their water-sewer bill automatically deducted from a checking or savings account of their choice without the need to write a paper check, or send a payment via the mail. Customers still receive a paper invoice for their records. Since April of 2004, 2,096 customers or 7.95% of the customer base has elected this payment option. Last year at this same time the number of electing this payment option was 1,951. So, 2008 saw a 7.43% increase in customers electing the auto-debit payment option. This growth percentage is expected to remain strong in the coming years. Customers who travel for work, go south for the winter, or have a busy lifestyle are finding this payment option convenient. The DPW advertises this service in the utility bills mailed to customers and maintains a posting on the Township web site to inform customers of the programs availability.

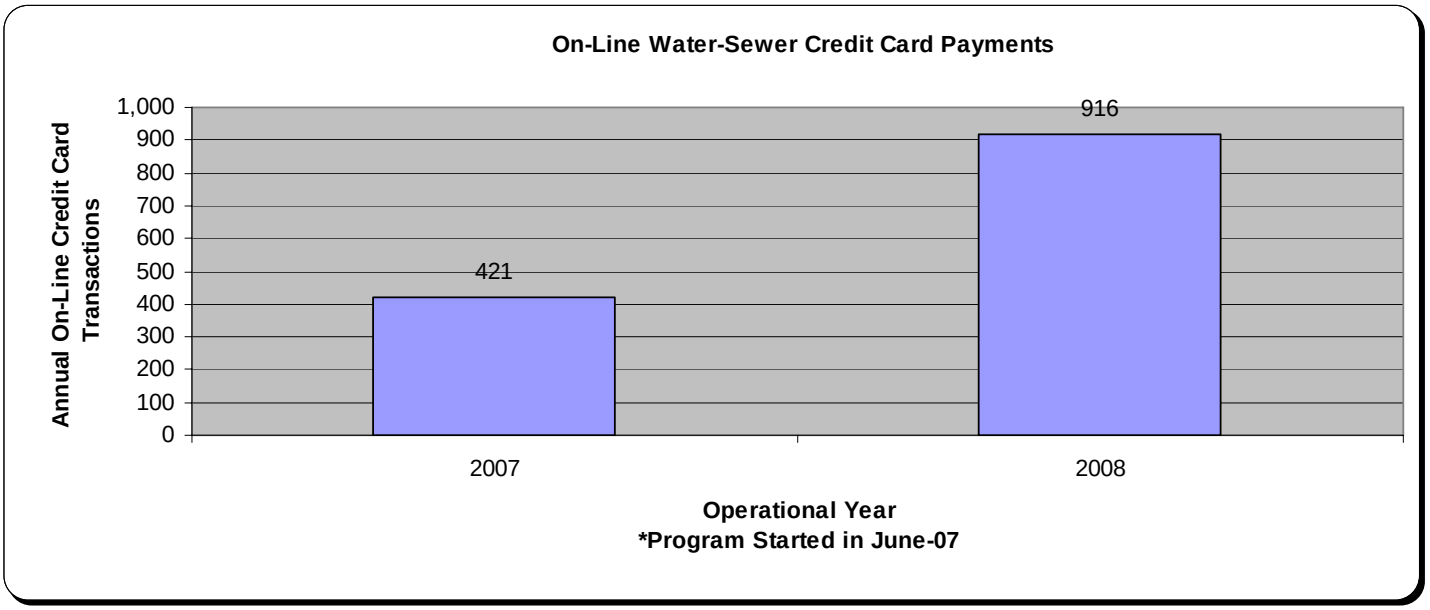


Lockbox Payment Processing:

The bulk of the customer base continues to mail-in their payments, which are processed in an automated fashion by the Township's financial depository. An electronic file is then transferred daily to the DPW and updated automatically into the utility billing/accounts receivable system. This lockbox processing collection service has saved the DPW many labor hours and thousands of dollars in manual payment processing and resulted in extra interest revenue from a decreased payment float time. Lockbox processing tends to be more accurate than manual processing. Float time is the time it takes for the depository institution to receive the actual funds and commence interest earning.

On-Line Account Inquires and Payment Options:

In 2007, the DPW began offering customer data inquires and payment options via the Township Web Site. Customers can access their water-sewer account 24 hours a day seven days a week at their convenience. On-line and on site credit card transactions were implemented for payment in June 2007. From June 2007 to the end of 2007, the DPW saw 421 credit card transactions from water-sewer customers on-line. In 2008, these on-line transactions increased to. The DPW saw nearly 6,000 customer account inquires in 2008 related to their water-sewer accounts. The DPW continues to stay abreast of new mechanisms and technology to make customer records more accessible and enhance customer service.



Fixed Network Meter Reading System:

The DPW was the first community in Michigan to begin implementation of a Fixed Network Meter reading system to collect and analyze customer meter reads automatically via radio to collectors, which are connected to the Township's broadband wireless network. This process allows for automatic daily meter read updates and real-time feedback of reverse flows and other diagnostic information. It also eliminates the need for service personnel to manually collect meter reads from customer addresses, which increases employee safety, reduces liability and saves money.

This technology allows service personnel to be more proactive in operational activities such as performing preventative maintenance on assets such as meters and curb boxes. The system also provides DPW customer service staff with an enhanced ability to more effectively and accurately address customer questions when they arise because they are able to collect specific meter reads while on the phone with the customer. DPW staff can analyze trends and patterns to isolate consumption and other issues before they become problems. It also allows for daily consumption trending so that potential water leaks can be quickly identified as well as meter tampering and reverse flow.

The pictures on the subsequent pages portray two (2) Fixed Network Meter Reading Products. The existing Itron 200-W Fixed Network Readers units are displayed in yellow and the Neptune R-450 Fixed Network Readers are displayed in pink on the map. The Fixed Network Collectors are depicted with a Radio Tower Symbol. The transmission range of the units to the collectors has been very good and we look forward to performance improvements as the industry improves the technology.

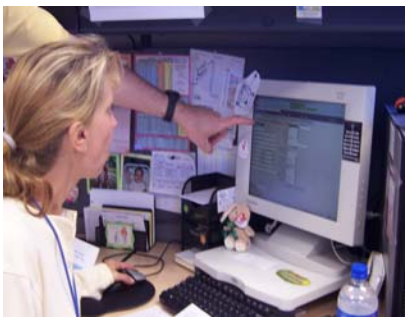
Waterford DPW Selected as a Beta Partner for Neptune Technology Group Fixed Network AMR System

Waterford Township's DPW Director was approached in 2006 by the Neptune Meter company to assist in their development of the next generation Fixed Network meter reading system, and the effort has resulted in deployment of a no charge beta Neptune Fixed Network that will provide the basis of the reading system for the future. As a result of the collaborative program, the DPW is deploying a state-of-the-art water metering program utilizing a fixed collector, radio reporting unit and advanced software for processing reads, alarms and reports. This system permits daily reads as well as leak detection monitoring and backflow monitoring. Over 3,000 endpoints and 1,000 high resolution meters have been installed to date.

Neptune Omni-Directional Antenna Operating at 450 MHZ located on the Cass Water Tank.

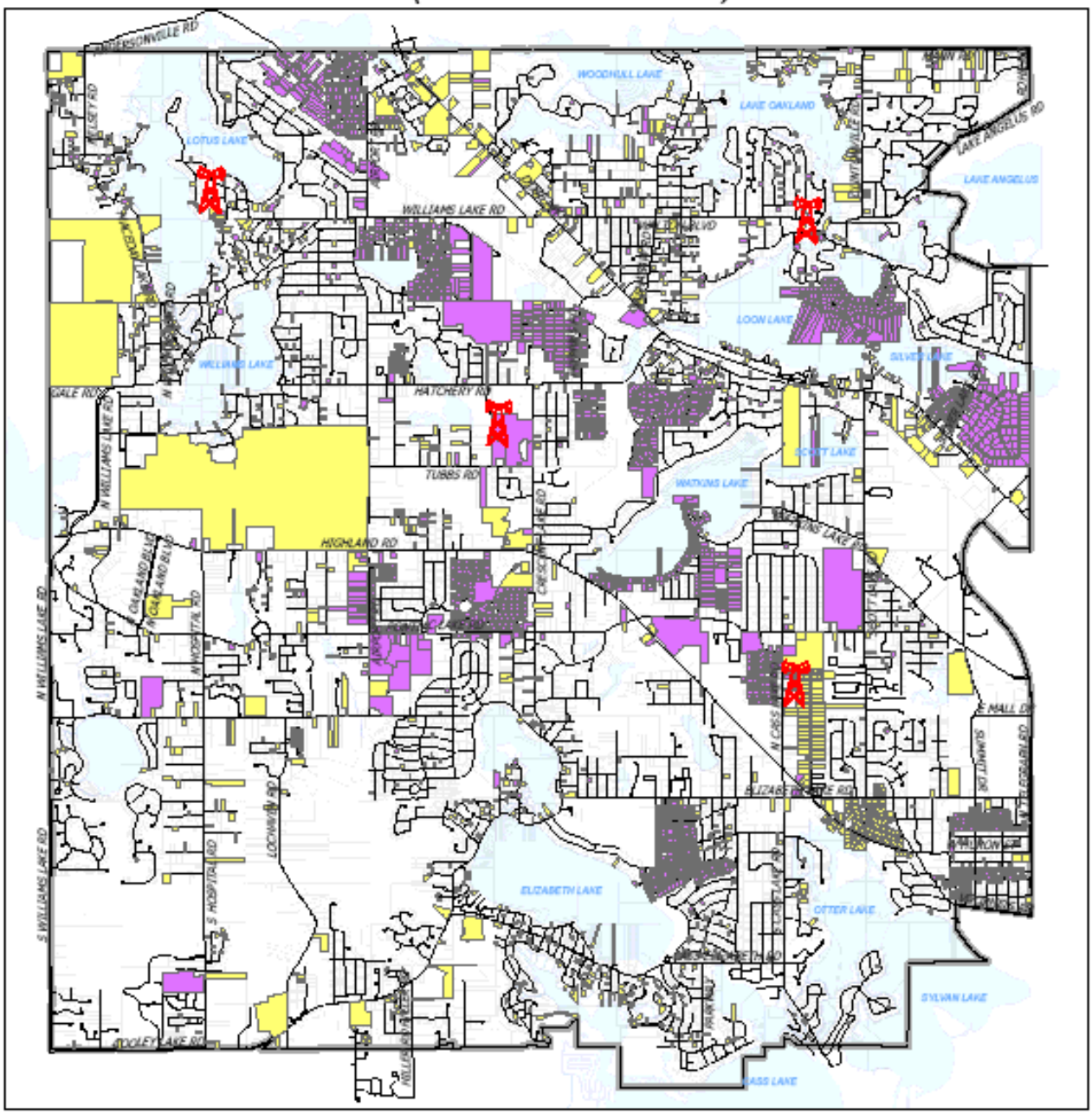
Neptune R-450 Fixed Network Collector. These collectors receive daily meter reads and then transmit the data to the DPW using the Township's Broadband Wireless System.

DPW Employee Pennye Holden configuring R-450 Reading Devices in the Field.



DPW Employee Mary Bunce using the Software System that permits daily meter reads. This system in conjunction with the R450 and high resolution Neptune meters has allowed the DPW to notify customers when leaks develop in their home/business saving resources.

Waterford Township Fixed AMR Network Map
(As of Jan. 2009)



Legend

FN Meter Reading Site

FIXED NETWORK PARCELS

Meter Type

- Itron 200W - Operates at 1.4 GHz
- Neptune R-450 - Operates at 450 MHz
- Roads
- Township Boundary Line
- Lakes

Feet

0 4,500 9,000 13,500

1 inch equals 4,500 feet

N

File Name: AMR Updated Map.mxd
Updated: 02/02/2009

Engineering Services Branch

The mission of the Engineering Services Branch is to provide professional engineering support for the DPW and to assist other Township Departments such as Building and Engineering as necessary. By utilizing the latest computer programming, software applications and field equipment, the branch is able to provide highly accurate information in the areas of water/sewer modeling, sewer main televising, utility staking and project coordination.

The branch is headed by the Superintendent of DPW Engineering Services and is comprised of seven full-time employees and a variable number (1-3) of part-time employees. The positions and a brief description of their typical duties are listed below:

- Superintendent of DPW Engineering Services
  Performs planning, project evaluation, design and specification preparation, budgeting and construction management. Gathers, assembles, and analyzes data and statistics; creates computer models, databases and prepares technical reports. Supervises Branch staff in daily operations.
- DPW Information Systems Administrator (formerly GIS Technician)
  Responsible for updating and maintaining all hardware and software necessary to operate the DPW's Information Management and Telecommunication Systems. This position was created in 2007 in order to update the types of tasks that the former GIS Technician had began to take ownership of over time.
- DPW Information Systems Technician
  Assists the Information Systems Administrator with an emphasis on the maintenance and updating of hardware and GIS-related software applications.
- Field Engineer
  Assists in the design and preparation of engineering plans. Performs construction inspection, testing and surveying on capital projects and oversees installation, repair and maintenance of underground utilities on private development projects.
- Civil Engineering Technician
  Assists in the design and preparation of engineering plans and specifications. Performs plan reviews and maintains engineering files and records. Conducts testing, inspections and prepares pay estimates on capital projects.
- Utility Coordinator
  Locates and marks all underground utilities owned by the township in advance of construction as requested by contractors and outside agencies. Makes and updates the corrections to existing utility records as needed.
- Infiltration – Inflow Operator
  Performs television inspections of underground utilities. Operates and maintains closed-circuit television inspection truck and equipment.
- Collection System Maintenance Tech – Grade IV
  Performs a variety of routine and manual duties related to general sewer and pump station operation.
- Information Systems Aide (1-2 part-time employees)
  Performs data entry, document scanning and indexing, field data collection, operating Global Positioning Systems (GPS) hardware and software.
- Engineering Aide (1 part-time employee)
  Performs same duties as Information Systems Aide plus assists Utility Coordinator with locating and marking underground utilities and assists the Field Engineer and Civil Engineering Technician with construction inspections.

The activities of the Engineering Services Branch can be broadly broken down into five categories:

1. DPW Information Systems
2. Utility Coordination
3. Private Development
4. Infiltration – Inflow
5. Capital Improvement
6. Wellhead Protection / Community Outreach

DPW Information Systems

The DPW has worked in coordination with the Township Information Systems Department to develop a robust Information Management System that provides critical information and applications for the efficient operations of the department and to assist other departments. The Information Technology initiatives of the department have allowed the department to streamline operations and provide valuable tools to the department and to the public that would not be available without the commitment of the department to incorporating technology into the operations of the department.

The Information Management System includes all the various components necessary to provide data and applications to the department. The following is a partial list of the hardware being monitored and/or maintained by DPW Information Systems:

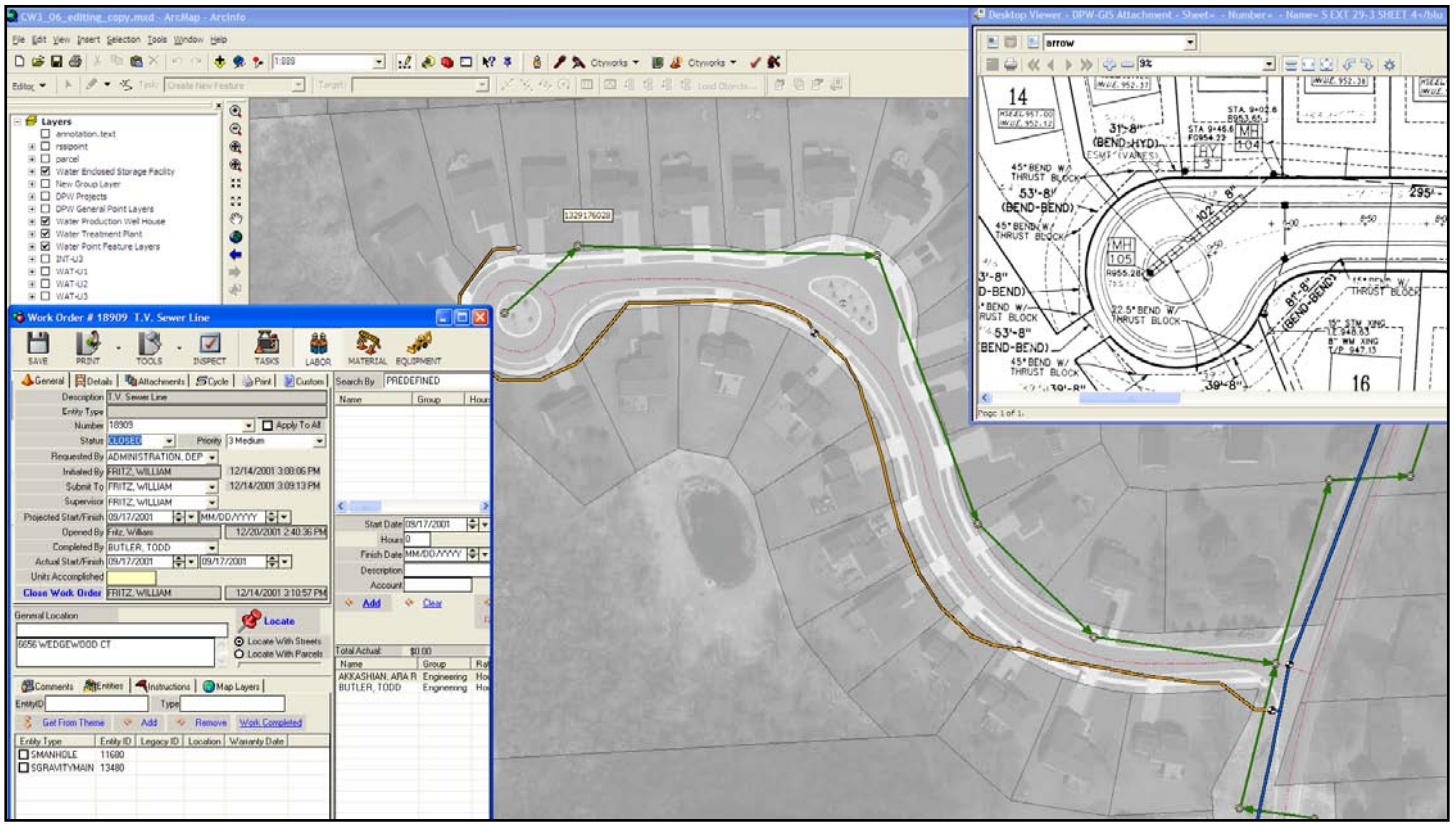
- ✓ 77 workstations (64 internal plus 13 at Wireless Sites)
- ✓ 18 Printers
- ✓ 1 42-Inch Plotter
- ✓ 12 Servers (Application and File Servers)
- ✓ 1 Storage Area Network (SAN)
- ✓ 3 Desktop Scanners
- ✓ 1 Stand-Up Large-Size Scanner
- ✓ 1 Sub-Meter GPS Unit
- ✓ 21 Network switches (7 internal and 14 at Wireless Sites)
- ✓ 26 Wireless Base Station Radios (Site to Site Communication)
- ✓ 22 Wireless Access Points (Secure 802.11x)
- ✓ 48 Standard Definition Security Cameras (7 internal and 41 at Wireless Sites)
- ✓ 19 High Definition Security Cameras (9 internal and 10 at Wireless Sites)

The following is a partial list of applications being maintained in whole or part by DPW Information Systems:

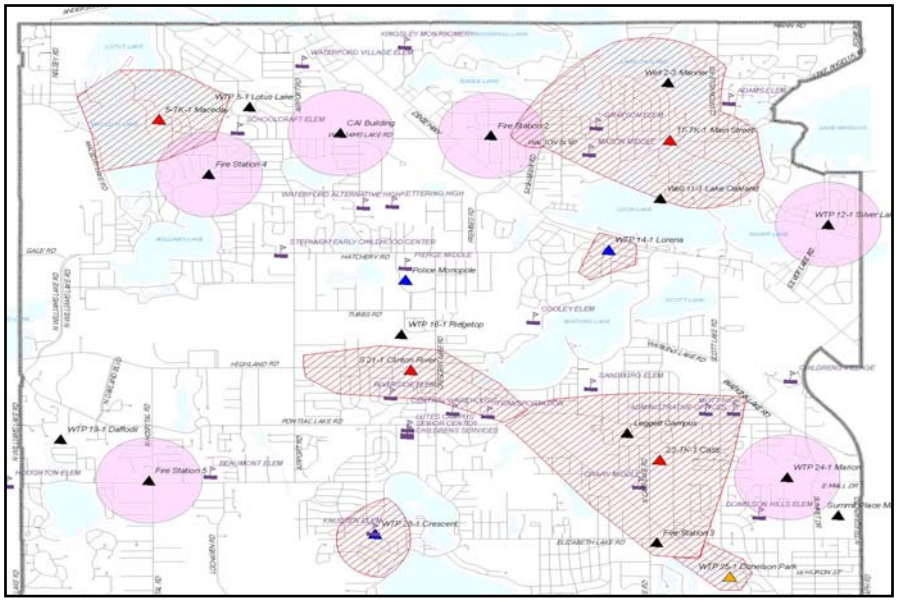
- ✓ ESRI ArcServer Enterprise Basic (SDE)
- ✓ ESRI ArcServer Enterprise Standard (ArcServer)
- ✓ ESRI ArcGIS Desktop (ArcInfo, ArcEditor, ArcView)
- ✓ Azteca Cityworks
- ✓ Hyland OnBase
- ✓ Dig-Smart
- ✓ Sony RealShot
- ✓ SoftSite32
- ✓ SCADA Alarm Manager
- ✓ NetMotion
- ✓ Rolta OnPoint

Detailed below, are some examples of the various applications and technologies used by the DPW.

