

## ***REPORT OF THE DIRECTOR OF PUBLIC WORKS***

The Public Works Department consists of ten (10) divisions and is responsible for maintaining the town's infrastructure and facilities associated with Public Ways, Parks, Public Grounds, Town Cemeteries, Water Distribution System, Water Treatment, Sewer Collection System, Public Shade Trees, Town Buildings, Town Vehicles and Town Drainage System. Additionally, the department provides services, such as: refuse collection and disposal, recycling and yard waste collection, street sweeping, snow & ice removal and support services to other town departments. The goal of the department is to provide efficient, effective and economical services to the citizens of Wakefield.

There have been difficult fiscal times for the DPW during the past fourteen (14) years, however, we have turned the corner and are addressing many of the backlog items that occurred due difficult financial times and budget reductions. Although we are not back to the position of the 1990's, we are able to move forward and make a number of critical infrastructure improvements.

State Chapter 90 funding which provides the money used for paving roads will provide approximately 38.9 percent of the annual funding needed for roadway improvements in fiscal year 2017. This is down from the 58.7 percent provided in fiscal year 2016. It is important to note that chapter 90 funding is still well short of the amount needed by the town to have a program that keeps up with the annual Town need.

In the coming year the DPW will continue to place a major emphasis on preparing for extreme weather events that have impacted Wakefield the past five (5) years. The New England climate has changed drastically with more intense winter storms, higher ground water, increased flooding, and more catastrophic weather events not usually seen in eastern Massachusetts. The DPW preparation will include staffing, equipment, infrastructure and operational reviews to ensure that the residents and infrastructure of Wakefield remain safe and secure.

In Fiscal Year 2017 we hope to continue with a number of major projects that will help to improve the community. Additionally, the DPW will continue to make every effort to maintain core services, provide for the health and safety of our residents, maintain existing infrastructure and ensure that the department meets its public safety responsibilities.

In calendar year 2015 the Department of Public Works was involved in a number of major programs, some of which include:

- Snow – The winter of 2014/2015 was one of the worst winters experienced by Wakefield. In a 23 day period we received 92 inches of snow. More than most above normal winters. For the full season we received 114.25 inches of snow.
- JJ Rounds Playground – In the Summer of 2015, the DPW along with neighborhood volunteers designed and built a new playground structure at JJ Rounds. The new playground structure was partially funded by the Town and partially funded by Maggiore Company, the designer/builder of the Franklin School conversion project.
- Cemetery Expansion – Construction on the expansion of Forest Glade Cemetery began in the Fall of 2015. The completion of the project will occur in the Spring of 2016. The new section will provide an additional 2,000 graves.
- Town Drainage Study – The DPW has received and reviewed the Town Drainage Study that is being prepared by Wright Pierce Engineering. The final report will be completed and available in the Spring of 2016.
- Roadway Improvements – In 2015 the DPW performed roadway improvements on 3.1 miles of road, to include:
  - Salem Street (Main Street to Harrison Lane)
  - North Avenue (Quannapowitt Avenue to Broadway)
  - Main Street (Lowell Street to Carriage Lane)
  - Lowell Street (Quannapowitt Avenue to Walden Road)
  - Albion Street (Tuttle Street to Byron Street)
  - Miscellaneous sections of road
- Lake Quannapowitt Kiosks – In 2015 the DPW Buildings Division rebuilt the three (3) Kiosks around the lake.
- Bike Racks – The DPW installed six (6) bike racks in various locations. This was accomplished through a grant received by BOH, Mass in Motion program.
- Refuse & Recycling – In October of 2014, the Town implemented a new refuse and recycling program. The goal of the new program was to increase recycling, improve operations, improve the environment, improve safety, provide a cleaner community and reduce the cost of refuse collection and disposal. The program provides automated curbside refuse collection, single stream manual curbside recycling collection, curbside pickup of TV's/CRT's, curbside white goods collection, and

curbside bulky item collection. Annual refuse tonnage has been reduced 25.7% and recycling tonnage has increased 35.5% over fiscal year 2014. The program cost in fiscal year 2016 was lower than the program cost in fiscal year 2008. When comparing fiscal year 2017 with fiscal year 2014 we have reduced the program cost by \$177,557.00. It is estimated that the Town will save a net \$97,557.00 in fiscal year 2017 from fiscal year 2014.

- GIS System – build out continued in 2015. This project will assist all town departments with important resources for improving operations. Items in the project include: infrastructure mapping, data gathering and data maintenance.
- Water Main Replacement – The water main on Princess Street and two (2) major gates in Main Street were replaced in Calendar 2015. The roadway and sidewalks will be upgraded in the Fall of 2016. Also, the water main in Brook Street was replaced in 2015. This roadway will be upgraded in the Fall of 2016.
- Sewer Station Reconstruction Improvement Program – The design and bidding for the rebuilding of Plaza Road, Spaulding Street and Lakeview Avenue sewer pumping stations has been completed. The construction phase will begin in June 2016.

