

the CSEC webpage at http://ConcordMa.gov/pages/ConcordMA_CSE/index). The Committee has initiated a dialog with National Grid to design a marketing campaign to help Concord residents understand how to convert from oil to natural gas heating. (Natural Gas has 40% less CO₂ than oil and is currently less expensive by a wide margin.) The Committee participated in several pilot conversions and has developed a solid base of experience which will pay dividends as it moves ahead with the conversion marketing effort.

The CSEC Committee focused on promoting large scale and small scale solar energy in Concord. In support of large scale solar electricity initiatives, the committee unanimously voted in favor of solar-related articles 35, 36 and 37 and against article 33, provided a position paper on Solar Siting, and supported proposals for solar electricity installations at the Beede Center.

In support of small scale solar electricity, the committee organized a vendor-sponsored solar fair, in which

vendors and the Concord Municipal Light Plant were invited to showcase products and services including: rooftop solar electricity (PV), solar hot water, high efficiency LED lighting, high efficiency heating and cooling, home insulation, and energy monitoring systems. The committee is pleased to report that because of these efforts to promote rooftop solar, residents installed approximately 32 PV systems and 10 solar hot water systems in 2012, helping to substantially offset carbon emissions and air pollution in our town. In 2013, the committee plans to promote solar electricity installations by modeling the State of Massachusetts' "Solarize" initiative, which has been successful in other towns.

Finally, the Committee has presented to the Town Manager a proposal to modify the membership, to replace liaison positions with "at-large" positions. There are currently several open positions. The Committee urges interested residents to submit a green card to the Town Manager's Office and to get involved.

CONCORD PUBLIC WORKS

PUBLIC WORKS COMMISSION

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 advises the Town Manager, Planning Board and other Town officials and boards on matters that concern Town water and sewer service, drainage and roads. The Commission is responsible for setting policy and rate schedules for water, sewer and solid waste services; for acting as an appeals board for right of way permits and water and sewer bills; and for approving minimum standards for the final layout of Town roads.

The Public Works Commission 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.

The ongoing activities of the Commission can be found throughout the year on the web at www.concordma.gov.



Front row from left: James Smith, Arthur Fulman, Chair; Nick Pappas. Back row from left: Phil Swain and Cynthia Wood

Highlights of the Commission's activities for 2012 include (in chronological order):

- A public meeting to discuss the Monument St. retaining wall rehabilitation plan.
- Commissioner Fulman agreed to act as the Public Works Commission representative on the Wastewater Planning Task Force.
- Wastewater Planning Task Force updates and discussions occurred over multiple meetings.
- A briefing to discuss life cycle maintenance fees and new formulas related to right of way permitting.

- Route 2A Pump Station Improvements including an application for funding from the Sawyer Trust.
- Numerous meetings were held to review Landfill Solar Lease plans.
- The annual public hearing to review and revise curbside collection and disposal rates.
- Approval and support for the design for the Main St. and Thoreau St. intersection improvements.
- A Roads Program briefing, followed by a formal public hearing discussing the 2012 Roads Program.
- A discussion of various Town Meeting articles including opposition to the sale of a Conservation Restriction at the former landfill site at a Special Town Meeting and support for: leasing the former landfill site for solar power generation, acquiring the W.R. Grace land and acquiring 51 Laws Brook Rd.
- The Water and Sewer Rate public hearing was held, and the 2012 rate schedule was approved.
- Recommendations to the Zoning Board of Appeals regarding the Concord Carlisle Regional High School groundwater conservancy district permit.
- Approval of the Elsinore St. Sewer extension project.
- A public meeting to discuss the Town-wide sign inventory and assessment project.
- Review and ZBA recommendation for Groundwater Conservancy District review at 316 Heath's Bridge Rd.
- An appeal of a Sewer Improvement Fee for change of use for sewers at 48 Monument Square was denied.
- A public meeting to discuss the Cambridge Turnpike Improvement Project.
- Approval with conditions for a private irrigation line crossing under Plainfield Rd.
- Support of remote participation of its meetings pending the availability of adequate technology.
- Discussion of the Finigan Way roadway acceptance.
- Reviewed and discussed the excellent cleanup operations and coordination with other Town departments following the devastating effects of Tropical Storm Sandy.

The Commission continued to review the activities of Concord Public Works through monthly Director's reports, and also set aside time for public comment during each meeting.

CEMETERY COMMITTEE

Concord cemeteries are an important asset to the Town. Visitors, historians and residents use them as a window to the past, a pleasant place for solitude and contemplation, as well as a final resting place for many.

Concord cemeteries total about 55 acres. Maintaining

these grounds in top condition requires the continued efforts of the Cemetery Division staff as well as other Public Works employees. 2012 was the first year that mowing and clean-up services of Sleepy Hollow were contracted out to a private company. This enabled the Town to eliminate one maintenance position, leaving the staff level at one Supervisor and one seasonal laborer. This allowed time for staff to complete other important maintenance tasks such as cemetery-wide trimming, plant/shrub maintenance, stone paths, stone wall maintenance, and other general maintenance items.

Memorial Day and Veteran's Day ceremonies continue to be held at Sleepy Hollow. This year, the Veterans Day ceremony was held on a Sunday which allowed the service to take place in the afternoon, and enabled more Town citizens to attend.



Cemetery Committee from left: Frederick Macdonald, Chair; KC Winslow, Carole Cushing, Bridget Rodrigue, Ruth Armknecht

On-going maintenance and upgrade programs continued to be carried out. Six headstones that had been in storage were returned to their original locations in the New Hill section. The walkway in the Old Hill Burying Ground, located at the entrance on Monument Square, was removed and repaved allowing safer access to this site. The fence around the Hudson lot was sanded and repainted, matching the Monroe fence which was replaced last year, utilizing funding from the Friends of Sleepy Hollow. In South Burying Place/Main Street Burying Ground, the front fence was repaired, sanded and repainted.

The Town was granted CPA funding for a granite post and chain fence along Bedford St. to replace the current

chain-link fence between the 1st and 2nd gates, and continuing between the 3rd and 4th gates. Additional funds for this project were donated by the Friends of Sleepy Hollow. Surveying for the post placement was initiated in the fall with installation of the new granite post and chain fence taking place in the spring of 2013.

A rate hearing was held in June to set new prices for graves and interment fees for Sleepy Hollow. Rates affected included all interments as well as sale prices for the lots that become available in the older sections that are offered to people on the waiting list.

Statistics

During 2012, there were one hundred and fifteen interments and four dis-interments at Sleepy Hollow. Fifty were full burials and sixty-five were cremations. Of the interments, fifty-three were Concord residents. Lot sales for the year totaled seventy-five, with thirteen of these being sold to eligible former Town residents.

