Public Works Department

2019 ANNUAL REPORT

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SCOPE OF SERVICES

GENERAL

The Public Works Department is staffed by 101 full-time employees and 3 permanent part-time employees. During the summer months, approximately twenty interns and temporary employees are added to help address seasonal increases in workload.

In October of 2018, the Public Works Department expanded to include the Village's Engineering Department. The addition of these new responsibilities and technical expertise presents a new challenge to our staff. However, we hope that the new synergies created by this consolidation will improve communication between staff, and provide an opportunity to coordinate project design and maintenance expectations to benefit the Village in the long run.

The responsibilities of the Public Works Department include the engineering design, maintenance, repair and inspection of all Village infrastructure, properties and equipment. The Department also performs all utility permitting, reviews all private and public development plans, and inspects both private and public improvements.

The ten (10) Operating Units within the Department are Building Maintenance, Engineering, Fleet Services, Forestry and Grounds, Sewer, Street, Traffic, Water Distribution, Water Meter Services, and Water Production.

The Public Works (PW) Department operates and maintains the Village's basic infrastructure systems on Village-owned properties, right-of-ways or within recorded easements on private property. These infrastructure systems include roadways, sidewalks, traffic signals, trees, streetlights, detention ponds, and all components of our water and sewer systems. Village-owned properties include all Municipal buildings, parking garages and public parking lots, water and sewer pumping stations, and potable water storage tanks, potable water wells, detention ponds, and all Village vehicles and equipment.

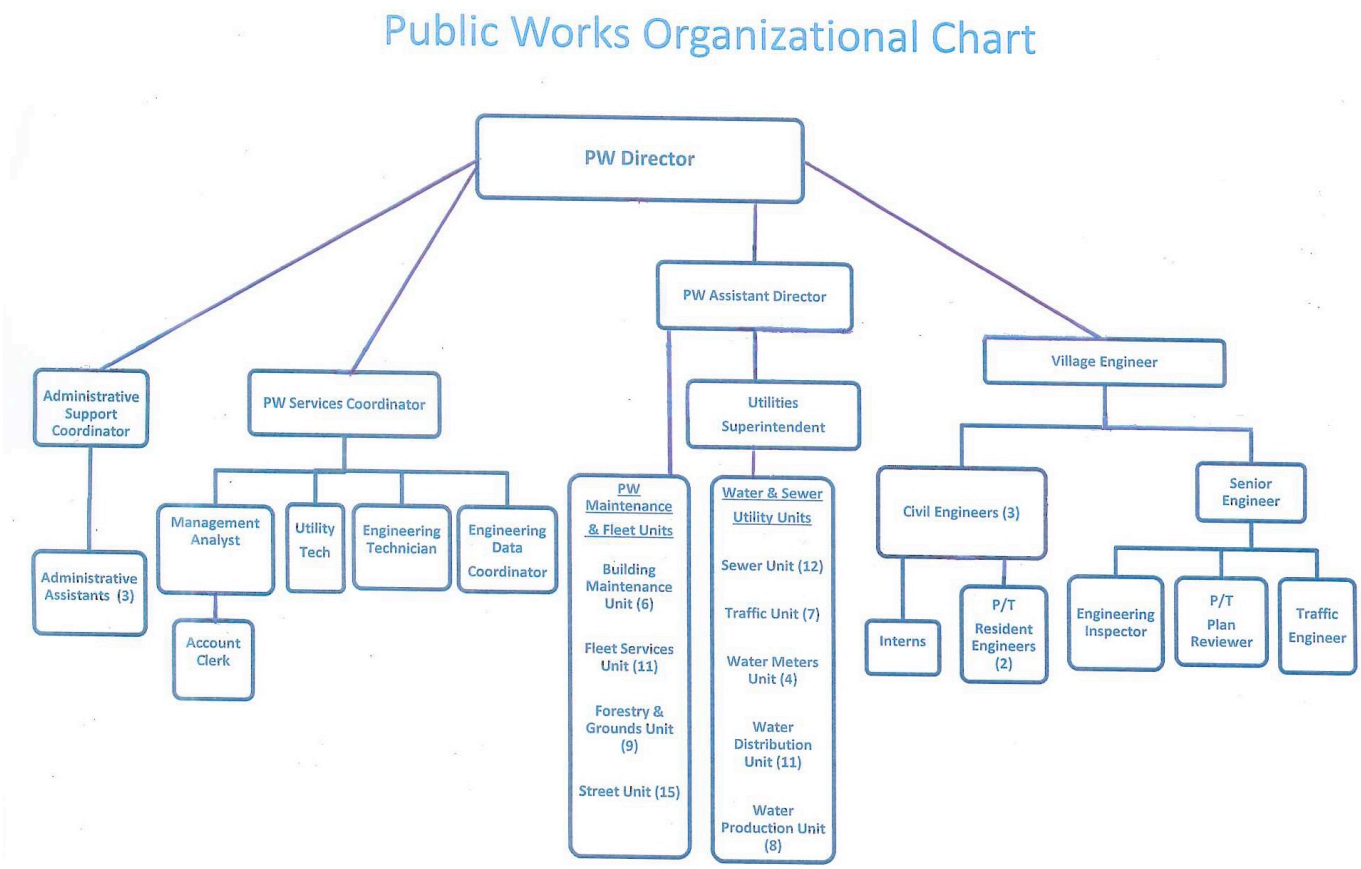
The PW Department is led by the Director, Scott Shirley, Assistant Director, Cris Papierniak, and Village Engineer, Mike Pagones. All three positions oversee all administrative aspects of the Department's operations including internal and external communications, personnel duties, safety and training programs, compliance with all regulatory agencies, employee development and morale, public notification, new program development, development of both Capital Improvement Programs, and annual budgets .

