



TOWN OF NEWTOWN
PUBLIC WORKS DEPARTMENT

Clean Water and Storm Water Management Plan
Updated 2/15/21

The public is encouraged to review and comment on both our continuing overall plan for the Town and our proposed actions for this coming year. All questions and comments should be addressed to the contact information above prior to March 25th. These remarks will be considered and included as appropriate in our MS4 Annual Report to CT DEEP on April 1, 2021.

2021 Action Plan:

In addition to the continuation of all the activities listed below in our overall plan for the Town to protect both the surface and underground waters of Newtown, will be the following for this year:

GIS Mapping – To date we have mapped 100% of the outfalls to the various bodies of water in the Town. We have mapped 85% of the catch basin structures and 70% overall of the piping connecting those basins to the outfalls. It is our intent thru the review of existing “as-built” drawings and some field work to bring the overall connection of basins, pipes and outfalls up to 85% of the overall system. It would be our future intent to identify the last 15% of connections by the end of 2023. That completed system will be the spine for data inquiry and collection. It will also enable very selective and complex study and analysis of the entire watershed which will be discussed in the next section. However, the activity for this year will require multiple staff efforts as well as the use of interns and public volunteers. Any member of the public interested in this particular activity would be most welcome.

Pootatuck Watershed Plan: Beginning February, 16, 2021, the Housatonic Valley Association will be the steering mechanism for the development of a complete watershed management plan for the entire Pootatuck Watershed. The initial effort will be two fold. First, to collect all the available data, studies, reports, or information of any kind relevant to the Pootatuck Watershed. Second, to develop a communication plan to make this information readily available to the public.

The first part already has the participation of and documents from not limited to the following: USGS Sole Source Aquifer Pootatuck Basin Hydrogeologic Study, USGS Stream Flow data,

CT DEEP fish sampling and studies, CT Valley Trout Unlimited Macroinvertebrate studies, Potatuck Fish & Game Club, Town of Newtown Drainage Master Plan, numerous water quality samplings, Newtown Health Department illegal discharge and septic system failure information, Newtown Public Works Wastewater, Water and Storm Water data and more than a score of other individuals and information sources that will be combined into an “Existing Conditions Report”. That report will provide the blueprint for all types of actions within the watershed to improve it now and for the generation to come. Many of these activities will need volunteers on a very large scale at times to accomplish this task. We are soliciting that assistance now and will find an appropriate place for your talents. This effort will be plugged into various aspects of the Town’s MS4 program as appropriate and will be noted in our April 1, 2021 filing to CTDEEP

Finally, the development of the communication plan for this effort will also welcome public participation

ONGOING BASE PLAN

Base Plan Overall Introduction:

The Town of Newtown has a unique situation with regard to water/storm water management not typically faced by other municipalities in the State of Connecticut. It has a sole source aquifer that provides most of the Town with its potable drinking water. This water is supplied by private wells and public wells operated by a public utility. As a result, attention to both groundwater and surface water contamination becomes important. At 60 plus square miles in area; a 275 mile road system; over 9,000 catch basins and more than 1,000 storm water outfalls into water courses; it has one of the largest storm water systems in the State except for the largest cities. Finally, many municipalities might have one to four watersheds but Newtown has 7 to 13 to 34 depending on how you want to break them down. These watersheds eventually empty into several river systems which have some form of impairments. Yet all these concerns must be managed without the human or financial resources of the larger municipalities.

Over the years, the Town has faced many challenges from different types of water pollution. The introduction of sanitary sewers is only the most visible response. There has been pollution of drinking water wells in and around the Town Garage not caused by the adjacent landfill but from a neighboring industrial plant that was dumping solvents on the surface. Eventually this pollution leached underground and migrated to nearby drinking wells. The polluter had to install a public water line for correction and is still required to monitor this pollution plume. A similar incident, in a residential neighborhood, where the polluter could not be identified, resulted in the installation of another public water line thru a one-time grant from the CT Department of Public Health. Finally, the Town remediated, with State of CT assistance, but still monitors both surface and ground water pollution, at Fairfield Hills from the use of heavy metal insecticides used by the State of Connecticut, when they operated the hospital facility.

There are many other specific examples.