Friends of Sleepy Hollow

The Friends of Sleepy Hollow is a private, non-profit organization whose purpose is to promote the preservation, beautification and appreciation of the historic burial grounds in Concord. Additional information can be found at www.friendsofsleepyhollow.org.

This year the Friend's funded the stepping stones in the garden at the flagpoles in Sleepy Hollow, and donated funds toward the installation of the granite post and chain fence along Bedford Street.

CONCORD PUBLIC WORKS

ADMINISTRATION

Richard K. Reine, PWLF
Director

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, 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 stakeholders.

Protecting the Town's Infrastructure/Providing Essential Services

Concord Public Works (CPW) is comprised of four Divisions. These include two staff Divisions, Administration (including Recycling and Solid Waste Management) and Engineering and two line Divisions, Highway, Grounds & Cemetery and the Water & Sewer.

The Department is responsible for planning and managing a large segment of the Town's infrastructure. These assets include roads and roadsides; curbs and sidewalks; catch basins, storm drains, culverts and outfalls; traffic islands; guardrails; street signs and traffic signals; public shade trees and park trees; parks, common areas, playgrounds, ball fields, and recreation equipment; cemeteries; the compost site, including the earth products and snow storage facility; the public water supply including its storage, pumping, and distribution systems; the sewer collection, pumping, and treatment systems; and CPW buildings and equipment.

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

CPW Team, Programs & Organization

Concord Public Works is made up of 54 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.

Infrastructure Improvements and Initiatives

The Divisional reports that follow summarize a series of initiatives and accomplishments in 2012. Notable accomplishments include:

- Design and scheduled construction of approximately 2.5 miles of roadway and 0.11 miles of sidewalk improvements.
- Drain line, underdrain, catch basins and drain manholes in the Town's drainage system were replaced.

- The Monument St. retaining wall was completed ahead of schedule and under budget.
- Engineering provided technical support for the Cambridge Turnpike Improvement Project.
- Design, permitting, and contract supervision of the rehabilitation of Junction Park, a low impact sustainable project to be completed in the spring of 2013.
- A GIS Program needs assessment and strategic plan was completed.
- Fieldwork for a Town-wide sign inventory was completed.
- Park and Tree Staff, with the Tree Warden, planted over 85 public shade and park trees as well as street/scape trees.
- Almost 50 acres of athletic fields were maintained by Highway and Grounds staff for use by baseball, softball, soccer, lacrosse and other programs.
- Evaluation and assessment of Emerson and Rideout Fields to identify and program future maintenance and investment requirements to ensure quality facilities.
- Highway and Grounds and Water Sewer staff put forth considerable effort for Hurricane Sandy cleanup.
- DropOff SwapOff events, including unwanted medication and Sharps collection, were very successful.
- Collection of hazardous waste at the Concord Public Works facility was attended by 139 residents.
- The Town's trash/recycling collection contract was renegotiated for a three year term.
- Town Meeting approved Community Preservation Funds to replace the chain link fence on Bedford St. at Sleepy Hollow cemetery.
- Water main was replaced and drainage improvements were made on Belknap St., Old Powder Mill Rd., Baker Ave, and the Concord Carlisle Regional High School.
- Sewer pipe was replaced along Brooks St., CCRHS, Elsinore St. and 300 Baker Ave.
- The Wastewater Planning Task Force continued its work on the Wastewater Capacity Alternatives Analysis.
- Extensive improvements were made to the Rte. 2A Water Production Facility.
- Rehabilitation of the existing Nagog Pond concrete dam was performed.
- A Request for Qualifications for engineering design and master planning services for the design of a Nagog Pond filtration system was issued.

CPW Leadership and Innovation

The Mass. Water Works Association presented an award to Concord's Water Division for "Exemplifying the Highest Standards of Water Works Practice."

Director Richard Reine attained the designation of Public Works Leadership Fellow, the highest level of the American Public Works Association's leadership and management program awarded to select Public Works Director's in the USA and Canada.

Learning and Growth

With the 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 provides its employees with opportunities to increase skills while endeavoring to make certain the team is comprised of motivated, informed and inspired team members who can utilize this knowledge for the benefit of Concord.

Public Works Week – Middle School Event

Concord Public Works celebrated National Public Works Week with the Concord Middle School 8th grade. The theme was "Public Works: Creating a Lasting Impression."

This educational experience included visits to Concord Public Works at Keyes Rd. for interactive demonstrations by CPW staff, to Emerson Field for a turf management and tree warden demonstration, and a tour and conservation event at the Wastewater Treatment Plant. One of the highlights of this year's event was the video contest. Students were very creative in creating their own "One Minute" public service announcement about stormwater pollution prevention.

Personnel

We were happy to welcome Aaron Cheever as Public Works Engineer, and Alexandra Rooney as Environmental & Regulatory Coordinator in the Water/Sewer Division.

ENGINEERING DIVISION

William J. Renault PE,
Town Engineer

The Concord Public Works (CPW) Engineering Division is responsible for the planning, design, engineering and construction of Town roads, sidewalks, bridges, and stormwater/drainage infrastructure assets. The Division provides a wide range of professional engineering and construction management services for Concord Public Works and other Town departments and boards.

The Division provides Geographic Information System (GIS) services and maintains Town-wide inventories, database, mapping and document control for public right-of-ways, easements, infrastructure and natural resources.

Junction Park

The Engineering Division completed the design and bidding for the low impact development retrofit and park rehabilitation project in early spring. The project, which included the installation of a pervious paver hard-scape surface, green space and trees, and planting beds, a stormwater treatment area and park appurtenances, was largely funded through grants and donations. The Town contribution to the project is less than 35% of the total project cost. As an additional cost savings, the Water/Sewer Division crews completed the installation of the electrical conduit and the modifications to the park's water service to include a water bubbler and spigot/hose connections as an internal project prior to the bid contract work commencing. The project contractor completed construction work in December and will return in the spring of 2013 to complete the installation of the landscaping, loam and seeding and final project cleanup.

Roads Program

There are approximately one hundred and seven miles of public roads, classified as arterial roads, collector roads and local streets. Arterial roads provide movement between collector roads, other arterial roads and major highways, and make-up approximately 34% of Concord's public roads. Collector roads, used primarily to connect local streets to other collector and arterial roads, make-up approximately 7% of Concord's public roads, and the remaining 59% of public roads consist of local streets.

Concord's pavement management strategy and 20-year Roads Program emphasize adequate capital investment in the roadway network combined with preventive and routine maintenance activities to prolong the pavement life cycle. Capital roadway improvements typically include the reclamation, mill and overlay, and overlay pavement treatments.