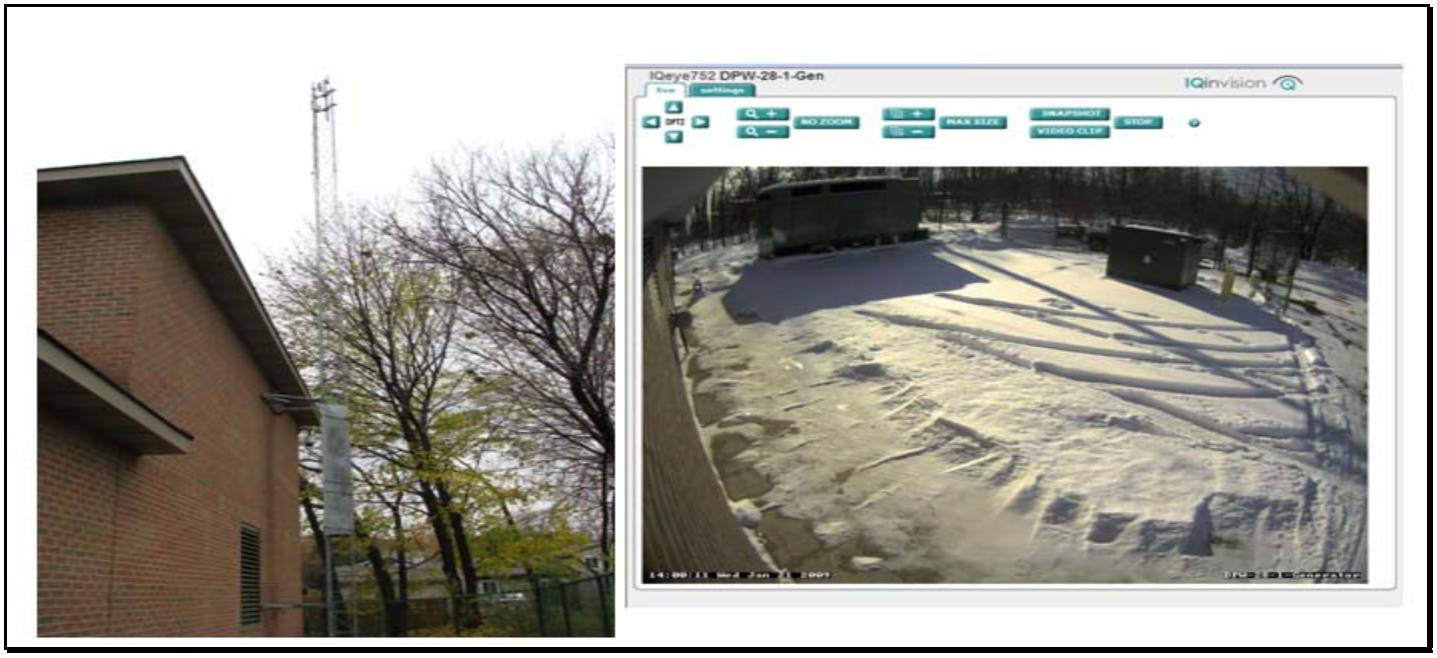
Geographic Information System (GIS) – The DPW has developed a GIS that allows spatial data to be displayed in a straightforward user interface. The GIS serves as a base for viewing infrastructure and through integrations with work management software and document management software, functions as the central application for creating work orders and viewing supporting documentation regarding infrastructure.



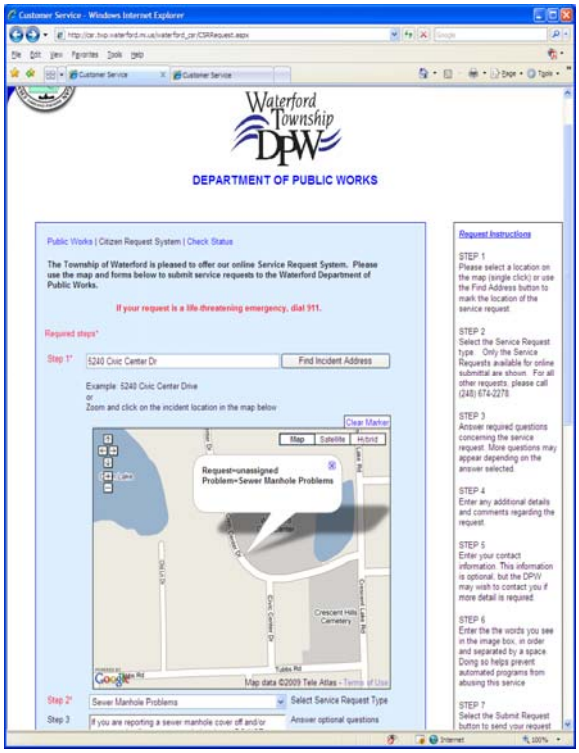
Wireless Wide Area Network (WWAN) – The DPW has implemented a WWAN that allows remote facilities of the DPW to have direct access to the Township network. These remote sites are now able to pass live data and streaming video directly back to Township information systems. This allows the DPW to better monitor and



control the control systems at the remote sites and also provide with live video monitoring and alarming at these remote sites. Secure wireless hot spots are also being implemented at these locations to provide DPW staff access to all information systems while in the field.



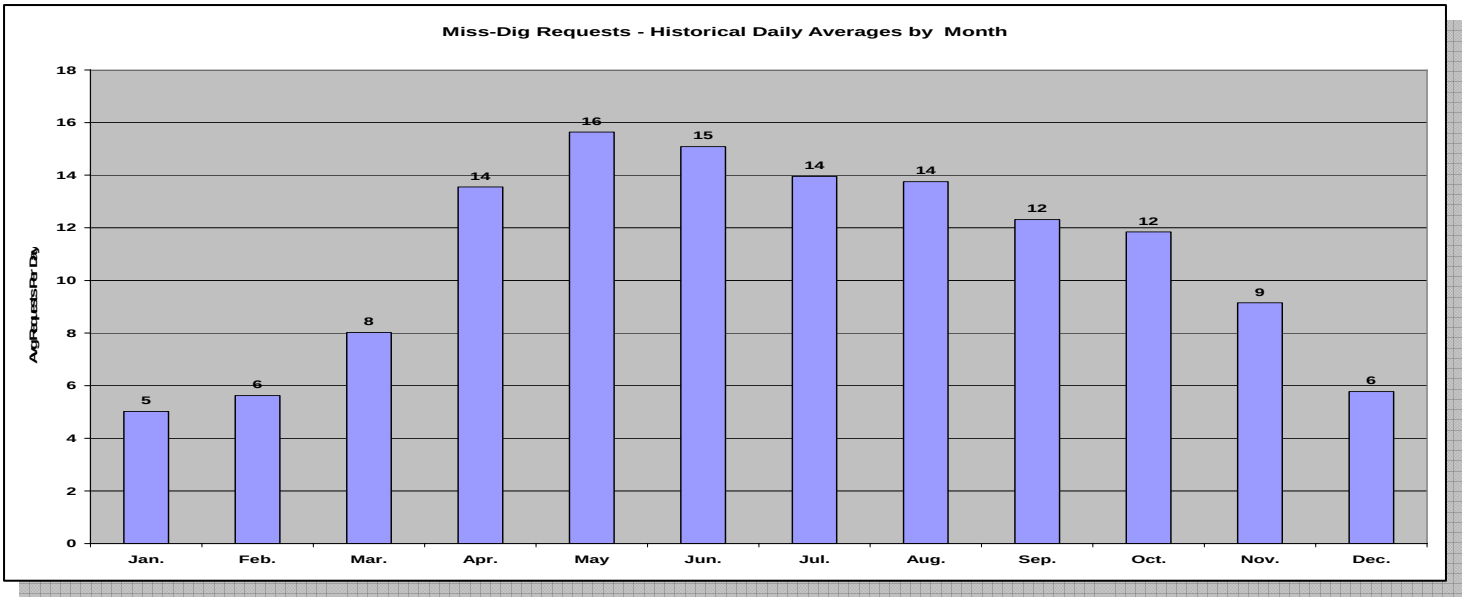
Online Citizen Service Request System (CSR) – Introduced in 2008, this specially designed website allows for citizens to submit service requests online anytime. This user friendly applications was built to allow users to quickly enter information related to their request where it is automatically spatially referenced and entered into the department's GIS and Computer Maintenance Management System (CMMS). This application provides a quick and convenient method for citizens to inform the DPW of selected problems and a method for citizens to check the status of their requests.



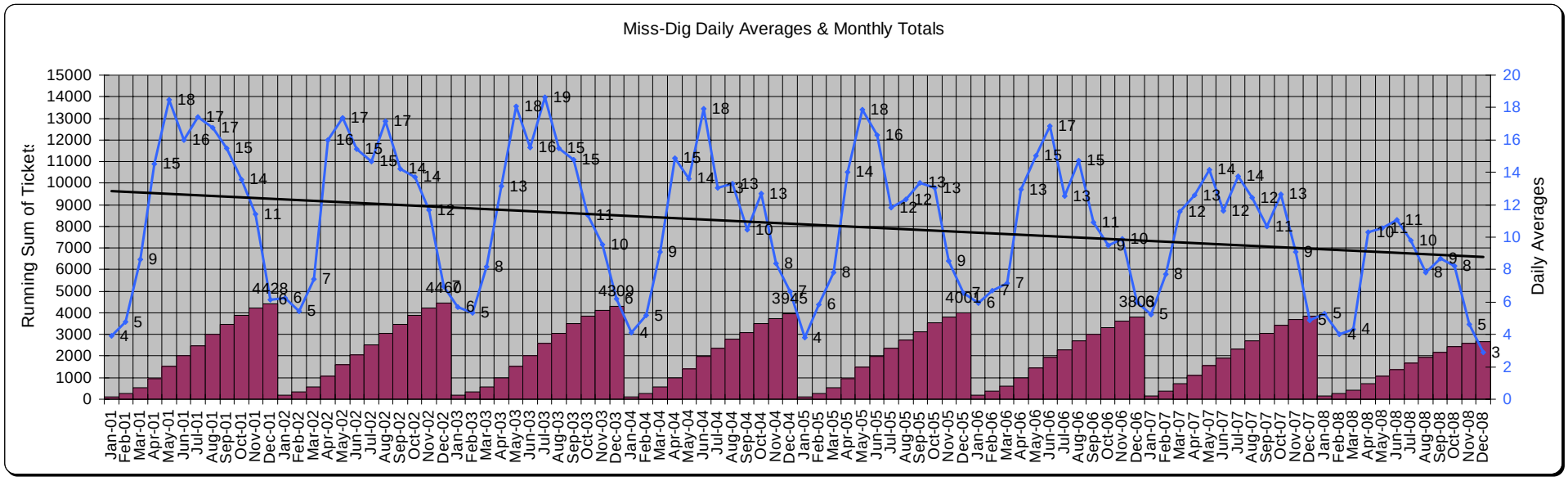
Utility Coordination

The DPW participates in the Michigan Miss-Dig program where contractors and others anticipating underground utility work contact the Miss-Dig agency and report the location of the proposed work. Miss-Dig, in turn, broadcasts a message to the affected utilities notifying them of the imminent work and to provide staking if necessary. The affected utilities then have three working days to respond to the request.

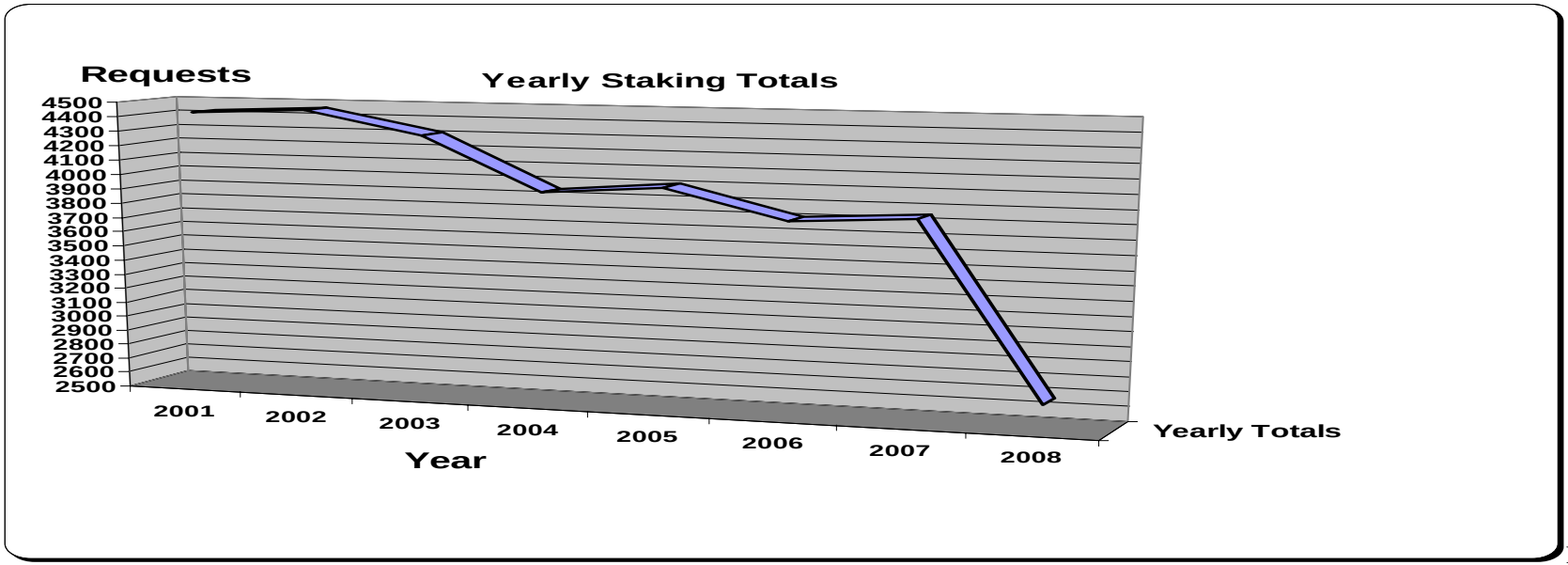
As can be seen from the figure below, requests are more numerous during the summer months than during the winter months. Historically, May is the busiest month with, on-average, 16 location requests received per day. The slowest month is January, averaging 5 location requests per pay.



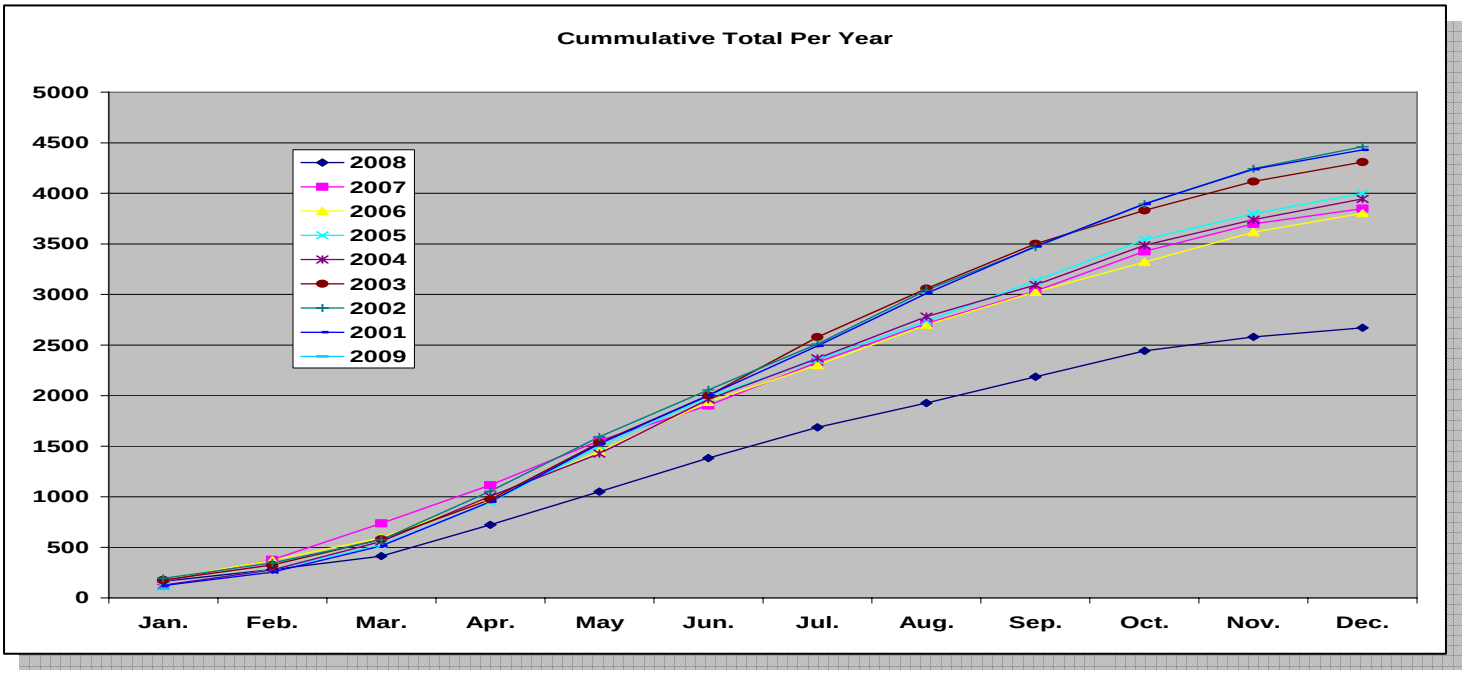
The actual daily averages for each month and the running sum of requests for each year are given below.



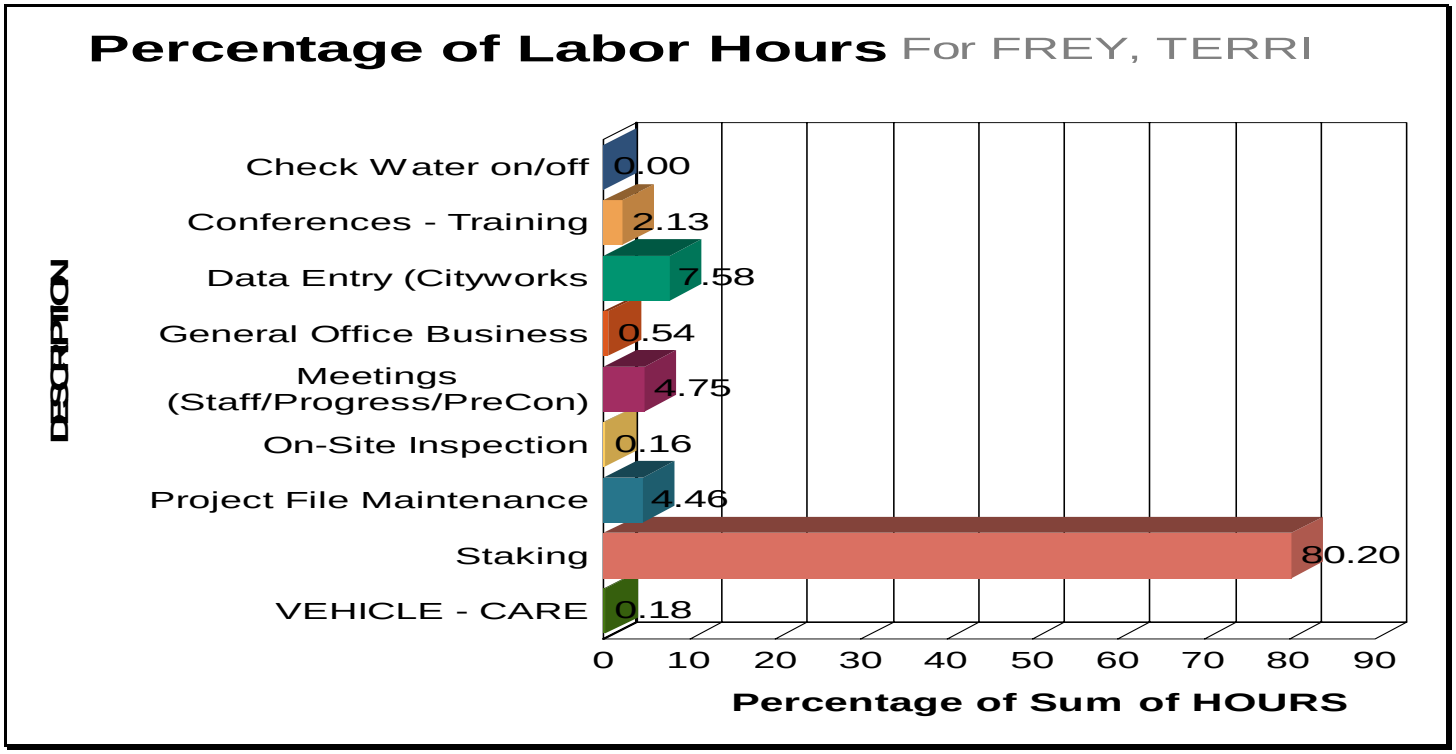
The total number of staking requests for 2008 was 2,670, significantly lower than the 3,850 requests received in 2007. The 2008 total continued the declining trend of total number of requests. The overall historical decline is a reflection of the slowing pace of building and construction in the Township as indicated by the trendline. The sharp decline in 2008, however, was an indicator of the economic slowdown experienced across the region.



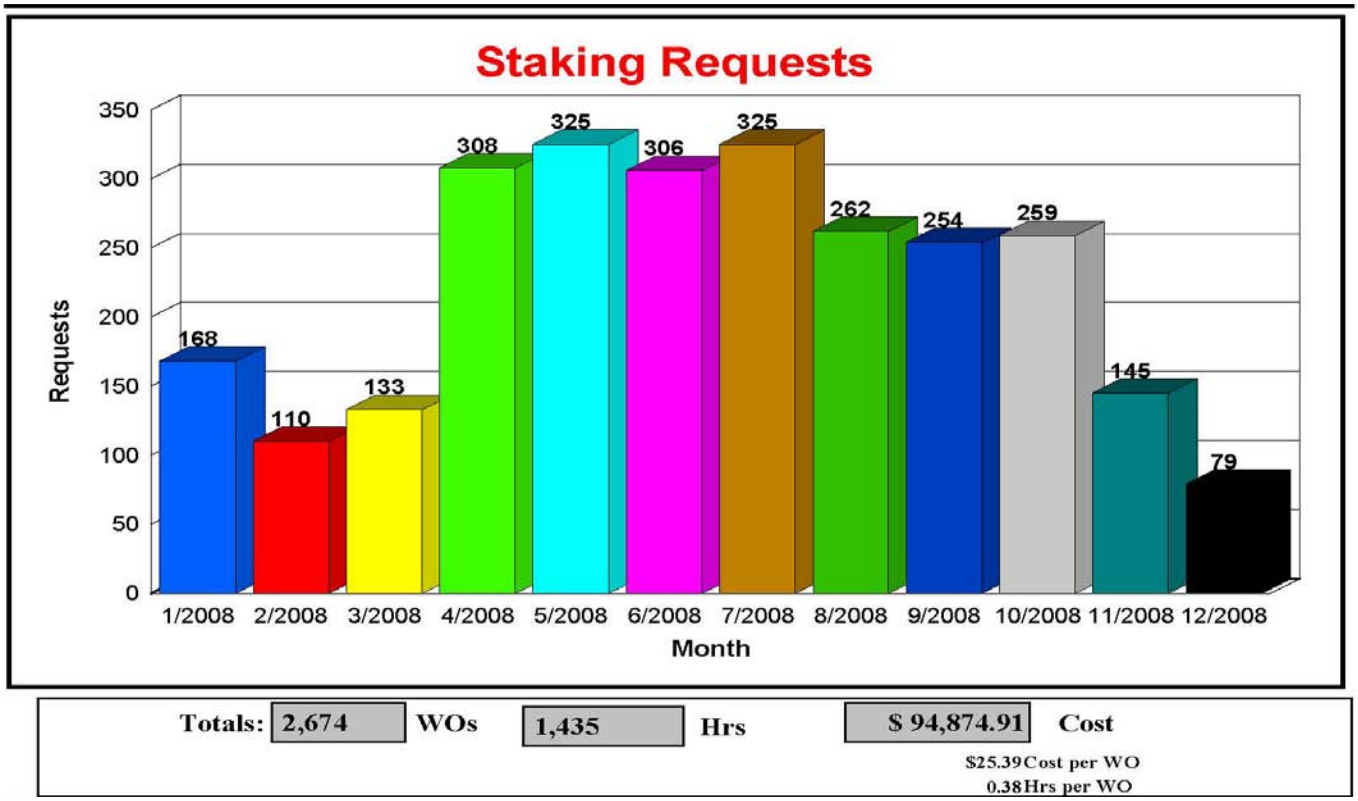
The drastic decline witnessed in 2008 is illustrated in the graph below, which shows the accumulation of staking requests through the calendar year. There is a data line for each year since 2001. There are three (3) distinct groups of data, 2001-2003 are tightly grouped with an average yearly total of about 4,400 requests, 2004-2007 are also tightly grouped with an average yearly total of about 3,900 requests and 2008 is alone and represents a significant decline.