The Assistant Director directly oversees the Public Works Maintenance Units including Streets, Forestry, Fleet Services, and Building Maintenance. Mr. Papierniak indirectly oversees the Water and Sewer Units and their operations. Mr. Papierniak reports to the Director and serves as Acting Director during times of his absence.

The Village Engineer manages the staff of the Engineering Division and, MWRD and IEPA permitting, Plan Commission review, Building Department plan reviews, and Service Requests generated by residents. Mr.

Pagones also oversees the Village's street reconstruction and resurfacing programs, the backyard drainage program and the Paver Brick Sidewalk Program.

The organizational chart below represents the Department's structure at the end of 2018 with the addition of the Engineering functions and their personnel.



There are several ongoing programs that account for a great deal of the Department budget and personnel's time.

SNOW AND ICE OPERATIONS

For purposes of snow and ice control, the Village is divided into 19 zones. Each zone is assigned an "A" Team driver, a "B" Team driver and a 5-ton (6-wheel) or 2.5 ton (4-wheel) dump truck. Each truck is equipped with a salt spreader, liquid beet juice deicer tank, underbody or "belly" snowplow, and a front mounted "nose" plow.

When snow has been forecasted, two Swap Loader trucks equipped with 1000-gallon tanks and spray bars spray a liquid beet juice blend on street pavements before a snowstorm to prevent snow and ice from bonding to the pavement.

As snow accumulates up to two to three inches, sodium chloride (road salt) is spread and underbody plows are used as needed. The salt is pre-wetted with a liquid blend consisting of salt brine, liquid calcium chloride, and sugar beet juice. The use of this liquid blend allows us to use less rock salt while achieving improved snow melting performance. This pre-wetting of the road salt allows us to save money by using less salt while using a more eco-friendly material.

When snow accumulations exceed three inches, the front mounted plows are used to move the snow off streets and onto parkways. The Village is also divided into 10 cul-de-sac zones with a driver and small pick up or one-ton dump truck with plow assigned to each zone. The crews plow these tighter areas when snow is two to three inches deep or greater.

Additionally, two employees are called out to salt and plow Village-owned parking lots at locations such as Police, Fire, Senior Center, and commuter parking lots. One employee is assigned to deice and plow the top floor parking decks on the three Village-owned parking garages. One employee is assigned to operate the front-end loader in the salt done to continually load the salt fleet. We also provide salt storage and loading services for School District #25, School District #214, and the Arlington Heights Park District, which they are invoice for.

Two Crew Chiefs supervise and provide necessary assistance to 33 team members in the field. A Snow Commander oversees the entire operation. This totals a team of 36 team members in the field. We have a second team of 35 crew members that we employ when we need to go into extended around the clock operations, with an additional six reserve drivers. The Arlington Heights Snow Fighting Team consists of a total or 78 crew members.

During 2018, the Department's Snow Fighting Team responded to 25 snow and ice events. A total of 60,762 miles of streets were cleared. A total of 7,337 tons of salt were used to deice streets. A total of 84,694 gallons of liquid beet juice blend were used to anti-ice streets and pre-wet our road salt.