In looking forward to 2016 and beyond the department will be involved in a number of major projects:

- The DPW will continue to make improvements to our aging sewer system with the goal of reducing Inflow/Infiltration and our MWRA Assessment. Additionally, we will continue with our sewer station reconstruction improvement program.
- The DPW will continue coordinating the Town's NPDES (National Pollutant Discharge Elimination System), storm water phase II program. The goal of the program is to improve the quality of storm water that is discharged to water bodies in the system. This federal mandate is unfunded and requires the Town to commit both funding and staffing resources towards this regulation. The new permit will be released in June of 2016. The requirements of the new permit are anticipated to be costly and will consume substantially more staff resources. The DPW will be upgrading and improving a number of system drainage areas throughout the Town.
- Automated Meter and Meter Replacement Program – In 2015 the DPW continued with its town wide meter replacement program

and installation of automated meter reading devices. This program will replace approximately 8,500 meters and provide automated reading that will substantially reduce the amount of time to complete meter readings and insure that readings are obtained on time during emergency weather conditions. This project will continue in calendar year 2016

- The DPW will complete Phase I of the Forest Glade Cemetery expansion project. This phase will provide approximately 2,000 additional graves. Additionally, the DPW is designing an area for a Cremation Garden at Forest Glade Cemetery. Finally, the DPW is preparing a software package that will allow residents and others to locate grave sites online.
- The DPW will be replacing water mains in 2016. Two critical mains that need to be replaced include the mains located in Foundry Street and Greenwood Avenue.
- The DPW works closely with a number of community groups in making Wakefield a great community. These groups include: Wakefield Center Neighborhood Association, Friends of Lake Quannapowitt, Pride in Wakefield, Wakefield Garden Club, Trees for Wakefield, Lions Club and Rotary Club, Wakefield Tennis Association, etc. The DPW is grateful for the support and dedication of these groups.

For details of department accomplishments, I refer you to the divisional reports. Also, I would like to thank the following supervisors for their support during the year and for their assistance in preparing this report:

Carol Antonelli, *Business / Operations Manager*  
Michael P. Collins, P.E., *Town Engineer*  
Christopher Pierce, *Buildings Manager*  
Don Schneider, *Highway Supervisor*  
Dennis Gorman, *Fleet Maintenance Supervisor*  
Dennis P. Fazio, *Forestry / Parks & Cemetery Supervisor*  
Steve Fitzpatrick, *Water / Sewer Supervisor*

During calendar year 2015, the following members of the Department of Public Works retired:

- Robert Wood
- Frank Reardon

The DPW wants to congratulate all of them and wish them a very happy and healthy retirement.

Finally I would like to express my sincere appreciation and gratitude to the employees of the Department of Public Works who worked tirelessly to insure that 2015 was a successful year.

Respectfully submitted,

Richard. F. Stinson  
Director of Public Works

**REMEMBER**

**REDUCE, REUSE, RECYCLE**

## ***ENGINEERING DIVISION***

The Engineering Division participates in and manages many Town infrastructure maintenance and improvement projects. Engineering staff performed a full range of engineering services including evaluations, reviews, survey, design, digital system mapping, data management, cost estimating and construction management. The Division procures and manages the services of engineering consultants and construction contractors on a range of Town projects where the level of effort exceeds Division staff availability, or where a particular expertise is required.

The Division provides engineering technical services, specialized graphics and data support to all Town Departments, Divisions and Boards and serves as a technical advisor/reviewer to the Planning Board, Conservation Commission and Zoning Board of Appeals, as well as citizens, developers and their consultants.

### **Engineering Division Projects**

The Division evaluated conceptual approaches, designed and prepared construction documents, calculated cost estimates, obtained permits, publicly bid and provided construction management for the following projects, which were petitioned by residents, funded by Town Meeting Articles, funded by private developers or awarded as grants:

- **Brook and Princess Streets Water Main Replacement:** The Division designed, bid and oversaw the replacement of the water main and water services on Brook Street and Princess Street. The project included replacing the existing 8 inch unlined cast iron water mains on both streets with new 8 inch ductile iron, cement lined water mains. Water services were replaced from the water mains up to and including the curb stops with new 1 inch copper pipes. Fire hydrants and gate valves were replaced and also added or relocated as part of the project. The work for Princess Street also included replacing one and adding one gate valve on the 20 inch water main in Main Street, including a line stop (at Water Street/Main Street) needed to perform the work on the 20 inch water main. The construction work was performed by Commonwealth Construction and Utilities, Inc. of Watertown, MA. The water main replacement on Brook Street was from Hopkins Street to the street's dead end cul-de-sac near the intersection with Morrison Road West. The water main replacement on Princess Street was from Main Street to Crescent

Street. The work began in May 2015 and was completed by late-November 2015.

- **Town's Forest Glade Cemetery Expansion:** The Division completed design and bidding of the project. Construction on the project began in October 2015. The construction contract was awarded to ERA Equipment, Inc. of Ipswich, MA. Construction. In 2015 the area was graded. In 2016 the potable water system extension and associated cemetery watering system, stormwater drain system, roadway paving and loaming and hydro seeding grassed areas will be completed finishing the cemetery expansion project.
- **Drainage system repairs and improvements:** Drainage work was designed and bid by the Division and constructed at locations including Water Street at Spring Avenue; Jordan Avenue between Mansion Road and Byron Street; Main Street near Richardson Street and North Avenue from Church Street to the Vet's Field Parking Area. The construction of the drainage for North Avenue work was performed by Agganis Construction Company of Saugus, MA and completed in late-Summer 2015.

