

PUBLIC WORKS

PUBLIC WORKS COMMISSION

Steven Ng, Chair
James Terry, Vice Chair
Andrew Boardman
Peter W. Wallis
K.C. Winslow



The Public Works Commission acts as the Town's Road, Water and Sewer Commissioners, and advises the Public Works Director in the Department's efforts to maintain and protect the Town's public works, utility and solid waste/recycling services. The Commission also advises Town Meeting, the Town Manager, Planning Board and other Town officials and boards on matters that concern Town water and sewer service, drainage and roads. They are responsible for setting policy and rate schedules for water, sewer and solid waste services. The Commission acts as an appeals board for right of way permits and water and sewer regulations and account matters and for approving minimum standards for the final layout of Town roads.

The Public Works Commission also provides a forum for review of water, sewer and solid waste rates, the annual roads and sidewalk program, public street layout, and water and sewer extensions.

Highlights of the Commission's activities for 2019 included (in chronological order):

- Reviewed and voted to approve 80 Deaconess Road – Rivercrest Addition Groundwater Conservancy District Review.
- Conducted a Public Hearing and approved revised

curbside collection and disposal rates. Also voted to reduce the brush fee (\$5 per load) to zero/no cost effective April 6, 2019 and to implement a no charge Compost Site Residential Sticker Program effective April 6, 2019.

- Hosted a Cyber Security Briefing with particular emphasis on the Supervisory Control and Data Acquisition (SCADA) system used in Water/Sewer.
- Conducted a Roads Program Briefing followed by a Roads Program Public Hearing.
- Discussed various Town Articles and voted on recommendations to be presented at the Annual Town Meeting. This included a vote to affirm recommendation for the Community Preservation Commission article that includes \$300,000 for Emerson Field Renovations, requesting the Moderator to indicate PWC support at Town Meeting
- Reviewed and provided a letter of support for Concord's Municipal Vulnerability Program (MVP) Community action grant application, which was sent to the State's Executive Office of Energy and Environmental Affairs. This grant was later approved, providing for the planting of one hundred trees as well as funding for a pest infestation evaluation and response plan and also a tree nursery feasibility study permitting and conceptual planning at the Wastewater Treatment Plant using wastewater effluent to irrigate these trees
- Conducted executive sessions to discuss litigation strategy relative to the Nagog Pond Water Rights and Treatment Facility Upgrade. This culminated in securing the rights to Nagog Pond in Massachusetts Land Court.
- Conducted the Water and Sewer Rate public hearing and approved the FY20 rate schedules.
- Reviewed and voted to approve an appeal made by Volunteers of America, the property owner of 68 Commonwealth Avenue, of the administrative denial for its requested increase in wastewater flow.
- Moderated a Complete Streets Prioritization Plan Public Meeting held on September 11, which was well attended.
- Hosted a 'Water Master Plan – Emerging Contaminants' discussion presented by a representative from Weston & Sampson.
- Reviewed potential zoning/redevelopment plans for

2229 Main Street (former Nuclear Metals site) shared by Commissioner Boardman.

- Presided over a public meeting to discuss the Master Plan for the Emerson Field Improvement Project. The Commission voted to support this plan to be reviewed by the Community Preservation Committee to provide a funding request in the amount of \$500,000 in their recommendation at the 2020 Annual Town Meeting.
- Hosted a bromate water quality monitoring exceedance update and provided guidance as to a public notice requirement.
- Reviewed and denied an appeal of a sewer improvement fee for the property located at 138 Hubbard Street.
- Participated in budget review and capital improvement program briefing.
- Participated in numerous discussions relative to the Cambridge Turnpike Improvement Project, including a project update on December 11, 2019.
- Reviewed and voted affirmatively to provide a letter of support to the Concord Housing Authority for a sewer service appeal for the property located at 365 Commonwealth Avenue, as it was determined in the best interest of the town to authorize a requested connection.
- Participated in a winter maintenance presentation including a weather forecast from Hometown Forecast Services.
- Participated in a discussion relating to the Wastewater Management Plan with consideration of potential implications relating to proposed residential zoning initiatives to be advanced by the Planning Board at the next annual Town Meeting.

The Public Works Commission and Concord Public Works continue to focus on their joint goal of promoting greater community involvement in Concord Public Works projects and programs. This deliberate strategy has resulted in greater responsiveness to all stakeholders and positive project outcomes. Examples of these efforts include neighborhood on-site meetings for large infrastructure improvement projects, and outreach meetings for the Roads Program. In addition, the Director continues to review the activities of Concord Public Works through the monthly Director's report and the Public Works Commission sets aside time for public comment during each meeting.

CEMETERY COMMITTEE

Paul Cooke, Chair
Andrea Solomon, Vice-Chair
Jerry Soucy
Leo Carroll
Brian Davidson

The Concord Cemetery Committee had a great deal of personnel change within the committee in 2019. Whitney Kocher-Nguyen, Kimberley Connors, and Carol Harney retired from the Committee, departing with much appreciation for their dedicated service. Jerry Soucy, Leo Carroll, and Brian Davidson joined the Committee as our newest members. Andrea Solomon was elected vice-chair and Paul Cooke was re-elected chair. Alice Kaufman, who generously served as Select Board liaison, has retired and now serving in her place is Susan Bates. Over the summer Highway and Grounds Superintendent Dan Rowley moved on to a new position in another town; his hard work during his time in Concord was much appreciated. During his tenure a great deal was accomplished in Sleepy Hollow Cemetery including the restoration of the Melvin Memorial and the completion of a large infrastructure renewal project. The new Superintendent, Aaron Miklosko, joined us over the summer. He got off to a good start, coming up with a method of preventing erosion in one section of Sleepy Hollow Cemetery.

Limiting of Lots Sold in Sleepy Hollow Cemetery

The Committee voted, in order to preserve space within the Town's municipal cemeteries, to limit the number of burial lots sold to any individual buyer. Burial plots are available to Concord residents (and eligible former residents), but no more than six single lots per Concord Town resident will be permitted. However, a provision was made with the new rule to allow for the purchase of more spaces than this number through petitioning the Committee.

Melvin Memorial Restoration and Preservation Project and Re-dedication

Cemetery Supervisor Tish Hopkins played a major role in organizing a re-dedication ceremony for the newly restored Memorial, held on June 16, 2019. This was the 110th anniversary of the original dedication of the Melvin Memorial in 1909. It was also the anniversary

of the Charge at Petersburg, the battle during which Asa Melvin was killed.