STREET RECONSTRUCTION AND RESURFACING

By far, the Department's largest budget allocation is for our two street rehabilitation programs. The Reconstruction Program replaces streets that cannot be resurfaced due to failure of the aggregate (stone) base. This program rebuilds the entire street and replaces all of the concrete curb and gutter as well as most driveway aprons. The Resurfacing Program is the main preservation tool utilized to extend the service life of Village streets. This program replaces 2 to 3 inches of the asphalt surface to improve ride-ability and also extends the life of the entire pavement cross section.

EDGE GRINDING

During the summer, the Street Unit completes three phases of asphalt roadway edge grinding and resurfacing at various locations throughout the Village. The program was started in 2010 by Public Works as an intermediate maintenance step to help prolong the life of streets that were not going to be addressed by our street rehabilitation programs within the next two to five years. This program has been very successful and well received by the residents. Additionally, our proficiency with this program has improved as we become more familiar with the equipment. We expect to see improvements in our productivity as we continue this program into future years. The Street Unit leases a street-milling machine with an attached conveyor. This milling machine is used to remove deteriorated asphalt pavement on a list of streets that met criteria qualifying it for this program. In short, streets that qualify are ones that were generally in good condition except where they were falling and break up near the curb and gutter. The milling machine effectively removes the affected areas of bad pavement. The Street Unit then uses a Village-owned paving machine to pave the milled locations with hot mix asphalt (HMA). Crews used a total of 4,049 tons of HMA during this paving operation.

STORMWATER CONTROL IMPROVEMENTS

On July 23, 2011, the Village experienced significant flooding due to a storm that dumped between 5.4 and 7 inches of rain over a four hour period. This storm followed two weeks of substantial rain events which had already saturated the ground. Although there can be no guarantee against future flooding events, as a result of this historic rain event the Village commissioned two separate flood studies. The first study looked at basement backups in our combined sewer area. The second study looked at street and structure flooding in our separate sewered areas. These studies were completed to determine if there we additional affordable infrastructure improvements that could be undertaken that would provide a consistent level of stormwater control throughout the community.

In 2014, the Village's stormwater and stormwater sewer maintenance programs were consolidated in one fund called the Stormwater Control Fund. At the time, this fund did not have a dedicated source of revenue, and relied on transfers-in from other funds.

In January of 2017, Staff met and discussed the prioritization of the projects identified in both Flood Studies. In March and April of 2017, the Village Board discussed the project prioritizations and options for funding these projects going forward. In August of 2017, the Village Board implemented a stormwater utility fee which became effective on October 1, 2017. The first round of improvements to be constructed in 2019 will address the Campbell/Vail project, and the Cypress Detention Project. The new fee will also fund the Enhanced Overhead Sewer Program.

CAPITAL IMPROVEMENT PROGRAMS

Administrative and Technical staff collaborate on these annual programs.

- Street Reconstruction Program
- Street Resurfacing Program
- Paver Brick Sidewalk Program
- Backyard Drainage Program
- Stormwater Control Projects
- LED Streetlight Upgrade
- Water Tank Painting
- Well Rehabilitation
- Federally Funded Road Programs
- Water Meter Replacement & Repair
- Contractual Roof Maintenance Program
- Watermain Replacement and Repair Program
- Contractual Sanitary, Sewer, and Slip Lining Programs

MAINTENANCE PROGRAMS

Administrative and Operational Staff collaborate on the following annual programs, which do not include many of the basic everyday infrastructure maintenance and resident inquiry follow-up responsibilities.

- Consumer Confidence Annual Report
- Contractual Tree Trimming Program
- Contractual Landscape Maintenance Contracts (2)
- Municipal Separated Storm Sewer System (MS4) Program & Yearly Reporting Requirements
- Tornado Warning Siren Program
- Holiday Lighting Program
- IEPA Water Sampling
- Snow & Ice Control Program (Roadway and Sidewalk)
- Emerald Ash Borer Program
- Street Sweeping Program
- Sign Maintenance Program
- Sidewalk Maintenance Program
- Contractual Fountain Maintenance Program
- Contractual Crack Sealing Program
- Friday Police Car Check Program
- Contractual Mowing & Weed Spraying Program
- Meter Reading Program
- Contractual Thermoplastic Program
- Leak Detection Program
- Generator Maintenance Program
- Sewer Televising Program
- Sewer Root Cutting Program
- Traffic Signal Maintenance Program
- Contractual Preventative HVAC Program
- JULIE Locate Program