A flooding issue at Salem Street near Daniel Road was analyzed and a plan developed to resolve the chronic flooding condition. The Highway Division installed 50 feet of drainage pipe which was connected to the town drain system. As of the end of the 2015, no flooding in this area has been observed or calls received by the DPW for re-occurring flooding problems.

- **Highland Avenue Betterment:** At the May 2014 Town Meeting an Article was approved for the Town to fund the Highland Avenue Betterment. The DPW investigated the sewer system and found a defect that was repaired in 2014. The existing gas main and services to the homes on Highland Avenue were replaced by the Wakefield Municipal Gas & Light Department in 2015. A new hydrant was installed at the end of Highland Avenue in the Spring of 2015 and the water main condition was evaluated and found to be in good condition for providing future service in its present condition. With the utilities on Highland Avenue deemed sound for providing future continued service, removal and replacement of the roadway pavement and some of the roadway gravel subbase was performed in the Fall of 2015. The pavement binder course was

installed. The final pavement top course and related granite curbing will be installed in 2016.

- **Sewer Line Investigations and Repairs in Preparation for Street Paving by Town:** The Division worked with Truax Corporation of Lakeville, MA to clean and TV inspect over 6 miles of sewer main pipes in public roadways planned for roadway improvements. Twenty five (25) locations identified were broken or poor condition piping existed. Four (4) of these locations were identified as shallow and located where open cut excavation and replacement of the damaged pipe sections could be performed by DPW Sewer Division personnel. The remaining twenty one (21) broken pipe locations were repaired using short liners in the pipes spanning beyond the damage. The short liner work was performed by Rapid Flow Inc. of Chelsea, MA.
- **Salem Street at Vernon Street Intersection:** The Engineering Division, with guidance from the Traffic Advisory Committee, provided survey and oversight of construction of Phase One improvements to the intersection of Salem Street and Vernon Street. New handicap accessibility ramps and additional vertical granite curbing were installed in 2014 under the supervision of the Division. The final improvements in the roadway including: center line, fog line and lane striping; lane directional guidance arrows as well as stop lines were painted and stop signs installed in 2015.
- **Mosquito Control:** In late 2014 the Division identified areas throughout Wakefield where there are observable blockages contributing to long-term shallow standing water which may contribute to mosquito populations. These areas were then investigated by Eastern Middlesex Mosquito Control Project (EMMCP) for possible drainage channel obstruction clearing to alleviate the ponding. After review of the recommendations by EMMCP a contract to perform channel obstruction clearing at 5 locations was awarded. This work was initiated in late 2014 with hand cleaning of channels and blockages. There was also machine work performed excavating and recreating drainage channels and swales in early 2015.

## **External Professional Engineering Consultant Services Contract Management**

The Engineering Division supported the Consultants contracted to work on the following projects:

- **Drainage System Study:** The Division assisted in selecting Wright-Pierce of Andover, MA for the drainage study in 2012. The study is proceeding with mapping and modeling of the Town drainage system (including the receiving rivers and streams, or outlets to other downstream municipalities.) Town-wide drainage system mapping, model development and simulation of existing conditions for a range of design storms was completed in 2015. The final Report will be available in 2016.
- **Otis Street Drainage:** The DPW coordinated drainage system improvements on Otis Street at Rockland Street. The work was designed and bid by Environmental Partners Group, Inc. of Quincy, MA. The work consisted of installing additional cascade catch basins and piping within the roadway to improve drainage system catchment. The construction was performed by N. Granese & Sons, Inc. of Salem, MA and was completed in late 2015.
- **Rail to Trail Project Support:** The design of the Rail to Trail project for the reach of the inactive rail line from Main Street near Richardson Street to the Lynnfield town line (paralleling Vernon Street) is ongoing. The 25-percent design submission of the project to the Town and MassDOT is expected in mid-2016.
- **Eversource, Woburn to National Grid Wakefield Substation, 345 kV Line:** The Division reviewed preliminary construction documents for the proposed project. The proposed route for the below ground conduit and chamber system was identified as entering Wakefield on Albion Street at the Stoneham town line, then proceeding down Broadway to the inactive railroad tracks near the intersection of Broadway and North Avenue, from there northerly along the railroad tracks to Salem Street, then along Salem Street to Montrose Avenue and then down Montrose Avenue to the entrance of the National Grid substation. In addition to proposed construction plans review. Comments have also been provided to MEPA on the project Environmental Notification Form.

- **Sewer System Infiltration / Inflow (I/I) Investigations:** The Division worked with the Sewer Division and Weston and Sampson Engineers of Peabody, MA in the following sewer system investigations.
  - 1.) Excessive Inflow Investigation in Subarea 2 (southeastern section of Wakefield near the Melrose town line.) Field work consisting of smoke testing and dye water flooding was performed in late-Summer 2015. This work identified a number of inflow connections for removal from the sewer system. It is anticipated that flow isolation in the Subarea 2 and Subarea 6 (5 mini-subsystems in gaging area 6 and 7) will occur during a high groundwater period in the Spring of 2016. This will be closely followed by internal television inspection in reaches of the sewer where flow isolation reveals excessively high I/I flows. Inflow/Infiltration repair work will most likely occur in 2016/2017.