Melvin Memorial re-dedication June 16, 2019

Tish Hopkins was assisted in her work by Highway and Grounds Superintendent Dan Rowley and Committee member Carol Harney. The Reverend Bob Brown Senior Minister at the Trinitarian Congregational Church offered the Invocation and Benediction. David Wood, Curator at the Concord Museum gave the keynote address. Neil Rasmussen, President of Save our Heritage read the poem “Move Softly,” which had been recited at the original dedication of the Memorial in 1909. Connell Benn, a vocalist, sang “The Battle Hymn of the Republic” and “America the Beautiful.” Kevin Plodzick, President of The Friends of Sleepy Hollow Cemetery, led in the dedication of a new sign to accompany the Memorial. Armed Services representatives laid wreaths on the memorial tablets of the three fallen Melvin brothers. Dan Rowley, Highway and Grounds Superintendent, welcomed over one hundred gathered guests and Paul Cooke, Chair of the Cemetery Committee, served as Master of Ceremonies. An Army Color Guard participated in the ceremony, two Concord students played “Taps,” and the Concord Independent Battery sounded two salutes.

Development of the Cemetery’s Website with “Concord Cemeteries in the News”

The Committee continued to promote the development of the Concord Cemeteries website. The entire re-dedication ceremony for the Melvin Memorial, held on June 16, 2019, is now available in video on the website. Additional news stories about

Concord’s public cemeteries may also be found online.

For example, posted on the website is a link to a Concord Journal article, “New options for burials at Concord’s Sleepy Hollow Cemetery,” by reporter Betsy Levinson. The March 19, 2019 article dealt with the Committee’s initiative to develop both mausoleum and columbarium burial options in Sleepy Hollow Cemetery.

Revisiting of Concord Cemetery Committee Priorities

In the fall the Committee and Superintendent determined several areas on which to concentrate the committees energies in the coming year. These included making significant progress on three projects already underway:

- 1) completing the work necessary to put mausoleum plots up for sale as part of increasing the available range of options in the Sleepy Hollow Cemetery inventory of gravesites;
- 2) making significant progress in securing a contractor to restore and repair damaged gravestones in all of Concord’s cemeteries;
- 3) completing the digitalizing of all the cemetery’s records of deeds.

Donation of Retired Slates from the Melvin Memorial

The Cemetery Committee unanimously voted to donate the three retired memorial slates being replaced in the renovation and restoration of the Melvin Memorial in Sleepy Hollow Cemetery to Concord’s Trinitarian Congregational Church. Mr. Rick Freese of the Friends of Sleepy Hollow Cemetery suggested the Committee get in touch with the church as the Melvin family were originally members there. Their leadership has placed them in an installation on their front lawn with memorial granite benches and a fountain.



Memorial slates re-purposed at the Trinitarian Congregational Church front lawn with memorial granite benches

Remediation of Hoar Family Lots on Glen Avenue in Sleepy Hollow Cemetery

In August, 2018, Alex Hoar submitted a written request regarding remediation of a problem caused by a large pine tree growing on the border of one of his family plots in the cemetery. The Cemetery Committee agreed it was responsible to take down the tree and agreed to pay for a large crane to remove the granite blocks directly involved to facilitate taking down the tree. Alex Hoar agreed to pay for the cost of putting the granite blocks back in place and to landscape the plot. During the summer of 2019 the removal plan agreed upon was initiated and completed.

Friends of Sleepy Hollow

Carol Harney retired as the Committee’s liaison to the Friends of Sleepy Hollow and Leo Carroll, who joined the Committee in 2019, volunteered to become the new liaison to the Friends and to attend their meetings. The Friends worked in the spring of 2019 as partners with the Committee in designing a handsome informational sign to stand alongside of the newly restored Melvin Memorial. The friends group consisting of Nancy Reilly, Priscilla Sturges, and Rick Freese, joined by Andrea Solomon from the Cemetery Committee, developed the text for the sign. Priscilla Sturges created its design. Friends’ President Kevin Plodzick and members of the Friends’ Directors Board participated in the memorial restoration ceremony, officially presenting the gift of the sign to the Town and dedicating it. In September, a group of the Friends Board members undertook cleaning gravestones in the

John S. Keyes family lot in Sleepy Hollow Cemetery under the supervision of conservators Jim and Minxie Fannin. This is a part of this civic-minded organization’s ongoing mission to help enhance and beautify the cemetery.

Statistics

In 2019 there were 99 interments and one disinterment at Sleepy Hollow Cemetery. Thirty-nine of these interments were Concord residents at the time of their death. Thirty of the interments were full burials and 69 were cremations. Lot sales for the year totaled 106 with 23 of those being sold to eligible former residents.

ADMINISTRATION

The Concord Public Works Team continues to focus on its principal mission to enhance the quality of life for those living, working or visiting the Town of Concord, and through sound management, communication, leadership, innovation, teamwork and vision provide dependable, high quality, responsive public works and utility services, consistent with community values and at reasonable costs to Concord’s citizens, businesses, institutions and visitors for today and into the future.

Protecting the Town’s Infrastructure/Providing Essential Services

Concord Public Works (CPW) is comprised of four Divisions. These include two staff Divisions: Administration which including Recycling and Solid Waste Management and Engineering and two line Divisions, Highway & Grounds which includes Cemetery Operations and the Water & Sewer Division. The Department is responsible for planning and managing a large segment of the Town’s infrastructure. This infrastructure includes roads and roadsides, curbs and sidewalks, catch basins, storm drains, culverts and outfalls, traffic islands, guardrails, street signs and traffic signals. Concord’s public shade trees and park trees, Town parks, common areas, playgrounds, ball fields, and recreation equipment are also managed by CPW. Other Town assets cared for by CPW include Town cemeteries, the Town’s compost site and closed landfill, earth products and snow storage facility, the

public water supply including its storage, pumping, and distribution systems, the Town's sewer collection, pumping, and treatment systems, and CPW buildings and equipment.

Delivering key services including water service, sewer service, recycling, curbside trash collection and disposal service, yard waste disposal, and winter snow and ice management along with other storm and safety services is also a core responsibility of Concord Public Works.

Keys to Organizational Excellence

CPW's strategy for success in meeting its goals relies on the principles of ingenuity, fact based problem solving, accountability, safety and environmental stewardship, context sensitivity, respect and integrity, diversity, customer satisfaction, empowerment, communication and continuous improvement. These key principles along with the experience and dedication of the CPW team leads to organizational excellence.

CPW Team, Programs & Organization

Concord Public Works is made up of 53 dedicated individuals with a wealth of experience. It is a team that is passionate about Concord, which takes great pride in their work, and fully understands their stewardship responsibilities.

The Four CPW divisions manage eight programs; Administration, Engineering, Highway, Grounds (Parks and Trees), Cemetery, Recycling and Waste Management, Water, and Sewer. Two of the programs, Water and Sewer, are totally supported by user fees while two other programs, Recycling and Waste Management and Cemetery, are primarily funded from fees.

CPW Leadership and Innovation

The Centers for Disease Control and Prevention and the American Dental Association presented Concord Public Works with its Water Fluoridation Quality Award. This was in recognition of maintaining effective dosing and documentation of ongoing drinking water fluoridation efforts.

