

2009-2010 Annual Report

Wauconda Public Works Department



Overview of the Department of Public Works

The Village's Public Works Department is responsible for maintaining safe and reliable infrastructure and providing high quality customer services to Village residents and businesses.

Organization

The Public Works Department is divided into three divisions, **Streets and Collections**, **Water** and **Water Reclamation**, each lead by a foreman. Collectively, these divisions are charged with operating and maintaining the public facilities and infrastructure. The Department is under the oversight of the Director of Public Works, with assistance from the Superintendent of Operations and the Superintendent of Administration.

Streets and Collections Division

The Streets and Collection Division is responsible for the maintenance of nearly 140 lane miles of Village roadways, sidewalks, and public rights-of-way and all administrative functions related to these maintenance activities. Specific services include maintenance and repair of the roadways, sidewalks, curbs and gutters, street sweeping, seasonal snow and ice removal and coordination with utility services and the Lake County and Illinois Departments of Transportation. The Streets Division also includes the Collections Division which maintains 18 sanitary sewer lift stations and over 60 miles of sanitary sewer pipe. Additional activities performed through the Streets Division include maintenance of drainage ditches, culverts, and storm sewers, and maintenance of all street signage and Village owned street lights. Forestry services are handled by the Streets Division as well, including caring for parkway and other Village owned trees, and storm related brush chipping services.

Water Division

The Water Division of the Public Works Department is responsible for the operation, maintenance and repair of water production facilities that produce all of the drinking water used by the residents of the Village, as well as portions of unincorporated Wauconda. Specific responsibilities include the operation, maintenance, and repair of all equipment, buildings, and grounds at seven well sites, four elevated water storage tanks, two ion exchange treatment facilities and three iron filtration treatment facilities. This Division is also responsible for maintaining regulatory compliance and conducting the thousands of tests annually required of the water supply. The Water Division is also responsible for marking Village owned underground street light cables, water and wastewater utilities prior to any excavation (through the JULIE program).

Water Reclamation Division

The Water Reclamation Division is responsible for the operation, maintenance and repair of the wastewater treatment facilities, including all aspects involved in meeting the Federal and State Environmental Protection Agency requirements. The division operates and maintains a state-of-the-art wastewater treatment facility which sees an average daily flow of approximately 1.5 million gallons. This Division is also responsible for the coordination of the sludge management program and for conducting all required tests on the effluent that is discharged from the plant. The following pages outline the Department's major activities for (FY) 2009-2010.

Public Works Department Annual Report 2009-2010

Lake Michigan Water

The Village of Wauconda continued its work with the ten other communities involved within the North-West Lake County Lake Michigan Water Planning Group. Village staff prepared extensively for this year's Illinois Department of Natural Resources (IDNR) Lake Michigan water hearings regarding possible future Lake Michigan water allocations. Data was gathered, compiled and reviewed, and written and verbal testimony was given at the allocation hearings in March 2009. The Village is still awaiting a decision on the hearings.



SSA #13 – Sanitary Sewer Construction

Begun in December 2008, the SSA #13 project, installing sanitary sewer service to over 130 unincorporated residents in the Elmcrest and Spencer Highlands subdivisions, was completed this year. The project, financed through a special service area (SSA #13) was paid for by the affected residents. Services were installed, hooked up and 'in service' in the summer/fall of 2009. The project generated one time bedroom impact and connection fees of almost \$600,000 and will generate recurring annual revenue of \$50,000 per year for the Village of Wauconda. Final paperwork is now being processed to close out the project.



Illinois Public Works Mutual Aid Network (IPWMAN)

Activation

The Village of Wauconda was proud to be one of the first communities to join the Illinois Public Works Mutual Aid Network (IPWMAN) last year during its formation. In May 2009, the Network initiated its first-ever activation with a

request for assistance for Southern Illinois communities hardest hit by violent spring storms. The State of Illinois activated the network, requesting that member agencies assist with debris removal activities. The Village of Wauconda sent two employees and one dump truck to be part of this historic response. Our representatives were part of a 26 person task force from six agencies. Crews worked long hours in Carterville, Illinois removing 270 yards of brush, and greatly assisting a community that had truly been overwhelmed by fallen trees and branches.

The experience gained during the deployment will help us to be better prepared in the event that our community faces a situation where we need to call for similar assistance.