### **Infrastructure Management**

The Engineering Division is continuing to further develop a computer-based infrastructure management system for the Town of Wakefield, which will be used to provide a complete inventory of the Town's infrastructure, and will be utilized in future operation, maintenance and management of the infrastructure.

- **Digital Base Mapping of the Town:** Engineering Division staff is tasked with frequently updating the digital base map with all new information that is provided to or collected by the Division. Information that is continually added to the map includes, but is not limited to, new subdivisions, major new and re-developments, utility improvements or additions, property line changes and roadway layout changes. Any changes to parcel information are tagged by the Assessor Department, but the Engineering Division assists in tracking any discrepancies and updating the map with significant changes.
- **Natural Hazard Mitigation Plan Update:** FEMA/MEMA require all emergency related Town Departments to establish a pre-planned approach at reducing potential impacts from natural hazards (i.e., storms, earthquakes, etc.). The Plan also identifies and tracks implementation of mitigative measures which might eliminate or reduce impacts from natural hazards. The plan is

necessary for the Town to be eligible for Hazard Mitigation related State and Federal grants. An update of the plan was adopted by the Board of Selectmen in 2008 was prepared by the Division and reviewed by the oversight committee in 2014. During the Spring of 2015 multiple public meetings were conducted to present the updated plan and solicit input from the public and the five towns which abut Wakefield. The plan is currently being reviewed with the Massachusetts Emergency Management Agency (MEMA) and following approval, will be submitted to the Federal Emergency Management Agency (FEMA) for their review in 2016.

- **Drainage System Mapping:** The digital mapping of the Town's drainage system continued in 2015, by the Division in conjunction with Wright-Pierce, of Andover, MA, the town consultant for the town-wide drainage study. Field crews inspected and mapped major culverts, streams and rivers. The drainage system mapping in 2015 included additional tributary systems to the major drainage systems and survey to identify rim and invert elevations of major drainage structures. The drainage system investigations and mapping efforts will continue in 2016, with more of the tributary systems to the major drainage systems mapped thus far, and more structure rim and invert elevations identified.
- **National Pollutant Discharge Elimination System (NPDES) Phase II Stormwater Discharge Permit:** Engineering Division personnel continued to coordinate and implement the requirements of the Town NPDES Phase II stormwater discharge permit. A draft permit was issued by the EPA in early 2014, to which the DPW provided extensive comments. The 2015 report of activities and accomplishments to the regulatory agencies was submitted by May 2015. A final new five (5) year permit will be issued by EPA in 2016.
- **Lake Quannapowitt Committee:** In early 2014 the Board of Selectmen voted to authorize the Town Administrator to seek candidates and form a Lake Quannapowitt Committee. The Committee was formed to seek a solution to reduce or eliminate blue-green algae (cyanobacteria) blooms and other water quality impairments that have impacted the lake in the past and meet State mandated water quality standards. The Committee of 16 persons is working to identify and provide a

recommendation(s) for an action plan for the town to consider implementing. The Town Engineer serves as chair of the Committee. During 2014 the Committee conducted 13 meetings and in 2015 conducted 17 meetings which were open to the public. By the close of 2015 available known information on the lake had been compiled and will continue to be reviewed, a whole range of present day approaches and technologies for managing land and water body interactions and quality had been identified, of which many are still under review. It is anticipated that in 2016 the committee will summarize the results of the committee actions to date and provide recommendation(s) for proceeding to the Town Administrator and the Board of Selectmen.

#### **Other Division Tasks**

- building permit review
- project inspection
- DPW standard review and update
- website & workorder system support & development
- mapping updates
- TAC assistance
- Street number reassignment
- Town Department support
- plowing operations assistance
- cemetery grave lot layout Section (P)

#### **Subdivision, Major Private Commercial Enterprises and Town Projects Permit and Design Review, Construction Management and Inspection**

The Engineering Division provided engineering review in support of permitting, design and approval, conducted or managed construction inspections, and provided administrative support to the Planning Board, Zoning Board of Appeals and Conservation Commission for many projects including the following:

- Galvin Middle School Replacement – construction completed
- Winverse subdivision (formerly Nazareth Academy) – construction completed
- Old Nahant Village subdivision - construction
- 181 Salem Street 1 house subdivision – construction
- Cumberland Farms (220 Lowell Street) – construction completed
- Shelter Development, LLC Assisted Living Facility (25 Crescent Street / 338 Main Street) – permitted and related construction started

- WMGLD Wallace Substation (435 Salem Street) – construction completed
- 598-602 North Avenue 24-unit garden style apartment building – design and permitting reviewed

## ***FORESTRY & PARKS DIVISION***

The Forestry Division is responsible for the planting, pruning, spraying and removal of public shade trees on public property throughout the Town. Extensive work is done seasonally around Lake Quannapowitt.

The Park Division is responsible for the proper maintenance of the upper and lower commons, all parks, playgrounds, athletic fields, and many roadside areas, including twenty-two (22) islands. This division maintains over one hundred (100) acres of parks and recreational land under the Public Works jurisdiction. This division is responsible for all rubbish removal at all parks, school fields and downtown areas. Major emphasis is placed on school athletic fields through an aggressive aeration and seeding program. This division is also involved in the setup and cleaning for major festivals that occur in the Town.