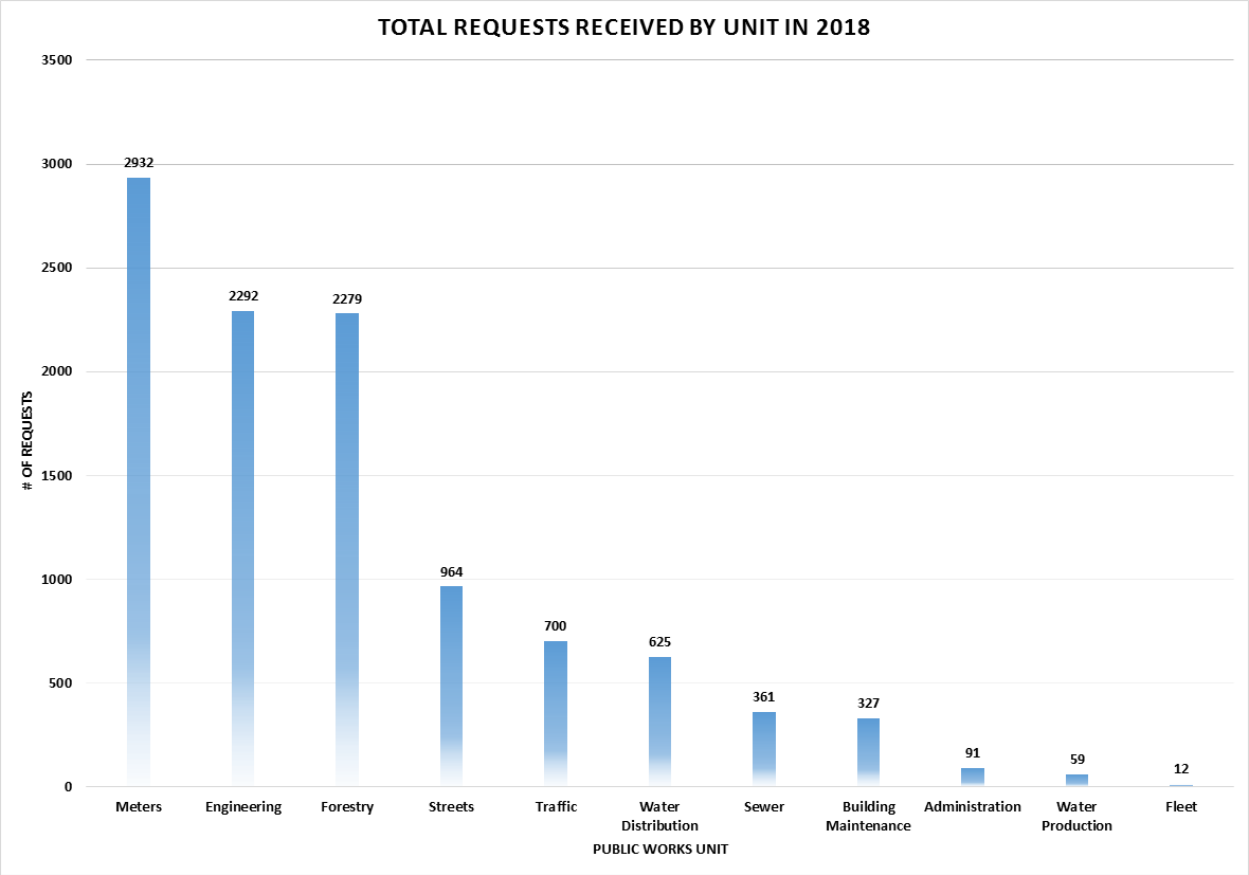
- Contractual Sprinkler Maintenance Program
- Tree Inventory Program
- Contractual Reduced Pressure Zone (RPZ) Program
- Special Event Programs
- Parking Garage Maintenance Program
- Fuel System Program
- Vehicle Maintenance & Replacement Program
- CDL Drug Testing and Cert. Program
- NPDES and MS4 Permit Compliance (National Pollution Discharge Elimination System)
- Safety and Training Program
- Pace Bus Equipment Maintenance Program
- Public Detention Basin Maintenance