The decline in number of tickets received has allowed the Utility Coordinator to address issues such as incorrectly referenced items in the Document Management System and misrepresented objects in the GIS. The graph illustrates the diverse work performed by the Utility Coordinator.



Over 80% of the Utility Coordinator's time in 2008 was spent staking. The following graph and data are a direct output of Utility Locating Service Work Orders captured by the CMMS. The amount of requests follows the expected monthly pattern mentioned above.



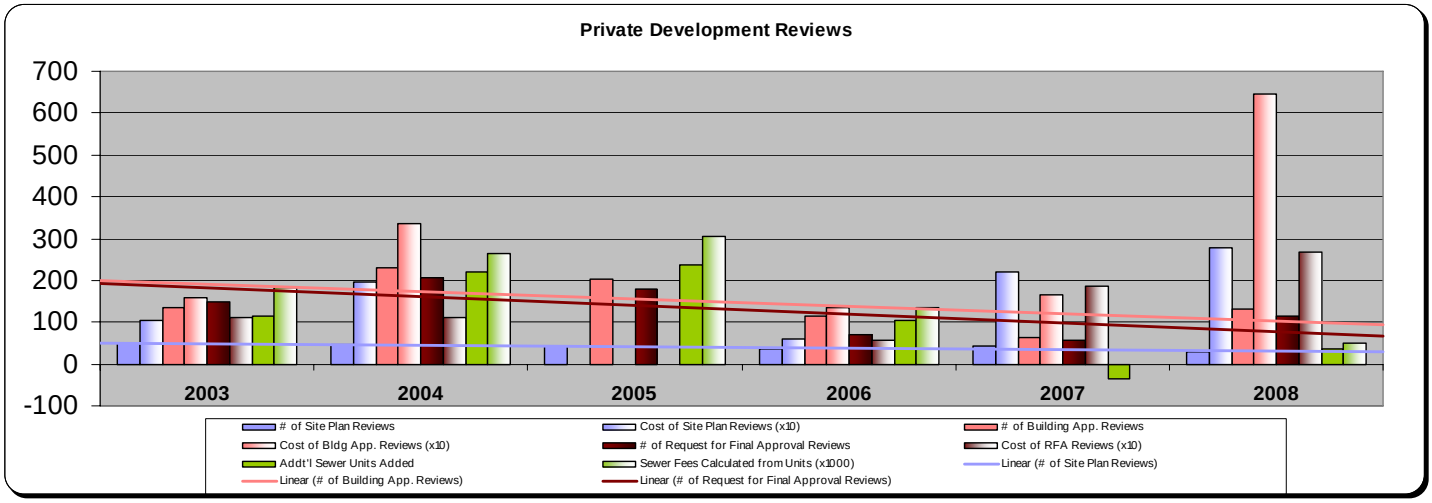
A review of the data recorded within the CMMS shows that approximately 1,440 employee-hrs were required to handle the work load. Approximately $95,000 was spent on utility location in 2008.

Private Development

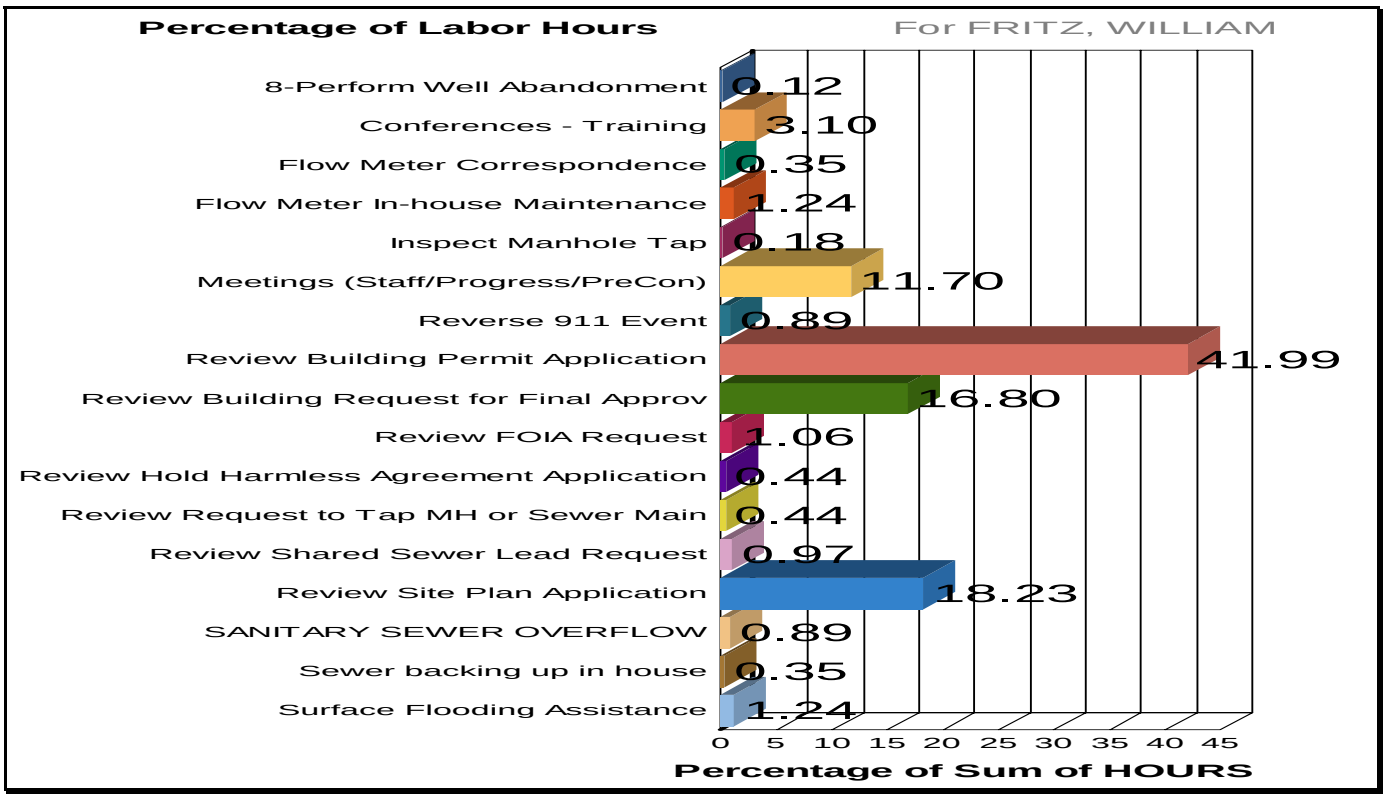
Private Development is defined as all planning and construction activities that are for the primary benefit of private business owners. Examples include new subdivisions, condominiums, apartment complexes or other residential units, offices, commercial and retail buildings.

The first step in new development is the planning and design stage. In 2008, thirty (30) site plans were reviewed, which was twelve (12) fewer than in 2007. The 2008 decline resumed a downward trend that was temporarily reversed in 2007 (see graph below).

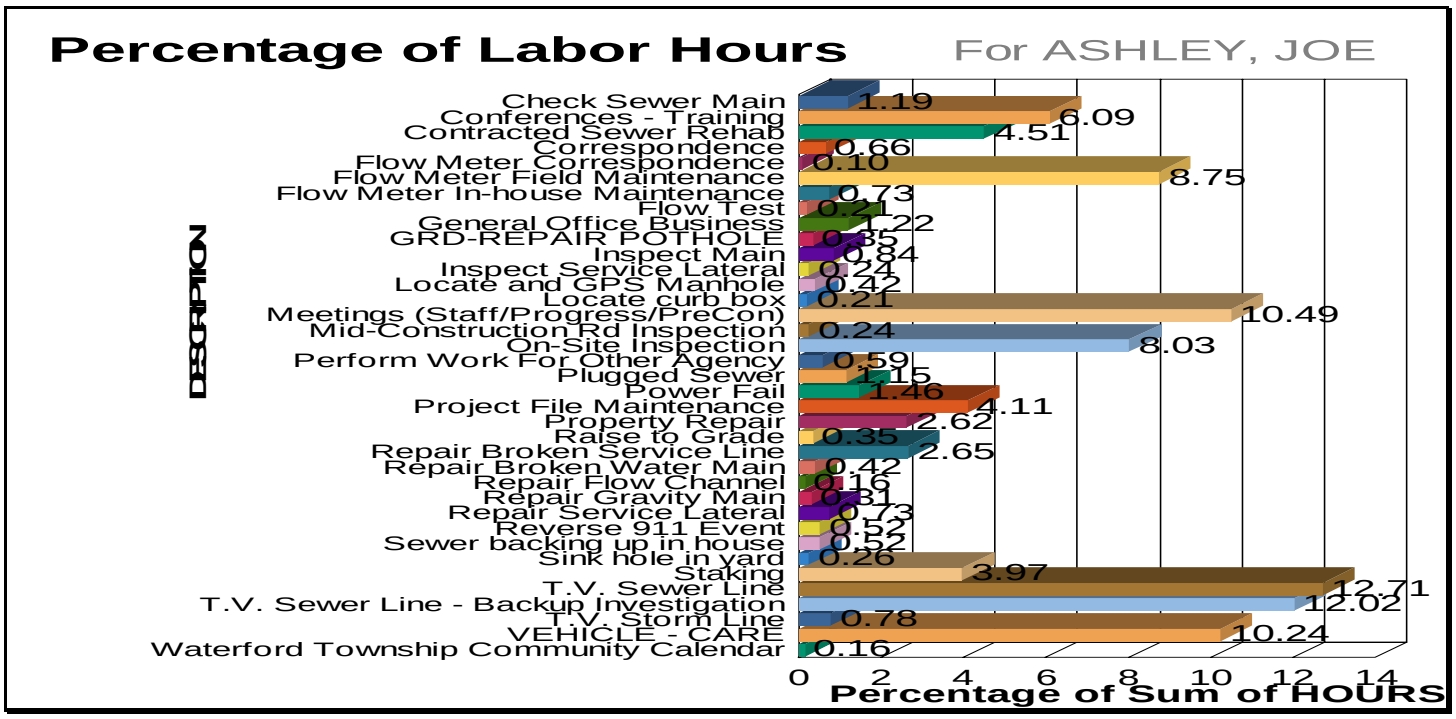
Once the site plans are approved, the next step is construction. This can be quantified in the number of building permits and the number of request-for-final-approval applications (RFA in Figure below) reviewed. Both of these indicators were higher in 2008 than in 2007. There were one hundred thirty (130) building application reviews and one hundred thirteen (113) requests-for-final reviewed in 2008. Both of these totals were twice that of 2007.



The Engineering Superintendent completed all of the reviews mentioned above. Performing these reviews occupied nearly fifty percent (50%) of his time in 2008 (see below).



Some private development projects require the installation of new water and/or sewer utilities. This includes water and sanitary sewer mains, sewer manholes, water valves, hydrants, and other categories. At the time of report preparation, the 2008 data was not available. The Field Engineer acts as the DPW's representative to ensure that all new water and sanitary sewer installations are done so in accordance with current standards. The following graph represents the breakdown of labor hours reported in the CMMS.

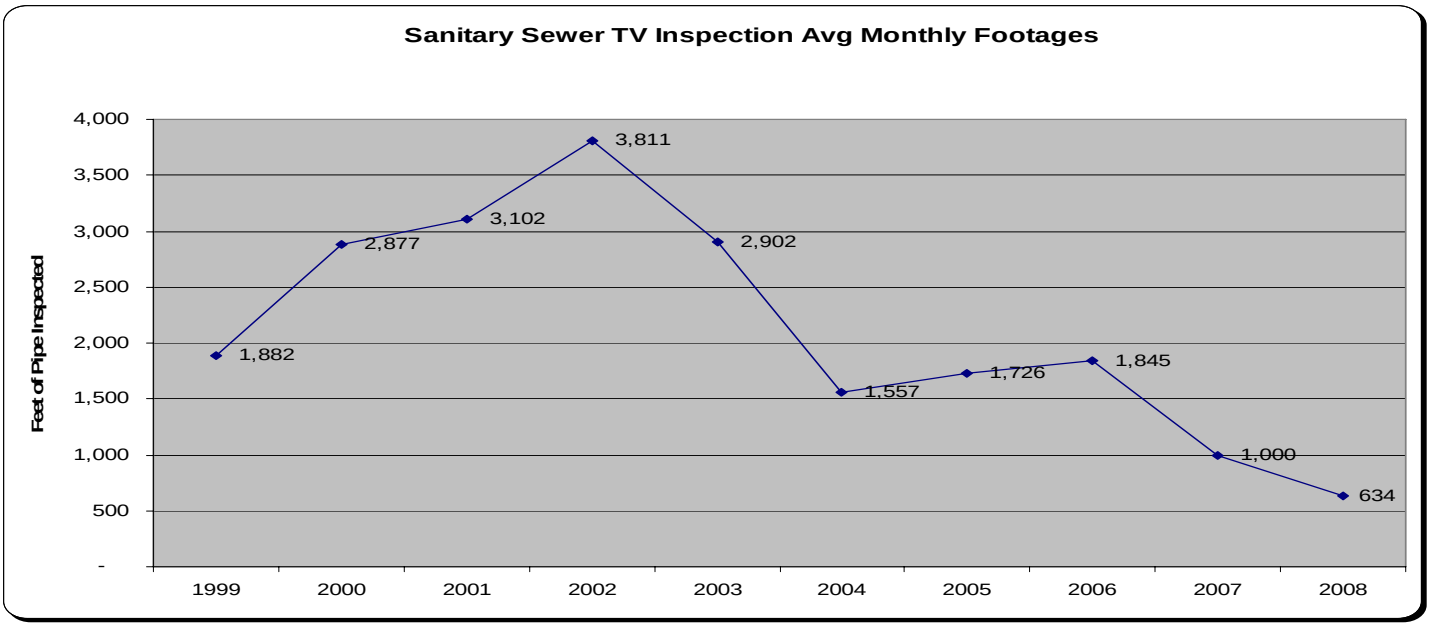


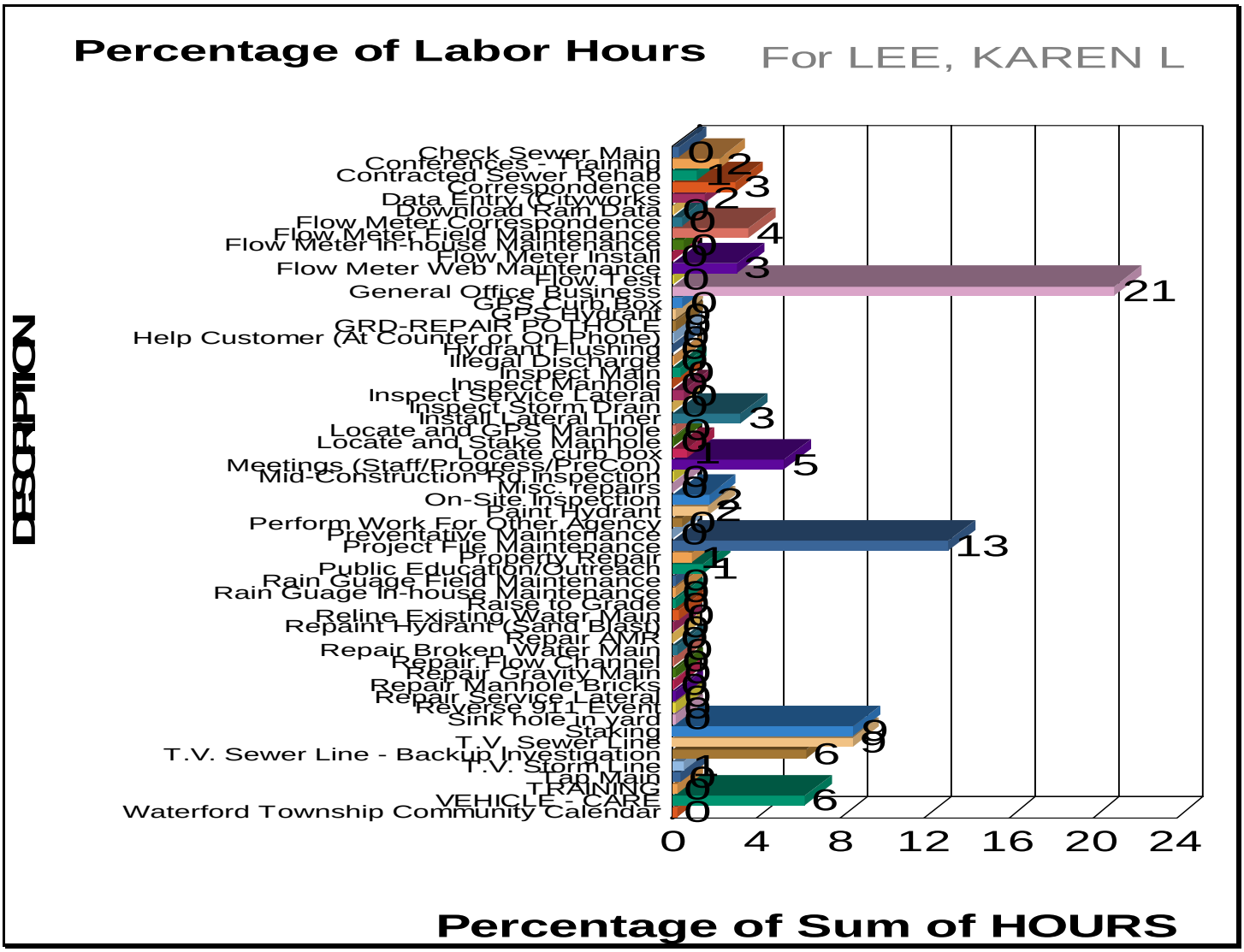
Infiltration-Inflow

The Township sewer system is a separated collection system that is designed to convey wastewater only. However, inherent limitations in construction materials and technology and the aging of the collection system allow for ground water and storm water runoff to infiltrate into the system. In addition, illegal connections exist that introduce direct storm water runoff and other non-wastewater inflows into the collection system. Problems such as surcharging and overflows can develop in the collection system during heavy and prolonged rain events.

The DPW is required by the Michigan Department of Environmental Quality (MDEQ), and also committed to continuously improving the performance of the collection system, to investigate and eliminate these types of problems.

Since the start of the sewer televising program in 1999, DPW staff has averaged about 2,300 feet of pipe inspected per month. In 2003, information collection of the actual slope of the pipe began, which essentially doubled the amount of time it took to televise a section of pipe. As a result, monthly averages of pipe surveyed plummeted. In 2005, continuous improvements in operating techniques reversed this trend and increased survey efficiency. Equipment failures plagued the operation in 2007 and the first half of 2008, resulting in lowered totals of completed inspections. The equipment issues have been eliminated and the crew has been fully operational for several months. Production will probably not return to the levels achieved in the early 2000's, however, due to changes in data collection techniques and detail.