Learning and Growth

With the ever increasing complexity of public works operations, the need for professional development of

CPW employees continues to play an important role in the organization. Concord Public Works is committed to providing its employees with opportunities to increase skills while endeavoring to make certain our team is comprised of motivated, informed and inspired team members who can utilize this knowledge for the benefit of Concord.

Infrastructure Improvements and Initiatives

Once again, the team at Concord Public Works is pleased to provide the Town of Concord with quality and responsive service. The Divisional Reports that follow summarize a series of initiatives and accomplishments in 2019.

ENGINEERING DIVISION

Stephen Dookran, P.E. Town Engineer

The Concord Public Works (CPW) Engineering Division is responsible for the planning, design, engineering and construction administration of the Town's road, sidewalk, bridge, and stormwater/drainage infrastructure assets. The Engineering Division provides a wide range of professional engineering, construction management, and permitting administration services for Concord Public Works (Administration, Water, Sewer and Highway/Grounds/Cemetery) and other Town departments and boards. This work is performed by a team led by the Town Engineer and includes the Assistant Town Engineer, two Public Works Engineers, the Associate Engineer, the GIS Analyst and the Administrative Assistant. During 2019, several changes occurred in Engineering's staffing and at the end of the year, efforts to fill two remaining vacant positions are still ongoing.

Roads Program

There are approximately 107 miles of public roads, classified as arterial roads (34%), collector roads (7%) and local streets (59%). Engineering has partnered with a consultant, StreetScan to determine the Pavement Condition Index (PCI) of each public street in town, to develop a pavement management strategy for a five-year outlook plan. This pavement management strategy also helps to identify streets that could benefit from routine maintenance activities including crack sealing and full-depth patching in targeted areas.

2.40 Miles of Roads Improved

In 2019, Engineering completed the internal design and bidding for the FY20 Roads Program. In total, the project bid programmed improvements of 2.40 miles of roadways to include the milling and paving of selected portions of Monument Street, Sudbury Road, Old Marlboro Road, and Walden Street.

Sidewalk/ADA Compliance Program

The sidewalk network contains approximately 58 miles of public sidewalks and approximately 809 curb ramps. The Town uses the StreetScan data collection system inventory performed in 2018 to continue to prioritize sidewalk and curb ramp repair projects based on their proximity to high pedestrian generators, overall condition and compliance with current ADA accessibility standards.

15 Curb Ramps Improved

The reconstruction of 15 curb ramps to meet ADA requirements was incorporated in the FY20 Roads Program. 13 curb ramps were reconstructed on a portion of Old Marlboro Road while 2 curb ramps were constructed on Walden Street at Heywood Street.

Stormwater/Drainage Program

Concord's stormwater infrastructure consists of approximately 216 culverts, 431 outfalls, 1,214 drainage manholes, 2,770 catch basins, 162 leaching structures, 61.1 miles of drain lines, 15 detention basins, 2 infiltration basins, 7 bio-retention areas, 8 treatment chambers, 3 dams, and 3 tree box filters. CPW plans, designs, coordinates and performs construction of drainage improvements in conjunction with the Roads and Sidewalks Programs to minimize disruptions and to eliminate expensive emergency repairs.

National Pollution Discharge Elimination System (NPDES) MS4 Permit

The National Pollution Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Phase II General Permit is a joint state and federal permitting program to legally require municipalities to identify and eliminate pollutants from entering the Town's drainage infrastructure and surface waters. The Town, in accordance with the July 2018 permit requirements, filed the Year One Annual Report in September 2019 on the year's activities related primarily to public outreach, public

participation and good housekeeping in municipal operations. CPW is utilizing the services of a consultant for assistance with the substantially greater Year 2 requirements listed as follows:

1. Municipal Facilities Inventory
2. Stormwater Pollution Prevention Plan (SWPPP) preparation for each facility identified
3. Outfall Screening
4. Illicit Discharge Detection and Elimination (IDDE) Dry Weather Investigations
5. Public outreach/educational messaging continuation

Stormwater/Drainage Improvements

Drainage infrastructure improvements were conducted in concert with the Town's FY20 Roads Program. During 2019, 5 existing catch basins were replaced and 2 leaching basins were installed to rehabilitate and improve the drainage capacity of existing roadways.

Bridges

The five Town-owned bridges: Heath's Bridge (Sudbury Road), Pine Street Bridge (Pine Street), Flint's Bridge (Monument Street), Hurd's/ Nashawtuc Bridge (Nashawtuc Road) and Pail Factory Bridge (Commonwealth Avenue) are inspected every two years by MassDOT and any needed repairs to be made by the Town are identified. It should be noted that at the request of the Engineering Division, the State made repairs to the Damon Mill Bridge on Rte. 62 in West Concord in 2019.

Cambridge Turnpike Improvement Project (CTIP)

The Cambridge Turnpike Improvement Project (CTIP) is being implemented primarily to address existing roadway flooding and also to construct improvements to the roadway, utilities and other public infrastructure. CTIP, once completed, will add 2 new bridge crossings, continuous pedestrian access from Lexington Road to Crosby's corner/Rt 2A, 32 catch basins, 20 drainage manholes, 3,690 feet of drainage pipe, 1,070 feet of new water main on Sandy Pond Road, the installation of 2 new bio-retention areas, the installation of a new gas main, and several thousand feet of underground electrical and communication utilities.

CTIP has made substantial progress in the past year. In two major sections of roadway, from Lexington Road to the Mill Brook Farm and from Hawthorne Lane

to #571 Cambridge Turnpike, including Sandy Pond Road, substantial completion was achieved in the roadway improvements and utilities. However, while the major structural elements of the bridge are in place, completion of the bridge is planned for the summer of 2020. The replacement of the culverts at Crosby Pond is planned for completion in the fall of 2020.

Bio-retention Maintenance Program

Einstein Services Inc. was contracted to maintain 4 bio-retention areas in Town. As part of this program, Einstein performed 3 maintenance visits for each existing bio-retention area to ensure proper drainage, pollutant filtration and general aesthetics. The bio-retention areas are located on Baker Ave, Pond St, Wilson Rd and Deacon Haynes Rd. The project reached substantial completion in November of 2019.

DPLM Site Plan Reviews

The Engineering Division provides technical review for new development and redevelopment projects as part of the Department of Planning and Land Management permitting processes (i.e. Notice of Intent, Zoning Board of Appeals and Planning Board, etc.), consistent with the requirements within the Zoning Bylaws, Subdivision Rules and Regulations and the Stormwater Regulations. Engineering reviewed approximately 15 projects in the past year.

GIS

CPW continues to make significant progress in utilizing mobile devices for both data viewing and collection while out in the field. Applications layers developed and/or updated include water/sewer/drainage viewer, plow routes, catch basin cleaning, sewer inspections, hydrant flushing, ADA, chlorine sampling, an interactive public capital projects viewer, street signs, resident concerns and a Sleepy Hollow Cemetery storyboard.