A condition survey of the Town's roadway network is performed every four years, and is input into the Town's

roads program software that utilizes the pavement condition data, estimated traffic volumes and treatment cost to recommend pavement improvement projects. The Engineering Division utilizes this software output, engineering judgment and planned utility improvements to finalize the year's roads program.

Maintenance activities are used to preserve the integrity of the existing road structures while reducing the need for the more costly rehabilitation treatments. Crack sealing is utilized as the primary preventative maintenance activity, while full depth patching/spot repairs are the primary routine maintenance activities used by CPW.

2.52 Miles of Roads Improved

The 2012 Roads Program included the reclamation treatment of Elsinore St., Grant St., Belknap St., Brooks St., Byron St., Pond St., and Brook Trail Rd., all of which had significant drainage improvements ranging from replacing failing catch basins to complete drainage system reconstruction. Due to the poor subgrade material, sections of Brook Trail Rd. received a "full box" reconstruction treatment which included the removal of unsuitable material up to three feet below the surface, installation of geo-synthetic textiles, crushed stone, roadway sub-drains and suitable sub-base material before paving with the first course of pavement. Pond St. was designed to include a retro fit bioretention drainage treatment area. The bio retention area is a Low Impact Development technique that will collect and treat stormwater to improve water quality to Warner's Pond. The 2012 roads program project also included mill and overlay treatments on Laws Brook Rd. and Sudbury Rd. Work on the 2012 roads program began in the summer and extended into the fall of 2012. The balance of the contracted work is scheduled to be completed by the summer of 2013.

9.8 Miles of Roads Maintained

The 2012 crack seal program included: Monument Sq., Upland Rd., Main St., Lexington Rd., Lowell Rd., Edgewood Rd., Old Marlboro Rd., and Pine St.

CPW Highway Division installed full depth patch spot repairs on Monument St., Powdermill Rd., Lawsbrook Rd., Cambridge Turnpike, Sudbury Rd. and Fitchburg Turnpike (Route 117).

Sidewalk Program

There are approximately 59 miles of public sidewalks in the Town that contain approximately 700 curb ramps. A condition survey of the sidewalks is performed every four years in conjunction with the roadway condition survey. Additionally a Town-wide curb inventory was completed in 2011. Sidewalks and curb ramp projects are prioritized for repair based on their proximity to high pedestrian generators, their condition as well as their compliance with current Americans with Disabilities Act (ADA) accessibility standards. Sidewalk and curb ramp reconstruction can be bid as stand alone projects, included within the roads program bid or completed as internal projects by CPW Highway Division.

0.11 Miles of Sidewalks Improved:

The Roads Program bid included sidewalk for two small sections on Belknap St. and Grant St. and included 30 curb ramp reconstructions to meet current ADA regulations related to width, slope, and surface type, but CPW deferred the majority of the sidewalk rehabilitation work to the spring of 2013. A small section of sidewalk rehabilitation on Bartlett Hill Rd. was completed

SIDEWALK CONDITION SUMMARY

Sidewalk Condition Index (SCI)	SCI		Miles	Percent
	Range			
Replace	0-50		1.6	3%
Localized Repair	51-70		15.3	26%
Shows wear	71-90		354	60%
Shows No Distresses	91-100		6.7	11%
TOTAL MILES			59	100%

Network Average (%)

Year	SCI
2012	81%
2011	81%
2010	75%
2009	76%
2008	76%

Roads and Sidewalks in Sound Condition

The accompanying tables show that the condition of Town roads and sidewalks are located within the target range of 80-85 PCI (Pavement Condition Index) and SCI (Sidewalk Condition Index). The Town's overall investment in its road and sidewalk assets have resulted in cost effectively protecting and improving Concord's public way infrastructure for pedestrians, drivers and cyclists while avoiding a multi-million dollar backlog to be paid by future residents of Concord.

ROAD CONDITION SUMMARY

	2008	2009	2010	2011	2012*
Pavement Condition Index (PCI) Network Average	83	81	82	80	80
(PCI) Arterial Collector Average		88	86	84	82
(PCI) Local Road Average		75	79	78	87
Recommended Repair(s)					
Rehabilitation	12%	9%	8%	11%	10%
Routine Maintenance	52%	51%	48%	48%	51%
No Maintenance Required	36%	40%	44%	41%	39%

*Includes 2012 Roads Program work to be completed by June 30, 2013

Note: The above referenced table is based on an infinite budget. Using FY2012 budget, the actual repairs breakdown was: Rehabilitation 2%, Maintenance 10%, No Work Performed 88%

Cambridge Turnpike Improvement Project

The Town awarded the contract for design of the Cambridge Turnpike Improvement Project and has begun working with the contractor and the consulting team in the design and permitting phase of this project.

The first step of the public outreach process was a resident and stakeholder questionnaire to learn about perceptions of current conditions and priorities. The survey was open for a month and over 200 responses were received. The first public meeting was held in October to present preliminary data from field investigations, questionnaire results, and to gather public comments.

A primary focus of this project will be construction improvements to the roadway to address flooding. The Town views this as an important opportunity to design and construct improvements to the roadway and other public infrastructure. To the extent that is feasible, a project objective will be to integrate several modes of transportation in an aesthetically pleasing manner that complements the community's character and is sensitive to the nearby environmental and historical resources that Concord residents value and enjoy.

Monument Street Retaining Wall

Construction on the Monument Street Retaining Wall, adjacent to Hutchin's Farm, began in March. The project included the disassembly of the existing dry stack stone wall and reconstruction of a new dry-look masonry stone wall with concrete a foundation in the same location. The existing wall stones were reused within the reconstruction project. Project construction reached substantial completion well ahead of the project schedule and under budget.



Stormwater/Drainage

Concord's stormwater infrastructure consists of approximately 165 culverts, 400 drainage outfalls, 3,200 catch basins; 1,250 manholes; and 58 miles of drain line. The Town is responsible for three dams. Concord Public Works 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. Drainage maintenance activities are coordinated with the Division of Natural Resources and are typically performed under the general maintenance permit issued by the Natural Resources Commission.

\$205,000 was appropriated in FY2013 to continue the multi-year effort to improve the condition of the Town's stormwater system. In addition to infrastructure maintenance and repairs, Drainage Program funds are also used to meet the requirements of the Town's National Pollutant Discharge Elimination System (NPDES) Phase II General Permit issued by the Environmental Protection Agency (EPA).