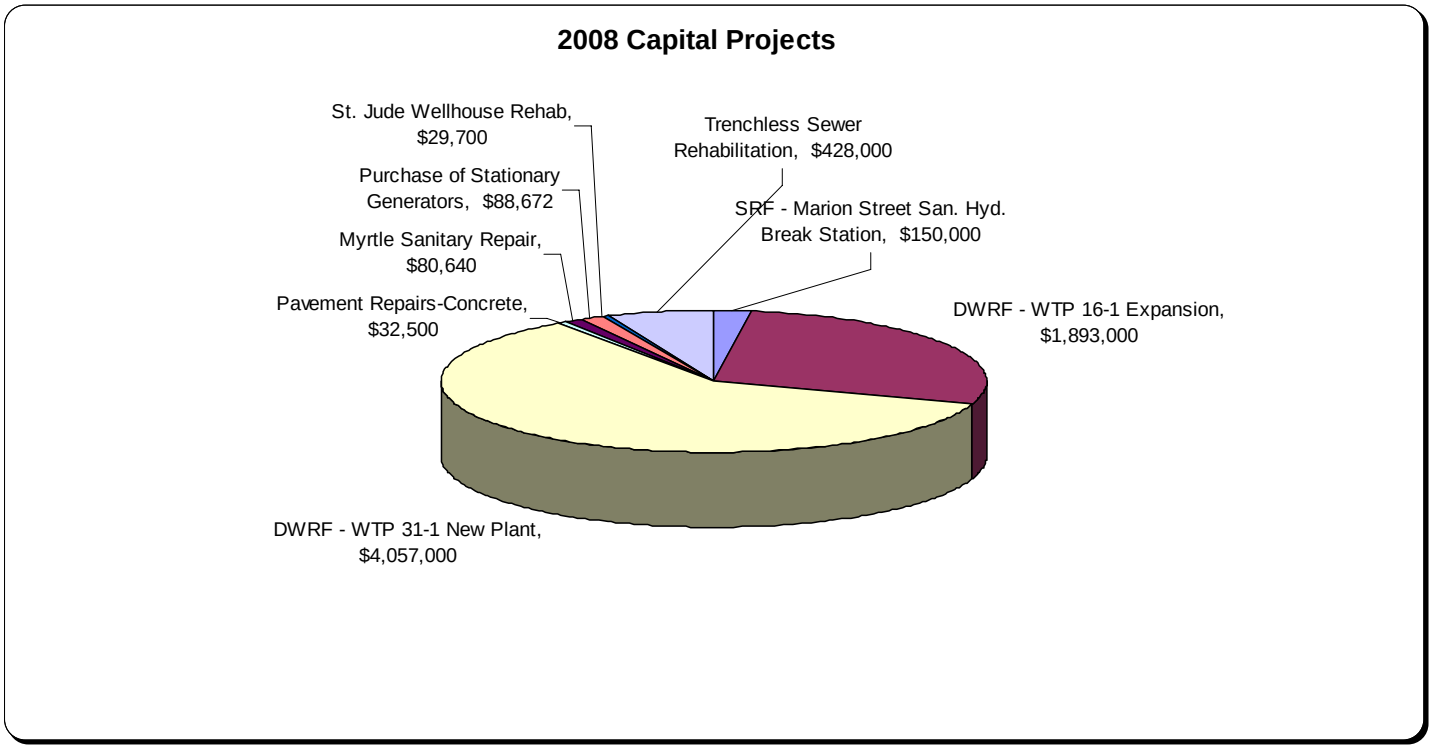

Sanitary Sewer TV Inspection Avg Monthly Footages
Feet of Pipe Inspected
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
-
1,882
2,877
3,102
3,811
2,902
1,557
1,726
1,845
1,000
634
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008


Percentage of Labor Hours
For LEE, KAREN L
DESCRIPTION
Check Sewer Main 0
Conferences - Training 2
Contracted Sewer Rehab 1
Correspondence 3
Data Entry (Cityworks 2
Download Rain Data 0
Flow Meter Correspondence 4
Flow Meter Field Maintenance 0
Flow Meter In-house Maintenance 0
Flow Meter Install 3
Flow Meter Web Maintenance 0
Flow Test 21
General Office Business 0
GPS Curb Box 0
GPS Hydrant 0
GRD-REPAIR POTHOLE 0
Help Customer (At Counter or On Phone) 0
Hydrant Flushing 0
Illegal Discharge 0
Inspect Main 0
Inspect Manhole 0
Inspect Service Lateral 0
Inspect Storm Drain 0
Install Lateral Liner 3
Locate and GPS Manhole 0
Locate and Stake Manhole 1
Locate curb box 5
Meetings (Staff/Progress/PreCon) 0
Mid-Construction Rd Inspection 0
Misc. repairs 2
On-Site Inspection 2
Paint Hydrant 0
Perform Work For Other Agency 0
Preventative Maintenance 13
Project File Maintenance 0
Property Repair 1
Public Education/Outreach 0
Rain Guage Field Maintenance 0
Rain Guage In-house Maintenance 0
Raise to Grade 0
Reline Existing Water Main 0
Repaint Hydrant (Sand Blast) 0
Repair AMR 0
Repair Broken Water Main 0
Repair Flow Channel 0
Repair Gravity Main 0
Repair Manhole Bricks 0
Repair Service Lateral 0
Reverse 911 Event 0
Sink hole in yard 0
Staking 8
T.V. Sewer Line 9
T.V. Sewer Line - Backup Investigation 6
T.V. Storm Line 0
Tap Main 1
TRAINING 4
VEHICLE - CARE 6
Waterford Township Community Calendar 0
0
4
8
12
16
20
24
Percentage of Sum of HOURS

Capital Improvements

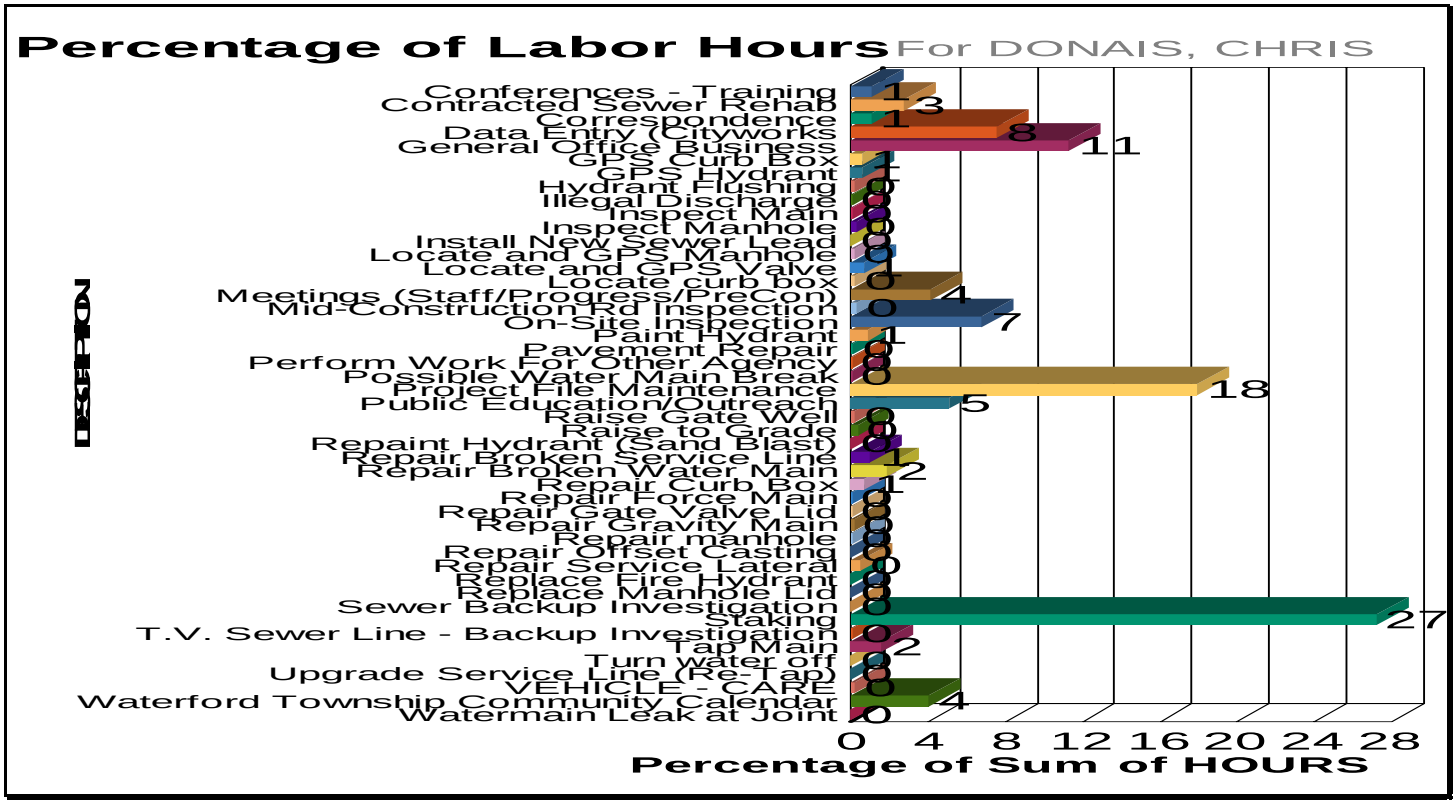
This category includes the projects and activities the DPW financially participated in 2008. They may be projects for which work was contracted directly or they may be projects performed by other agencies with financial participation agreements with Waterford such as the trenchless sewer rehab grant through the Environmental Protection Agency (EPA).

The graph and table below illustrate the scale of each capital project's budget in relation all capital projects.



2008 CAPITAL IMPROVEMENT PROJECTS

Project	Lead Agency	Description	Project Cost
SRF - Marion Street Sanitary Hydraulic Break Station	Waterford Twp	Install duck-bill valve at connection point to COIS	$ 150,000
DWRF - WTP 16-1 Expansion	Waterford Twp	Replace well and add new pressure filter treatment plant	$ 1,893,000
DWRF - WTP 31-1 New Plant	Waterford Twp	Construct three new wells and new water treatment plant	$ 4,057,000
Stationary Generator Purchases	Waterford Twp	Install stationary generator at four sanitary pumping stations	$ 89,000
Pavement Repairs	Waterford Twp	Repair paved areas disrupted by water/sanitary repairs	$ 33,000
St. Jude Well House Rehabilitation	Waterford Twp	Replace /repair equipment and building	$ 30,000
Trenchless Sanitary Rehabilitation	Waterford Twp	Televise, Clean, ream, grout, line aging sewers	$ 428,000



Wellhead Protection / Community Outreach

The success of the DPW's Wellhead Protection Program is due, in large part, to its emphasis on educating the public about the importance of source water protection. Each year the DPW performs demonstrations for elementary, middle and high school classes, as well as community organizations reaching nearly 2,000 people. Hands-on demonstrations and distribution of items such as tee shirts, squish-balls, cup holders, etc. help to embed the experience into the student's lives. The DPW also participated in educational programs at Hess-Hathaway Park for local children, at the Waterford Area Chamber of Commerce Open House at Mott High School, and hosted 6th grade science classes at a tour of our facilities.

Water Distribution Branch

The mission of the Water Distribution Branch is to provide maintenance services for the safe and efficient distribution of the Township's public water supply. The employees in this branch utilize a wide array of specialized equipment for underground excavation and other maintenance activities.

The branch is headed by the Water/Sewer Superintendent and is comprised of nine full-time employees. The positions and a brief description of their typical duties are listed below:

- Water/Sewer Superintendent
  Provides overall administrative duties for the Water Distribution Branch. Provides research and analysis of the water distribution system and suggests areas of improvement. Provides budgeting support and technical assistance to employees as needed. Analyzes the DPW's CMMS.

- Distribution Foreman
  Serves as the general day to day supervisor for field employees in the distribution branch. Assures that water taps and related activities are prioritorized and scheduled properly. Ensures that the branch has materials and supplies.

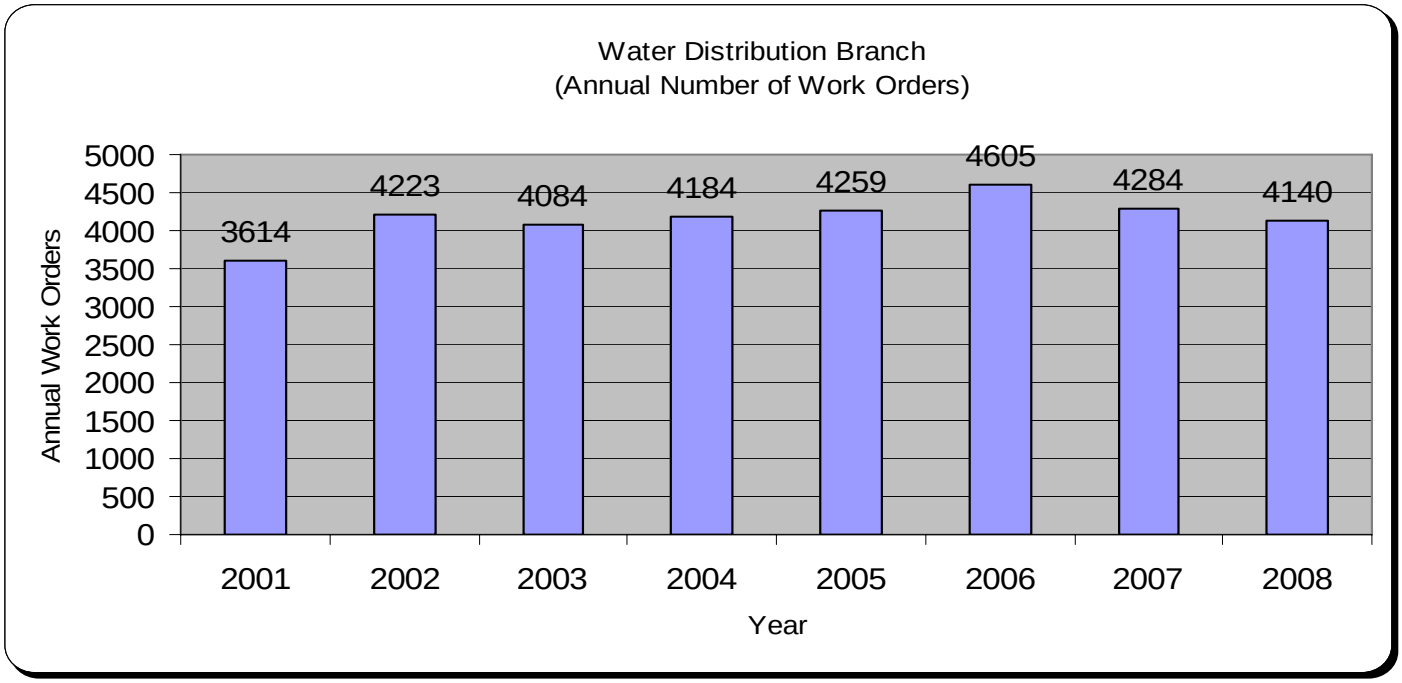
- Assistant Forman
  Serves as the main assistant to the Distribution Foreman and also provides direction and oversight to field employees in the distribution branch. Responsible for helping to meet scheduled deadlines, as well as ordering supplies. This individual also works extensively with the DPW's CMMS System to ensure all field work orders are updated and closed properly.

- Crew Leaders (2)
  These individuals serve as the lead employees on the job site. They ensure that proper safety procedures and work routines are followed.

- Distribution Service Workers (5)
  Employees in this classification serve primarily as general laborers and utilize heavy excavation equipment to conduct water main taps, curb box repairs, fire hydrant repairs, and sewer repairs.

Water Distribution Branch Annual Work Orders

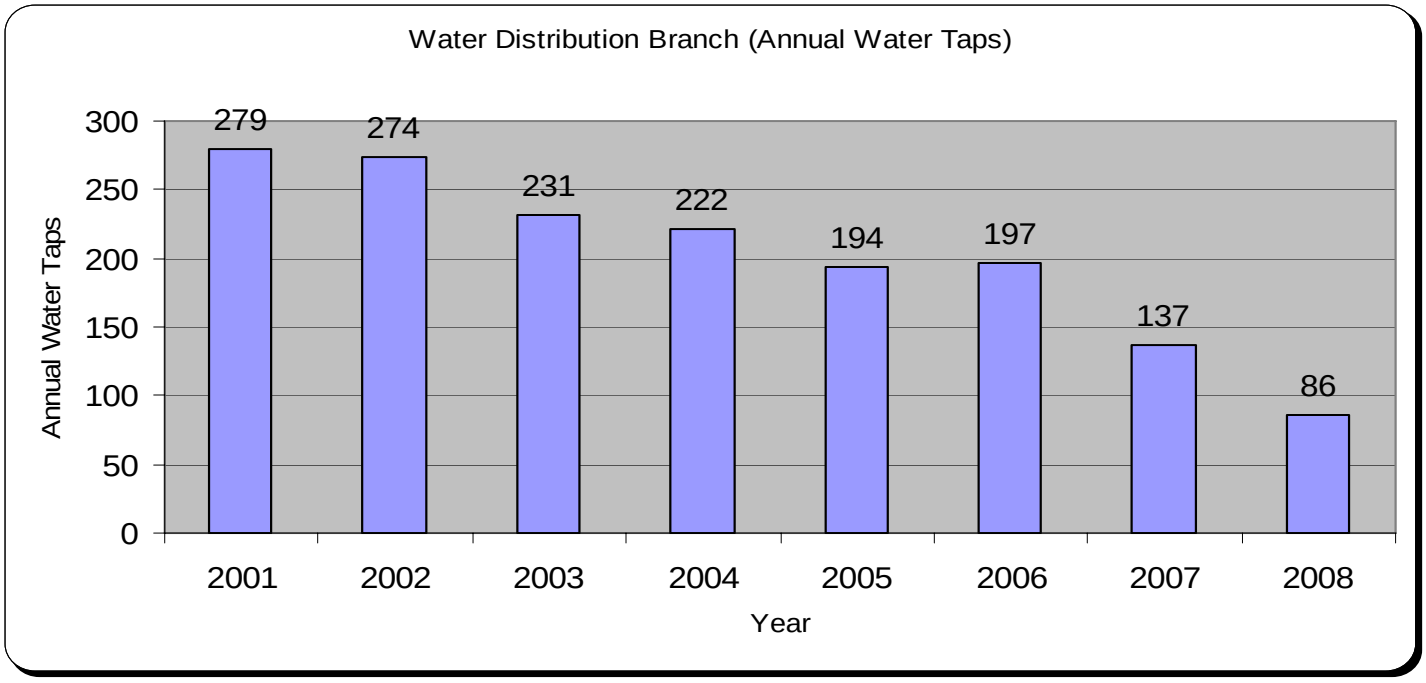
This Branch is responsible for all water main taps, water main break repairs, fire hydrant repairs and sewer main repairs. The graph below shows the aggregate annual number of the activities performed in this branch. Current work includes raising sewer manhole rims to grade or sealing them to prevent leaking. The branch also maintains and winterizes nearly 3,600 hydrants per year to ensure reliable operation throughout the year. Similar work activity is expected to continue with additional sewer work and valve preventative maintenance work increasing.



DPW Distribution Branch employees repairing a water main. The Township has 360 miles of water main of various age and composition.

Water Taps

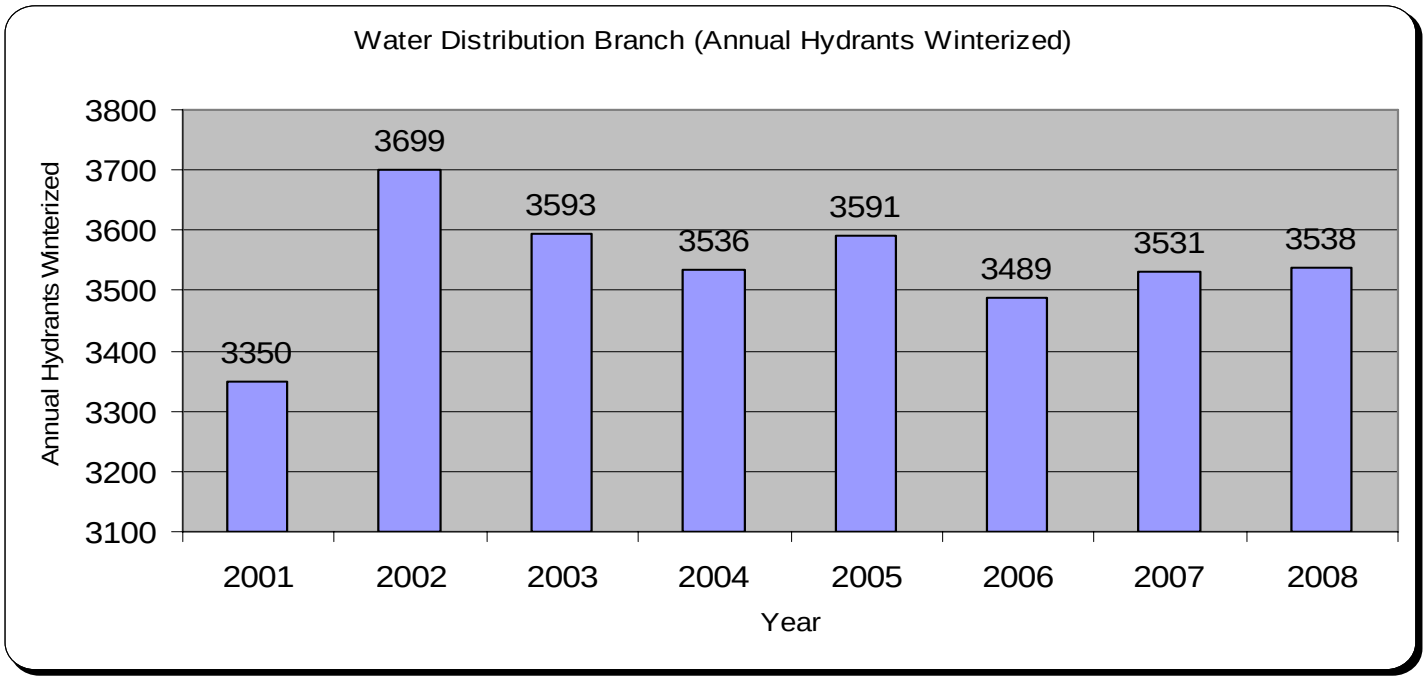
Water taps involve connecting new water customers to the water distribution system or reconnecting old worn out connections. Trends in recent years indicate a decline in new taps. This downward trend is expected to continue as the Township continues toward build-out. The graph below shows the annual water taps since 2001.



DPW Distribution Branch crew placing a 'Trench Box' in place prior to a water main repair. Trench boxes are used as a safety measure to prevent cave-ins when working near unstable or non reliable soil conditions.

Hydrant Winterizing

The Township has nearly 3,600 fire hydrants. These hydrants are a vital part of the water distribution system and an important health and safety asset of the Township. To ensure proper functioning of these vital assets, they are maintained throughout the year. In the fall, they are inspected and pumped down as part of the winterization program to prevent damage from freezing. The graph below depicts the annual number of these activities since 2001. These trends are expected to remain constant each year.



Water Treatment and Supply Branch

The mission of the Water Treatment and Supply Branch is to ensure safe potable water is delivered to the customers of the Township. Responsibilities include maintenance of the Township's eleven (11) water treatment plants, two (2) elevated and one (1) ground storage tank totaling 8.25 million gallons of storage and fifteen (15) wells. The branch is also responsible for the daily testing of water in the distribution system as well as ensuring compliance with the Safe Drinking Water Act.

The annual Consumer Confidence Report (CCR) is also compiled from operational data collected and maintained by the branch. This report serves as an annual audit detailing regulatory requirements of the water supply system and the results of the various tests conducted by the branch. It is mailed out to all customers annually and is available on line for viewing at anytime.

The branch is headed by the Water/Sewer Superintendent and is comprised of four (4) full-time and one (1) part-time employee. The positions and a brief description of their typical duties are listed below:

- Water/Sewer Superintendent
  Provides overall administrative duties for the Water Treatment Branch. Provides research and analysis of the water treatment system and suggests areas of improvement. Provides budgeting support and technical assistance to employees as needed. Analyzes DPW's Computerized Maintenance Management System to look for system and branch improvements.