There is no single Town department that can meet this challenge nor is it financially feasible to farm out the responsibilities for water/storm water management, oversight and protection. We integrate the responsibility, fiscal and physical response over multiple departments coordinated by the shared objective of clean water for our water courses and our drinking water. However, one of our most important allies in this effort is the public. While the various departments do sampling and inspections, the vast majority of actionable situations come from public observations and complaints.

Some entities consider point source (sewers) and non-point source (storm drains) to be separate issues. Particularly in “urbanized” areas they can be very much a related concern. Our “urbanized” area encompasses the entire sanitary sewer system area and our lakeside communities. A leaking sewer main can be a direct threat to a storm drain leading to a water course or a failing septic system near a lake can contaminate that water body. When you add the daily petroleum pollution deposited from vehicles on impervious surfaces such as parking lots and roadways or the bacterial pollution that can flow out of woodlands adjacent to water courses, it becomes clear just how complicated the problem really can be. The following sections break down the Town response by departments, agencies or boards to put some organized approach in explaining the Town plan in dealing with all these issues.

Public Works / Water & Sewer Authority (WSA):

This department and agency are the primary response by the Town to the issue of point source pollution. They run the Town’s waste water system that encompasses most but not all of the “urbanized” area. They cooperate with the Health Department with failing septic systems that can migrate from groundwater to surface water contamination. They operate a 932,000 gallon per day waste water treatment plant with 23 miles of collection pipe; a separate low pressure sewer system with 3 miles of collection that flows to a neighboring municipal treatment plant and over 100 individual residential and commercial grinder pumps. They also oversee several large community septic systems with subsurface disposal. Finally they run both the sanitary sewer and potable water system at the former state hospital on Fairfield Hills which has become a municipal campus.

The WSA has a sewer avoidance program that is unique in the State. With the creation of the sanitary sewer system, in 1997, it established a “Septic System Repair Fund” that provided low cost loans to assist homeowners in keeping their septic systems in good repair to avoid the need to expand the sanitary sewers. It also established a “Health Panel Review Board”, in conjunction with the Health District and the Land Use Department, to further oversee any development or building expansion in environmentally sensitive areas to again stop the need for sanitary sewer expansion.

The WSA through contract operation inspects and maintains the integrity of its sewer system to prevent contamination of ground and surface water. Both visual and camera inspections of the system are conducted on a regular basis. When problems are found, the WSA is self-funded

through benefit assessments and user fees to respond immediately to both maintenance and capital related issues. Since the WSA opened its wastewater treatment plant, on September 5, 1997, and took over responsibility for the State of Connecticut water system at Fairfield Hills, August 4, 2004 it has spent over \$40 Million in capital investment and continues to spend millions annually to operate both the sewer and water systems. The WSA has its own “Water Pollution Control Plan” and regulations which are available on the Town website and through the Town Clerk.

Public Works / Highway/Engineering:

This division of the department handles the bulk of the Town’s direct response to needs for controlling and remediating the effects of non-point source pollution from storm water run-off from municipal roads and storm water drainage system.

The Engineers have been systematically replacing the storm drains on our 275 miles of road over the last 30 years converting metal pipe that is failing to PVC or concrete. When these changes are made, sumps that collect large quantities of debris are added to the catch basins, keeping this form of pollution out of the storm water system. Where necessary, detention basin or larger sumps are added if they can be designed to allow maintenance. They also use overland sheet flow, wherever possible, because adequate vegetative filtering of the surface water runoff before it re-enters the nearest water courses can all but completely eliminate surface water pollution compared to a directed system.

Highway is responsible for sweeping the roads. This is done on every road at least once a year. The initial sweeping is done in the lakeside communities (part of our urbanized area) each spring to remove the largest amount of road debris possible remaining from the winter before it is deposited in the lakes which are part of the Housatonic River. The Town utilizes both contract sweepers and its own sweeper for this task. The Town sweeper is utilized almost year round to re-sweep “urbanized” areas or as needed for municipal/school parking lot or road spill cleanups. Highway also utilizes contract catch basin cleaning as well as its own “vac-all” truck for both basin and pipe cleaning year round. Historically, the Town has cleaned half or 4,500 of the catch basins annually, which meant that every catch basin was cleaned at least bi-annually. However, with the emphasis on the “urbanized” area, as the assumed larger source of non-point source water pollution, each of the 3,100 catch basins in that area will be cleaned annually. The balance of the Town (6,000 basins) will shift from a bi-annual to a four year cycle, unless inspections note a more frequent need. The repair and replacement of road and drainage system failures; bank and road blowouts or similar physical failures are all repaired by Highway personnel or on-call contractors.