2010 Road Bond – Road Construction

In November 2008, Village voters passed a road referendum to repair and reconstruct streets within the Village. The map on the following page illustrates the streets addressed in the past few years. The Village submitted grant applications to cover Garland Road reconstruction under the American Recovery and Reinvestment Act of 2009. The project was selected for funding, and as such, the federal stimulus program will be funding 70% of the project (\$232,000). In addition, road reconstruction along Kimball Avenue within the Village will be funded by a Community Development Block Grant of \$75,000. More road construction is planned for the next two years.



IT'S IN OUR HANDS

2010 Census

A representative from our Department was named the point person for the Village regarding the 2010 Census. The Village formed a local Complete Count Committee made up of community leaders and representatives working together to increase awareness about the census and motivate residents to return their questionnaires. The following groups participated in the Committee:

Wauconda Area Library, Wauconda Area Chamber of Commerce, Wauconda Community Unit School District, Wauconda Park District, Wauconda Township and WILMA (Wauconda/Island Lake faith based organizations).

Various outreach campaigns were utilized by the group to spread the word about the Census to Village residents. The US Census Bureau also hosted a

Question/Answer Center at the Village Hall to answer questions and provide alternate forms to those that requested them. The resident questionnaire return rate from the Village was over 80%, approximately 10% higher than the national average.

SWALCO Shoe recycling

For the second consecutive year, the United Partnership of Wauconda collected old, unwanted gym shoes donated by local residents to be recycled through the Nike Reuse-A-Shoe program. The Public Works Department stored the shoes, and on April 28th, our staff delivered them to the central collection site. Through the program, 3,484 shoes were collected to be turned into "Nike Grind" to make new sports fields, tracks, playgrounds and other athletic surfaces. In addition, 272 pairs of new or near-new shoes were donated to local charities.