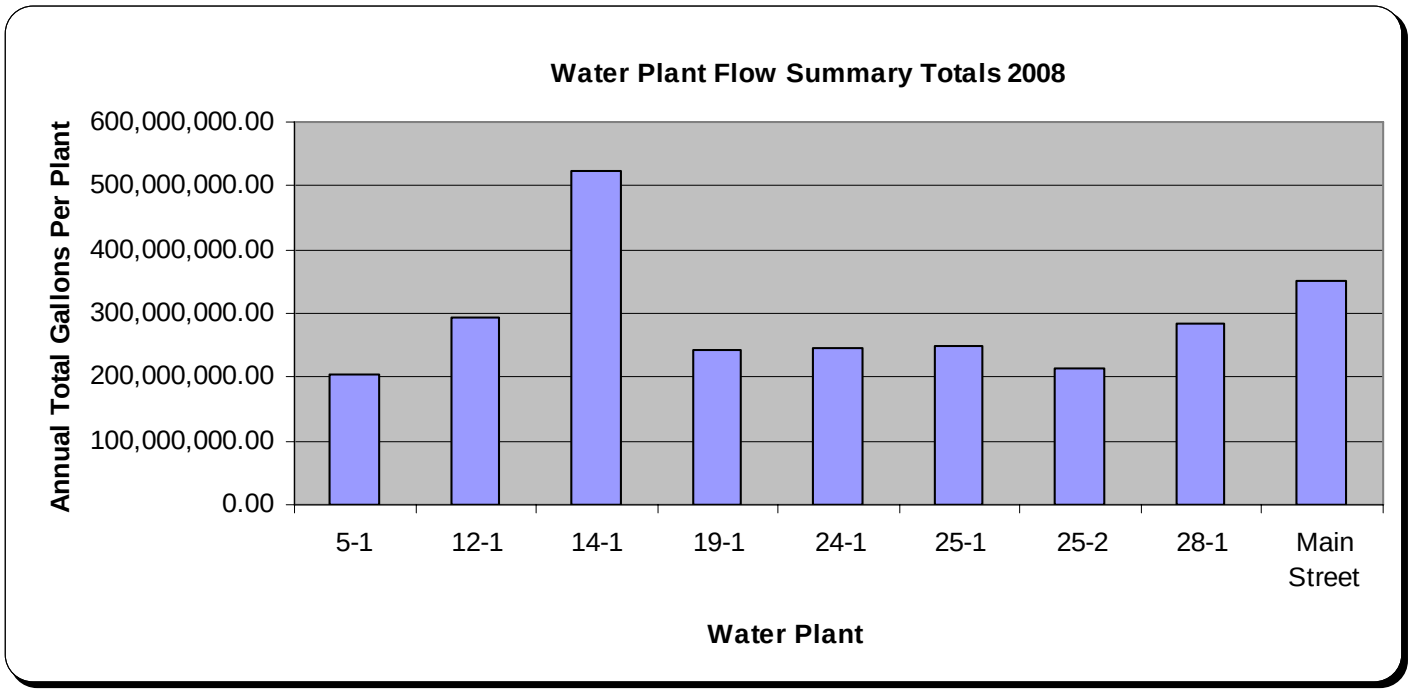
- Water Supply Foreman
  Schedules all work performed at the 11 Water Treatment Plants and oversee Monitoring Schedules required by the DEQ. Oversees Work Order completion and assists as needed in the field to provide support with tasks on everyday maintenance.

- Assistant Water Supply Foreman
  Assists the Foreman with all reporting to the DEQ on a monthly basis. Fills in for the Foreman as needed. Performs Treatment calculations and dosages on a day to day basis to meet monitoring requirements set by the DEQ at all of the Treatment Plants.

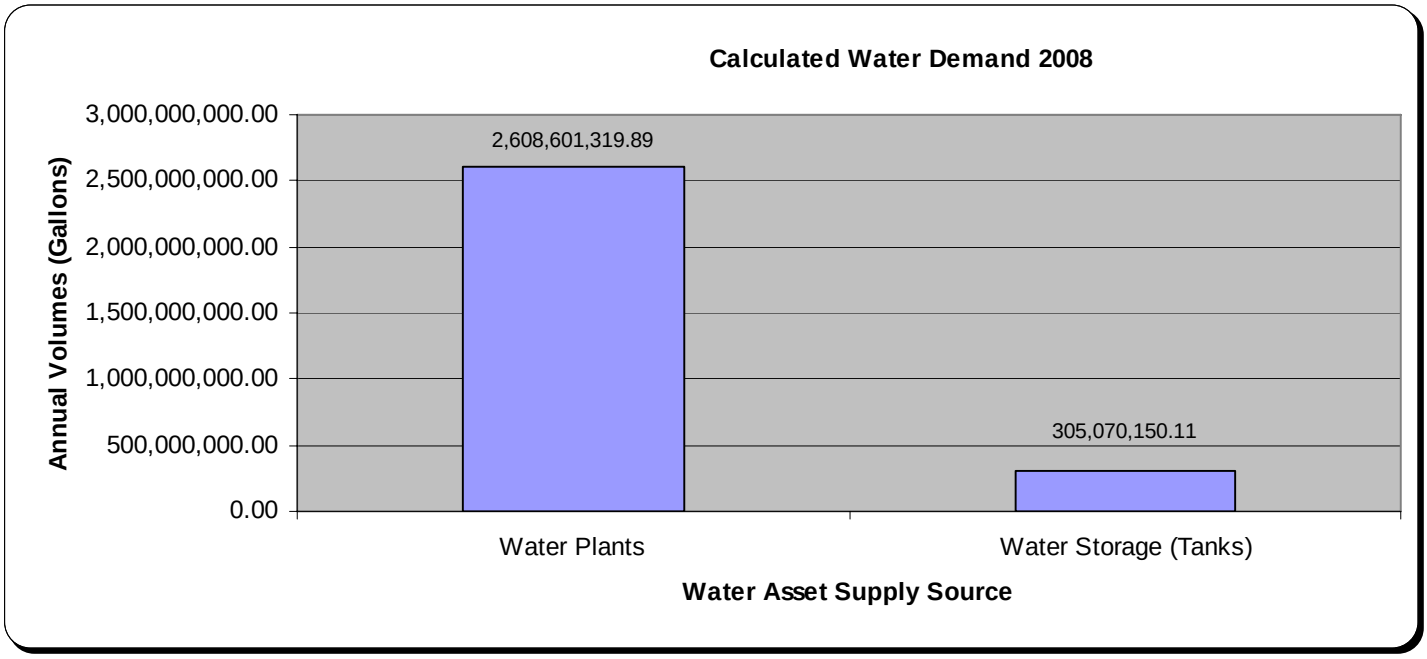
- Water Supply Operator IV (2)
  Performs daily maintenance and records field data information at all Treatment Plants, Tanks and related facilities. Performs and maintains records for monthly reporting to the DEQ. Completes work orders as assigned by the Foreman.

Water Treatment Branch – Water Pumped Analysis

The volume of water treated and distributed to Township customers is an important component of operations. Many factors contribute to this number such as growth and development, weather, and fluctuating demand. Continuous monitoring of operational conditions and performance is performed by staff with extensive assistance from the Supervisory Control and Data Acquisition (SCADA) system and hydraulic modeling. The graph below shows the annual totals per water treatment plant for 2008.

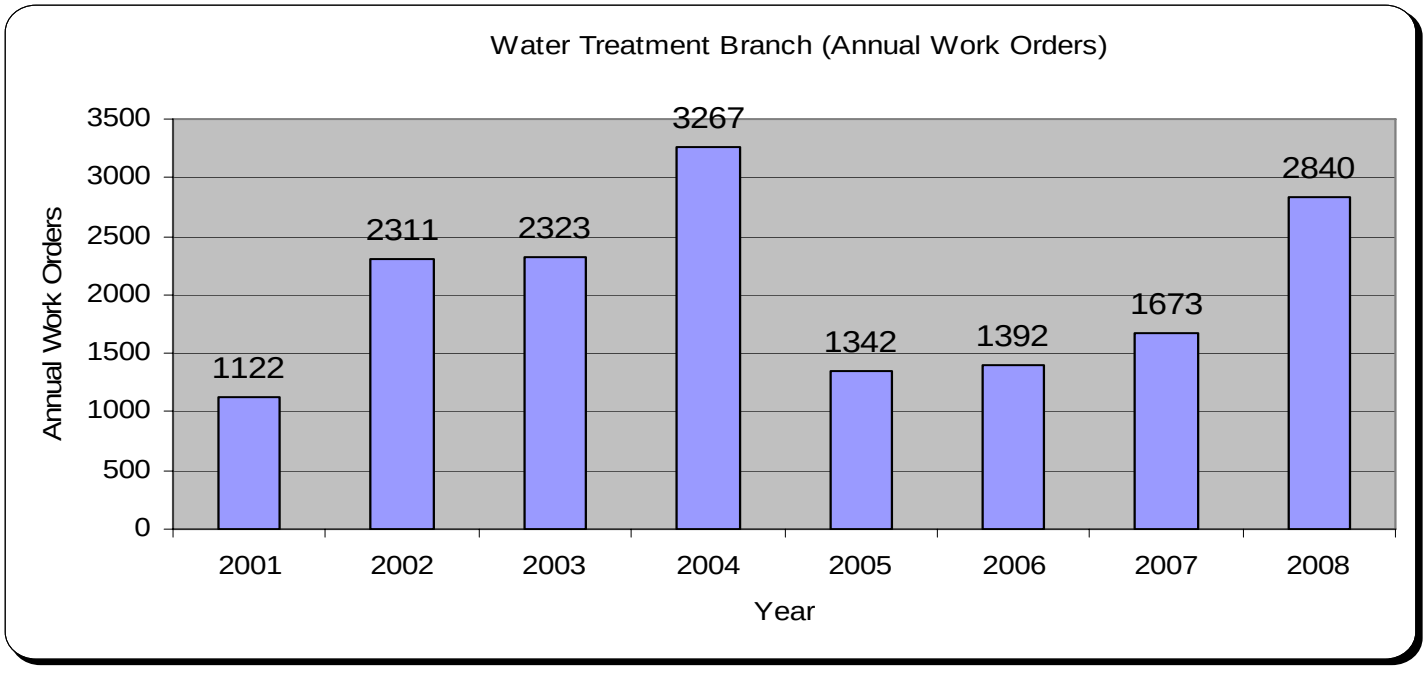


DPW employee, Aaron Potter, performing maintenance on instrumentation at a Water Treatment Plant. The branch takes over 800 water samples per year in order to comply with MDEQ standards.



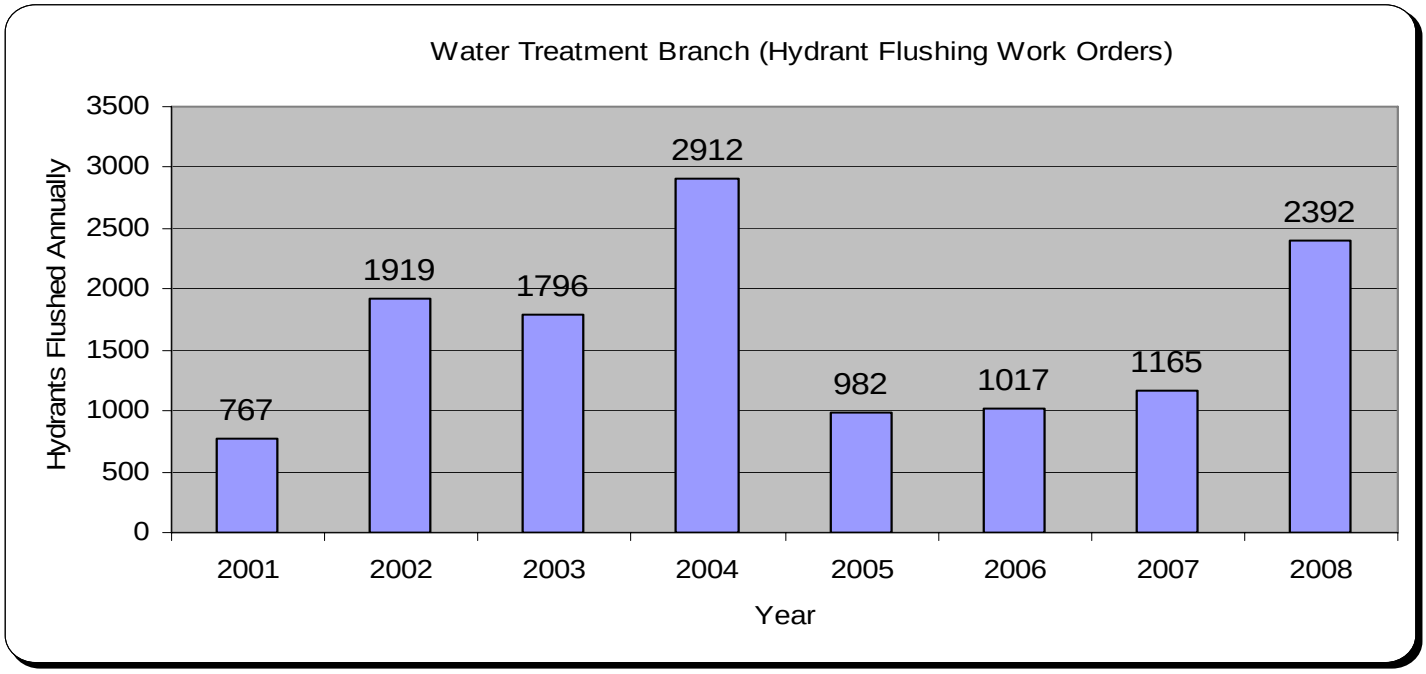
Water Treatment Branch Annual Work Orders

The graph below shows the aggregate annual number of the activities for this branch. Activities will continue to fluctuate as system components age, operational and capital modifications are made, drinking water regulations become more stringent and system demands dictate. The decrease in 2005 total work orders was primarily due to no full fall hydrant flushing program. A full fall flushing program was completed in 2008 as it is each couple of years. Each spring all dead end fire hydrants are flushed as well.



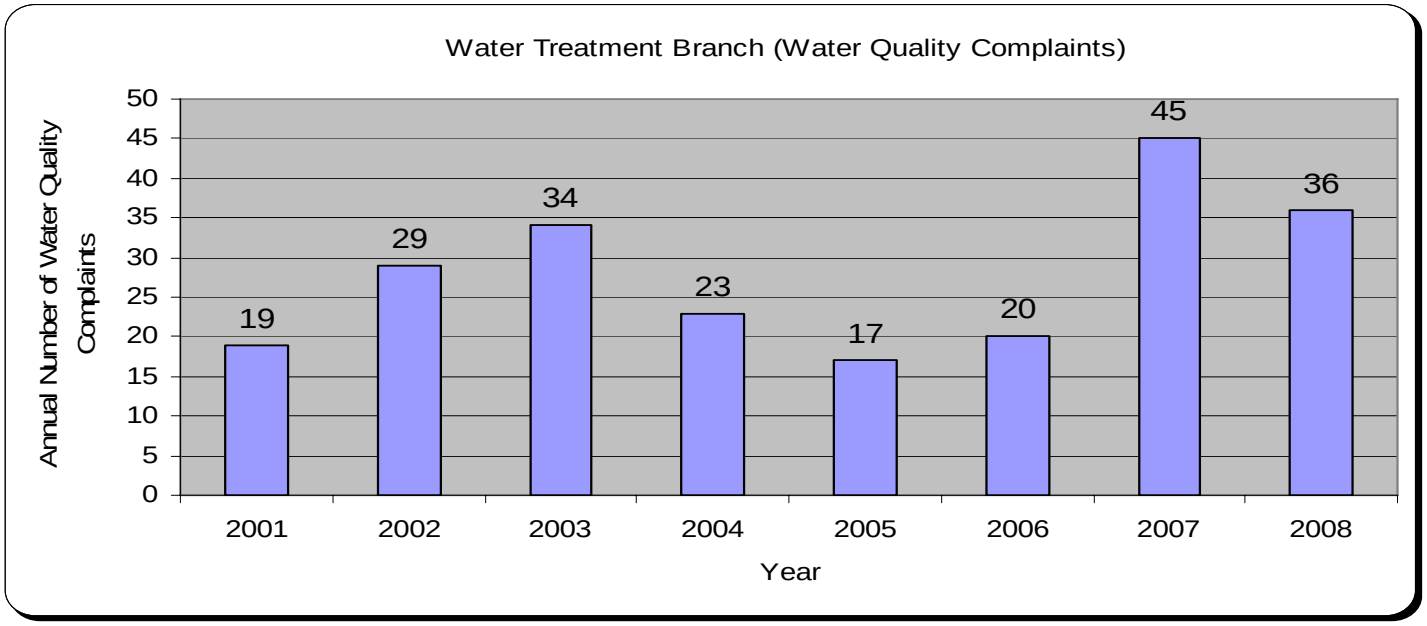
Hydrant Flushing

The Township has approximately 3,600 fire hydrants, which are a vital part of the water distribution system and an important safety asset. To improve and maintain the quality of the water in the system, hydrants are flushed periodically. The graph below depicts the annual number of these activities since 2001. The amount of hydrant flushing is dependent on observed and tested water quality parameters, but generally performed in the spring and fall of each year. As mentioned above, a full flushing of the hydrants was not warranted in 2007. This resulted in only "dead-end" hydrants being flushed.



DPW employee Dave Johnston performing water hydrant flushing. Hydrant flushing is conducted to help ensure the Township's Water Supply is of the highest quality.

In general, water quality complaints are handled by the Treatment Branch, and can range from taste to odor issues. Examples of complaints range from water softeners, reverse osmosis filters or other items malfunctioning or needing replacement in homes or businesses to red water at the tap. However, these types of calls are relatively infrequent given the customer service population of the Township. The graph below depicts the annual frequency of water quality complaint calls since 2001. The Iron Removal Plants that were brought on-line back in the mid 1990's, along with continually monitoring the effectiveness of the process through SCADA, hydrant flushing, continuous water turnover and analysis has had a very positive affect on the quality of the Township water.



Water Quality Report – Public Outreach

The branch also compiles water analytical data, as well as general information about the water that is treated and distributed to customers in the form of an Annual Water Quality Report, which is referred to as the Consumer Confidence Report (CCR). This report provides a wealth of information about the public water system water quality parameters in the reporting operational year. The reports are mailed to every water customer with their utility bill in the first half of the year as an effort to educate and inform the public about their public water supply system. The DPW also maintains current and past yearly reports on the Township's web site in an effort to educate and inform customers about the Township's water supply.

Water Treatment Plant 28-1 is one of 11 such facilities located in the Township. These plants pump groundwater through a treatment process that removes iron and manganese, disinfects, provides corrosion control into the distribution system.

Water Service Branch

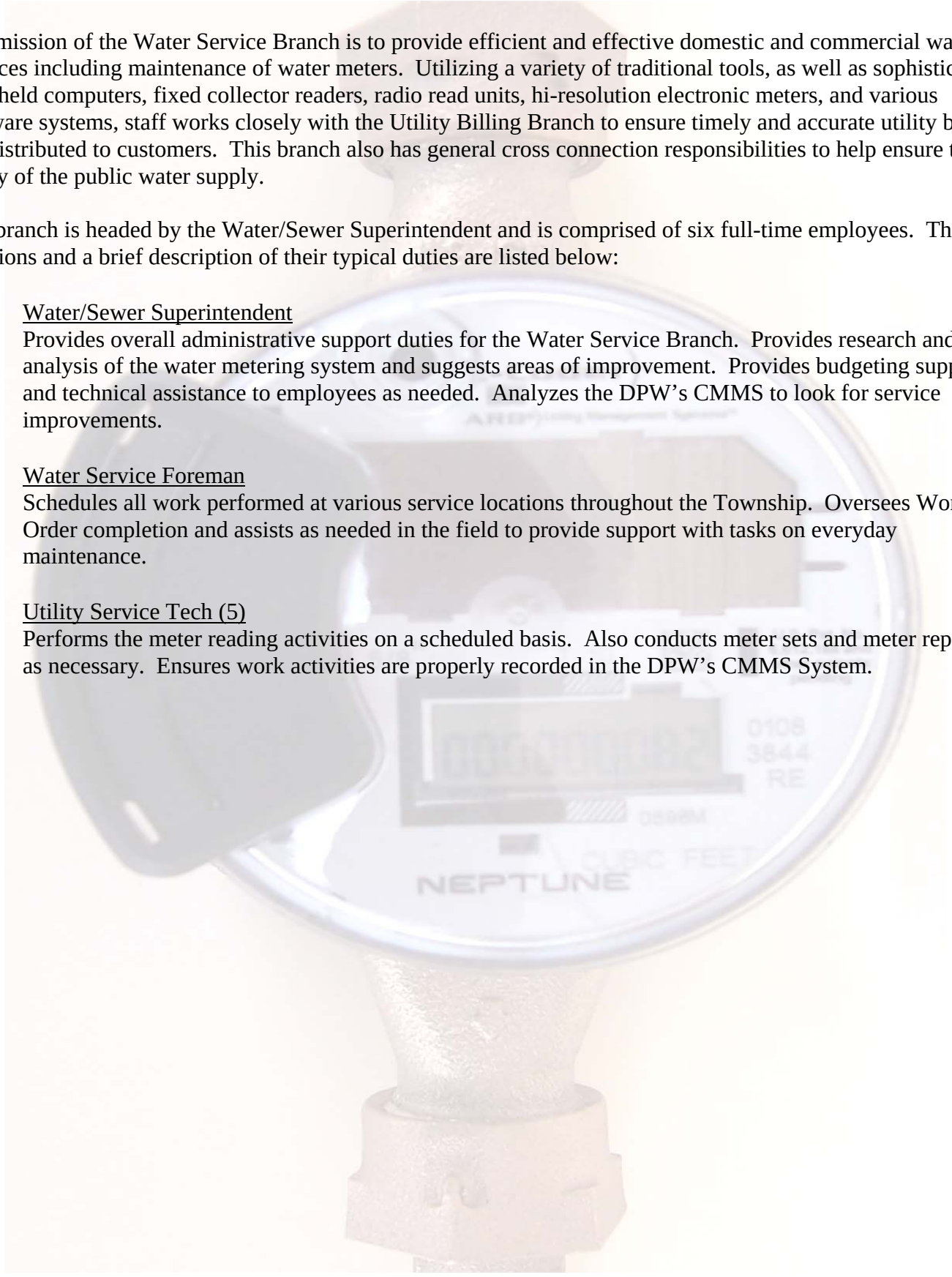
The mission of the Water Service Branch is to provide efficient and effective domestic and commercial water services including maintenance of water meters. Utilizing a variety of traditional tools, as well as sophisticated handheld computers, fixed collector readers, radio read units, hi-resolution electronic meters, and various software systems, staff works closely with the Utility Billing Branch to ensure timely and accurate utility bills are distributed to customers. This branch also has general cross connection responsibilities to help ensure the safety of the public water supply.