In 2002 and 2003, the Town performed a closed drainage system inventory and, in 2011, completed a culvert inventory. With these inventory projects, condition assessments and rating systems were developed and integrated into the Town's geographical information system to provide the basis for the development of the Town's 20-year Stormwater/Drainage Management Plan. This plan is intended to provide a cost-effective framework for the upgrade and repair of the Town's stormwater/drainage system and to prevent expensive emergency repairs from occurring in the future through a planned

and scheduled maintenance and replacement program.

The CPW Stormwater Team continues to inventory and assess the locations and condition of Concord's Stormwater/Drainage infrastructure. Drainage system repairs/improvements are completed by CPW Highway Division, incorporated into the Roads Program design or bid as a stand-alone project, based on the project scope. All updated and collected data are used in re-prioritizing the replacement projects.

Multiple improvements to the Town's drainage system were constructed. The Engineering Division designed and Highway Division installed a replacement for the drainage collection system on Brooks St. Drainage replacements on Grant St., Elsinore St. and Belknap St. were designed by the Engineering Division and included within the 2012 Roads Program bid. The bid also included catch basin rehabilitations on Sudbury Rd. and underdrain replacement on Brook Trail Rd. A total of 2,250 feet of drain line, 1,200 feet of roadway underdrain, 45 catch basins and 13 drain manholes were replaced within 2012.

The Engineering Division obtained supplemental grant funding for the Town's stormwater program through FEMA's Hazard Mitigation Grant Program (HMGP) for the Fitchburg Turnpike and Westford Rd. culvert replacement projects. The Town will receive a total of \$135,000 in federal funds toward the culvert projects.

NPDES Permit

The work related to the Town's compliance with the National Pollutant Discharge Elimination System (NPDES) Phase II General Permit is funded and coordinated through the Drainage Program. The permit, issued by the Environmental Protection Agency (EPA) in 2003, requires towns to meet multiple objectives called "minimum control measures" to improve water quality including: public education and outreach, public involvement and participation, illicit discharge detection and elimination, construction site stormwater runoff control, post construction stormwater management in new development and redevelopment, pollution prevention and good housekeeping in municipal operations. The EPA will issue a new draft permit for Massachusetts in 2013. Concord will be required to seek coverage under this new NPDES permit. The Engineer-

ing Division plans to attend EPA's public hearings and informational sessions throughout 2013 and provided comments on the new permits contents.

In 2012, the Engineering Division completed the Year 9 annual reporting to the EPA. Major accomplishments within Permit Year 9 included a targeted public outreach to pet owners regarding pet waste disposal based on illegal dumping activities discovered through catch basin cleaning and monitoring activities, stormwater technical review and environmental monitoring review/administration for 6 redevelopment projects meeting NPDES permit thresholds and continued field work to update Concord's stormwater system inventory data to provide improved location and system condition accuracy.

Bridges

The Engineering Division is responsible for the management and monitoring of the 5 Town-owned bridges: Heath's Bridge (Sudbury Rd.), Pine St. Bridge, Flint's Bridge (Monument St.), Hurd's/Nashawtuc Bridge and Pail Factory Bridge (Commonwealth Ave.). Bridge inspections are completed every two years by MassDOT bridge staff and forwarded to the Engineering Division office for inclusion in Town records and to prioritize any needed repairs. Inspections are completed to evaluate the structural condition of bridge components, underwater stability/erosion issues, and to meet National Bridge Inspection Standards. Bridge rehabilitation project scopes are developed and managed by the Division. Bridge repair funding comes from a variety of sources including: Chapter 90 State aid, local funding, and State accelerated bridge program.

MassDOT has determined the maximum load posting for the Pail Factory Bridge on Commonwealth Ave. of Type "H" (2 axles) - 13 Tons; Type "3" (3 axles) - 19 Tons; Type "3S2" (5 axles) - 27 Tons. CPW continued to pursue repair funding options in 2012.

Geographic Information System (GIS)

The Town's GIS Program is housed within the Engineering Division. The GIS Program Coordinator manages the system and data for the use of all Town staff and the general public, including various public and staff Web-GIS internet mapping sites. The GIS Program continued to focus on improving the Town's drainage system data layers. This included in-house data collection to correct and update drainage structure elevations and locations as well as condition data. The drainage layer updates were a collaborative effort with the Engineering, Highway and Water & Sewer Divisions in conjunction with annual catch basin cleaning operations. CPW updated condition data was collected for approximately 1,950 drainage structures, which represents roughly 44% of the Town's drainage system. CPW improved the surveyed accuracy of 1,650 drainage structures which represents roughly 37% of the Town's system.

Field work for a Town-wide sign inventory was completed. The project developed a comprehensive GIS sign layer that will allow the

Highway Division to manage the future replacement of signs and meet new federal sign reflectivity guidelines.

A new GIS Program Needs Assessment and Strategic Plan project was completed. The project will help identify and prioritize future GIS projects and assist Concord's GIS Program for the next several years. A draft of the final report was provided in December and the project will be finalized within the first quarter of 2013.

HIGHWAY, GROUNDS, & CEMETERY DIVISION

Dickinson Fowler,
Highway & Grounds Superintendent

The Concord Public Works, Highway and Grounds Division maintains approximately 107 miles of public streets, with the associated drainage systems consisting



Nate Nichols demonstrates the use of the Jet-Vac Combo to clean catch basins during Public Works Week.

of almost 58 miles of drainlines, 3,200 catch basins, 165 culverts, 1,250 drainage manholes and 400 outfalls. The Division maintains 59 miles of sidewalks, 2,793 signs, over 90 pieces of CPW vehicles and equipment, and manages the compost facility. The Division is responsible for 82 acres of public parks and grounds, including 50 acres of active recreation areas (10 athletic fields), and maintains public shade and park trees, under the direction of the Park and Tree Supervisor who is the Town's Tree Warden.

Snow Removal Program

Although the snow fall totals remained light during the 2012 season, the Highway Division saw a constant volume of activity for the Department's winter maintenance personnel, including the ongoing use of salt, sand and brine to keep the roads and sidewalks safe and passable. There were 5 winter storm events requiring full mobilization of forces involving Town staff, with plowing contractors called in on two occasions, while the entire winter maintenance season included 30 events requiring a response for snow and ice maintenance. There were no events that required a full snow removal in the Town centers, with all removals throughout the season handled by Highway and Grounds forces only.

Hurricane Damage

Eastern New England was spared the majority of the damage from Hurricane Sandy. However, Concord was designated as part of the emergency declaration area, and all Highway and Ground's staff were mobilized for six days clearing roadways of wood debris and chipping. The Ground's Division tree crew assisted Concord Municipal Light Plant in clearing major tree damage from wires so that power could be restored.