LEGAL AND OPERATIONAL RESPONSIBILTIES TO THE COMMUNITY AND ORGANIZATION

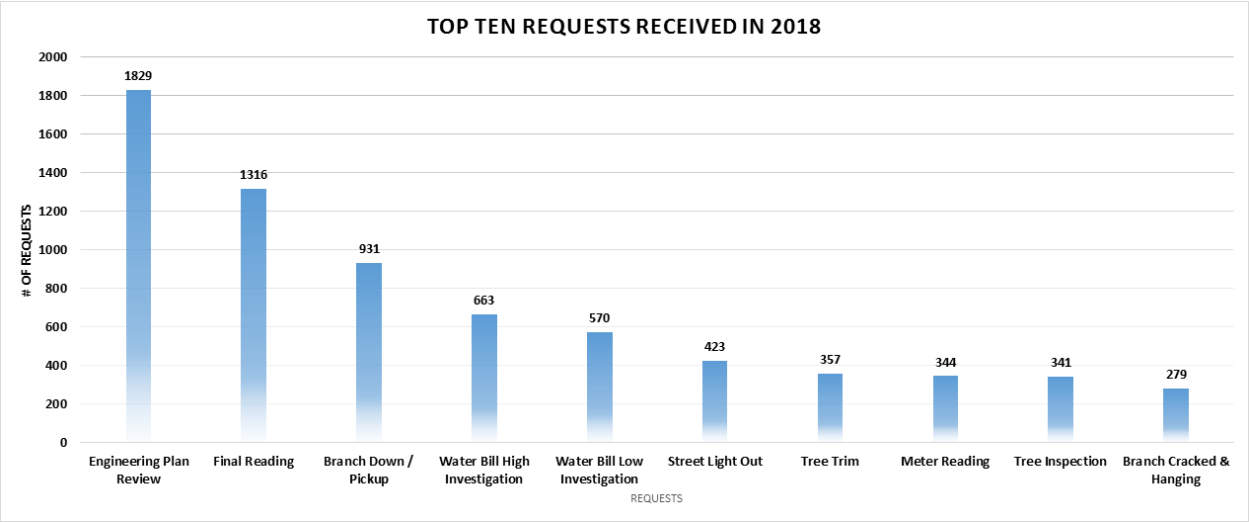
From a legal standpoint, the Department has compliance, permitting and reporting requirements to the Illinois Environmental Protection Agency (IEPA), United States Environmental Protection Agency (USEPA), Metropolitan Water Reclamation District of Greater Chicago (MWRDGC), and the Illinois Department of Natural Resources (IDNR) related to our potable water storage and distribution systems and sewer conveyance systems. We also have safety compliance responsibilities to the State of Illinois for Commercial Driver's Licensing, Vehicle Safety Inspections and Passenger Transport Safety related to our maintenance of the Wheeling Township's fleet of busses. We further have certain compliance requirements related to proper safety guidelines and material storage and handling from the Illinois Department of Labor (IDOL) and some Occupational Safety and Health Administration (OSHA) injury and lost time reporting requirements as well. All of our street signs and markings are regulated by the Adoption of Federal Guidelines by the State related to Manual of Uniform Traffic Control Devices (MUTCD).

WORKLOAD AND PERFORMANCE DATA

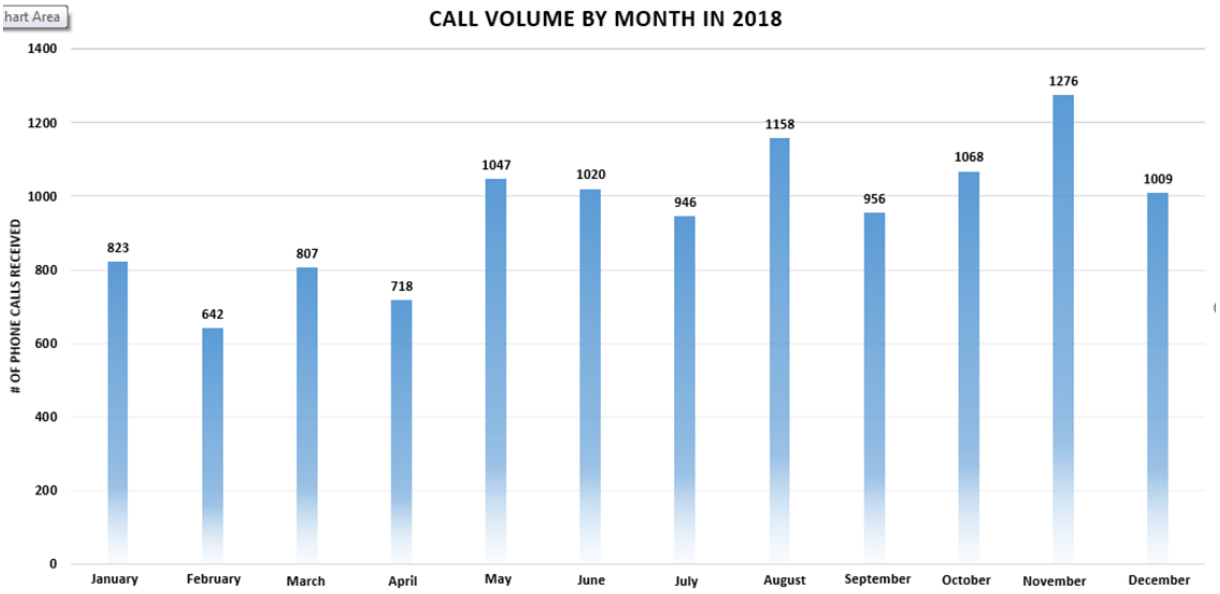
The following charts summarize several workload indicators that we began collecting this past year.