The branch is headed by the Water/Sewer Superintendent and is comprised of six full-time employees. The positions and a brief description of their typical duties are listed below:

- Water/Sewer Superintendent
  Provides overall administrative support duties for the Water Service Branch. Provides research and analysis of the water metering system and suggests areas of improvement. Provides budgeting support and technical assistance to employees as needed. Analyzes the DPW's CMMS to look for service improvements.

- Water Service Foreman
  Schedules all work performed at various service locations throughout the Township. Oversees Work Order completion and assists as needed in the field to provide support with tasks on everyday maintenance.

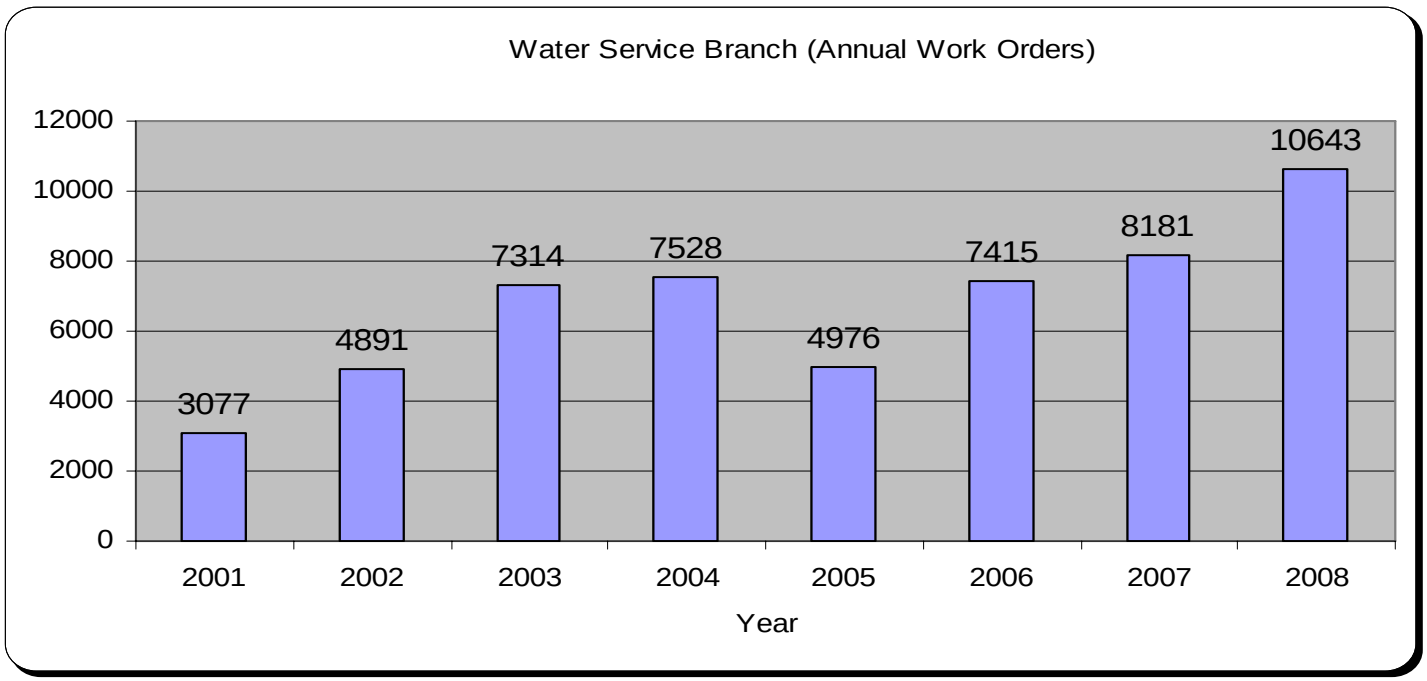
- Utility Service Tech (5)
  Performs the meter reading activities on a scheduled basis. Also conducts meter sets and meter repairs as necessary. Ensures work activities are properly recorded in the DPW's CMMS System.



Water Service Branch Annual Work Orders

This branch is responsible for all new meter sets for new homes after taps have been made as well as repairs to existing meters and their components at existing homes and businesses to ensure accurate meter reads for billing. The branch is also responsible for retrieving all meter reads for the scheduled billing cycles.

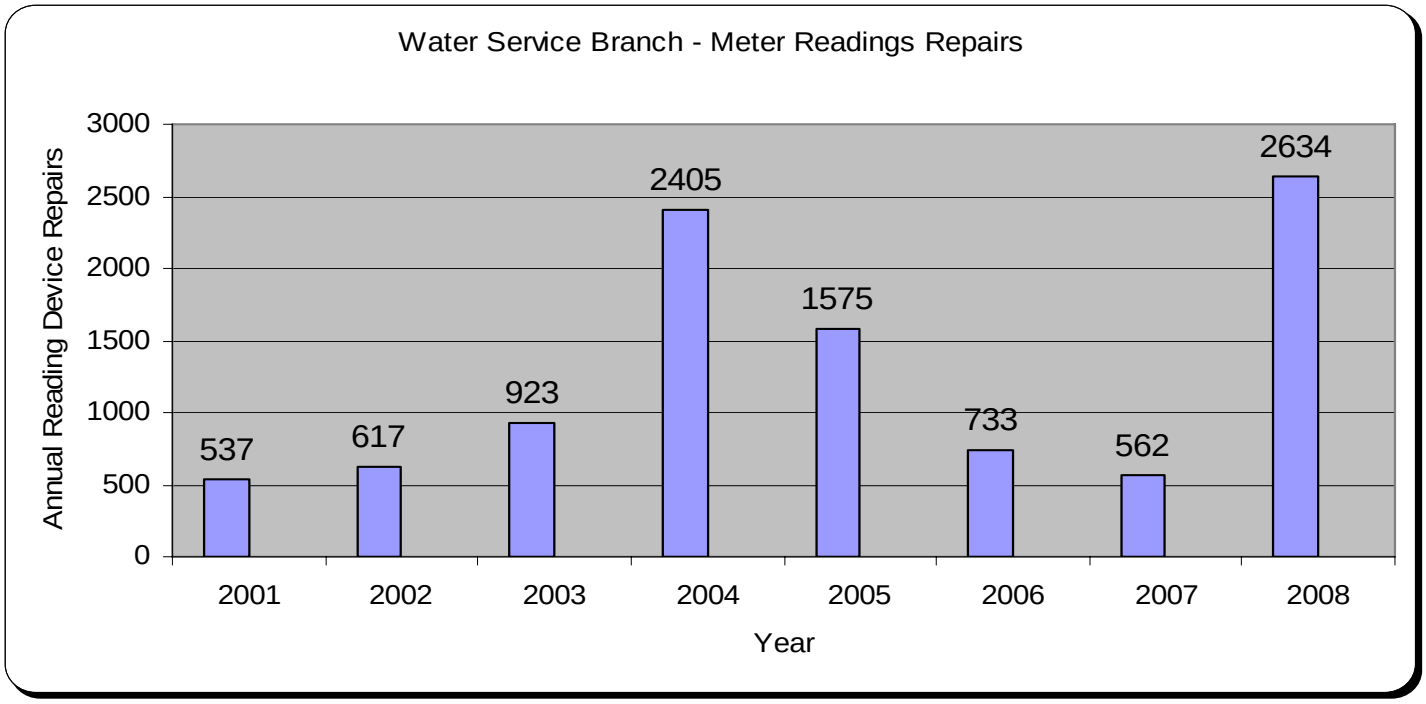
The graph below depicts the annual number of work orders conducted by the branch. The higher numbers in recent years represent increased activity primarily due to installing new Automated Meter Reading (AMR) devices to read water meters via radio transmission, which eliminates staff from having to enter property to get readings. With the AMR devices, service personnel can drive by the property and upload the meter reading automatically, which has eliminated hundreds of meter reading hours and reduced Township liability. In 2006, work began to install the AMR units at customer locations allowing for the meter readings to be directly transmitted to a Fixed Collector. The collector then downloads the meter readings directly into the Township broadband wireless network, which sends the readings directly to the office for processing. Installation will continue over the next several years to install these devices.



DPW Water Service Branch employees.

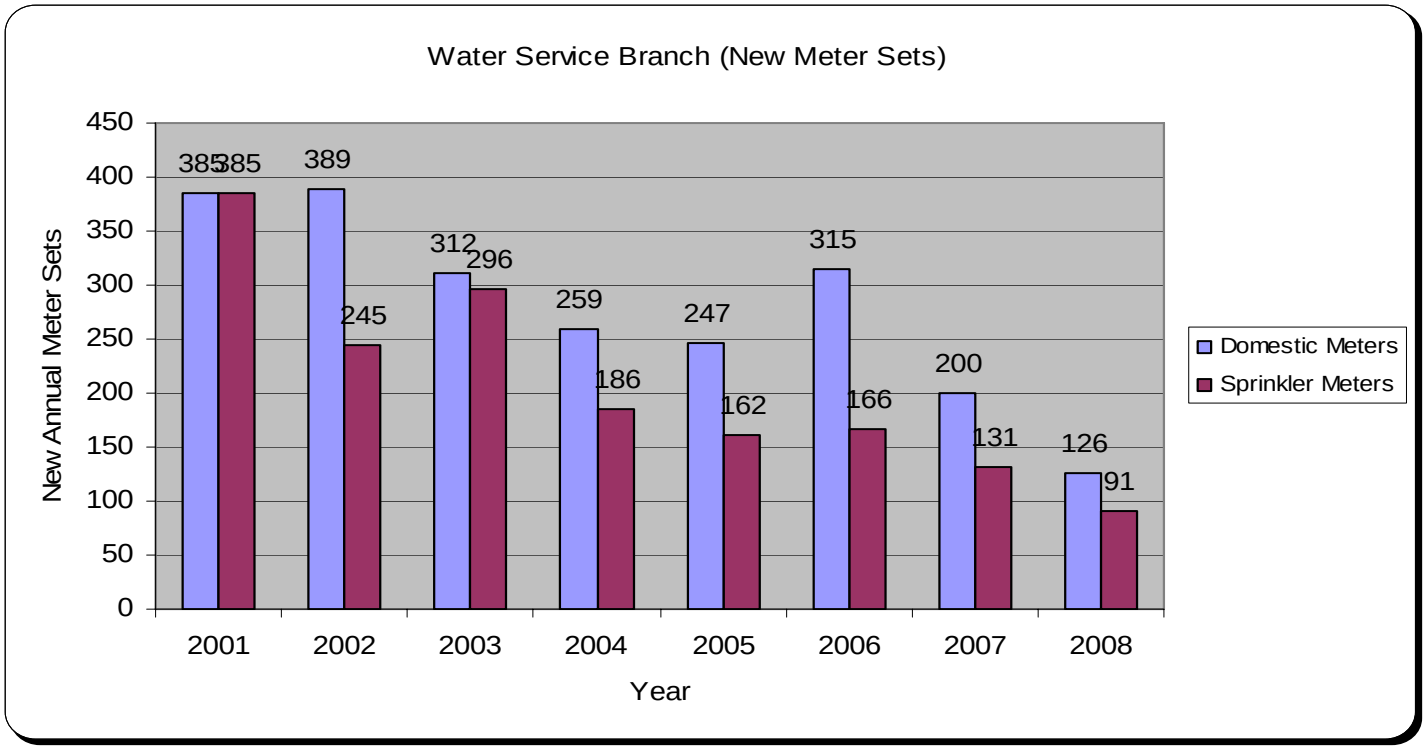
Meter Reading Repairs Annual Work Orders

One of the largest segments of work performed by the branch is the repair and maintenance of the meter reading component of the water system. The graph below depicts the annual number of repair activities conducted on AMR and ARB reading devices since 2001. The spike in AMR devices in 2004 was due to quality control issues related to the manufacturer, which have since been corrected. The elevated number of repairs in 2008 was primarily due to an older generation of AMR devices reaching the end of their operational life.



New Domestic Meters and Sprinkler Meter Sets

Domestic meters measure the water consumed inside a home or business. The DPW also permits a separate sprinkler meter that only measures outside water that does not drain into the public sewer system. The sprinkler meter benefit is that additional sewerage charges will be eliminated, saving the customer money. New domestic meter installations are expected to steadily decline as the Township approaches build-out. However, the rate of sprinkler meter installations is likely to remain constant, if not grow, in the coming years as more customers take advantage of the cost savings opportunity presented.



DPW employee Bill Collier installing a water meter. The water meter has a set of wires connected to an outside meter reading device. Our new meters monitor and alarm on leak detection, back flow and no flow. In addition, meter reads are transmitted to fixed collectors that are connected to the Township's Broadband Wireless Network which sends the reads directly to the DPW Office for processing.

Sewer Branch

The mission of the Sewer Branch is to operate and maintain sixty two (62) sewer pumping stations, 8,450 manholes and over 340 miles of sanitary sewer main in the Township. Operations are significantly enhanced with the utilization of a state-of-the-art SCADA system to control and monitor all sewer pumping stations and a Computer Maintenance Management System (CMMS) to initiate and track all work orders.

The branch is headed by the Water/Sewer Superintendent and is comprised of eight (8) full-time and one (1) part time employee. The positions and a brief description of their typical duties are listed below:

- Water/Sewer Superintendent
  Provides overall administrative support duties for the Sewer Branch. Provides research and analysis of the sanitary sewer system and suggests areas of improvement. Provides budgeting support and technical assistance to employees as needed. Analyzes the CMMS to look for system and branch improvements.

- Sewer Foreman
  Reviews SCADA data and assigns crews as needed to perform routine maintenance of the Sanitary Sewer Stations and oversees all work orders generated by the DPW's CMMS program. Also responsible for scheduling of sewer main and sanitary sewer pumping station cleaning crews.

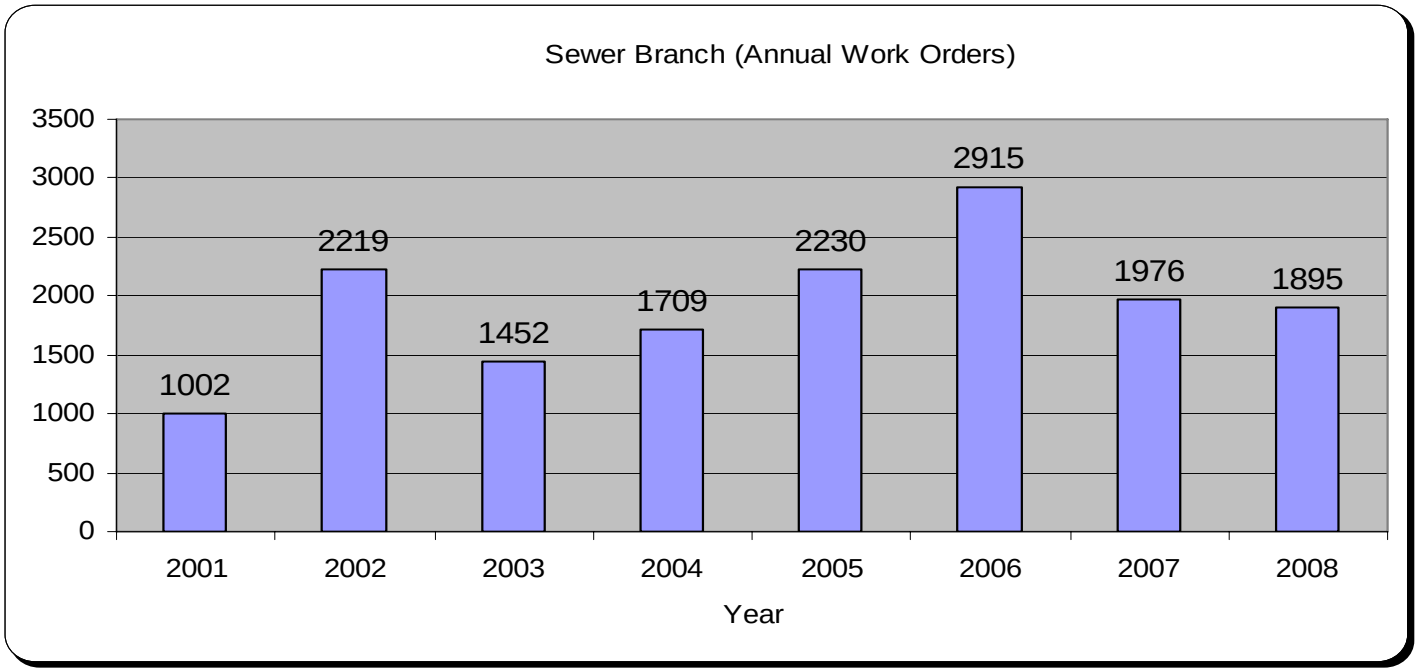
- Assistant Sewer Foreman
  Assists the Foreman with planning and evaluation of day-to-day tasks, monitoring SCADA, scheduling routine maintenance, or troubleshooting with the Sewer Pump Stations. Also oversees Jetting maintenance and cleaning of sanitary sewer main on a day-to-day basis.

- Collection System Maintenance Tech I (6)
  Performs maintenance on all sanitary sewer pumping stations and sanitary sewer mains in the Township as scheduled by the Foreman and Assistant Foreman. Completes work orders per Foreman's directions. Collects data and keeps records of daily activities for the Foreman's review.

- Part-time (1)
  Performs painting and cleaning of sanitary sewer pumping stations as weather and operations permit.

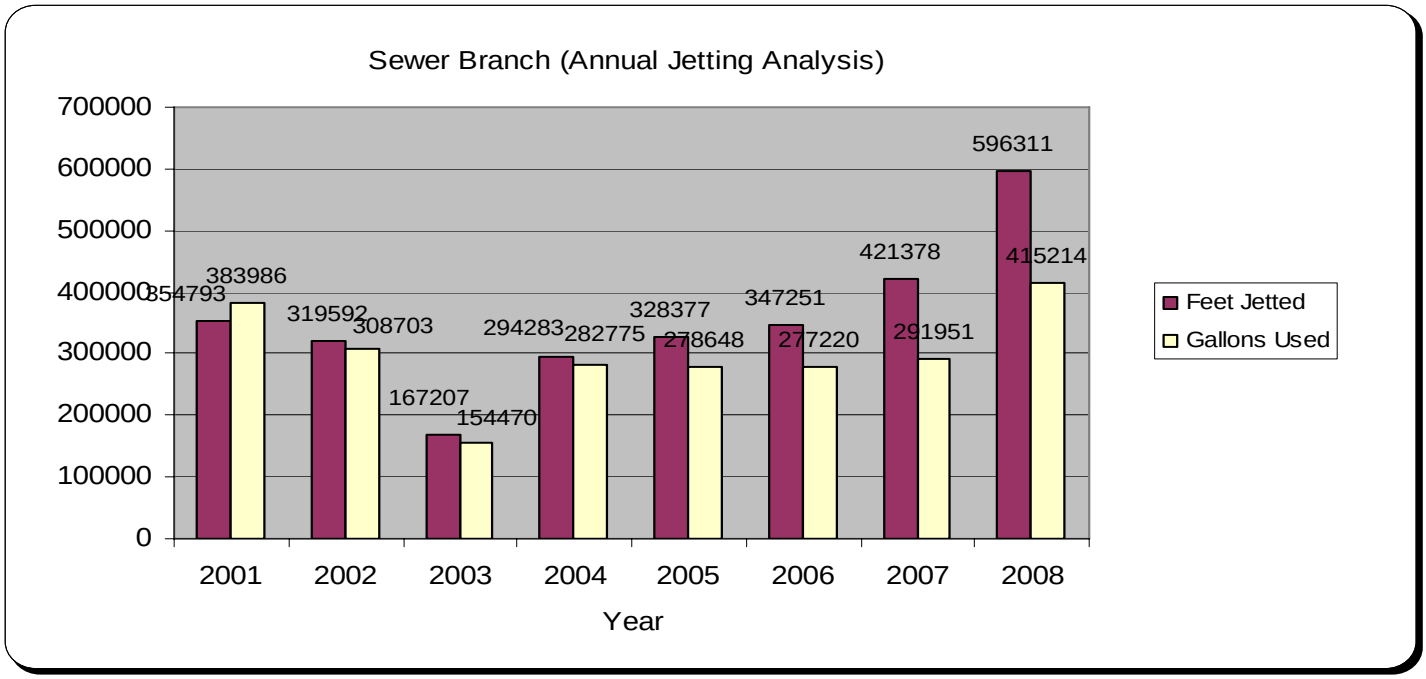
Sewer Branch Annual Work Orders

The branch is responsible for 62 sewer pumping stations and 340 miles of sanitary sewer main throughout the Township. Various maintenance activities are conducted on the sanitary sewer pumping stations and sewer mains to ensure proper operation. The graph below indicates the annual number of work orders conducted since 2001.