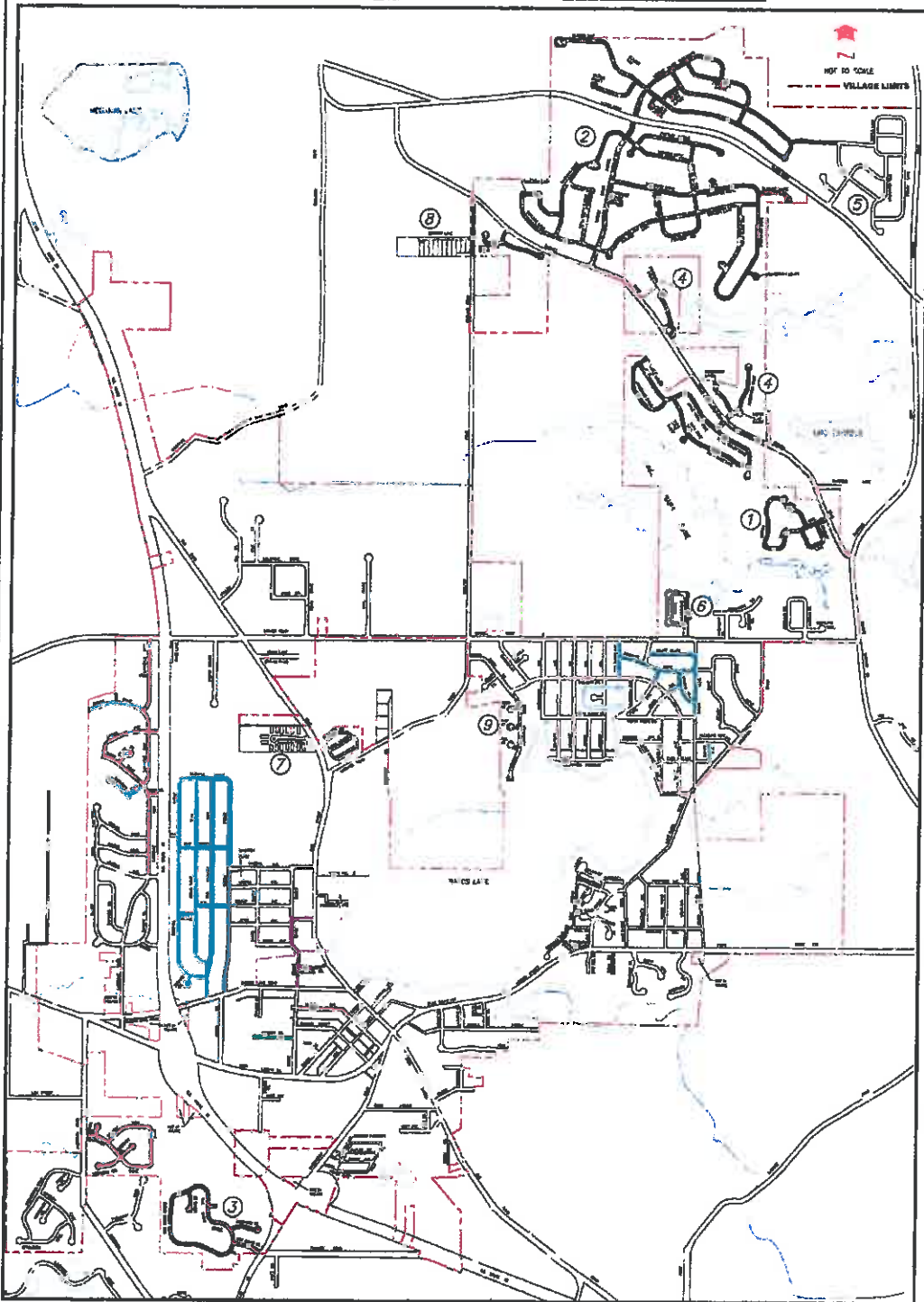
Public Outreach

Public Works Open House

The Department held its third annual Open House on May 23rd 2009. Several hundred visitors interacted with the Public Works staff to learn about the many services offered by the Department, such as treating and distributing drinking water and maintaining the underground infrastructure. The Village Arborist gave residents advice regarding tree care and also distributed donated evergreen saplings for residents to take



VILLAGE OF WAUCONDA ROAD PROGRAM



LEGEND

VILLAGE OF WAUCONDA STREET PROGRAM (BOND ISSUE) 2007-2010

- 2007 Streets
- 2008 Streets
- 2009 Streets
- 2010 Streets

STREETS ADDED BY NEW SUBDIVISIONS 2000-2010

- | | |
|-------------------------|--------------------|
| ① Apple Country Phase 2 | ⑥ WaterStone |
| ② Liberty Lakes | ⑦ Highland Terrace |
| ③ Oak Grove | ⑧ The Enclave |
| ④ Orchard Hills | ⑨ The Peninsula |
| ⑤ Liberty Lakes East | |

- New Streets Added by New Subdivision
- Streets Under Construction in New Subdivision

home to plant in their yards. Nearly 150 visitors took a guided tour of the wastewater treatment plant where they learned about the extensive process that wastewater goes through to be properly treated before it is released to Fiddle Creek. This annual event was held in celebration of National Public Works Week, and provided visitors with education and information about the many services the Village Public Works Department offers its residents.



Wauconda Chamber EXPO

In February, the Department participated in the annual Wauconda Area Chamber of Commerce Business Expo. Attendance for the two day event was over 1,900 – allowing staff to answer resident questions about recycling, tree care, water quality, and upcoming projects. The Public Works Department was able to borrow a ‘PW Paws’ costume to draw attention to the booth and to reach out to our youngest residents.

Arbor Day Tree and Shrub Sale

In observance of Arbor Day, and as a way to encourage residents to plant and care for trees, the Village and the Wauconda Area Chamber of Commerce partnered to host the fourth annual tree and shrub sale for residents on Saturday, May 1st. The sale offered a variety of trees and shrubs at reduced prices. Public Works Department staff delivered the trees and shrubs to residents free of charge.

Memorial Day Parade

Wauconda’s Arbor Day Poster Contest school winners rode onboard the Wauconda Public Works Department’s entry in the Memorial Day parade on May 25th. The trailer, with flowers, shrubs, trees and even a birdbath, helped showcase the poster contest winners in a beautiful setting.



Career Day School Events

The Public Works Department sent representatives to the Wauconda High School and the Robert Crown Elementary School Career Day Events to introduce the Public Works professions to students. Street Department personnel also participated in Robert Crown’s early childhood special education program. They talked about some of the Department’s responsibilities and brought a piece of equipment to the school for the students to touch and sit in.