HIGHWAY AND GROUNDS

Aaron Miklosko, Highway & Grounds Superintendent

The Concord Public Works-Highway and Grounds Division maintains approximately 107 miles of public streets, along with the associated drainage systems consisting of approximately 61 miles of drain lines, 2,770 catch basins, 216 culverts, 1,214 drainage manholes, 431 outfalls, 162 leaching structures, 15 detention basins, 7 bio-retention areas, and 3 dams. In addition, CPW's Highway and Grounds Division maintains 58 miles of sidewalks, 2,793 signs, over 90 pieces of CPW vehicles and equipment, and manages the Town's Compost site. It is responsible for 82 acres of public parks and grounds, including 50 acres of active recreation areas, which include ten (10) athletic fields. CPW's Grounds Division maintains all public shade trees and park trees under the direction of the Town's Tree Warden.

Winter Maintenance Program

An effective snow and ice control program is essential to allow Concord to function when we encounter typical winter weather conditions. Concord's program has evolved over several decades with refinements taking place each year as technology, equipment, and resources advance. The policy developed to ensure that vehicles, pedestrians, and cyclists can travel safely in Concord following a winter event with acknowledgment that vehicles/cycles are properly equipped for winter driving and equipment must be operated in a way consistent with good winter driving practices.

Concord's winter maintenance program has many components, including an anti-ice pretreatment approach in which CPW crews apply a brine solution to designated roadways around Concord. This environmentally sustainable technique prevents snow and ice buildup on the roadway when snow initially begins to fall and decreases the ability for the snow to "bond" to the roadway. In addition, other program activities include de-icing treatment, roadway plowing, sidewalk clearing and snow removal/stockpiling off-site.

Another, less visible component of an effective winter maintenance program includes real-time weather monitoring, performed by third party service

providers, coupled with site specific “boots on the ground” observations supplemented with field instrumentation used to inform an experienced management team so they can deploy staff and resources in the most strategic and economically prudent manner possible.

The 2018-2019 winter season introduced its share of challenges despite a below average total snow accumulation of 42.5” for the season. The season’s first snow response occurred on November 15, 2018 and brought 8.5” of snow to the Town of Concord, resulting in a treatment and plowing operation, which lasted 15 hours. Throughout the season, CPW responded to a total of 46 winter weather events, with the March 3-4, 2019 event being the largest for the season with a total accumulation of 10.5”.

Roads, Sidewalk, and Drainage Maintenance

CPW’s Highway Division completed routine maintenance and improvement to Concord’s roads and sidewalks throughout the year.



CPW’s Winter Maintenance Team

Patching efforts were substantial and consistent throughout the winter as weather permitted due to the freeze/thaw cycles having quite an impact on our roads. Significant resources were invested to prepare for the annual Patriots’ Day Parade. These efforts include sweeping the streets and sidewalks, raking lawn areas, straightening street signs, and leveling stone dust sidewalks throughout the route. The town-wide street sweeping program began after the Patriots’ Day Parade and was completed by the middle of June. The sweeping of selected sidewalks was completed at the beginning of the sweeping program. Weekly sweeping of the downtown areas was performed as the weather permitted. An additional sweeping of all arterial roads was completed in

late fall to remove leaf debris from catch basin grates to prevent the debris from entering the storm water drainage system and to prevent flooding.

Street sign replacement efforts continued with crews installing 33 ‘25 MPH Thickly Settled’ signs – one at each entrance to Town.

As the growing season progressed, roadside mowing commenced using the Massachusetts Correctional Institutes’s (MCI) crew as well as a sidewalk tractor outfitted with a flail mower attachment. Areas where vegetation impacted sightlines were prioritized for trimming and crews will continue to monitor these areas and address any overgrowth. Full depth patching and driveway apron reconstruction continued to be a major priority for CPW’s Highway Division.

Drainage system maintenance and improvement efforts continued to be another priority of CPW’s Highway Division. The elimination of sand from regular roadway deicing efforts, which began in the winter of 2013-2014, has greatly reduced the amount of debris collected during the catch basin cleaning process. This also reduces the amount of debris that must be disposed of in accordance with DEP standards and aids in keeping waterways clean. Catch basin repairs and manhole cover adjustments required ongoing attention from CPW Highway Division crews. Many of these needed repairs were identified as part of the inspection that was completed during the catch basin cleaning process.

CPW Highway Division crews completed repairs to catch basins on an ongoing basis at many locations including Sudbury Road at Main Street, Bow Street, Stone Root Lane, Border Road, Strawberry Hill Road and Minuteman Drive. The Water and Sewer Division continued to support the Town’s drainage maintenance program with their vac/jetter truck. Several areas with sediment laden pipes were jetted to improve draining. One section of the drainage system that required special attention was the intersection of Old Road to Nine Acre Corner and Old Marlboro Road.

Ongoing monitoring and maintenance of other drainage structures such as bio-retention areas, detention areas, drain swales, and culvert headwalls and outfalls continued to be a priority this year. The drain swale on Annursnac Hill Road received repeated

cleaning and maintenance to ensure its proper function. Bio-retention areas were weeded, mowed, and new mulch installed to maintain their functionality and aesthetic properties. Detention areas were mowed and cleaned during the season. Maintenance began in late June following a plan that was developed with assistance from CPW's Engineering Division in accordance with National Pollution Discharge Elimination System (NPDES) requirements.

Compost Site Management

The Compost Site at 755 Walden Street continues to be a heavily utilized asset to CPW's operation and a valuable resource for the community. Due to the positive feedback received from the community, CPW continues to offer Wednesday afternoon and Saturday hours for residents to access the Compost Site to dispose of brush, leaves, grass clippings, invasive species, and paint. CPW continued to utilize the Compost Site for equipment storage and as a staging area for wood chips and logs associated with CPW's Grounds Division tree maintenance efforts. It is also critical to CPW's winter maintenance operations by providing significant seasonal storage for snow as snow removed in the downtown area is hauled to this location. In October, the Town contracted the disposal of the wood chips, processed brush, and logs.

Parks and Playgrounds

CPW's Grounds Division continued to provide exceptional care to the Town's grounds and trees throughout the year. The work completed by CPW's Grounds Division is done in an environmentally sensitive and sustainable manner to care for athletic fields, playgrounds, traffic islands, and other Town owned properties.

Improving upon the efficiency of operations, reducing environmental impact, and sustainability remained a priority for CPW's Grounds Division. Maintenance activities this year included spring and fall cleanups, regular mowing of all turf areas, grooming infields, aerating and over-seeding turf areas in the fall, and supporting Concord's many youth sports programs. CPW's Grounds Division also continued to support several other programs including the hanging basket program in West Concord and the community gardens.