Roads and Sidewalk Maintenance

Highway crews reclaimed several sections of roadway with full-depth patches of distressed pavement in preparation for certain 2012-13 road projects. Roads and areas that received this treatment included the Compost Site, Rte. 117, Monument St., Lawsbrook Rd., Cambridge Turnpike, and Sudbury Rd. Certain manhole-specific sites received infrared treatment.

In addition to the typical duties of road repair and maintenance, sign repair/replacement, roadside brush cutting and street sweeping, the Highway and Grounds

Division carried out sidewalk maintenance work that included the replacement and repair of the sidewalk on Bartlett Hill Rd., Old Hill Burying Ground, and Fairhaven Rd. A number of other smaller repair projects were completed in cooperation with the Concord Municipal Light Plant, Water and Sewer Division, and Natural Resources Division.

Drainage

One major Town-engineered drainage project on Brooks St. that required numerous new catch basins, manhole replacements/additions, and new drainage lines was completed. Three large retention ponds were cleared and headwall/stonewall repair/replacements were completed in Thoreau Hills, Barrett's Mill Rd., Virginia Rd., Mallard Dr., and Black Duck Rd. Catch basin repairs/replacements were completed on Nashawtuc Rd., Keyes Rd., Fuller Lane, Autumn Lane, Lowell Rd., Old Marlboro Rd., Butternut Circle, Allen Farm Lane, Annursnac, and Crescent St. Catch basin cleaning was completed in east Concord utilizing new catch basin equipment. Catch basin cleaning material was disposed of through a contracted, competitive bid process. Highway staff assisted the Engineering Division with the GIS layer update which included 1,950 structure condition updates and 1,650 survey location updates.

Parks and Playgrounds

The Park & Tree crews maintain almost 50 acres of athletic fields for use by the baseball, softball, soccer, lacrosse and other programs. Sprinkler systems received regular maintenance. Major drainage maintenance work was completed at Cushing field to improve standing water issues. This included funding support from Concord Carlisle Youth Soccer for the rental of a deep tine aeration machine. The Highway and Grounds Division maintained conservation areas, the community gardens, the Visitor's Center, the hanging plant program in West Concord, numerous gateway traffic islands and areas of public access in the business districts. Park and Tree staff participated in regular maintenance of the baseball field at Ripley Field, installation of bike racks at numerous locations, upgrading the playground at Harvey Wheeler, and the installation of plantings along the new sidewalk on Lowell Rd.

Trees

CPW planted 85+ public shade and park trees in accordance with the Department's policy of "the right tree in the right place", and included many trees planted on private property as public shade trees, in accordance with the shade tree setback planting policy. The Park & Tree crews pruned 30+ trees and took down another 100+ trees that had been damaged or were in hazardous condition. Trees continued to be pruned, removed and maintained at Sleepy Hollow Cemetery, with four tree take downs required for safety considerations. Park and Tree staff cleaned up all roadways and right-of-ways following Hurricane Sandy in late October.

The "public shade tree protection policy" continues to be shared with the public, contractors and Town Departments. The Division strives to replace at least one public shade tree for every one that is removed or dies. This is becoming increasingly challenging with escalating costs of nursery stock.

Cemetery

In addition to routine maintenance, the Cemetery Division staff worked on numerous projects and provided contractor oversight on other projects. This included the installation of new handrails on Prospect Path, wall repair around the Melvin Memorial and below the Pines section, removal of unused headstones from long term storage, roadway patching, sanding/painting of the fence at the South Burying Ground and replacement efforts for the access sidewalk to the Old Hill Burying Ground from Monument Sq. This was the first year that

the Cemetery Division contracted outside services for cemetery mowing and fall/spring maintenance in Sleepy Hollow. This contracting option has proven to be successful, allowing the Division to reduce costs and gain efficiencies while focusing Division staff on other higher value maintenance and operational responsibilities.

The Melvin Memorial was monitored daily with maintenance activities including review and treatment of the slate tablets and rifle inserts. The project to replace the chain link fencing along Bedford St. bordering the Sleepy Hollow Cemetery was submitted to the Community Preservation Committee for funding and received Town Meeting approval. Materials were ordered and received in the fall, with installation by Highway Division staff planned for the spring of 2013. The Friends of Sleepy Hollow contributed \$5,000 to assist with this project.

In the 11th year of a multi-phase monument restoration program in the older cemeteries, preservation consultants continued the assessment and physical conservation efforts at Old Hill Cemetery in Concord Center, restoring a pre-set number of headstones and gravesites as well as assisting Cemetery staff with the relocation of previously stored, unplaced headstones.



Emerson Field aka Skating Rink



Snowy day on the Milldam

RECYCLING AND WASTE MANAGEMENT PROGRAM

Rod Robison,
Environmental Services Program Administrator

Curbside Collection, Disposal, and Processing

The municipal curbside collection program provided trash and recycling services to 3,488 households. Subscribers to the municipal curbside collection program set out 1,184 tons of mixed paper, 610 tons of commingled containers, and 2,484 tons of trash for collection. The average household that subscribes to the Town program recycled 0.51 tons of materials and threw away 0.71 tons of trash.

SUBSCRIBERS (AS OF JUNE 30)

Year	Subscribers	Recyclables tons/collected	Trash tons collected	Recycling Rate
FY98	2,518	1,264	2,351	35%
FY08	3,305	2,025	2,467	45%
FY09	3,323	1,864	2,387	44%
FY10	3,407	1,810	2,426	43%
FY11	3,468	1,780	2,483	42%
FY12	3,488	1,794	2,484	42%

(FY = July 1 through June 30)

Curbside Recycling Rate

Residents using Concord's municipal curbside collection program recycled 42% of the materials they set at the curb. This figure does not include yard waste that residents manage at home or drop off at the Composting Site on Saturdays. It also does not include the tons of materials collected for recycling at the semi-annual DropOff-SwapOff days, 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.

Recycling Savings Exceed \$1.8MM

The curbside program received revenue of \$32,200 for paper, and avoided \$92,352 in disposal costs by not disposing of paper as trash. Since July 1998, when the Town began receiving revenue for recycled paper, recycled paper revenue has totaled \$483,127 and avoided disposal costs have totaled \$1,398,835 for an overall savings of \$1,881,962. The Municipal Collection Program received an average of \$27.20 per ton for recycled paper collected at the curb.

Year	Disposal cost	Paper revenue	Avoided disposal cost
FY98	\$110,564	(\$8,061)	\$38,798
FY08	\$194,254	\$58,188	\$116,818
FY09	\$194,254	\$25,833	\$93,282
FY10	\$186,786	\$20,220	\$93,247
FY11	\$191,191	\$30,325	\$91,915
FY12	\$191,815	\$32,200	\$92,352

(FY = July 1 through June 30)

Waste Management Contract

The Town's contract with Waste Management was extended for an additional three-year term after extensive analysis of municipal market and hauler comparison.