The Adopt-A-Site program has twenty-two (22) locations and thirty (30) flowering whiskey barrels within Wakefield. The Division waters new plants at several locations on an as needed basis.

### **Forestry Division**

262 tree maintenance requests completed  
78 shade trees removed  
59 shade trees planted  
1 shade tree donated  
46 stumps ground

### **Park Division**

- Cleaning and refurbishing filter berm on Lake Quannapowitt
- Monitoring water level on Lake Quannapowitt
- Involved in the setup and cleanup for town festivals and other events
- Maintenance on all 13 playgrounds
- Daily maintenance on all (14) Town ball fields
- Set up and cleanup for all major school athletic events
- Field line painting 38,798 l.f./7.3 miles
- Seasonal roadside mowing
- Collected refuse from parks and schools – 99.22 tons
- Seasonal painting of all park barrels
- Winter sidewalk plowing
- 19 School Sand barrels

### **Major Projects and Storms**

- Tree City USA Award – 14<sup>th</sup> year
- Sixth year Town wide tree spraying via spraying article
- Beasley, Landrigan & Tennis Courts project completed for full use
- Galvin Middle School improvement project complete for full use
- Increased effort for planting shade trees via shade tree article
- Oversee the Town wide goose control program. Calendar year 2015 showed a reduction in the Town's goose population
- Provide Christmas tree pickup and recycling of debris

## ***CEMETERY DIVISION***

The Cemetery Division is responsible for the operation and maintenance of the Forest Glade Cemetery and the Old Church Street Cemetery. The seasonal tasks of lawn and tree trimming, as well as planting have grown each year. Newer sections “N. Main,” Section “O,” and Section “P” are presently in use. Cemetery expansion clearing was completed for Phase I. Grading and backfill in progress to start the next phase which includes: drainage, water and road layout.

### **Major Projects**

- Working on the expansion of Forest Glade Cemetery to increase the number of graves available. The expansion when completed will provide an additional 2,000 graves.
- Planning for a cremation garden at Forest Glade Cemetery

### **Cemetery Revenue**

Number of foundations installed	56
Number of interments	110
Income from sale of graves	\$ 28,500.00
Perpetual Care	\$ 17,100.00
Sale of Services Revenue	<u>\$ 57,650.00</u>
TOTAL REVENUE	\$103,250.00

## ***FLEET MAINTENANCE DIVISION***

The Fleet Maintenance Division is responsible for the repair and maintenance of all vehicles from the following divisions:

- 140 DPW pieces of equipment
- 25 Police Dept. Vehicles
- 4 Fire Dept. vehicles
- 3 School Dept. Vehicles
- 2 Council of Aging Vehicles
- 1 Building Inspector's Vehicle
- 1 Animal Control Officer's Vehicle

### **Other**

- The division provides preventative maintenance on a scheduled daily basis for Town vehicles.
- All minor and most major repairs are done in house.
- Fleet Maintenance responsibilities also include writing specifications to cover the needs for each division purchasing vehicles.
- Vehicles purchased
  - Public Works – five (5)
  - Water & Sewer – two (2)
- The Division is also responsible for providing all Town departments including the Gas and Light Department with both unleaded gasoline and diesel fuel.

## ***BUILDING DIVISION***

The Building Division of the Department of Public Works is responsible for the maintenance and operation of 45 buildings which include school and town buildings. The inventory of buildings includes major facilities such as Town Hall, Public Works, Senior Center, all Schools and the Public Safety Building. The Division is also responsible for minor facilities such as storage buildings and field bathroom buildings.

During the year work orders are processed through the DPW's work order system and consist of various types of work which include: electrical repairs and upgrades, HVAC preventative maintenance and repairs, HVAC filter replacement, carpentry, roofs and window repair, and other facility repairs and improvements. Other work that is accomplished by the division includes custodial services at the town hall, public works facilities, public safety, senior center, Landrigan field buildings and park facilities. Most work is accomplished by division forces and a small percentage is out sourced.

Major Projects undertaken in calendar year 2015 include:

### **35 North Ave**

- replaced one (1) 350,000 BTU Modine gas fired heater
- replaced one (1) Clean Burn waste oil heater
- replaced four (4) ton gas electric rooftop
- replaced one (1) gas fired warm air furnace (old paint shop)
- remodeled lunch room, painted, repairs and equipment
- removed closed storage room expand storage area
- light replacement
- replace office floors
- replaced eight (8) doors
- installed washer and dryer for winter gear

### **Wakefield High School**

- replaced three (3) exhaust fans on the roof of the field house
- replaced three (3) exhaust fans for front offices and guidance
- replaced two (2) exhaust fans for bathrooms (8 fans total)
- remodel two (2) bathrooms near the cafeteria
- installed air conditioning in the weight room
- installed new condenser for WCAT

- replaced windows in courtyard
- painting of classrooms
- roof repairs associated with severe winter

- repaired columns in front of high school
- painted flag pole
- installed new water coolers
- replaced interior doors

### **11 Lafayette Street (IT)**

- replaced one (1) three ton condenser and one (1) three ton air handler

- new roof installed

### **Walton School**

- replaced one (1) three ton gas electric room top for classroom annex
- replace toilets in the boys and girls rooms
- repaired playground railing and ramp