During the Annual Town Meeting, \$300,000 in Community Preservation Act (CPA) funding was secured for improvements to Emerson Field. This is the second year CPW secured funds for Emerson Field through the CPA funding process with an additional \$200,000 approved during the 2018 Annual Town Meeting. In February, Requests for Qualifications were opened for engineering design, landscape architecture, recreational facility planning and construction administration services for the Emerson Field improvement project. Four firms were interviewed, with JJA Sports, LLC of Westford, MA, being selected for the project. CPW staff, working with JJA Sports, have started the Master Planning process for the project and expect to begin construction improvements at the Emerson complex in 2020.

Trees

CPW's Grounds Division and the Town's Tree Warden continued the implementation of the management plan developed by a third party consultant, Davey Resource Group, as part of the Town's tree inventory project. The tree inventory project included inventorying 23,871 trees and identifying 2,135 planting locations within the Town's right-of-way, the three cemeteries, parks, and selected Town properties. To assist CPW in its effort to maintain the Town's urban forest to the highest professional standard possible, CPW contracted with Davey Resource Group to assist with the planting of 27 setback trees and 24 right-of-way trees. The Grounds Division planted an additional 32 trees throughout the Town of Concord. Invitation for bids were solicited for tree removal and trimming services and awarded to Mayer Tree Services. Professional and timely response was provided for hazardous tree issues, tree related inquiries from residents, and tree pruning and removal work.

Arbor Day was once again celebrated with the planting of a tree and a commemorative ceremony. A long-standing tradition, the Garden Club of Concord once again gifted a tree to be planted in celebration of Arbor Day: a Black Tupelo tree was planted at Warner's Pond Dam.

Cemetery

CPW's Cemetery Operating Unit provided burials year round and properly maintained the Town's three cemeteries. A great deal of pride is taken in the

professional and compassionate service that is provided to residents. In 2019 there were 99 interments and 1 dis-interment at Sleepy Hollow Cemetery; of these interments, 39 were Concord residents at the time of their death. Of the interments, 30 were full burials and 69 were cremations. Lot sales for the year totaled 104 with 23 of those being sold to eligible former residents. The use of contracted landscaping services continued for the mowing and spring/fall cleanup needs of Sleepy Hollow Cemetery. CPW's Cemetery Operating Unit crews provided mowing and spring/fall cleanups for the Old Hill Burying Ground and South Burying Place. All other maintenance for the cemeteries was completed by CPW crews including access road pothole patching, tree and stump removal, and ongoing turf improvements. The Melvin Memorial Re-dedication Ceremony was held on June 16, 2019, at 2:00 PM, 110 years after its original dedication, and was attended by many Melvin family descendants as well as other interested parties.

RECYCLING AND WASTE

Curbside Collection, Disposal, and Processing

The municipal curbside collection program provided trash and recycling services to 3,663 households. Subscribers to the municipal curbside collection program set out 989 tons of mixed paper, 629 tons of commingled containers, and 2,619 tons of trash for collection.

Curbside Recycling Rate

Residents using Concord's municipal curbside collection program recycled 39% of the materials they set at the curb. This figure does not include yard waste, which residents manage at home or drop off at the composting site on Saturdays and Wednesdays April through mid-December. It also does not include the tons of materials collected for recycling at the semi-annual DropOff-SwapOff events, nor does it include information on the more than 1,000 households that contract with private haulers for the collection of their trash and recyclable materials.

Reuse and Recycling DropOff & SwapOff Events

The Spring DropOff & SwapOff event on May 4th attracted 930 households. The Fall DropOff & SwapOff event on October 19th was also a great success with 842 households participating. Both events ran smoothly, thanks to the many volunteers who make these events possible.

Unwanted Medication & Sharps Collection

Unwanted medication & sharps were collected at the May 4th and October 19th DropOff events. Six 30

Curbside Collection Subscribers (as of June 30)

Year	Number of Subscribers	Recyclables collected(tons)	Trash collected (tons)	Recycling Rate
FY11	3,468	1,780	2,483	42%
FY12	3,488	1,794	2,484	42%
FY13	3,514	1,734	2,513	41%
FY14	3,517	1,760	2,544	40%
FY15	3,539	1,767	2,574	40%
FY16	3,608	1,761	2,581	40%
FY17	3,639	1,716	2,548	40%
FY18	3,671	1,720	2,637	39%
FY19	3,663	1,618	2,619	39%

DropOff SwapOff Participants

Year	May	October
1999	521	430
2009	889	981
2010	931	989
2011	979	891
2012	890	852
2013	893	851
2014	931	893
2015	929	928
2016	918	749
2017	894	947
2018	945	865
2019	930	842

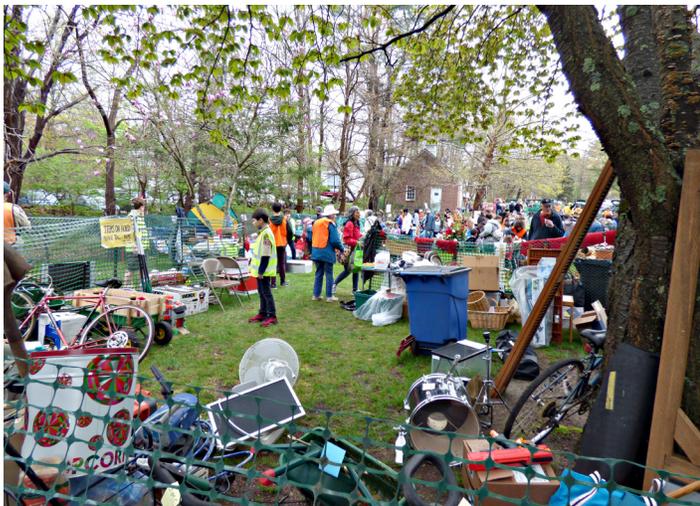
gallon boxes of unwanted medication and ten 30 gallon boxes of Sharps were collected between the two events.

Hazardous Products Collection

Subscribers to the curbside collection program receive one free pass per year to the Minuteman Household Hazardous Products Facility in Lexington (for up to 25 lbs. or 25 gallons of hazardous waste). The facility is open one weekend day a month from April – November. Eighty-seven curbside subscribers visited the site in 2019.

Composting Site Turns Yard Waste into Garden Gold

From March through mid-December 2019, residents made more than 11,000 visits to the 755 Walden Street Compost Site, dropping off leaves, grass clippings and brush, while 410 residents dropped off paint at the paint shed and 116 residents picked up paint for reuse.



Spring Drop Off Swap Off Event

Styrofoam™ block and Christmas Trees were also accepted for recycling at the facility.

Landfill Inspection & Reporting

MassDEP requires an annual landfill inspection by a third-party MassDEP-approved inspector for closed landfills in the Commonwealth. Concord Public Works coordinated the annual landfill inspection with Weston & Sampson. The inspection was conducted in November of 2019. The annual landfill inspection report included a summary of the 2019 monitoring results at the landfill. There were no deviations from applicable performance standards in water or air quality identified.