Reuse and Recycling DropOff & SwapOff Events Achieved Record Attendance

The May and October DropOff & SwapOff events were a great success with 800+ households participating. Both events went smoothly, thanks to the volunteers that make these events possible.



DropOff Volunteer with fluorescent bulb collection

Unwanted Medication & Sharps Collection

Unwanted medication & Sharps were collected at the May and October DropOff events. Twelve boxes of unwanted medication and eight boxes of SHARPS were collected between the two events.

Year	DropOff SwapOff Participants	
	May	October
1999	521	430
2008	974	918
2009	889	981
2010	931	989
2011	979	891
2012	890	852

Hazardous Products Collection

Subscribers to the curbside collection program receive a free pass per year to the Minuteman Hazardous Products Regional Facility in Lexington, where they can dispose of hazardous waste. The facility is open one weekend day a month from April - November. Fifty curbside subscribers visited the site in 2012, along with six non-curbside subscribers who paid the vendor directly. Concord Public Works hosted a hazardous waste collection for residents at 133 Keyes Rd. that was attended by 133 curbside subscribers and 6 non-subscribers.

Composting Site Turns Yard Waste into Garden Gold

From April through December, residents made more than 6,000 visits to the Compost Site, dropping off leaves, grass clippings and brush, while 200 residents dropped off paint at the paint shed and 190 residents picked up paint. 1,125 Christmas trees were recycled and 81 bags of Styrofoam were collected for recycling.

Year	Visits to the Composting Site			
	Leaves & grass	Brush	Paint Drop-off	Paint Pickup
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

Keeping Mercury out of the Environment

Concord Public Works collected 10,247 linear feet of fluorescent light bulbs and 298 lbs. of nickel cadmium, lithium, and lead acid batteries from residents and municipal facilities, for recycling. This is in addition to 44,399 lbs. of computers, TV's, and other electronics that were collected at the two DropOff events. 6,302 linear feet of fluorescent bulbs and 5,841 lbs. of computers and electronics were collected from businesses at the April and September business recycling events.

Annual Right-To-Know & Hazardous Waste Training

Annual Right-To-Know & Hazardous Waste training was conducted for CPW employees. The training is required by the Mass. Division of Occupational Safety (DOS), and Hazardous Waste training is mandated by the EPA and MassDEP.

DEP Sustainable Materials Recovery Program Grant

CPW submitted a grant application and was awarded a "reimbursement" grant of \$1,250 for the purchase of

seven new wire-frame recycling bins, under the DEP Sustainable Materials Recovery Grant Program.

WATER AND SEWER DIVISION

Alan 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 the water and sewer systems would be financially viable. Expenses incurred for each system are covered by revenues generated by the 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 and, as of 2011, the total assets for each system are 19.5 million and 23.4 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. The water system includes six groundwater and one surface water source, seven pumping stations, two treatment facilities, and a high pressure water main network consisting of over 130 miles of pipe. Two covered storage reservoirs, one located at Annursnac Hill and the other located at Pine Hill in Lincoln provide total reserve capacity of 7.5 million gallons. There are presently 5,537 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.

Massachusetts Water Works Association Award

CPW Water Division was presented with an award issued through the Massachusetts Water Works Association (MWWA) for "Exemplifying the Highest Standards of Water Works Practice." Massachusetts Water Works is a non-profit organization dedicated to safe drinking water and the advancement of the drinking water profession, with over 1,300 members from across Massachusetts. Concord was the sole recipient of this esteemed award.

Water Use and Demand Management

The total water production used to meet residential, commercial, institutional and municipal needs in 2012 was approximately 745 million gallons with an average daily demand of 2.04 million gallons. On the peak day, water demand was 3.91 million gallons.

The Executive Office of Energy and Environmental Affairs released a new framework called the Sustainable Water Management Initiative (SWMI) outlining how they intend to deal with regional water allocation challenges facing the Commonwealth. Pending the development of new regulations, water suppliers will be held to new and costly controls on all increased water withdrawals that will translate directly to increased efforts on demand management. This policy has begun to influence how we position ourselves to meet such challenges, as exhibited by recent efforts to improve our Seasonal Demand Management Plan, focusing attention on volunteer and mandatory outdoor water use strategies. Concord was involved in the review process that led up to the development of this framework and has expressed concern that this effort will not only introduce long-range planning uncertainty for water supply reliability, but could adversely impact economic growth and development interests. Concord will continue to provide updates to our customers to ensure whatever we do is consistent with community needs and interests.

Water Conservation Program Highlights

Concord Water Division offers a variety of programs to support and encourage wise water use. The Division

participated in a Massachusetts Department of Environmental Protection (MassDEP), Water Conservation Grant, which provided funds to support low flow toilet replacement rebates, high efficiency clothes washer rebates and installation of hands free bathroom faucets at the Town House and Hunt Gym.

The Division coordinated a bulk purchase rain barrel initiative to help reduce costs for these devices to our customers. These barrels provide supplemental water storage for what is considered to be one of the most basic and easy to implement approaches to localized “water re-use” - harvesting rainwater.

Division Staff continues to visit Concord Public Schools where we meet with a willing, able and receptive audience of 4th graders. Students learn about the importance of conserving water and protecting drinking water supplies through an interactive presentation that includes videos, a groundwater model demonstration, games and take home activities. This annual event is enjoyed by division staff, students and teachers.

Residents interested in learning more about what can be done to save water and money may visit the Town of Concord Water and Sewer Division website (www.concordma.gov/water) and search for the water conservation programs. Additional information and opportunities can also be found through the Environmental Protection Agencies national “WaterSense” initiative. For information on water efficient appliance ratings visit the Consortium for Energy Efficiency (www.cee1.org).