Jetting of Sewer Mains

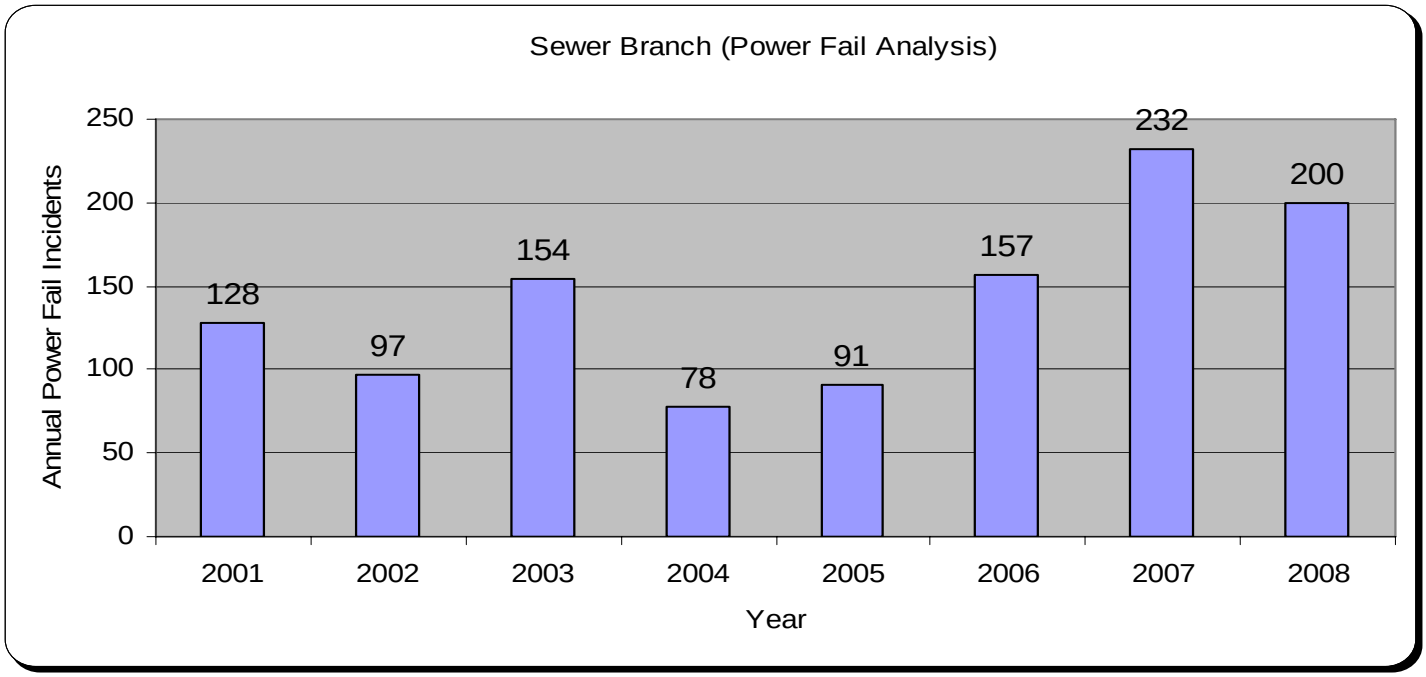
Jetting and vacuuming of the sanitary sewer main is one of the most effective preventative maintenance activities conducted by the sewer branch to help ensure the sewer mains are clear of debris and other blockages. The DPW has two (2) sewer vactor trucks that perform this function. Cleaning schedules are organized through the CMMS and include data on the specific type of work conducted, the equipment used and all labor involved to provide a complete cost of the activity. The graph below indicates the annual feet of sanitary sewer main cleaned since 2001 as well as the number of gallons of water used to complete the work.



DPW Sewer Branch employees, Jim Cassidy (left) and Scott McGrady (right), working with one of the DPW's two sewer vactor trucks.

Sewer Power Fail Events

One of the most critical parameters monitored by the branch is sanitary sewer pumping station power failures through the SCADA system. Loss of power to a station is considered an emergency situation that needs to be addressed immediately either through the initiation of temporary or permanent generator power. Depending on the length of power failure and the incoming flow to the station, the branch can have as few as twenty (20) minutes to respond before backups and or Sanitary Sewer Overflows (SSO's) may occur. The DPW continued meetings in 2008 with Detroit Edison to discuss their capital and operational implementation plans to address continued power problems in the Township. The graph below indicates the annual number of power fail events experienced since 2001.

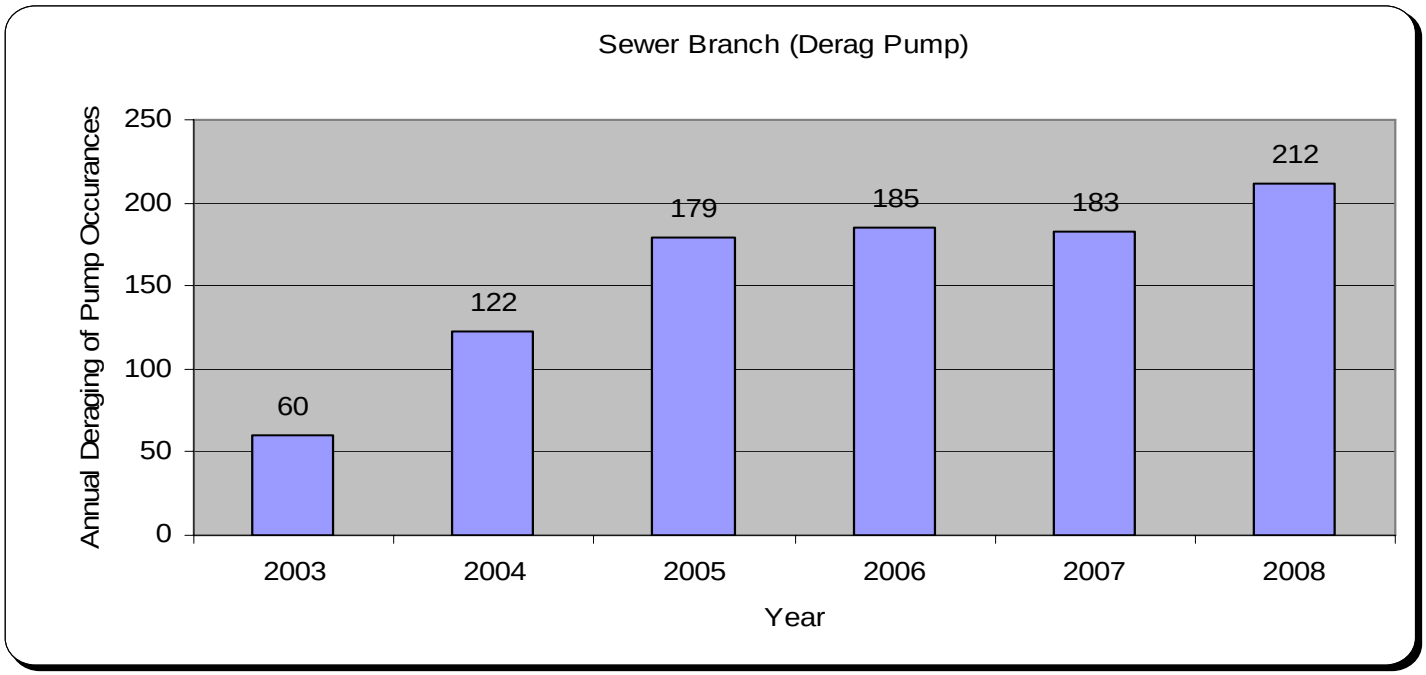


A portable generator used by the DPW during power failures. These are used at sites without permanent stationary generators.

Stationary power generator at one of the Township's 62 sewer pumping stations. At these sites, the generators automatically start and transfer load for continued operation during power failures.

Deragging of Pumps

Each morning the SCADA system is analyzed with respect to sewer pump starts and run times to identify potential problems with sewer pumps at various sewer pumping stations. If station pump runtime data indicates long run times on a given pump in relation to normal, the pumps are inspected for ragging and/or other problems to return them to normal pumping ability before a problem occurs. Ragging means the pump volute housing and impeller are plugged with debris, which impedes the pump's ability to pump water. This situation can cause premature failure due to wear and tear on the pump and can snap shafts resulting in a total loss of the pump. When this condition is suspected, work orders are created and tracked in the CMMS. A general response would consist of two employees and a hoist truck being dispatched to pull the pump, clear it of debris, inspect it and return it back to service. The following graph indicates the number of times this activity has occurred since 2003.



Electrical Branch

The mission of the Electrical Branch is to provide electrical service for the DPW. Staff in this branch includes two (2) Master Electricians and one Apprentice. They are skilled in all facets of electrical work including motor controls and the SCADA system.

The positions and a brief description of branch staff duties are as follows:

- Water/Sewer Superintendent
  Provides overall administrative support duties for the Electrical Branch. Provides research and analysis of the water/sewer plant electrical systems and suggest areas of improvement. Provides budgeting support and technical assistance to employees as needed. Analyzes the DPW's CMMS to look for system and branch improvements.

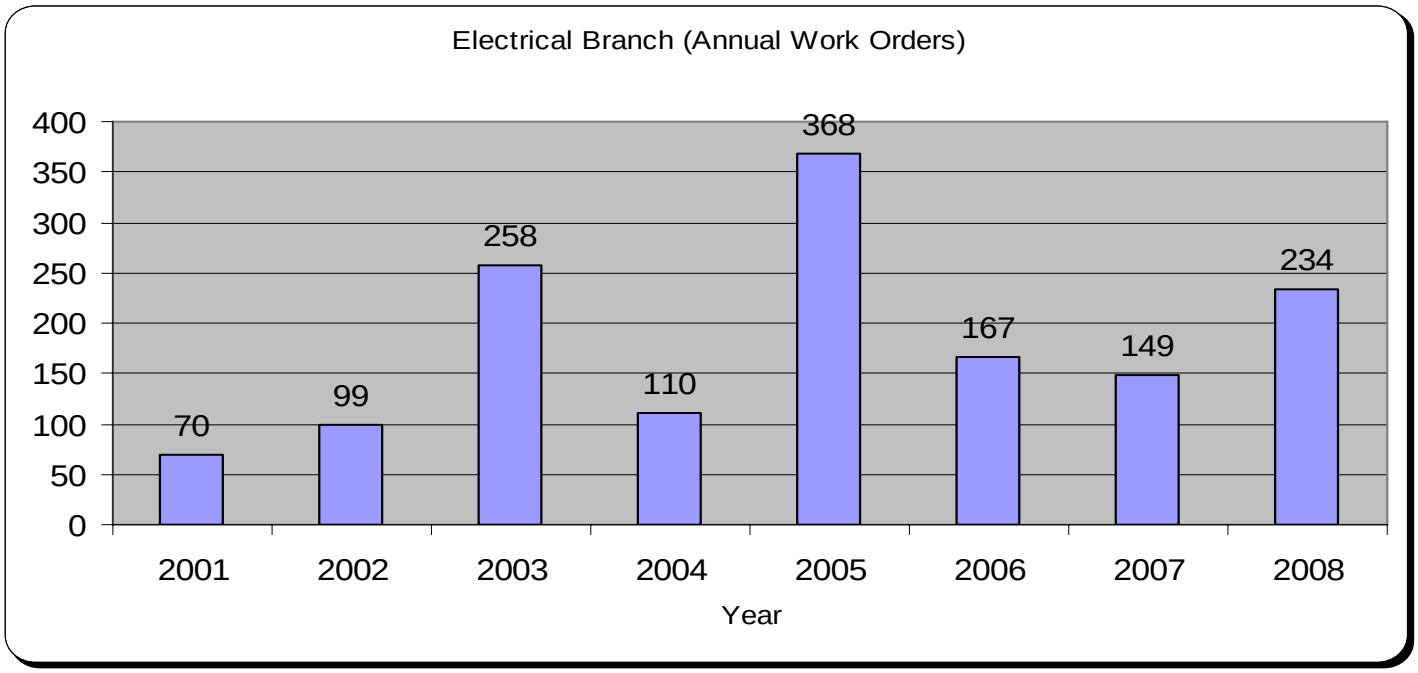
- Electrical Foreman
  Performs scheduling and planning of all work submitted to the Electrical Branch. Oversees all work completed in the CMMS program performed by the other two employees under his charge. Performs work in the field as needed to keep up with requests for electrical work.

- Electrical Service Tech II
  Performs work as assigned by the Foreman which includes all SCADA related instrumentation and related components. This employee performs electrical repairs at both water and sewer facilities as assigned.

- Electrician I
  Performs all work as assigned by the Foreman. Supports all branches of the DPW related to electrical problems or preventive maintenance. Enters data into CMMS per Foreman's directions.

Electrical Branch Annual Work Orders

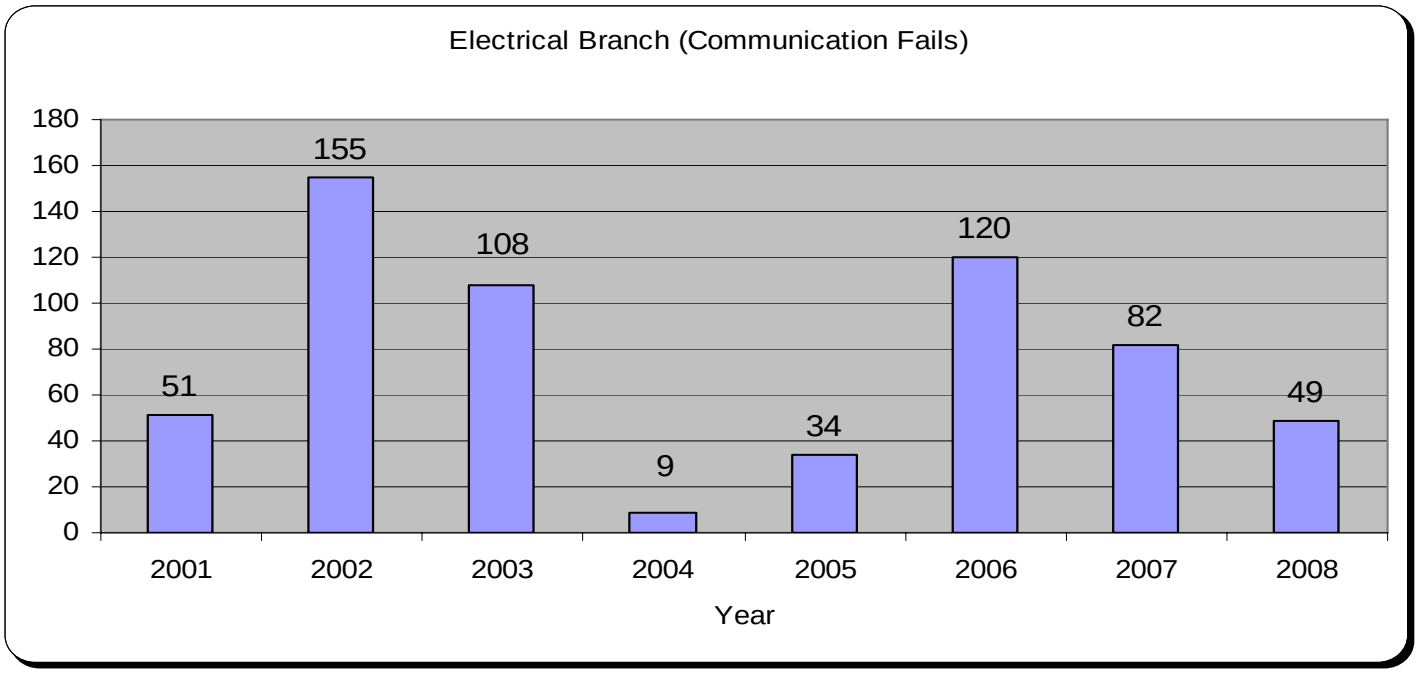
One of the main functions of the branch is the installation and maintenance of electrical, instrumentation and radio components related to the SCADA system. Additionally, this branch installs generator transfer switches, electrical upgrades and new services at the Township's water and sewer pump station facilities. The graph below indicates the annual number of work orders performed by the branch since 2001. It must be noted that, depending on the scope and complexity of the work, some activities can take several weeks to complete.



DPW Electrical Branch employee, Jeff Mohr, utilizing a computer at the Clinton River Sewer Pumping Station to interface with the SCADA control program.

Communication Fails

This work activity is initiated when the SCADA system initiates an alarm indicating it has lost communication with a water or sewer facility. This is an important alarm condition because it means there could be a problem ranging from electrical failure to physical damage at the site. The graph below depicts the annual number of communication failures since 2001. It must be noted that there are over seventy-seven (77) physical sites in the Township that are continuously monitored for communication status by the SCADA system.



Generators and Auto Transfer Switches (ATS)

Waterford Township has sixty two (62) sewer lift stations and eleven (11) water treatment plants. Currently, there are twenty four (24) sewer sites with stationary generators and automatic transfer switches. When an Edison power failure occurs, the generator will start and transfer the electrical load automatically eliminating the need for an employee to respond while still keeping the site fully operational. With these devices in place thirty five (35%) of the Township's Sewer Stations are automatically backed up in terms of power, which leaves the balance of forty one (41) sites to be operated by DPW personnel utilizing portable generators. Of the eleven (11) water treatment plants, seven (7) are equipped with stationary generators and automatic transfer switches. These generators and transfer switches provide the DPW with the means to continue supplying the residents with a safe and adequate drinking water supply and adequate sewage pumping means during power outages.

Safety Branch

The mission of the safety branch is to provide safety management to ensure occupational safety and health compliance with local, state, and federal laws and training for all DPW employees. By using the latest technologies and the most recent training materials available, this branch continues to ensure the DPW meets all MIOSHA and governmental guidelines. The Safety Coordinator reports to the Administrative Superintendent. The abbreviated job duties are listed below.

Safety Coordinator

Responsible for planning, training, monitoring, implantation of environmental safety and health related programs. Additionally, gathers, analyzes, and inputs data for technical reports in the CMMS.

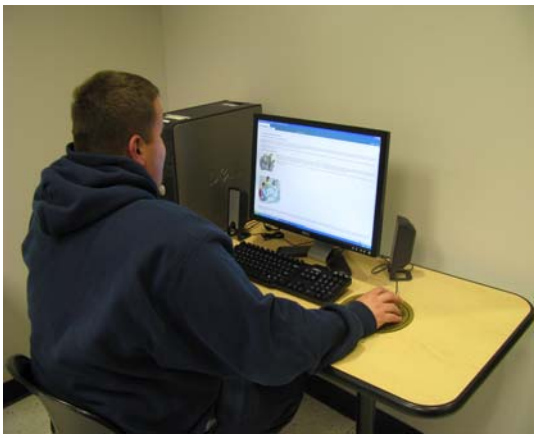
In 2008, one (1) employee obtained a higher water license certification from the Michigan Department of Environmental Quality (MDEQ). Combined, DPW staff possess many licenses and certifications including, one (1) Storm Water Management designation, twenty two (22) Water Distribution and Limited Treatment licenses, five (5) Michigan Water Environmental Association and California Water Environment Association Sewer Collection licenses and three (3) State certified electricians including two (2) master, one (1) journeyman and one (1) apprentice electricians. The DPW also has three (3) State certified master motor mechanics. The licenses and certification list above have been encouraged and promoted through the DPW's career ladder program, which is designed to encourage employees to obtain more licenses and certification while receiving an increase on a graduated pay scale. The program has been a success benefitting both employees and DPW operations.

In 2008, the Safety Branch presented training for recertification of all mandated machinery by the State of Michigan. The DPW hosted, in conjunction with Michigan Rural Water Association (MRWA), a basic and advanced math class to help DPW employee's pass the required State exams to obtain higher licenses required in the career ladder program. The DPW also assisted Detroit Edison in presenting the "Arcs & Sparks" program to train employees of the dangers and proper procedures when working around downed power lines and other electrical equipment.

Detroit Edison trainer showing DPW employees the hazards of electricity

Employee On-Line Training Program

The Safety Branch also implemented money and time saving computer training for employees to obtain required license Continuing Education Credits (CEC) and other valuable training without leaving the DPW campus via internet based software. These credits are needed to maintain licenses and certifications over a period of time for Water Distribution, Limited Treatment, and Sewer Collection System operation licenses. A number of clerical training tutorials have been implemented in assisting DPW Employees in understanding and use of soon to be implemented computer and other programs.



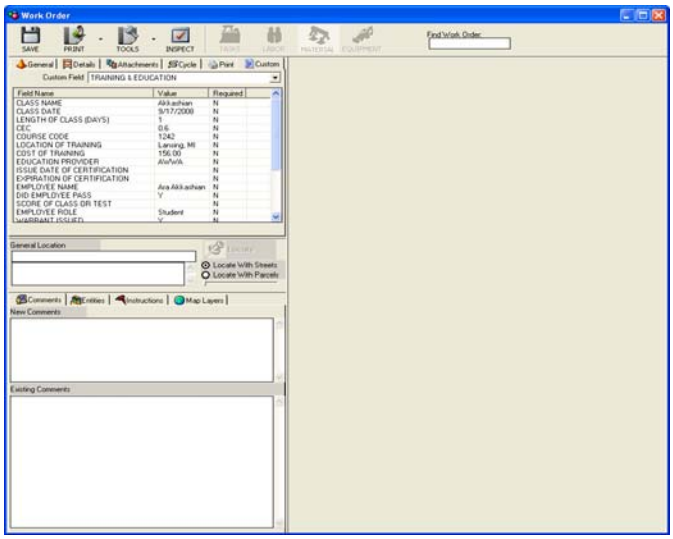
DPW employee, Justin Westlake, utilizing the DPW's online services
to obtain Continuing Education Credits (C.E.C's)

On-Line Material Safety Data Sheets (MSDS)

The Safety Branch implemented a new online service for maintaining, publishing and updating of all Material Safety Data Sheets (MSDS), which are required by State and Federal law. This online program ensures that all MSDS material is up to date and will even notify us electronically when new updates are available. Since the implementation of this online program, the DPW registration of known chemicals increased from 192 to 238. J.J. Keller Online is another online resource the Safety Branch has implemented for information on environmental, safety, and health issues. It is a great tool for regulatory updates, posters and any other safety training resources. Implementation of these resources has dramatically reduced the amount of administrative time devoted to tracking and maintaining current information on all chemicals and other regulatory issues.

DPW employee Heather Krupic the Inventory Control Clerk
using the DPW's MSDS online program to find chemical.

In 2008, the Safety Branch also launched a DPW Employee Database. This database maintains records and costs of all training for DPW employees including college programs. The database also maintains information on licenses and certifications and keeps track of renewal dates.