- painting hallways/classrooms throughout building
- roof repairs associated with severe winter

### **Cemetery**

- replaced one (1) gas fired warm air furnace (office)
- replaced one (1) gas fired modine heater (in meeting room)
- replaced one (1) gas fired modine heter (tool and equipment garage)

- replaced one (1) gas 40 gallon hot water heater
- Paint building exterior
- New roof installed
- Repair facial boards

### **Town Hall**

- installed one (1) ductless split AC/heat pump (Engineering)
- replace carpet in DPW admin office and 1st floor conference room

- painted 2nd floor bathrooms and 2nd floor hallway
- installed heaters in 2-3 hallway
- roof repairs
- install dryer for winter

### **Woodville School**

- replaced one (1) three horse power condenser for walk in freezer
- roof repairs associated with severe winter
- replace/repair outside bollards damaged during winter season
- replacement of ballasts in lights

### **Greenwood School**

- tile floor abatement and new flooring installed
- installed new ceilings and light fixtures installed
- replaced three (3) toilets
- painted classrooms
- repaired handicapped ramp
- replaced lighting to LED

### **Dolbeare School**

- roof repairs associated with severe winter
- painting of classrooms

### **Doyle School**

- ran gas line to building from street
- roof repairs associated with severe winter

### **Hurd School**

- slate repairs to roof
- painted basement floor
- repair handicap ramp at building entrance
- repair facial boards and drains

### **Yeulle School**

- window replacement
- fence repair
- roof repairs associated with severe winter

### **Caring School (Doyle School)**

- clean up and demo in preparation of school utilization
- removed all broken swings/debris in park

### **108 Broadway (Water and Sewer)**

- replaced old wood railing and ceiling of 2nd floor shop building
- replace shop roof
- replace five (5) exterior doors
- repair stone wall by filter building
- install new LED lights
- paint entire pump room and office

### **Linden Street Station**

- repair stone wall outside

### **5 Common Street**

- roof repairs associated with severe winter
- exterior painting of building
- prep office space for the Chamber of Commerce

### **9 Albion Street**

- installed new water heater
- clean/clear inside building

### **Public Safety Building**

- elevator cab refinished
- replaced two (2) broken doors & four (4) door handles
- roof repairs associated with severe winter
- painted various floors (?)

### **Senior Center**

- repairs to slate roof
- replaced ceiling and painted entrance area
- repaired steps on side of building
- installed carpet in meeting room
- cleaned out debris from 3rd floor
- painting of rooms
- repaired outdoor benches
- replaced parking lot lights

## ***HIGHWAY DIVISION***

The Highway Division is responsible for the maintenance of 105 miles of roadway. Included with the roadway maintenance are the drainage systems, sidewalks, catch basin cleaning and repair, traffic and street signs, street sweeping, leaf and brush pickup, the collection of refuse, recycling, and C.R.T's, propane gas tank disposal, school parking lot maintenance, stripping crosswalks, center lines and parking areas, also the operation of the Nahant St. brush and leaf drop off center.

This Division is also responsible for the sanding and salting and snow removal of all town roadways, all Public Schools, Public Parking Areas, Public Safety Building, Town Hall, and Senior Center.

### **Traffic Markings**

4" Single and Double Centerline	151,812 l.f.
4" Edge line	107,940 l.f.
12" Crosswalk and Stop lines	32,216 l.f.
4" Parking lines	12,314 l.f.
Crosswalk centers	8,574 l.f.
Directional arrows	104
Railroad crossings	26
8' only	51
8' School	12
6" Traffic circles	1

### **Traffic and Street Signs**

Traffic signs installed or replaced	68
Street signs installed or replaced	33
Sign poles replaced	105

### **Roadway Improvements – Paved Streets**

- Main Street (Lowell Street to Carriage Lane)
- Lowell Street (Quannapowitt Parkway to Walden Road)
- North Avenue (Quannapowitt Parkway to Broadway)
- Albion Street (Tuttle Street to Byron Street)
- Salem Street (Main Street to Daniel Road)
- Greenwood Street (Main Street to Dillaway Street)
- Pine Street

### **Drainage System Maintenance**

- 127 Salem St - Installation of 75ft drainage pipe and two manhole structures
- Cleaned areas of Saugus and Mills Rivers
- Cleaned, flushed and camera drainage pipes at these locations: Prospect St. #137, Parker Rd #141, Redfield Rd #36, Converse St. #8, Main St. at Railroad Ave, Roosevelt Rd at Montrose Ave, Benedetto Circle at Roosevelt Rd.

### **Catch Basin Cleaning and Repair**

- Cleaned: 1307 basins this calendar year
- Repaired or replaced 78 catch basins and manhole structures

### **Crack Sealing Streets**

- Lowell Street (Vernon St. to Evangelista Way)
- Water Street (Vernon St. to Wakefield Ave)
- Church Street (#42 to Main St.)
- Broadway (Foundry St. to North Ave)
- Chestnut Street (Tuttle St. to Prospect St.)
- Prospect Street (North Ave to Cedar St.)
- Stoney Hill Lane
- Blue Jay Circle
- Green St.
- Oak Ave
- High St.
- Parker Rd.
- Francis Ave
- Lee St.
- Western Ave.