ANNUAL WATER REPORT SUMMARY

Water Statistics	2012	2011	2010	2009	2008
Miles of Main	130.9	130.9	130	130.22	129.75
Hydrants	1,283	1,270	1,263	1,262	1,250
Main Pipe - New (linear feet)	1,595	4,300	N/A	2,491	1,080
Main Pipe - Replaced or Rehabilitated (lf)	1,950	785	2,262	1,908	3,600
Number of Service Accounts	5,537	5,491	5,448	5,437	5,436
Total Water Demand (million gal.)	745	684	748	676	707
Daily Average Demand (million gal.)	2.04	1.98	2.12	1.85	1.93
Peak Day Demand (million gal.)	3.91	4.11	4.63	3.00	3.47
Annual Precipitation (inches)	40.48	57.63	54.81	50.75	63.74
Mean Annual Precipitation (inches)	42	42	42	42	42
Residential Rate per Unit (unit = 748 gal.)					
Base Rate- Step 1	\$4.24	\$4.10	\$3.96	\$3.83	\$3.72
Conservation Rate- Step 2 (May 1- Oct. 31)	\$8.48	\$8.20	\$7.76	\$7.51	\$7.06
Conservation Rate- Step 3 (May 1- Oct. 31)	\$10.60	\$10.25	\$9.90	\$9.58	\$9.28
General Service Rate per Unit of 748 gallons					
Step 1- (<50 Units)	\$4.24	\$4.10	\$3.96	\$3.83	\$3.72
Step 2- (>50 Units)	\$5.39	\$5.21	\$5.03	\$4.86	\$4.62

Water Quality and Regulatory Compliance

In accordance with MassDEP regulations, water quality testing continues to demonstrate that the drinking water provided to our customers satisfy State and Federal requirements. A summary of the water quality test results is available on the Town website and the Annual Water Quality Report is distributed to residents each spring.

MassDEP performed a comprehensive sanitary survey of all water pumping, treatment and storage facilities to evaluate day to day operations, equipment integrity and facilities. Their findings affirmed that Concord's water system is well run and maintained.

Cross Connection Control Program: The Water Division was asked to complete and submit a new, extensive questionnaire developed by MassDEP designed to capture and update all elements of an approved cross connection control program. A cross connection is any physical connection which is created between a drinking water supply line and a piece of equipment or piping containing water that does not meet drinking water quality standards, or contains other substances that make the water unsafe to drink. It was determined that all components meet the requirements of Massachusetts Drinking Water Regulations.

Pumping Station Rehabilitation and Upgrades

In addition to routine maintenance and inspection efforts, capital upgrades were made to replace and improve specialized motors, pumps, electrical systems, and treatment systems housed within these facilities. The following improvement activities are especially notable:

Deaconess well and treatment facility: This 1948 era well had lost approximately 50% of its permitted yield. A construction contract was awarded to install a new (satellite) production well to restore its permitted capacity. New mechanical, electrical, and instrumentation systems were also installed.

A detailed inspection of the iron and manganese filtration units determined that all vessels were sound and operating effectively. Station crew upgraded the original pumps with more conventional and reliable chemical feed pumps.

Rte. 2A Water Production Facility: A major facility upgrade at the 60 year old Rte. 2A pumping station was completed with minor modifications to the ozone treatment facility. The work included the a new outdoor dry well, emergency generator and UV disinfection equipment, replacement of chemical storage and feed systems, and electrical and instrumentation systems. Improvements to the ozone treatment facility included the installation of a new venting system, replacement of one air compressor unit, and replacement and upgrade of an obsolete communication and control system.

Nagog Pond Dam Reconstruction: Contracts were awarded for the design and rehabilitation of an existing concrete dam, assessment of the intake piping, spillway, and gate/control valving in accordance with Mass. Office of Dam Safety requirements.

Nagog Dam Intake Pipe: A certified diver was contracted to coordinate a preliminary inspection of the Nagog Pond intake structure to evaluate the external condition of the cast iron water main installed in 1909.



Nagog Pond Dam

The pipe is in fair condition. A report will be generated for DEP and for inclusion in a more detailed assessment to determine the best alternative for rehabilitation or replacement of this intake structure.

Nagog Pond is operated in accordance with a filtration waiver due to a comprehensive Watershed Protection Program and the high quality of the water. The Division issued a Request for Proposals for designer engineering services for hiring an engineering firm capable of evaluating treatment alternatives and land use options that could best inform the Town regarding long-term treatment interests. The work noted is designed to identify the true costs and appropriate schedule for installing a full scale filtration system.

Water Main Rehabilitation and Extension Programs

Contractors have completed water main replacement work along Belknap St. from the intersection of Thoreau St. west to an existing hydrant. The scope of work included the installation of a temporary water bypass piping system, a new cement lined ductile iron (CLDI) water main, individual service lines from the main to shut-offs near each property and pressure and water quality testing of the main.

The first phase of water service replacement work at the Concord Carlisle Regional High School and Beede Center facilities located on Walden St. was completed.

CLDI water main was installed to complete the water main loop through the Town-owned section of land along Old Powder Mill Rd. This was required to complete a water system loop, extending from Forest Ridge Rd. to Border Rd., which will ultimately increase the reliability of water service and improve water quality and fire protection to the new 350-unit residential subdivision identified as Concord Mews.

Contractors installed new CLDI water main to create a fire protection loop between the fire service main serving 300 Baker Ave. to the Town-owned water main located on Baker Ave. Extension. This water service work was completed as part of the new Medical Office facility under construction at 330 Baker Ave.

In accordance with a condition incorporated in a Water Management Act Permit and as a part of the Division's ongoing preventive maintenance program, water main leak detection surveys on approximately 50% of the

water main distribution system were completed. This electronic leak detection technique has the ability to pinpoint very small water leaks that could otherwise go unnoticed for long periods of time. The work was partially funded by a MassDEP water conservation grant.

ISO Public Protection Classification Program

Every ten to fifteen years, ISO performs an evaluation of municipal fire suppression services, including an assessment of the supporting water system infrastructure. This classification is referenced by insurance agencies when determining premiums for individual property policy holders. Concord has been rated as a Class 4 system, a good rating for a community of this size.

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 constructed, carrying wastewater from Concord center via a network of gravity mains to a collection chamber located at 141 Keyes Rd. where it was pumped to a cluster of filter beds located on fields located adjacent to Great Meadows. Over the years, service needs and treatment goals have evolved resulting in a series of collection system expansion initiatives and treatment system improvements. The present sewer system serves over 1,837 accounts (35% of the community) and consists of 33 miles of collector mains (gravity and low pressure), two pumping stations and six neighborhood lift stations.

Pumping Stations

Park Lane and Gifford Lane Rehabilitation: A construction contract was awarded for a sewer ejector station replacement project planned at the Park Lane and Gifford Lane stations.

In October, tropical storm Sandy significantly tested the resiliency of our existing sewer system, and the mettle of our operations group. As the weather forecasts grew increasingly ominous, utilities were warned that they should be prepared for record flooding and widespread and prolonged power interruptions. On extremely short notice, staff successfully procured a combination of temporary emergency generation units and pumping systems required to provide back-up service at all sewer stations. On a positive note, a combination of well-orchestrated effort, extremely timely support provided

by outside equipment vendors, and a little help from Mother Nature, the sewer facilities fared well, with no customers experiencing any interruption of service. While we are pleased that our emergency preparedness efforts were successful, the exercise highlighted serious deficiencies in the area of back-up power needs at several critical stations. As a result, the Division is in the process of addressing these deficiencies by moving forward with the procurement and installation of standby generation at several key facilities. This work should be completed within the next year.