Fifth Grade Arbor Day Poster Contest

Our Department worked with fifth grade students from Robert Crown School, Transfiguration School, and Wauconda Grade School to participate in the National Arbor Day Poster Contest this past winter. Each school chose its own school winning poster,



which was sent on to compete in the State of Illinois poster contest. On Arbor Day, April 30th, the schools received a tree planted in the schoolyard during the fifth grade Arbor Day celebration to recognize student participation. Classroom and school winners assisted the Public Works crew in the actual planting of the trees. The school winner from Wauconda Grade School finished 6th in the overall State Competition.



Middle School Water Reclamation Facility Tours

For the third consecutive year, the Department worked with the Wauconda Middle School Science Department to give all sixth grade students a tour of the wastewater treatment plant facilities. Students see all area of the plant, including the raw and secondary treatment process, the screener, grit system, aeration tanks, and secondary clarifier. They are also shown the final and tertiary treatment processes including the sandfilter and UV treatment. A lab demonstration was also given on the use of ferric chloride and phosphorus removal.

Street Division Activities

Landscaping of Village Owned Facilities/Lift Station #5 Renovation



Before landscape

Street Department staff landscaped around many Village owned properties to improve the appearance of the buildings and to allow them to more easily blend in with the surrounding neighborhoods.

Landscaping was installed at the CAC Center, the Police Department, Well



After landscape

#5, and Lift stations # 13 (Main Street), # 17 (Roxbury Lane), #2 (Larkdale), # 8 (Callahan Road), # 10 (Serenity Lane), #14 (Wethington Drive), and #5 (Oakdale Avenue). Restoration work was completed at Lift Station #5 located at Lakeshore Drive and Oakdale Avenue. A new retaining wall was installed and new landscaping and signage was added. The 'before' and 'after' pictures show the transformations.



Before renovation



After renovation

Traffic Sign Replacement

Traffic signs throughout the Country Ridge Subdivision were removed and replaced with new signage. During the year, street signs in this neighborhood have become frequent targets for graffiti. By raising the signs and working with the Police Department to arrange for more frequent patrols of the neighborhood, a decrease in this type of damage was reported.

Crack Sealing

Roadways in our area experience cracking due to traffic and our extremely variable weather conditions. Over time, these cracks will widen and allow water to penetrate down into the road bed causing the road to fail. As a preventative maintenance item, a contractor was hired to crack seal Village streets in accordance to IDOT specifications.

Cracks are routed out to a depth of 3/4-inch and a width of 3/4-inch.



The crack is sealed using a hot applied rubberized sealant.

Roads in the following areas and subdivisions were addressed with crack sealing:

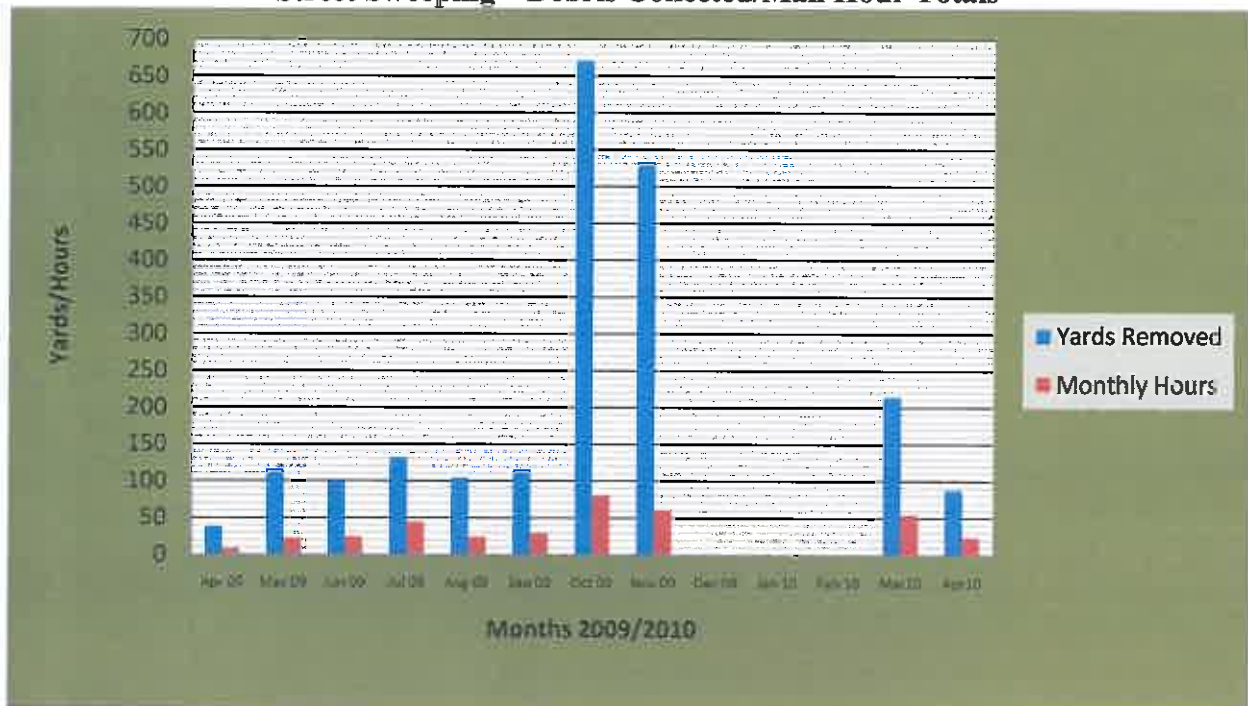
- Apple Country I
- Apple Country Estates
- Garland Rd.
- Main Street
- Apple Country II
- Waterstone
- Wauconda Rd.