The total requests received by each Unit represents all telephone, website and See Click Fix requests for service that result in work orders.



The top ten requests are the quantity of individual service requests for the ten most frequent requests the Department received.



Call volume is the number of phone calls received in each month of 2018. November of 2018 was by far the highest volume month due to the November 25th and 26th snow and ice event.

PERFORMANCE MEASURES

Summarized below are the performance measures, including data for 2018.

Performance Measures	Calendar Year		
	2016	2017	2018
Traffic Unit			
Traffic Signal Repairs	271	132	102
Street Light Repairs	1,088	1,138	978
Building Circuit Repairs	608	523	129
Sign Maintenance	2,352	2,581	1,986
Pavement striping	4,669	4,630	3,041
Utility Locates	17,112	15,843	13,811
Street Unit			
Snow Removal Cost	$1,011,287	$700,074	$1,232,878.25
Snow Removal Curb Miles	51,044	26,836	60,762
Street Sweeping Curb Miles	10,260	10,116	9,336
Asphalt Repairs (tons)	204	186	220
In-House Paving Program (tons)	4,816	6,298	4,049
In-House Paving Program (sq. yds.)	29,077	33,226	38,934
Forestry Unit			
Parkway Trees Trimmed	7,399	9,567	7,628
Parkway Trees Removed	196	753	610
Parkway Restorations	2,221	831	801
EAB Reimbursements	17	0	0
EAB Inspections	32	8	13
EAB Trees Removed	509	280	61
Building Maintenance Unit			
Work Orders Completed	688	793	893
Administration			
Service Requests Received	3,241	3,699	4,413
Invoices Processed	7,176	6,601	5,863
Incoming Phone Calls – Front Office Only	11,001	9,781	11,470
Private Development			
Number of Inspections			
Pre-pour	560	739	614
Final	679	791	716
All Other	395	586	624
Total	1,634	2,116	1,924
Number of Service Requests	183	217	345
Number of Plan Reviews	1,871	2,091	1,829
Number of Plan Commission Reviews	50	47	71
Number of ZBA Reviews	69	60	30

Several performance measures were significantly higher in 2018. First and foremost was our snow removal costs and snow removal curb miles. In the 2018 season we experienced a higher number of events in January through March and the major event in late November.

We also experienced a high volume of incoming calls and service requests in 2018.

KEY ACCOMPLISHMENTS 2018

- Completion of Police Station Project, which included a Green Infrastructure grant for a rain garden and permeable pavers.
- Completion of four-year Parking Garage Rehabilitation Program
- Continued to advance our public outreach and increase our social media footprint
- Initiated a comprehensive approach to pavement maintenance using PavePro Software, in order to establish a cost-effective system to fund our various maintenance programs.
- Continued to utilize the pavement management system's conclusions and recommendations to assist in the long range planning and budgeting for the maintenance of the Village's street infrastructure.
- Prepared contract plans and contract documents and inspected the construction of the Street Resurfacing Program, the Street Reconstruction Program, and the Backyard Drainage Improvements Program, all of which were within budget.
- Installed 8500' of watermain as replacement for older inferior pipe that was prone to failure.
- Installed a replacement to the two 500kWh electric generators at Well #13 (Nichol Knoll) which greatly increases the reliability of uninterrupted water supply.
- Finished the data-gathering portion of the mandated MWRD Infiltration and Inflow Program with final smoke testing of stressed sanitary sewers within the Westgate area.
- Completed the engineering design and prepared plans for an early 2019 bid opening for the Campbell/Sigwalt Stormwater Improvements and the Cypress Detention Basin and Stormwater Improvement projects.
- Successful completion of a private brush pickup and public cleanup of tree damage from the November 25th and 26th snow and ice storm.
- Development of a five-year Watermain Replacement Program
- Procured funding assistance from the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) for the Campbell/Sigwalt Stormwater Improvements project.
- Successfully completed the migration of historical traffic data to the Cityworks Program.
- Reviewed Village stormwater standards for single-family teardown construction with respect to regulations and codes from other local municipalities with the goal of verifying that the Village's regulations and codes are in line with industry standards. Recommended changes to the Village's Codes to address newer industry practices and standards.
- Completed the Phase I project study, received IDOT approval, and completed Phase II engineering design and plan preparation for the Kensington Road and Multi-Use Path project.