The Town's closed landfill post closure monitoring and maintenance requirements in accordance with 310 CMR 19.132, mandate groundwater and landfill gas monitoring. There are nine groundwater wells and twenty-three soil gas probes associated with the 755 Walden Street closed landfill. The former landfill, which has now been put back into productive beneficial reuse with the construction of a utility scale solar facility, received formal closure certification from MassDEP on 10/16/13.

Keeping Mercury Out Of the Environment

Concord Public Works collected 8,198 linear feet of fluorescent light bulbs and 292 lbs. of nickel cadmium, lithium, and lead acid batteries from residents and municipal facilities, for recycling. Another 6,993 linear feet of fluorescent bulbs and 4,318 lbs. of computers and electronics were collected from businesses at the April and September business recycling events.

Grants

Concord Public Works obtained a Recycling Dividends Program (RDP) grant from MassDEP in the amount of \$6,600. The grant can be utilized to purchase recycling-related equipment including but not limited to curbside recycling bins, compost bins, public space recycling bins, etc.

Bike Giveaway

Concord Public Works hosted a bike giveaway on May 16, 2019 as part of the "Bike Fest" event. The bike giveaway included bikes collected at the DropOff portion of the fall and spring DropOff events. The bike giveaway was very popular with residents.

Visits to the Composting Site

Year	Leaves & grass	Brush	Paint Drop-off	Paint Pickup
2004	5,963	329	204	148
2005	6,078	418	230	118
2006	6,651	615	298	158
2007	7,880	697	296	171
2008	8,093	508	222	138
2009	6,723	667	210	145
2010	6,470	587	252	156
2011	5,106	650	279	156
2012	5,376	667	200	190
2013	6,547	675	341	183
2014	6,484	371	351	182
2015	7,556	489	432	196
2016	6,558	590	267	183
2017	9,968	684	437	178
2018	8,459	5,250	492	177
2019	6,871	4,367	410	116

WATER AND SEWER

Alan H. Cathcart, Superintendent

In 1974 and 1976, Annual Town Meeting established separate Water and Sewer Enterprise Funds, to ensure that the operation, maintenance and capital improvement of Concord’s water and sewer systems would be financially viable. Expenses incurred for each system are covered by revenues generated by each respective enterprise. The Water and Sewer Division of Concord Public Works (CPW) is responsible for managing the day-to-day operations of drinking water and sewer infrastructure. As of 2018, the total assets for each system are 21.9 million and 17.3 million dollars, respectively.

WATER SYSTEM

Concord was provided with legislative authority to establish a public water system in 1872. In 1874, water from Sandy Pond, Lincoln, began flowing through the original network of water mains to Concord Center. Today, the water system has evolved to include six groundwater wells and one surface water source, seven water pumping stations, two water treatment facilities, and a high-pressure water main network consisting of over 135 miles of pipe. Two covered storage

reservoirs, one located on Annursnac Hill and the other located on Pine Hill in Lincoln provide total reserve capacity of 7.5 million gallons. There are presently 5,634 accounts receiving potable water service and fire protection from this supply. This represents approximately 95% of Concord residents and businesses, together with a small number of Acton properties along Route 2A.

Regulatory/Policy Updates

NISC Customer Care and Billing Software: Staff worked with counterparts within the Concord Municipal Light Plant to successfully implement a new customer care and billing software platform. While this initiative required significant effort, the new system is generating more information to our customers and providing staff with improved monitoring and exception reporting capabilities.

Massachusetts Drought Plan: The Massachusetts Water Resources Commission voted to update the MA Drought Management Plan, increasing administrative flexibility when faced with making regional declarations. As anticipated, Concord can expect to see an increase in frequency with such declarations. Ultimately, when regional drought declarations are made, water customers will be required to respond by reducing non-essential uses.

Per- and Poly-fluoroalkyl (PFAS) Substances:

MassDEP proposed new drinking water regulations that will establish a Total PFAS Maximum Contaminant Level (MCL) of 20 ppt for six PFAS contaminants: PFOS, PFOA, PFHxS, PFNA, PFHpA, and PFDA. This effort is complementary to proposed groundwater (GW-1) clean up standard that will be incorporated in the Massachusetts Contingency Plan, 310 CMR 40.0000 and technical information from MassDEP's Office of Research and Standards. While these regulations have not yet been promulgated, the Water Division continues to monitor policy and regulatory developments to understand potential emergency, short-term and long-term implications.

Water Use and Demand Management

On May 1st, the Town's "State of Concord's Seasonal Demand Management Plan" went into effect proactively as it does before each peak demand period. In accordance with continued interest in promoting sustainable lawn watering messaging, Lawn Watering Advisory Signs were installed at 9 high-traffic locations around Town. Favorable customer response coupled with reliable operations and supply allowed the community to get through peak demand without a need for mandatory restrictions.

Concord's Water Management Act (WMA) registration and permit presently provides a cap on "authorized" water withdrawals of up to 2.51 million gallons per day (MGD) on average or 916 million gallons per year to meet all residential, commercial, institutional and municipal needs. Conservation limits included in this permit are an allowance of 65 gallons per day per capita (RGPCD) for residences and a 10% allowance for system losses, primarily attributed to leaks. In 2019, the total water production required to meet our system demands was 1.82 million gallons per day or 664.8 million gallons per year. A peak day demand of 3.39 million gallons was recorded on August 22, 2019. The RGPCD and total system losses (or "unaccounted" for water use) was calculated to be 62 gals/day and 10%, respectively.

The Metropolitan Area Planning Council (MAPC)

Grant: Water Division Staff worked with the Town's Sustainability Director to obtain a grant of \$26,000 from MAPC's Accelerating Climate Resiliency Mini-Grant Program. The grant was used to promote sustainable landscaping projects for Concord residents

and businesses including: the installation of demonstration gardens with native planting and lawn alternatives, the organization of a sustainable landscaping speaker series and development of a sustainable landscaping handbook.

Water Main Leak Detection: New England Water Distribution Services LLC (Windham, NH) performed a water main leak detection survey on approximately 50% of the water distribution system. The acoustic survey targeted water mains, hydrants, select gate valves, and select service lines located in the northern half of the distribution system. In areas where non-metal mains existed, NEWDS traced the main using acoustic monitoring every 10 feet using a ground microphone. Minor leaks identified in 7 hydrants accounted for an estimated loss of approximately 14 million gallons per year. These leaks have been repaired.

Concord Water Division continues to maintain its commitment to its comprehensive water conservation program that encourages efficient water use via seasonal increasing block rates, the provision of complimentary residential water saving devices includes, shower-heads, aerators, garden nozzles, rain gages, and toilet fill cycle diverters as well as customized outreach and assistance to customers who are interested in learning more about indoor and outdoor water savings opportunities. As funds allowed, the Division continued to offer rebates on water saving toilets and high-efficiency clothes washing machines.