Sewer Lining Project

At the end of August, 2009, the Village completed an important emergency repair of the sewer system located along Lake Shore Boulevard. This project involved the installation of an interior lining to the existing sewer main that runs between the homes located along the west side of the road and the lakeshore. Tree roots in this area deteriorated and collapsed the pipe and this blockage resulted in a sanitary sewer spill in the area earlier in the year. The added liner significantly improves the structural integrity of the pipe and will help keep service lines in the area flowing properly.



Street Sweeping – Debris Collected/Man Hour Totals



Street Sweeping

The Village conducts regular street sweeping throughout the year to keep streets clear and to help meet a requirement of our National Pollutant Discharge Elimination System (NPDES) MS4 permit. Regular street sweeping helps keep our storm sewer system clear. Having a clear storm sewer system helps eliminate flooding in neighborhoods and keeps our lake and wetlands cleaner.



Street Light Repair

This past year, the Department purchased a cable fault locator/capacitor discharge unit, or 'thumper', to help locate ground faults in the electrical lines feeding street lights. Street Department crews were then able to locate multiple electrical issues along the power lines in the Industrial Park and other areas in the Village. Approximately ten breaks were located and repaired restoring street lighting to the affected areas.

Arborist Activity

A total of 191 tree related work orders were processed this year. Work orders involve parkway tree maintenance, tree trimming at Village facilities, residential questions regarding trees, and tree removal and collections after a storm or other event. This year, approximately 250 trees were trimmed throughout the Village. Forty hazardous and unsafe trees were removed from the right of way areas throughout the Village. An additional 35 trees were removed along Rt. 176, in a joint project with IDOT.



Tree City USA

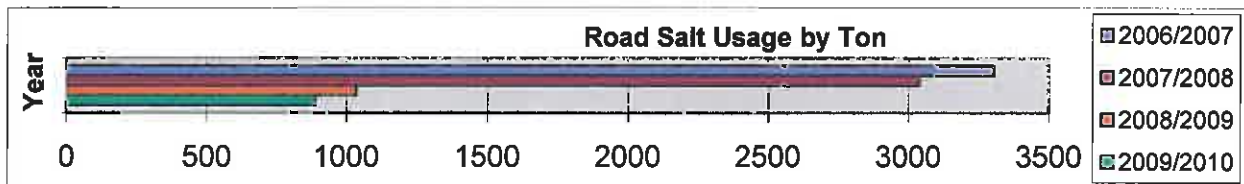
For the fourth consecutive year, the Arbor Day Foundation recognized the Village as a Tree City USA community for its commitment to urban forestry. In order to be recognized for this designation, the Village met the four required standards necessary to become a Tree City USA community: a community must have a tree board or department, a tree care ordinance, a comprehensive community forestry program and an Arbor Day observation and proclamation.