The department also provides the largest organized and most consistent inspection of the storm water system as part of its semi-annual infrastructure inspection. The 60 square miles and 275 miles of Town roadway are divided into four sectors by the department with each sector having its own supervisor. These sectors are further divided by snow plow routes so that in total there are 20 inspection routes. Twice a year, the appropriate supervisor and the driver of a specific

route are tasked with inspecting and evaluating need on that route for all types of infra-structure ranging from a filled catch basin to a missing stop sign. Typically these are spring and fall inspections but at any time during the year a work request can be filed for a need. These work orders can come from the department, another department or the public for which there is a reporting form on the Town website. These work orders then appear on the Town GIS site so that they can be tracked by the public, if they choose.

The department is responsible for snow removal which has an enormous impact on surface and eventually groundwater. To minimize the overall impact of salt on the environment especially due to the Town's aquifer being its primary source of potable water, it uses a treated salt that has an organic additive which rebalances the pH of the mixture content to minimize the corrosive impact of the deicers. The Town also uses a 50% salt / 50% abrasives (sand) mix to further reduce the negative environmental impact of the deicers. To remove these abrasives and salt residues from the road system and reduce their entry into the storm drain system, 100% of the road system is swept every year and environmentally sensitive areas such as the riverside communities sooner and more often. Generally an area will be swept before the basins are cleaned to remove the maximum amount of debris overall from both the roads and the catch basin sumps.

Since approximately 2000, this approach has reduced the use of abrasives from 18,000 cubic yards annually to 4,000 cubic yards. At the same time, deicer usage has only increased from approximately 2,000 cubic yards to 4,000 cubic yards. Comparable municipalities that have transitioned to "deicer only" have seen their use of salt go from 2,000 cubic yards to 8,000+ cubic yards annually. Other benefits of the Newtown approach reside with changing weather where the roads are safer from the very beginning of the storm without waiting for the salt to do its job and safer during changing conditions in the storm where the precipitation can change from snow to rain to sleet and back again when deicers have periods of little effect. Our residual grit provides traction. To date we have not seen any impairment of our private wells or the public water supply from deicers from Town roads. However, there have been complaints along State roads attributed to the "salt only" policy and the use of deicers without additives for rebalancing of the pH.

Public Health District: This stand-alone department has a number of responsibilities that overlap or interact with the WSA, Public Works, Wetlands and Land Use. They also are a prime component in the effort to find and correct "illicit discharges" to our water courses. Detection of these illicit discharges may then involve one or more of the departments with whom they work to remediate a problem. A failed septic breaking out to a drainage swale creates both groundwater and surface water contamination. Health is a primary member on the Town's "Health Panel Review Board" along with the WSA and the Land Use Department. This panel seeks to ensure that property building expansion, whether adding a bedroom or changing a structures footprint, in environmentally sensitive areas, such as Lake Zoar, do not overtax the environmental control systems of the proposed building. The Department has also worked with the WSA to create "community septic systems" where individual solutions would not be possible.

Parks & Recreation: This department has both a direct and indirect impact on clean water and mitigation of storm water runoff. It is the custodian of the municipal grounds, parks and fields. Over the past five (5) years, it has made a concerted effort to reduce the use of synthetic fertilizers and water soluble nitrogen sources to organic carbon/mineral based materials. As a direct result. Nitrogen application rates which had been 5 lbs. per thousand square feet have been effectively reduced to 3 lbs. per thousand square feet. These “long chain carbon urea fertilizers” are extremely “insoluble” which means they don’t leach into water courses or potable water sources. In addition to nitrogen, another major concern is the impact of phosphorus. Based on actual soil testing, phosphorous application rates have been reduced from 3 lbs. per thousand square feet to less than .5 lbs. per thousand square feet. To get these kinds of results, the department has incorporated the use of “Cool Terra bio-char” as a soil amendment. This has built soil biology and has led to significant impact in reducing phosphorous and nitrate leaching from fields. In addition to the change in fertilizer usage, the department has established buffer areas at many fields to reduce fertilized acreage as well as act to filter runoff from various field locations. For example, the municipal dog park is designed to be self-cleaning but it also uses overland flow thru vegetative material to ensure no impact to the nearest water course. All of these changes or implementation of policy have a price. The cost of more environmentally friendly forms of fertilizer have continued to increase by 10% annually and have added more than \$40,000 over the past three (3) years. The establishment of the buffers continue to require personnel, material and equipment to maintain their effectiveness but that added expense is contained within the department budget.