Demonstration garden being planted in West Concord by Water Division's Melissa Simoncini, Concord's Sustainability Director Kate Hanley, and volunteers.

Water Quality and Drinking Water Compliance

In keeping with Federal and State requirements, Concord tests its drinking water for all regulated substances. Routine and non-routine water quality testing activities continue to demonstrate that Concord's drinking water satisfied all applicable State and Federal requirements. One regulatory excursion was reported for bromate. Bromate is regulated with a "maximum contaminant level" (MCL) of 10 parts per billion (10 ppb), averaged over any 12-month period. Because the average concentration of bromate measured from one of our sources of supply, Nagog Pond, during the summer months was just less than 11 ppb, and because existing regulations do not sufficiently account for the temporary operation of a supply such as Nagog Pond, out of an abundance of caution, on November 6th, 2019, water customers were sent a Public Notice informing them of this unusual occurrence.

2018 Water Fluoridation Quality Award: Concord Water once again received an annual award from the Centers for Disease Control and Prevention (CDC) and the American Dental Association (ASTDD) in recognition that the Water Division has maintained effective dosing and documentation of ongoing drinking water fluoridation efforts.

Nagog Pond: Filtration Plant Update

Environmental Partners Group and Public Archaeology Laboratory partnered with staff and special counsel (Mackie Shea Durning PC) to advance permitting and final design needs associated with the Nagog Pond Filtration Plant upgrade. Specific efforts included the submittal of a combined Chapter 91 Waterways License and 401 Water Quality Certification application issued to MassDEP and Army Corps of Engineers for the intake pipe replacement project, coordination with Massachusetts Historical Commission regarding sensitive archaeological impact, and coordination of a modified "temporary" ozone system that was installed to allow for more reliable operation of the enhanced disinfection system currently employed at Nagog Pond during peak demand periods.

With counsel offered by Mackie Shea Durning PC, Concord Water prevailed in seeking a favorable decision from the Massachusetts Land Court relative

to its longstanding water rights to Nagog Pond. Securing these rights forever is one of the most critical accomplishments that the Town has undertaken to preserve and protect the future of its drinking water resources. Littleton Water Department has appealed this decision, however, Concord will continue to defend its position and interests with renewed vigor based upon this favorable decision.

Water Pumping Station Rehabilitation and Upgrades

Division crews continued to perform routine operation and maintenance of the seven water production facilities and related treatment systems which make up our total water supply. In addition to these routine inspection and service activities, capital upgrades are also planned and performed on the millions of dollars of assets including associated mechanical, electrical, plumbing and instrumentation and control systems housed within these facilities. Notable improvements performed within the past year include:

- White Pond Well: Maher Services performed rehabilitation of well including minor pump repairs.
- Deaconess Treatment Facility: Nashoba Air performed repair to building HVAC system.
- Pine Hill Reservoir: Crew replaced one of two "mixers" (Solarbee model GS-12)
- Hugh Cargill Pump Station: Crew replaced 6-inch check valve and vacuum priming air release valve.
- Second Division Pump Station: Jasco Electric replaced s "soft-start" motor controller with a new state of the art programmable logic controller (PLC).

Water Main Rehabilitation and Extension Activities

The water distribution system consists of approximately 134 miles of water main ranging in size from 6-inch to 16-inch. A replacement/rehabilitation program has been developed to maintain and improve upon system service reliability. New projects are prioritized based on age, condition, and material of pipe. Plans are further refined with consideration to other public works initiatives such as drainage improvements, annual Roads Program or CMLP underground initiatives. Each year, new mains may also be added to the system to allow for service to new or existing properties where frontage to the municipal water distribution system had not otherwise existed. Notable water main replacement or extension project activities performed within the past year include:

- Cambridge Turnpike Water Main Project – Phase

I: J. Tropeano Inc. (North Andover, MA) completed Phase I water main replacement work associated with the Cambridge Turnpike Improvement Project. Their work involved the replacement of approximately 1,097 ft. of 12-inch cast iron water main (circa 1947) with new 12-inch cement-lined ductile iron pipe (CLDI class 52) from the intersection of Hawthorne Lane to Sandy Pond Road, and the replacement of 1,265 ft. of 8-inch cast iron water main (circa 1967) with new 8-inch CLDI water main (class 52) from the intersection of Cambridge Turnpike down Sandy Pond Road. Their work also included the replacement of associated service laterals located within the right of way along with 11 hydrants.

- Cambridge Turnpike Water Main Project – Phase II Construction: George R. Cairns & Sons (Windham, NH) commenced with the Phase II water main replacement work planned along Cambridge Turnpike. Work completed this construction season included the replacement of approximately 975 feet of the 10-inch HDPE water main which will eventually connect to water main that will be installed within the new bridge structure to be completed next construction season.
- Warner Street Water Main Extension: Johnson

Excavation (Nashua, NH) installed approximately 500 feet of 8-inch cement-lined ductile iron pipe (class 52) along Warner Street to create necessary frontage for single family residential redevelopment project. The work included the installation of a new hydrant and water service.

Emergency Water Main Repairs: Based on the age and condition of water main located throughout the water distribution system, it is not uncommon for sections to fail. When they do, they can cause sudden pressure drops or water discoloration that can affect a few customers or larger neighborhoods. Depending on the nature and location of each break, individual water service interruptions can also occur and last from several hours to over eight hours. This past year, the Division performed emergency repairs at the following locations: ORNAC in the general vicinity of the Concord Country Club (July 21, 2019), Rt 2A Rotary (August 22, 2019) and Fairhaven Hill Rd (December 27, 2019).

Annual Water Report Summary Table

Water Statistics	2019	2018	2017	2016	2015
Miles of Main	134.7	133.6	133.5	133.3	132.8
Hydrants	1,330	1,328	1,328	1,327	1,321
Main Pipe - New (linear feet)	500	442	1,073	2,510	1,660
Main Pipe - Replaced or Rehabilitated (lf)	3,337	6,735	626	1,568	4,800
Main Breaks	3	4	5	6	6
Number of Service Accounts	5,634	5,623	5,605	5,601	5,554
Total Water Demand (million gal.)	664	673	674*	728	767
Daily Average Demand (million gal.)	1.82	1.84	1.85*	1.99	2.10
Peak Day Demand (million gal.)	3.36	3.18	3.04	4.15	3.79
Unaccounted for Water (percent)	6.0	6.0	8.7	11	10.6
Residential per Capital per day (gal.)	66	66	65	70	73
Annual Precipitation (inches)	51.18	57.53	45.49	35.59	35.51
Mean Annual Precipitation (inches)	42.15	42.09	41.98	41.95	41.92
Residential Rate per Unit (unit = 7.48 gal.)					
Base Rate- Step 1	\$.0564	\$.0537	\$.0516	\$.0496	\$.0477
Conservation Rate – Step 2 (May 1 – Oct. 31)	\$.1184	\$.1128	\$.1084	\$.0992	\$.0954
Conservation Rate – Step 3 (May 1 – Oct. 31)	\$.1495	\$.1423	\$.1367	\$.1240	\$.1193
General Service Rate per Unit of 7.48 gallons					
Step 1 - (<50 Units)	\$.0564	\$.0537	\$.0516	\$.0496	\$.0477
Step 2 - (>50 Units)	\$.0715	\$.0681	\$.0655	\$.0630	\$.0606