Residential Brush Pick Up

During the summer of 2009, a total of approximately 2,000 yards of brush, and 20 truckloads of logs were collected. All material was recycled – in the form of mulch or wood for lumber.

Snow Clearing

Between November 2009 and March 2010, the Department was called out on 24 occasions to remove snow and ice from Village roadways. The Department continued its concerted effort to reduce road salt usage – for both economic and environmental reasons. Historical salt usage averaged approximately 3,000 tons/year prior to converting the operation to include salt brine. Since the conversion began, usage has been consistently reduced. This past year, the Department used under 1,000 tons of salt for the season, while still being able to provide clear and safe roadways for our residents.



Sanitary Sewer Cleaning

During the year, the vacor truck was used to clean 261,512 feet (49.5 miles) of sanitary sewer line. Over 80% of the lines in the total system were addressed. The lines cleaned were in all areas of the Village, with a focus on past trouble areas.

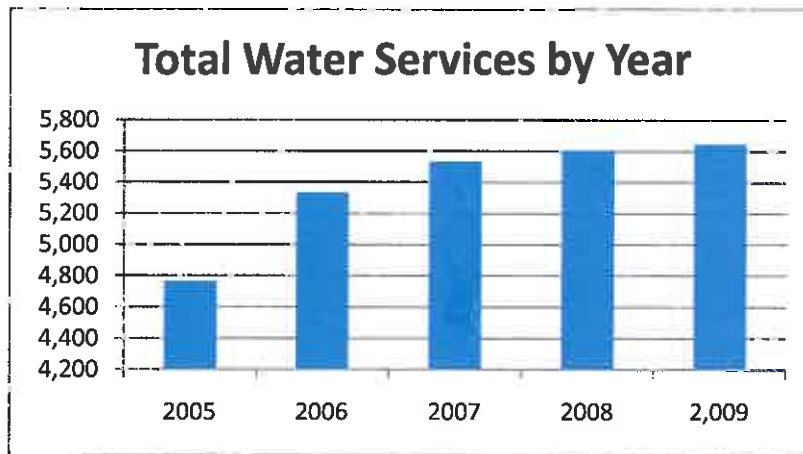


Lift Station Maintenance

During the year, the Department devoted 1,864 hour man hours to routine lift station maintenance work. During work, 129 pump pulls/inspections were performed and 4 transducers and 12 floats (components which control turning the pumps on and off) were replaced. The Department purchased 3 spare pumps in this time frame-to be able to quickly replace any failing pumps so that we can minimize disruption of the system. 8 battery backups (Uninterruptible Power Supply-U.P.S.) were replaced.

Water Division Activities

Water service connections have continued to increase even through this slow economy sluggish home building period. Since 2005, water services have increased by approximately 20%.

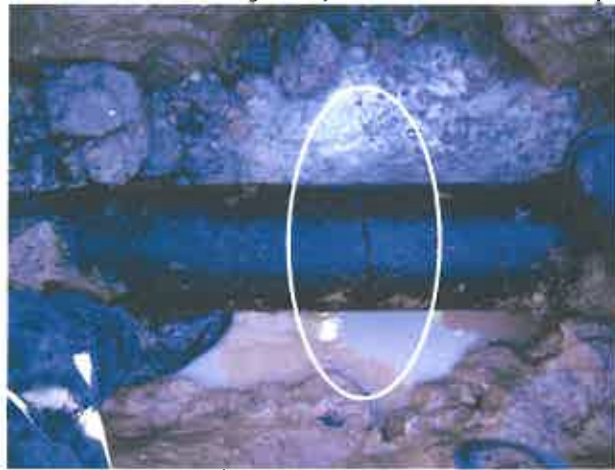


Well #10

Construction was completed on Well #10, located on the property that houses the water tower and water treatment plant on Gilmer Road near Liberty Lakes Boulevard. It is expected that this project will be completed in the fall of 2010. Work is progressing on the iron removal treatment plant for Well #10 as well. When the well is in service, water from Well #9 and Well #10 will be blended.