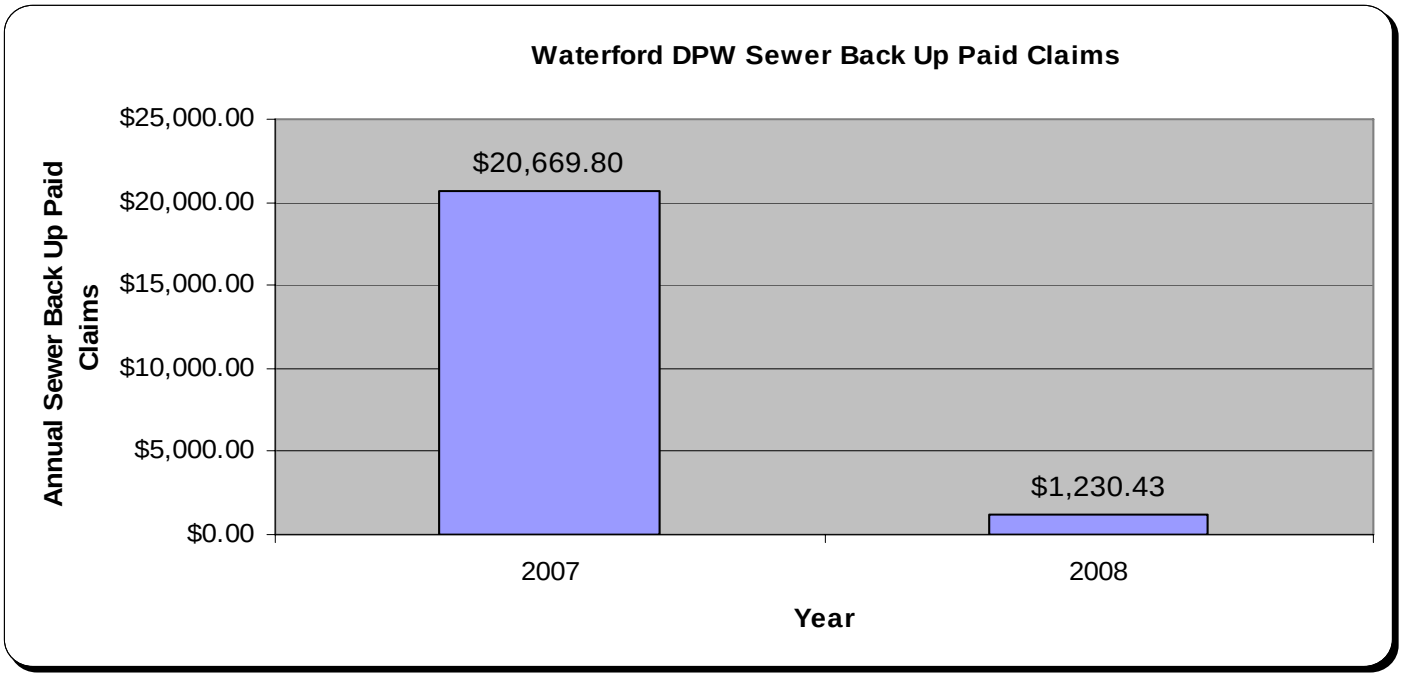
Work Order sample of how the DPW is tracking all training utilizing the CMMS Employee Database.

Reportable Injuries Tracking

In 2008, the DPW had a total of five (5) injuries resulting in one equivalent day of lost work. The Safety Branch is continuously working and committed to lowering these injuries and lost work days and is striving to get at or below the national average for injuries for the size of our utility and the number of employees that are on staff.

Sewer Back Up and General Claims Management

The Safety Branch handles all general and sewer back up claims and works in conjunction with Michigan Municipal Risk Management Authority (MMRMA). In 2008 the DPW had four (4) sewer back up claims and two (2) general claims. The DPW paid a total amount of $1,230.43 to sewer back up claims and only $139.61 in general claims in 2008. This amount is significantly lower than 2007, where the DPW paid $20,669.80 in sewer back up claims.



Utilization of the CMMS provides the ability to quickly analyze data for trends in sewer backup histories, abnormalities in the piping systems and the need for supplementary maintenance to minimize sewer backup occurrences. However, the sanitary sewer system is subject to non compliant material being introduced such as grease, rags and rocks that can cause blockages and other types of failure at any given, which could result in a sewage backup or sanitary sewer overflow (SSO).

In helping to keep DPW operations safe while reducing risk and lowering costs, the Safety Coordinator is also member of the MMRMA Public Utility Advisory Committee. This committee meets once every two (2) months to discuss and share information with other municipalities about ways to lower amount of risk and expenditures.

Facilities and Operations Division

The mission of the Facilities and Operations Division (F&O) is to provide professional services to Township Departments and the Citizens of Waterford Township. Responsibilities are accomplishes through trained personnel and utilization of the latest in technology including a CMMS and computer controlled HVAC systems.

F&O is headed by the Superintendent of Facilities and Operations and is composed of seven full-time and variable seasonal/part time employees.

- Superintendent of Facilities and Operations
  Responsible for planning, project evaluation, building system evaluation, design and bid specification preparation, budgeting, construction management, fleet management and quality review inspections of work performed by various contractors. Additionally gathers, analyzes, and inputs data for technical reports as well as the CMMS.

- Account Clerk II
  Provides administrative and clerical support, including scheduling appointments and meetings, answering phones, opening and distribution of mail, composing and typing correspondence to routine inquiries, providing counter assistance and receiving payments. Additional duties include purchase order, contract, bidder, budget and financial records keeping, cemetery sales and records. Assists in updating the CMMS and the Geographic Information System (GIS).

- Facilities Maintenance Technician
  Performs a wide variety of tasks related to maintaining, repairing and constructing buildings, fixtures and equipment. Responsible for the completion of data entry and documentation of work order requests in the CMMS system.

- Maintenance Worker
  Performs tasks related to plumbing, carpentry, welding, painting, masonry and other general ground and maintenance work.

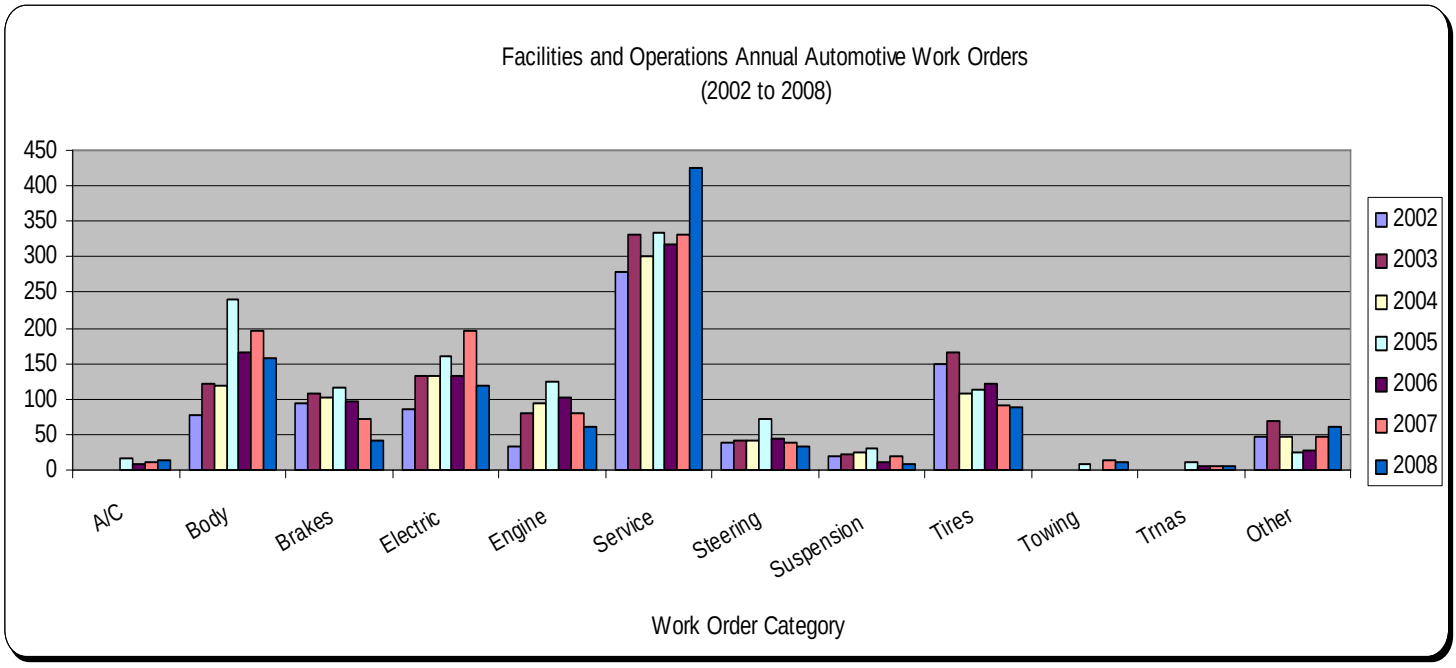
- Mechanics (3)
  Performs repairs and maintains a variety of makes and models of passenger automobiles, light and heavy duty trucks and light and heavy duty construction equipment requiring gas or diesel engine operation. Responsible for the completion of data entry and documentation of work order requests and inventory control utilizing the CMMS.

- Cemetery Sextons (2)
  Responsible for showing and selling cemetery lots to the general public, maintaining precise cemetery plot maps and records, lays out graves, sets up and prepares the grave site for funerals, receives funeral procession and collects proper papers and monies due. Responsible for the completion of data entry and documentation of work order requests in the CMMS and GIS systems.

- Inventory Clerk (1)
  Responsible for marinating accurate records for the DPW's supplies. Responsible for physical counts and reconcilement against the DPW's CMMS System. Purchases inventory supplies based off on the CMMS work order history.

F&O Branch – Automotive Branch

The Automotive Branch of F&O conducts routine and complex service on the Township's Vehicle Fleet. Currently, there are over 250 vehicles, tractors, mowers, large trucks, generators and other specialized pieces of equipment organized into the CMMS. Maintenance costs are recorded and tracked in the CMMS. Township Departments are charged back on a monthly basis for the services rendered on their respective fleet vehicles and/or equipment. The graph below depicts the major categories of maintenance per year since 2002. Similar trends are likely to continue as the Township fleet continues to age.

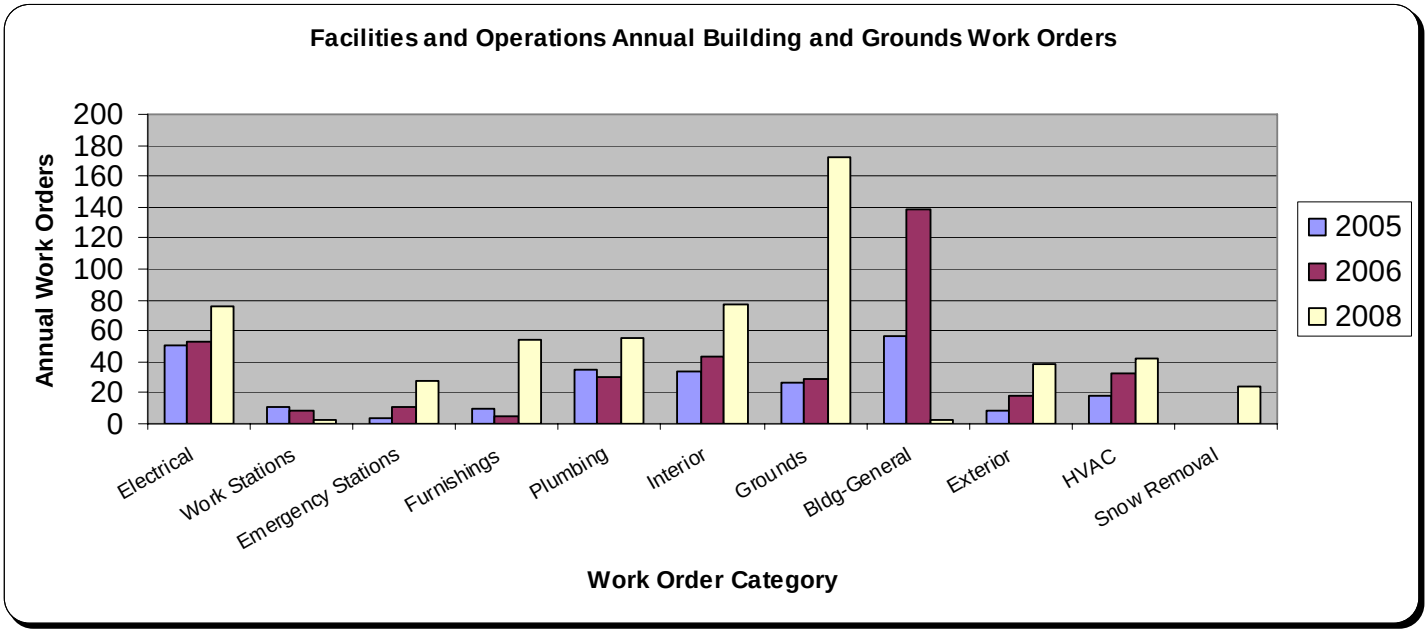


DPW Mechanics, Isaac Nott and Tim VanDeWater, working on one of the Township's Service Vehicles.

F&O Division – Building Branch

The CMMS was incorporated into the F&O business process approximately five years ago as the lead program for the monitoring of Motorized Vehicles, Equipment and Facility repairs and maintenance operations in F&O. Even though operational, the system is under continuous modification to improve data entry, activity costing and tracking of work activities including a major upgrade, performed in house, to the Cityworks platform used by the Water/Sewer Division of the DPW. This integration places all DPW CMMS operations into one platform saving annual maintenance fees for multiple software platforms and to provide a common interface for personnel to use.

The Building Branch aspect of the CMMS continues to grow with respect to work captured and additional equipment and facilities being added. The graph below depicts a summary of work history in the branch for 2005 and 2006. At the time of the report, 2007 work order history was not available. Documentation and historical trend information are invaluable when analyzing facilities costs and projecting future capital expenditures that may be required.



Capital Improvements

F&O continues to improve operations with implementation of state-of-the-art computerized HVAC (Heating, Ventilation and Air Conditioning) systems at Town Hall, Police Department, Fire Department and the DPW to monitor and control building temperatures and air flow. The systems at each building also include email alarm notification and web based interfaces for remote access to analyze and correct problems.

F&O Division – Cemetery Branch

F&O is responsible for the operation and maintenance of five (5) Township cemeteries with varying degrees of burial availability. F&O conducts all of the burials, internments and grounds maintenance for the cemeteries. Two (2) of the cemeteries are basically full resulting in diminished revenue, while annual maintenance liability and related expenses continue to increasingly be incurred. Through the CMMS program, the branch is able to accurately record and analyze burial, maintenance time and cost data, which is used to determine actual cost of service so that rate structures can be incorporated to provide sufficient funds for operation.

Cemetery Name	Location
Crescent Hills	Civic Center Drive
Waterford Center	Corner of Airport Road and Pontiac Lake Road
Four Towns	Cooley Lake Road near Lochaven
Drayton Plains	Dixie Highway and Williams Lake Road
Waterford Village	Rockcroft off of Dixie Highway

Cemetery	Total Spaces =	Burials +	Obstacle +	Sold-Empty +	Available +	Unknown
Crescent Hills	6083	2672	94	1650	1455	24
Waterford Center	2089	1105	24	964	0	0
Drayton Plains	3464	1476	16	1253	703	12
Four Towns	658	333	12	313	0	0
Totals	12294	5586	146	4180	2158	36

* There are currently 212 gravesites that are not plotted in Crescent Hills Cemetery.

- Grave site status based on data from the DPW CMMS and GIS.
- Equipment costs based on M-Dot Schedule C.

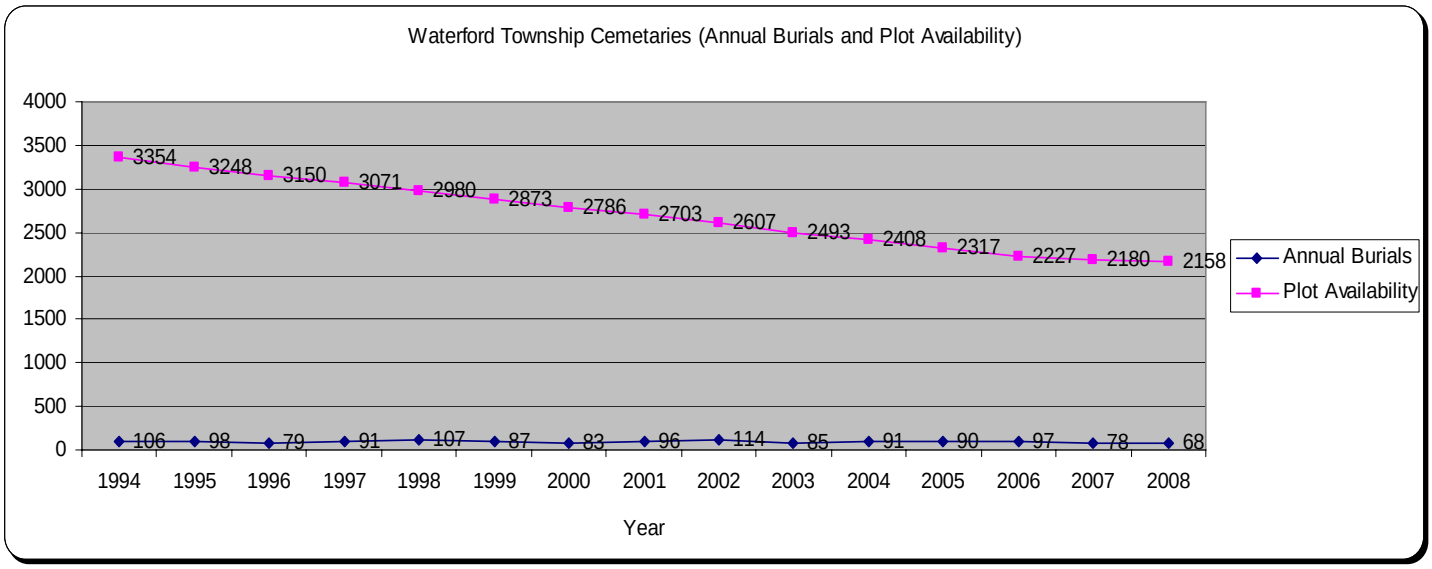
DPW Employees Mike and Carol Poplawski at Crescent Hills Cemetery.

Cemetery – Burial Trends

From 1994 to 2008, Waterford Cemeteries have averaged ninety one (91) burials per year. Holding all other contributing factors constant, current trend projections indicate that all 2,158 available plots will be completely utilized in the year 2032. This trend could escalate as the population continues to age.

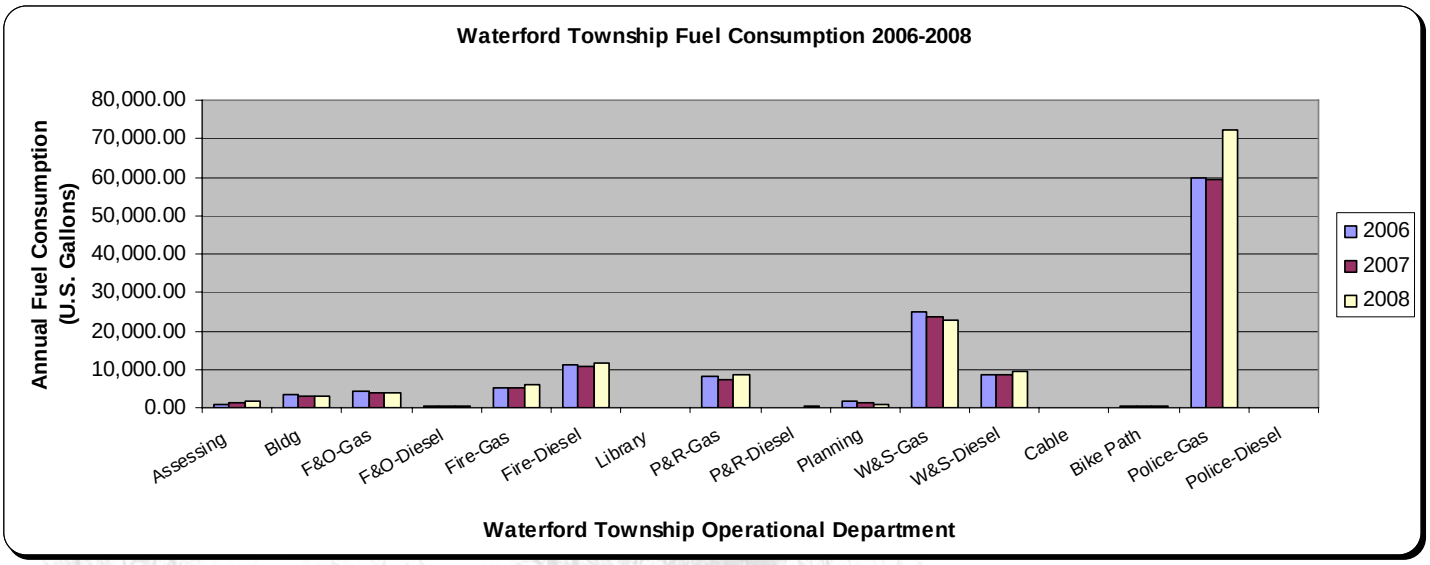
In order to help address long term perpetual care of the cemeteries and to minimize General Fund obligations to cover these expenses, a Perpetual Care Fund was established in 2007. This fund will be used as a primary source of revenue for future cemetery operation and maintenance when all plots are sold. A Perpetual Care Fund fee of $200 is collected at the time of each new lot sale.

The graph below depicts the average annual burials since 1994. The graph also demonstrates the declining availability in plots into the future.



F&O – Fuel Island

F&O is also responsible for the operation and maintenance of the Township's Fuel Island. The Township's Fleet of over 250 vehicles obtain high quality gasoline and highway grade diesel product 24 hours a day seven days a week from the fuel island located on the DPW Compound. Every vehicle is issued a vehicle number and every driver is issued a number so that these products can be tracked and traced to the driver and the appropriate department for accounting purposes. In early 2009, automatic integration of fuel island data, such as miles and fuel used, into the CMMS will facilitate automatic work order generation of vehicle and equipment service work orders. The graph below indicates the fuel consumption by year and department.



F&O – Grounds Crew

F&O is also responsible for the grounds maintenance of Township properties. One primary activity in the winter is snow removal. The grounds crew works very hard to ensure campus roads and parking lots are clear for operation at all times. F&O Crews are also responsible for the maintenance of Township bike paths and other remote properties under Township control.

F&O Grounds Crew Snow Removal Equipment.

June-08 Storm Damage at Waterford Cemetery
F&O Grounds Crews Respond.

June-08 Storm Damage at Fire Sub Station
F&O Grounds Crews Respond.

F&O Division – Compost Branch

The MDEQ notified the Township on February 26, 2008 that PA 212 of 2007 amending Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended would be effective on Wednesday, March 26, 2008. This Legislation established operational guidelines and registration requirements for the management of yard clippings and composting materials. Senate Bill No. 513 established guidelines and operational costs for compost sites exceeding the capabilities and funding ability of the Township resulting in the site, which is owned by the school district, being closed, cleaned up and restored to its' natural condition in August 2008.