SEWER SYSTEM

Concord was provided with legislative authority to create a municipal sewer system in 1894. By early 1900 a small centralized collection system was designed and constructed, carrying wastewater from Concord center via a network of gravity mains to a collection chamber located at 141 Keyes Road where it was then pumped to a cluster of filter beds located approximately one mile away on fields located adjacent to Great Meadows. The present system consists of 34 miles of collector mains (gravity and low pressure), two pumping stations, six neighborhood lift stations and a 1.2 MGD treatment plant. The present sewer system serves over 1,889 customers or 35% of the community.

Regulatory/Policy Updates

NPDES Permit: Concord continues to operate its wastewater treatment facility in accordance with a National Pollutant Discharge Elimination System (NPDES) permit in accordance with conditions issued in 2013. As these permits are issued for 5 year terms, a request for renewal was submitted and reviewed by EPA back in August of 2018. With consideration of long-standing wastewater capacity interests of the Town, the application included a request for an increase in permitted discharge to 1.4 MGD. Other than acknowledgment of receipt, there has been no formal response issued by EPA.

Sewer Pumping Stations

Sewer pumping stations carry wastewater from local networks of gravity flowing pipes (collection systems) and then pump this wastewater to a central wastewater treatment facility located off of Bedford Road. The size and complexity of each pumping station depend upon local land elevations, topography, and the volume of wastewater handled. The Lowell Road and Assabet Sewer Stations are the two largest facilities in Concord, designed to handle flows from the most densely populated and commercialized neighborhoods of West Concord and Concord Center. Six smaller neighborhood lift stations serve less populated areas of Town with much more modest physical footprints.

Kleinfelder Engineering completed the design of the long-anticipated upgrades of the Lowell Road and Assabet Sewer pumping stations. These stations were last upgraded in the mid-1980s and have served well beyond their anticipated design life. The construction

contract for this work was awarded to D&C Construction (D&C) of Weymouth, MA to perform this work, scheduled to begin in early 2020.

Division crews continued to perform routine operation and maintenance of the eight operating sewer facilities. In addition to these routine inspection and service activities, non-routine improvements performed over the past year included: reprogramming of the Gifford Lane lift station PLC to correct for a memory module failure, and a temporary repair of a large grinder (macerator) located within the Lowell Road pump station to ensure miscellaneous debris such as wood, cloth, and plastics that enter the station would not bind the pumps.

Collection System

The sewer collection system is composed of over 34 miles of gravity and low-pressure collection main ranging in size 2-inch to 27-inch diameter with manholes. Approximately 50% of Concord's sewer collection system is made up of clay pipes – much of it dating back to the original sewer system installed over 100 years ago. Concord continues to investigate the condition of this infrastructure and repair or replace it as needed to reduce preventable inflow and infiltration (I/I). Inflow and infiltration refers to stormwater and groundwater that flows into the sanitary wastewater collection system through illicit connections or leaking pipes.

Infiltration and Inflow Program

Inflow & Infiltration Plan: In accordance with MassDEP regulations, the Division submitted an Infiltration/Inflow (I/I) Control Plan on July 31, 2018. The plan identified its commitment for a long-term and comprehensive investigation and rehabilitation program aimed to identify and mitigate sources of I/I within the sewer collection system. The plan was further amended based upon MassDEP's interest in seeing this commitment being realized in a more accelerated period of time.

On November 15, 2019, the Division submitted an Inflow/Infiltration (I/I) Control Plan Progress Report to MassDEP, informing them of the scheduled work completed as part of Phase I of the aforementioned program as well as a description of completed abatement work. This included smoke testing of approximately 48,000 LF of sewer main and

development of a scope of work that will be used to procure the services of a qualified firm to clean and perform CCTV video inspection of approximately 50,000 LF of sewer main. This also included coordination with National Grid on the removal of a gas service that had been directionally drilled through a municipal sewer main; elimination of a sizable commercial sump pump that had previously been directed to the municipal sewer system, and replacement/refurbishment of 22 sewer manhole castings thereby reducing secondary inflow.

There were no reportable sanitary sewer overflows identified within Concord's collection system. Furthermore, the 12-month (rolling average) of wastewater flow processed through Concord's wastewater treatment plant was 1.05 MGD, below the 1.2 MGD permitted capacity assigned to this facility. The infiltration rate (of groundwater) into the collection system was calculated at 19.7%, and the inflow stormwater rate was estimated at approximately 1.8%. Both rates fall within acceptable industry limits and well below "excessive" rates as defined by the MassDEP.

Wastewater Treatment Plant Operations

Woodard & Curran, Inc. (Portland, ME) continues to operate the Concord Wastewater Treatment Plant (WWTP), located off of Bedford Street. They completed their 9th year of a 10-year service contract. The Water and Sewer Division continues to work closely with Woodard & Curran to ensure day to day operations and maintenance is performed in a quality manner. Within the past year, the facilities and associated equipment ran reliably with and in accordance with State and Federally issued permits.

Sewer Statistics	2019	2018	2017	2016	2015
Assabet Pumping Station					
Total Pumped (million gallons)	88.18	94.28	88.09	74.47	73.85
Monthly Average (million gallons)	7.35	7.86	7.34	6.21	6.15
Daily Average (million gallons)	0.24	0.26	0.24	0.20	0.20
Lowell Road Pumping Station					
Total Pumped (million gallons)	314.07	350.37	312.64	258.44	272.02
Monthly Average (million gallons)	26.17	29.20	26.05	21.54	22.67
Daily Average (million gallons)	0.86	0.96	0.86	0.71	0.75
Bedford Street					
Total Pumped (million gallons)	7.33	7.92	6.18	5.80	5.48
Monthly Average (million gallons)	0.61	0.66	0.51	0.48	0.46
Daily Average (million gallons)	0.02	0.02	0.02	0.02	0.02
Collection System					
Number of Service Accounts	1889	1876	1,869	1,866	1,851
Miles of Sewer Main	34.03	34.03	34.03	34.03	34.03
Main Pipe Inspected (lf.)	48,000	4,515	11,350	1,500	3,500
Main Pipe Replaced/Rehabilitated (lf.)	0	0	0	0	0
Rate per Unit (unit = 7.48 gallons)	\$.1165	\$.1153	\$.1141	\$.1119	\$.1086