Leak Detection Survey

It is important to account for all of the water pumped from the ground into our distribution system, especially in light of the Lake Michigan water allocation process. In order to ensure that all the water pumped is tracked and properly accounted for, a local leak detection firm was contacted to perform a leak detection survey on the Village infrastructure. On January 11th, ME Simpson began checking our system for leaks. The contractor used our water main valves and fire hydrants as listening points for their detection equipment. Department personnel assisted the contractor by locating and cleaning many of these main valve boxes. Several small leaks and one major leak were identified in the survey. The major leak was located in the 300 block of S. Main Street. On February 18th, we excavated and repaired a 1/4" circular crack in our 6" water main at



this location. One and a half feet of pavement above the line, and a break in the sanitary sewer service line below the water line, prevented the water from ever surfacing. As such, the Village was unaware of the leak. A large sized boulder lying underneath the water main at the location of the crack and may have been the cause of the break. The master meters that measure the output of our wells and water plants were also assessed. The test ensures that the meters at these locations accurately record and report usage. It was found that the physical registration of the meters tested very accurately, as did the SCADA data collection system.

Lead & Copper Tap Sampling

In Fall 2008, as part of routine sampling required by the IEPA, lead and copper tap sampling was performed. The Village, as a public water supply, was required to perform this test every three years at twenty IEPA pre-approved sample sites. Collecting these samples requires working with homeowners who are actively participating by collecting a 1-liter sample from a kitchen or bathroom faucet. Prior to drawing a sample, water softeners, water filters and humidifiers must be by-passed and water must sit in the pipes with no usage for at least 6 hours. During this process, five of the samples did not pass the lead screening portion of the test. Due to the excess lead in these samples, the Village was required to implement a public education program to inform residents of potential contamination of their drinking water from old lead pipes in their homes, and to increase the frequency of the test and the number of sampling sites (from 20 to 60). This expanded collection program began in the spring of 2009. In order to assist residents with lead service lines, new phosphate blends were fed into the water system to help coat pipes and minimize the exposure of the water to lead in the pipes. The Village was then required to have two more acceptable rounds of sampling, collected six months apart, to avoid replacement of lead service lines in the future. The IEPA confirmed that the public water supply had passed both rounds of subsequent sampling, and therefore, advised that the triennial monitoring can now be followed. Therefore, the IEPA will not require the Village to sample for lead and copper tap water compliance again until 2012.



Sampling Taps

The IEPA requires collection of monthly bacteriological samples of both the raw water and the finished water at each water plant. In order to achieve a clean and efficient sample collection procedure, new sample taps were installed at all water plants. (The photo shows the two side faucets added at the Liberty Lake Water Treatment Plant.) These sampling taps are now in regular use.

Macintosh Drive Water Main Repair

In mid-May, a water main break was reported on Macintosh Drive. The 2-inch hole in the main was repaired with a 15-inch repair sleeve. In late September, a new water main break was reported in the same area. An approximate 3-inch hole in the pipe was discovered less than 3 feet away from the site of the May repair. In early October, the Water Division was called to repair another water main leak along Macintosh Drive. As flushing the main began after the repair, a second break occurred approximately three feet away from the first repair of

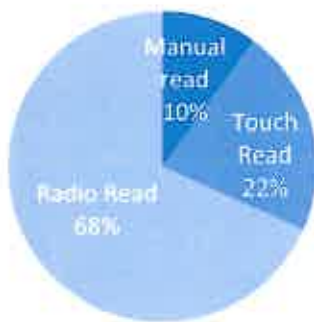


the day. This break was also repaired and water service was restored. Approximately an hour later, while personnel were still onsite doing follow-up work, a third break suddenly surfaced at a large flow rate. All of the breaks indicated severe deterioration of the pipe in this area due to corrosive soil conditions. An emergency water line replacement of 500 feet of water main, three fire hydrants, and the associated service lines was ordered so that work could be completed before cold winter weather set in. The repair project was an unplanned expense of approximately \$80,000.

Fire Hydrant Testing

During the year, 211 of our 924 fire hydrants were tested. During testing, staff opens the hydrant, records flow data and notes any problems with the hydrant. Several hydrants were found to be leaking, damaged or hard to operate. These hydrant issues have all been addressed.

Water Meter Conversion Project



Water Meter - Radio Read Conversion

The Village continues working towards the goal of converting all water meters to radio read. This year, water meters in the Harmony Village mobile home community were converted to the radio read system. In addition, almost half the homes (74) in the Lakepointe Subdivision were converted to the radio read system. More homes in Lakepointe will be converted as the budget and time permit. This change allowed for much more efficient reading of meters in the neighborhood.