### **Refuse/Recycling**

Refuse collected for calendar year 2015	6,901 Tons
Recycling collected for calendar year 2015	2,095 Tons

### **Miscellaneous**

- Weed roadside curb areas Spring thru Fall
- Leaf and brush curb side collections – (1) in May / (2) in November
- Rivers and brooks maintained throughout the year
- Business district swept and policed for paper and trash daily
- Hazardous Waste Day held at the High School in September
- Nahant Street drop off center maintained and manned for residential leaf and brush drop off (April through December)
- Repaired over 675 potholes and trenches this calendar year
- Assisting other divisions and departments on various projects
- Installed numerous traffic signs for Traffic Advisory Committee
- Replacement of out dated street signs

- Line painting of various Town owned properties, Schools, Town Hall, Public Safety Building, etc.
- Loam and seed behind new and repaired sidewalks throughout the town
- Repaired over 110 Concrete and Asphalt Sidewalks at various locations – safety improvements
- During the 2015 calendar year the Highway Division completed over 1100 work orders.

### **Projects**

- Nahant Street recycling area improvements include: material processing, removal and re-grading of the site and installation of material storage bins in 2015/2016
- Installation of bicycle racks at different locations around Town
- Collaboration with other departments on the High School & Middle School improvements

### **Winter Programs**

- Schools plowed, salted, and sanded along with 105 miles of roadways
- Snow fence installed on the Common in early December
- Over 50 sand barrels placed at hills and areas that are needed throughout the Town.
- Town sanders and plows are maintained on a regular basis
- Winter potholes and trenches filled and maintained as needed
- Snow Fall Total for Fiscal Year 2015 – 114.25 inches

# ***SEWER DIVISION***

The Sewer Division is responsible for the operation and maintenance of the entire wastewater collection system.

## **Collection System Infrastructure**

The collection system is comprised of an estimated 95 miles of sewer main and approximately 8500 sewer service laterals. The collection system mains, service laterals, manholes, structures, covers, etc., require constant maintenance to ensure proper operation, reduce service interruptions, and to prevent back-ups, surcharging and overflows.

Examples of some routine required maintenance performed on the system include; main flushing and jetting to reduce the build up of grease and settled debris leading to main blockages, root cutting and treatment to clear and prevent the reoccurrence of root intrusion, cleaning and treating service laterals, repair and rehabilitation of manholes, covers, and structures, Dig safe mark-outs for excavations, pipe repairs to broken mains and services, inspections of new sewer mains and service installations, and inspections of repairs by contractors.

## **Pumping / Lift Stations**

There are nine (9) Pumping / Lift Stations utilized in the waste water collection system: Farm Street, West Park Drive, Plaza Road, Findlay Street, Audubon Road, Bay State Road, Lakeview Ave, Main St at Central St, and the Spaulding Street Station. These stations collect wastewater from low-lying areas and discharge to points in the collection system at higher elevations allowing the flow to continue by gravity. These stations require constant maintenance of pumps, compressors, tanks, controls, and alarms to ensure proper operation and prevent system back-ups and overflows.

The Division has an ongoing program for the replacement / rehabilitation of aging wastewater lift / pumping stations. The Farm Street Station (the largest station in the system with a capacity of 8 MGD) rehabilitation was completed in 2004, West Park Drive station was completed in 2005, and both the Main St @ Central St Station and the Audubon Road Station were completed in 2008.

Contracts have been awarded, and construction will start this Spring on the rehabilitation of three additional sewer pump stations. These stations are, The Lakeview Avenue Sewage Pump Station, The Plaza Road Sewage Pump Station, and The Spaulding Street Sewage Pump Station.

### **Inflow and Infiltration (I&I)**

The Division is constantly working in conjunction with the DPW Engineering Division and the town's consulting engineers to identify and remove extraneous flows into the collection system (I&I). A few examples of these sources include; roof leaders tied into the collection system, basement sump pumps discharging to the homes sewer service, and broken sewer mains and system piping allowing groundwater to enter the system.

These flows enter the collection mains and can exhaust the systems capacity resulting in surcharging, overflows, and back-ups. Identifying and removing flows from these sources reduces the annual metered volume of wastewater discharged from the Town of Wakefield into the MWRA system, resulting in reductions to the Town's MWRA assessment.

The Division is continuing the process of installing a control and data collection system on multiple sewer stations that will enable data from these sewage stations to be collected and analyzed on the town's web based site. This information will greatly enhance the town's ability to identify sewage flow volume and discharge patterns that identify inflow and infiltration sources. Once these sources are identified the town can begin their removal resulting in a lower percentage in the calculation of Wakefield's portion of the MWRA assessment.

### **Work Orders**

Along with the continual day to day maintenance and repairs to the water system, the Water & Sewer Divisions were assigned and completed approximately 1700 additional service requests. These requests cover a wide variety of repairs, installations, and situations responding to both the residents and systems needs.

**Emergency Service**

For emergency service please call the Wakefield Water / Sewer Division,  
24 Hour Emergency Telephone 781-246-6318.

## ***WATER DIVISION***

The Town of Wakefield used approximately 696 million gallons of water in CY 2015. This water is supplied by two sources, namely the MWRA and Wakefield's Crystal Lake.