Land Use / Wetlands: Land use encompasses many different concerns and responsibilities. There is the planning reviews to see that all land use regulations and policies are met and there is the enforcement function for everything from wetland use violations to incorrectly paved parking areas from site approvals. They are concerned with developers and builders following soil and erosion control regulations and best management practices during construction and post construction system maintenance of storm water control systems. They are also a participant along with the WSA and Health Department, in the “Health Panel Review Board”.

Generally, the regulations and authorities under which the department operates, in addition to local ordinances and regulations come from State and Federal law. Various members of this department derive their legal enforcement powers to stop all kinds of improper activity and can issue cease and desist orders or violation notices, if necessary. In this they share the same type of authority that sewer, health and building officials have to protect public health.

But the planning function of the department(s) may have the most long term impact on storm water management and the contribution that proper development can make to clean water. The department in approving new projects going forward or substantial redevelopment of existing properties has the opportunity to promote reductions in impervious surfaces, filtered storm flows thru retention/detention holding systems, groundwater recharge strategies such as pervious pavers and a number of other new technologies. To attempt to require existing structures and systems to convert for the reduction of impervious surfaces or to end the direct

connection of impervious areas to storm drains can be at best difficult to achieve. But, when these efforts are included in new or redeveloped construction the painful to financially impractical can be overcome. This has been their approach for almost 20 years. Long before the current regulation efforts.

Other Jurisdiction and Entity Interactions: The Town does not exist in a vacuum when it comes to either groundwater or surface water management. Watercourses run in and out of neighboring municipalities and State Highways run through all parts of Town with their drainage systems emptying in and affect the overall water quality. The State and each of the neighboring municipalities have their own plans for managing clean water and storm water management. Where there is interconnection, we cooperate with them to maintain those systems if practicable.

We also participate with various watershed associations and regional cooperative authorities such as the Housatonic Resource Recovery Authority (HRRA). As a founding member of that authority, the Town sponsors and participates in five annual household hazardous waste collection days annually open to the 12 member municipalities. These public collection days keep untold tons and thousands of gallons of hazardous liquids and materials from contaminating our groundwater and out of our water courses.

Mapping: The Town has geographically (GIS) mapped the entire Town and has that available on the Town website. We have all 9,000 catch basins on the current mapping and are in the process of tying them together with our hundreds of miles of drainage piping and our 1,211 outfalls to water courses. This will graphically portray our entire drainage system. One can then trace potential impacts on the 34 watersheds of the Town's 60 square miles. We can also begin to monitor existing "directly connected impervious areas" (DCIA) such as parking lots and other paved areas for remediation and begin to catalogue new development and attendant storm management structures and systems.

Public Involvement: The two things that should be clear in reviewing this entire plan is first the overall size and complexity of the problem and second the essential element played by the public. No matter what the regulatory agencies want in regard to monitoring, testing or sampling etc., the Town will never have adequate personnel or financial resources for this task. This makes public involvement the one "essential" component of the entire plan. Below are the contact numbers for all the partner departments. If you see something, call one of these departments. It doesn't matter if you initially call the wrong department. You will be directed to the right people to address your concern.

Public Works	203-270-4300
Engineering	203-270-4300
Land Use/Wetlands	203-270-4276
Health	203-270-4291
Park & Rec	203-270-4340

Summary: The foregoing has been an attempt to outline the overall Town plan and integrated effort to provide and protect clean water. It also outlines the activities and planning by the various departments to address both point and non-point sources of water pollution. Pollution that can damage our potable water sources, impair the 34 watersheds and our main water courses for safe use by the public and the promotion of a generally healthy environment. The effort will never have a conclusion or an endpoint. Clean water is a struggle that must be pursued by each generation for itself and for those that follow. In the end there are no final victories, just skirmishes that must be waged over and over again by each one of those generations.