CURRENT AND ANTICIPATED CHALLENGES

The Department continues to address **our major challenge, which is our aging infrastructure**. Long-term programs have been developed to address our streets, aging watermains, upgrading of our water pumping stations and storage tanks, improving our sewer system's capacity to manage short/intense rain events, and encouraging residents to install overhead sewers to prevent basement backups. With the completion of the new Police Center, the Village has now upgraded or replaced all of its buildings, which began with a new Senior

Center in 1998. The challenge going forward is to maintain these facilities properly, which includes new roofs, and maintenance of numerous plumbing, electrical, and mechanical systems.

The State (specifically IEPA & IDPH) continue to gather data from every municipal and privately owned water system. The data is specifically related to the lead water services and lead solder within existing residences and businesses. The general implication that these regulatory agencies are giving seems to indicate that water agencies (public and private) within Illinois will have to come up with a plan to phase out lead services, whether it is on the public side or homeowner side remains to be seen. This will leave the unresolved issue of lead solder on copper pipes and if a plan can be formulated to address this issue. This is not being driven by the USEPA, but the IEPA & IDPH. **The Village currently treats our water with PolyOrtho Phosphate, which prevents lead pipes and lead solder from contaminating the water.** The estimated cost to replace all lead service lines in the Village is over $31 million.

The MWRD Infiltration & Inflow (I&I) program is drawing to completion. This was a four-year program designated to evaluate a representative 10% of the sanitary sewer collection system. The 10% was to be identified as old and stressed pipes that are prone to I&I. Smoke testing identified areas where pipes were cracked or collapsed. An internal pipe video inspection was then performed to identify specifically the method of repair to mitigate the I&I. This portion is complete; the remaining portion is a mandated comprehensive system wide maintenance plan for the sanitary collection system that includes private service lines. This is not to say that the respective municipalities will be responsible for private sanitary services, although municipal ordinance modifications will be required for inspection and enforcement. The proposed ordinance changes will be reviewed by staff, to ensure continuity with other ordinances before recommendations are forwarded to the Village Board for approval. The expected time frame for this task is mid-summer 2019.

Within the Engineering Division, we continue to be understaffed. Staff is working on a re-organization, which includes a request to hire another Civil Engineer to fill the vacancy left by the promotion of the Deputy Director of Engineering. We are also exploring some internal changes that would present some opportunities for re-directing some personnel to field work, without increasing the number of full-time employees.

Staff continues to be challenged by the costs associated with meeting the ADA's Public Right of Way Accessibility Guidelines (PROWAG). These requirements have significant impacts on our Pavement Management Program. It is estimated that every intersection that is impacted by construction will occur an additional $10,000 expense, due to meeting these requirements as all sidewalks must be re-installed to meet the current guidelines.

Within the next year, we should have a comprehensive Pavement Condition Index (PCI) rating for all Village streets. Once the ratings are complete, staff will be able to develop a 5-year pavement rehabilitation program. The biggest challenge to our pavement maintenance remains the pozzolonic base material underlying many of our asphalt streets. The new Department merger gives us the opportunity to coordinate all of our pavement maintenance activities. Within the next year, we should have a comprehensive up-to-date Pavement Management Plan for all Village streets.

Implement new Enterprise Resource Planning (ERP) software program. This system will allow us to keep better and more accurate coding records for purchases. A new ERP will also provide more up to date reporting capabilities, and permit the scanning of receipts and invoices as attachments to vendor files.

Staff will begin analyzing the requirements set forth in the **America's Water Infrastructure Act of 2018.** The regulations relate to our water system's cybersecurity and increases in reporting requirements.