The Water Division is responsible for the operation and maintenance of the Broadway Water Treatment Plant, the Linden Street Pumping Station, the Sidney Street Water Standpipe, the Montclare Booster Station, and the Sidney Street Booster Station. The Division is also commissioned with the maintenance and repair of the entire distribution system and the monitoring of all water quality testing and reporting as required by the Massachusetts Department of Environmental Protection (DEP).

### **Distribution System Piping**

The Town's distribution system consists of approximately 110 miles of water main piping. This system requires constant maintenance to ensure proper operation, reduce system interruptions, provide sufficient water for fire protection, and ensure water quality. Examples of Distribution system maintenance includes; repairs to water main breaks, replacement of older mains, service lateral replacements (water main to curb stop), water main flushing, leak detection, replacement / repair of gate and curb boxes, Dig Safe mark-outs, gate valve box marking and clean out, gate valve exercising, water main shut downs, pipeline disinfecting and testing, fire hydrant replacements, repairs and winterizing, inspections of new installations and repairs by contractors, maintenance of pressure reducing valves, water booster stations, and inspection and maintenance of the Harts Hill standpipe.

### **Broadway Water Treatment Plant**

The Division operates the Broadway Water Treatment Plant on a daily basis. The treatment plant draws its source water from Crystal Lake. The water treatment process includes; Intake screens, Fluoridation, Slow Sand Filtration, Disinfection, and pH adjustment.

The plant is operated by departmental staff licensed as State Certified Treatment Plant Operators.

### **Water Quality**

The Division performs weekly bacteriological sampling at 11 sites strategically located throughout the system to provide a representative overview of the entire system. This sampling is conducted to monitor against the presence of pathogenic bacteriological contamination. This sampling also provides proof of proper disinfection, and confirms a distribution system disinfectant residual. The Division also performs multiple water quality testing as scheduled and mandated by the DEP to ensure water quality and to monitor against contamination.

### **Cross Connection Control**

The Division continually maintains an active Cross Connection Control Program. This program consists of regular testing of existing backflow devices to insure proper protection from backflow and back-siphonage of contaminants into the drinking water system. The program also conducts surveys of facilities throughout the Town in order to identify and protect against potential new sources of contamination.

### **Water Meters**

The Division reads approximately 9000 water meters per billing quarter (36,000 per year); along with multiple additional meter readings for new accounts, change of ownerships, repairs, replacements, etc.

Throughout the year multiple new meters are installed to service new accounts, while older meters are constantly being replaced to upgrade the system. Examples of additional maintenance on water meters includes, replacing frozen or broken meters, repairing leaks, repairs or replacement to outside registers and transmitters, rewiring meters to outside registers and transmitters.

### **Automatic Meter Reading (AMR)**

The Division is continuing the process of replacing all of the system's water meters and installing Automatic Radio Reading equipment. Appointments are scheduled for each home, servicemen replace the meter in the basement, and a new radio transmitting device is installed outside of the home as a replacement to the existing manual reading receptacle. These meter replacements have and will continue to streamline the meter reading and billing process, substantially improving efficiency and accuracy.

### **Fire Hydrants**

The Division maintains approximately 900 public fire hydrants throughout the distribution system. Hydrants require constant ongoing maintenance in order to ensure proper operation during emergency fire fighting situations. The Water Division winterizes hydrants each year to prevent hydrant freezing. At this time caps are removed, hydrants holding water in the barrel are pumped down and food grade antifreeze is added to prevent freezing. The general condition of the hydrant is evaluated, and work orders produced for any needed repairs. Caps are removed, cleaned, and lubricated to ensure operation when needed. Hydrants known to hold water are checked periodically throughout the winter. Hydrants are also checked for proper operation during water main flushing. Each year the Division cleans and paints a portion of hydrants as an ongoing maintenance process. Each year a portion of the systems older hydrants are excavated out and replaced with new hydrants. Hydrants are also used for a variety of distribution maintenance functions such as water main flushing, water quality sampling, pressure testing and monitoring.

### **Work Orders**

Along with the continual day to day maintenance and repairs to the water system, the Water & Sewer Divisions were assigned and completed approximately 1700 additional service requests. These requests cover a wide variety of repairs, installations, and situations responding to both the residents and systems needs.

### **Snow and Ice**

The Division participates in all town snow and ice removal operations. All Division personnel and equipment are involved in clearing snow and ice during storm events.

### **Emergency Service**

For emergency service please call the Wakefield Water / Sewer Division, 24 Hour Emergency Telephone 781-246-6318.

**2015****WATER PUMPING RECORDS MG**

MONTH	CRYSTAL LAKE	M.W.R.A	TOTAL QUANTITY PUMPED	
January	12.481	35.670	48.151	
February	8.834	39.690	48.524	
March	14.641	43.960	58.601	
April	16.328	33.420	49.748	
May	14.453	53.030	67.483	
June	10.775	54.920	65.695	
July	14.897	56.600	71.497	
August	15.403	55.620	71.023	
September	14.595	51.950	66.545	
October	14.039	39.920	53.959	
November	10.797	35.250	46.047	
December	15.593	33.470	49.063	
Totals	162.836	533.500	696.336	