Sewer Main Extension and Rehabilitation Programs

Brooks St. Relay: Approximately 40 ft. of sewer main and several services had to be relayed along Brooks St. to allow for the installation of new drainage system improvements designed by Concord Engineering Division. The new SDR-35 sewer line was installed by water operations crew with assistance by the Highway Division.

Concord Carlisle High School Relay: A contractor replaced an antiquated section of an existing sewer line used to service both the Concord Carlisle High School and the Beede Center facilities located on Walden St. This work, coordinated with site drainage system improvements, involved the replacement of approximately 1,097 feet sewer main with a new PVC main (SDR 35) from the manhole on the existing access road through the lower playing field and into a public manhole on Thoreau St.

Elsinore St. - Extension: The Public Works Commission approved a request to extend the sewer main along a small section of Elsinore St. The need for this low pressure sewer main was identified within the Comprehensive Wastewater Management Plan. Contractors installed low pressure sewer line from an existing manhole in front of 143 Elsinore St., terminating at a flushing assembly in front of 109 Elsinore St.

300 Baker Ave - Rehabilitation: The owner 300 Baker Ave. agreed to rehabilitate a failing sewer line that connected its property on one side of the Assabet River to the municipal sewer collection system located on the other side of the river. A special cured-in-place pipe technique was used to rehabilitate leaking sewer pipe with no disturbance to the nearby wetlands.

Infiltration and Inflow Program

Concord Public Works has an ongoing program to investigate and eliminate infiltration and inflow (I/I) from the Town's sewer system. Inflow refers to rainwater that enters the sewer system via connections to storm drainage systems (e.g., catch basins, roof gutters, or sump pumps tied into sanitary sewer pipes). Infiltration refers to water which seeps into cracks or leaks in the sanitary sewer system. The goal of this program is to increase available capacity to serve the needs of our community while decreasing the amount of clear water unnecessarily treated at the municipal wastewater treatment plant.

Each year, crews perform a variety of collection system inspection and maintenance activities designed to identify trouble areas and prioritize preventative maintenance and replacement needs. This year, the work included the closed-circuit television inspection of over 11,190 linear feet of sewer mains, root control performed on 10,000 feet of main, and the replacement or repair of six services.

Wastewater Treatment Plant Operations and Facilities Improvements

Woodard & Curran, Inc. operates the Town's Wastewater Treatment Plant (WWTP), located off of Bedford St., under the direct supervision of the Water and Sewer Division. The plant maintains excellent compliance with its regulatory requirements, in accordance with State and federally issued permits.

While no notable maintenance and improvement activities were performed at the WWTP, inspection performed on both primary clarithickeners have identified significant degradation of the cement walls, in the area confined within recent odor control panels. As the rate of degradation is significant, plans and specifications are being developed to address this issue.

The National Pollutant Discharge Elimination System (NPDES) Permit issued to Concord for its ongoing use of the WWTP must be reviewed and reissued by the State and Federal government once every five years. In July, Concord was issued a Draft NPDES permit for the existing treatment facility which included several new conditions that would result in a significant increase in cost of operation. In accordance with the regulatory permitting process, the Town, along with several special

interest groups, provided comments on this draft permit. Concord's comments involved concerns regarding ongoing capacity constraints and the inclusion of a new Aluminum standard. Regulators have not yet released a final permit and until such time, the plant will continue to operate under the permit which had originally been scheduled to expire on March 13, 2011.

Wastewater Planning

The Wastewater Planning Task Force, formed at the request of the Board of Selectmen, has continued to meet and attempt to understand short-term and long-range alternatives available to address Town-wide wastewater capacity needs. The task force is supported by Concord Public Works and Planning and Land Management staff along with Weston & Sampson Inc. To date, no one final solution has been identified nor offered, however, progress has been made on the following fronts.

Following favorable preliminary tests of a potential large scale groundwater discharge site at the existing wastewater treatment facility, a detailed hydraulic loading analysis of the abandoned sand beds was completed. The findings demonstrated that a potential loading rate of approximately 155,000 gallons per day may be available with an acknowledgment that regional groundwater mounding impacts have not been factored in as a limiting constraint. The report was finalized and submitted to MassDEP. While it is recognized that the loading capacity of such a groundwater discharge site

will not address all identified expansion needs captured within the long-range wastewater management plan, it represents an important step forward.

Concord requested a meeting with regional EPA and MassDEP permit writers to explore possible partnerships in developing a model integrated water management approach. The Town contends that such an approach could address its wastewater capacity constraints in an environmentally and economically beneficial manner if the Town were able to leverage efforts and investments made under several, presently disparate regulatory programs – specifically in the areas of drinking water, stormwater and wastewater management. The meeting was requested to allow us to highlight longstanding capacity constraints faced by the community and inquire as to their potential receptiveness for allowing an increase in Concord's wastewater discharge permit with consideration to water quality and quantity “offsets” that could be realized using an integrated water resource management approach. While it is generally acknowledged and understood that such an approach has scientific validity and could certainly be more economically beneficial to the community, existing permitting silos remain. As the industry and regulatory approach evolves and costs for regulatory compliance continue to increase, the Wastewater Planning Task Force has encouraged staff to track this approach and be prepared when and if such an option can be realized.

ANNUAL SEWER REPORT SUMMARY

Sewer Statistics	2012	2011	2010	2009	2008
<u>Assabet Pumping Station</u>					
Total Pumped (million gallons)	72.71	89.48	96.06	87.92	98.44
Monthly Average (million gallons)	6.06	7.46	8.00	7.33	8.2
Daily Average (million gallons)	0.20	0.24	0.26	0.24	0.27
<u>Lowell Road Pumping Station</u>					
Total Pumped (million gallons)	278.64	352.89	363.48	340.88	387.80
Monthly Average (million gallons)	23.22	29.41	30.29	28.41	32.32
Daily Average (million gallons)	0.76	0.97	1.00	0.93	1.06
<u>Collection System</u>					
Number of Service Accounts	1,837	1,823	1,811	1,804	1,780
Miles of Sewer Main	33.80	33.74	33.36	33.36	33.36
Main Pipe Inspected (lf.)	1,119	1,478	2,257	11,123	6,340
Main Pipe Replaced/Rehabilitated (lf.)	40	1,194	0	832	0
Rate per Unit (unit = 748 gallons)	\$9.66	\$9.20	\$8.76	\$8.35	\$7.95