POTENTIAL NEW INITIATIVES TO EXPLORE IN THE FUTURE

Moving forward, the Department plans to continue to increase our public outreach to residents and businesses. We presently email, tweet, and continually update our Department's webpage. Customers can contact the Department through email, our webpage, our "See Click Fix" mobile app, and by phone. As the social media landscape changes, we will continue to participate and enter these new platforms as soon as practical.

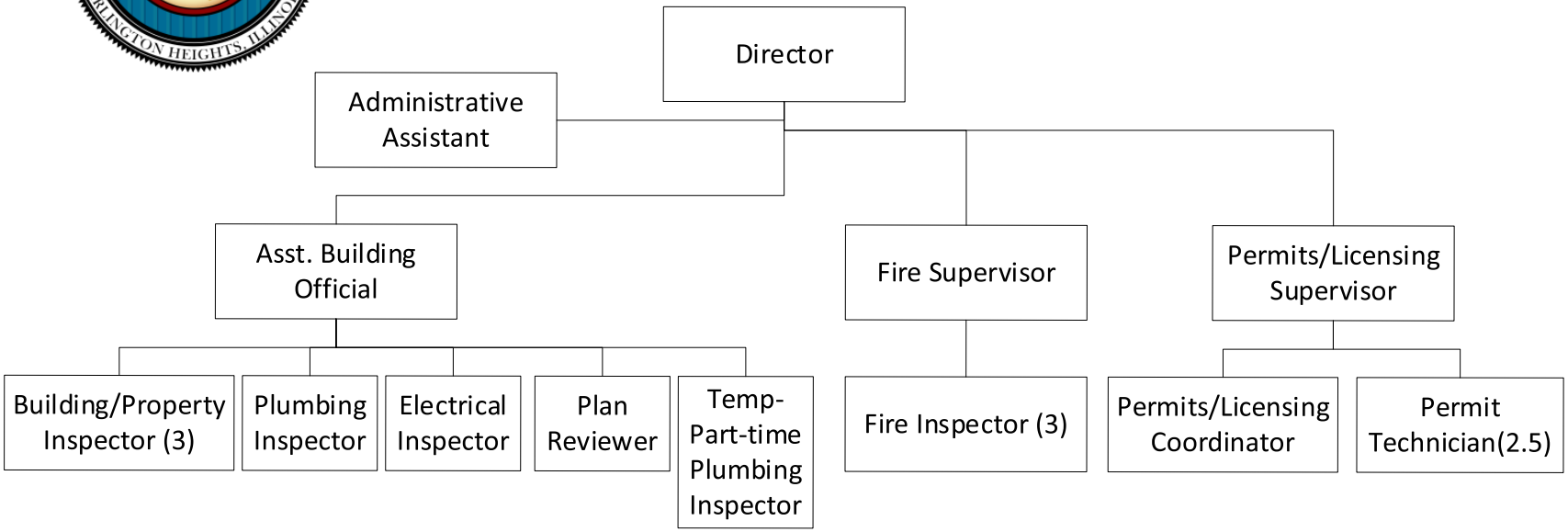
As the Engineering functions are incorporated, we will begin blending our outreach programs. Through updating of the Village's website, the Public Works video, and our Public Works Annual Report, we will continue to transition to one Department with a coordinated set of values and messaging.

Along with our use of social media for public outreach, we are looking to reduce the amount of paper we route internally, by implementing the use of field tablets to our work Units. Inspection and repair/maintenance information will eventually be entered into our Cityworks software while crews are still in the field.

At the end of 2018, staff was analyzing the use of a software product called Target Solutions. This software gives a platform for tracking and assigning all Department safety training. Target Solutions also provides a mechanism for Departmental and Village announcements through the use of the Village's intranet. Staff is also gathering information on new software called Digsmart. This program will receive all of our JULIE locating tickets and send them directly to our field personnel through mobile devices. Once this tool is implemented it should allow the Department to eliminate an enormous amount of paper. Public Works received approximately 14,000 JULIE locate requests per year.

This past year, staff has facilitated pilot programs for watermain lining and pavement rejuvenation. As new tools become available, we will continue exploring ways to enhance and address our ongoing infrastructure challenges.

Building & Life Safety Department
Organizational Chart 2019



Managed 3rd Party Permanent Services			Managed 3rd Party Supplemental Services			
Structural Engineer Plan Reviewer	Elevator Annual Inspections and Plan Reviews	Fire System Testing	Building | Plumbing | Electrical Inspections	Building Plan Reviews	Fire System Plan Reviews	Permit Technician
Data Entry Clerk (in-office)	Records Digitization					