Change to Bulk Storage of Phosphate

Phosphate is the corrosion inhibitor we use for lead and copper corrosion control within the water distribution system. This year we were able to work with our distributor to make changes to four of our water plants so that phosphate can be stored in 200 gallon tanks which feed by gravity to the day tank, thereby making our transfer operations much more efficient.



Regeneration & Backwash Reviews

Our Village water facilities include three iron removal filters and five water softeners that process our well water prior to delivery to the distribution system. These units operate upon demand and depend on the proper operation of several pieces of hardware and software, including a total of over sixty automatic control valves. During the first quarter of 2010, as part of our monitoring schedule, each filter and softener was reviewed for proper operation. A detailed checklist is used for the reviewing process.

Water Reclamation Division Activities

Flow totals

Over this reporting period, approximately 624 million gallons of raw waste entered the wastewater treatment facility. A total of 569 million gallons of final effluent were treated and released to Fiddle Creek.

Biosolids Removal by Synagro

Synagro Residuals Management removed bio-solids from the treatment facility twice this past year. Synagro brought a portable sludge press onsite and pumped approximately 784,074 gallons of sludge to the press where it is mixed with a special polymer to enhance the sludge's ability to coagulate. After pressing, the excess water is recycled back to the head of the plant for treatment. The byproduct from the sludge press is a cake-like solid. The solid is transported to local farms for land application as fertilizer. A total of 204 dry tons of cake sludge was applied to fields.



Effluent Testing/DMRQA Study

The Water Reclamation Facility passed the four required IEPA toxicity testing rounds, required by the NPDES permit. During the program, two test organisms, fathead minnows and ceriodaphnia are put in contact with the final effluent for variable periods of time to see how the species survive. The final effluent was not found to be toxic to these species, therefore, all four rounds of sampling passed. The Water Reclamation Facility also passed the annual Discharge Monitoring Report-Quality Assurance Study Program (DMRQA) with the US Environmental Protection Agency. This annual study is a quality control test on the lab procedures used by our Lab Technician. Blind/unknown sample concentrations are purchased from a provider. Lab tests are run on the sample for the same parameters that are on our NPDES permit. Results are sent back to the provider and are checked for accuracy. All tests passed this check.

Lift Station Cleaning

On September 29th, water reclamation facility personnel cleaned the wet weather lift station as part of routine onsite maintenance. During this cleaning and maintenance, staff removed large amounts of grease, rags, and debris that can be seen on the pump in the photo to the right.

IEPA Inspection

On September 30th, the water reclamation facility had its annual Illinois Environmental Protection Agency (IEPA) inspection. A representative from the IEPA visited the site, checked operations and reviewed records. The facility successfully passed this inspection.



Fall Protection Program

Installation of fall protection equipment was completed this past year. Thirty eight bases and “D” plate rings were added to structures at several points at the facility. Operators attach their harnesses to davit arms to prevent fall injuries.

Reclamation Facility Upgrades and Maintenance Items

During the year, many projects were completed to maintain or upgrade operations at the reclamation facility. Some of the items completed this year include:

- Replacement of both air lines in the aerated grit tank.
- Annual safety inspection and certification of all electric and mechanical hoists on site.
- Replacement of the suction side valve on primary pump N2 and of the air chamber on suction side of sludge piston pump #1.
- Replacement of the filter elements on six blowers. This improved blower efficiency leading to better dissolved oxygen in digesters and activated sludge tanks.
- Repair to the electrical lead cables of the primary effluent pump N2.
- Repairs to the primary effluent pump S2 including a new impeller, seals, bearings, and wear ring. Electrical lead and control wiring was also replaced in the pump.
- Replacement of the main electric cable to pump P101. This pump is used during wet weather flow conditions.

Conclusion

The Public Works Department remains committed to providing the residents of Wauconda with well maintained Village owned facilities and infrastructure. For the upcoming year, the Department will continue to maintain operations and to support the Board in achieving the strategic goals set forth for the Village. Highlights for the coming year include



enhancing communication with our residents, formalizing the Adopt-a-Hydrant program, increasing outreach efforts to the School District and local professional organizations, developing and publishing written materials highlighting the Department's activities, and remaining actively involved in securing a Lake Michigan water allocation for the Village.