Still River (CT6600) Summary

Still River (CT6600-00_05)

WATERSHED DESCRIPTION

The Still River sub-regional basin is located in the southwestern portion of Connecticut (Figure 1). There are two towns located in the Still River watershed, including the municipalities of Danbury and Ridgefield, CT (Figure 2).

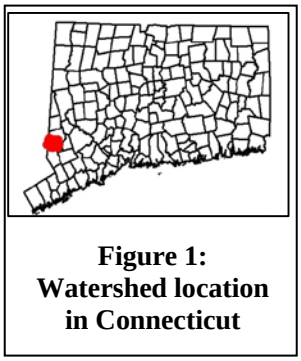


Figure 1: Watershed location in Connecticut

The Still River sub-regional basin includes one segment impaired for aquatic life use. This segment was assessed by Connecticut Department of Energy and Environmental Protection (CT DEEP) and included in the CT 2012 303(d) list of impaired waterbodies. Some segments in the watershed were currently unassessed as of the writing of this document. This does not signify that no concerns exist in those segments, rather it is an indication that there are not current data to evaluate the segments as part of an assessment process. An excerpt of the 2012 Integrated Water Quality Report is included in Table 1.

Impaired Segment Facts

Impaired Segment:
Still River (CT6600-00_05)

Municipalities: Danbury and Ridgefield

Impaired Segment Length (miles): 3.87

Watershed Area (square miles): 15.96

Watershed Impervious Cover: 14%

Water Quality Classification: Class A

Designated Use Impairments: Habitat for Fish, Other Aquatic Life, and Wildlife

Sub-regional Basin Name and Code:
Still River, 6600

Regional Basin: Still River

Major Basin: Housatonic River

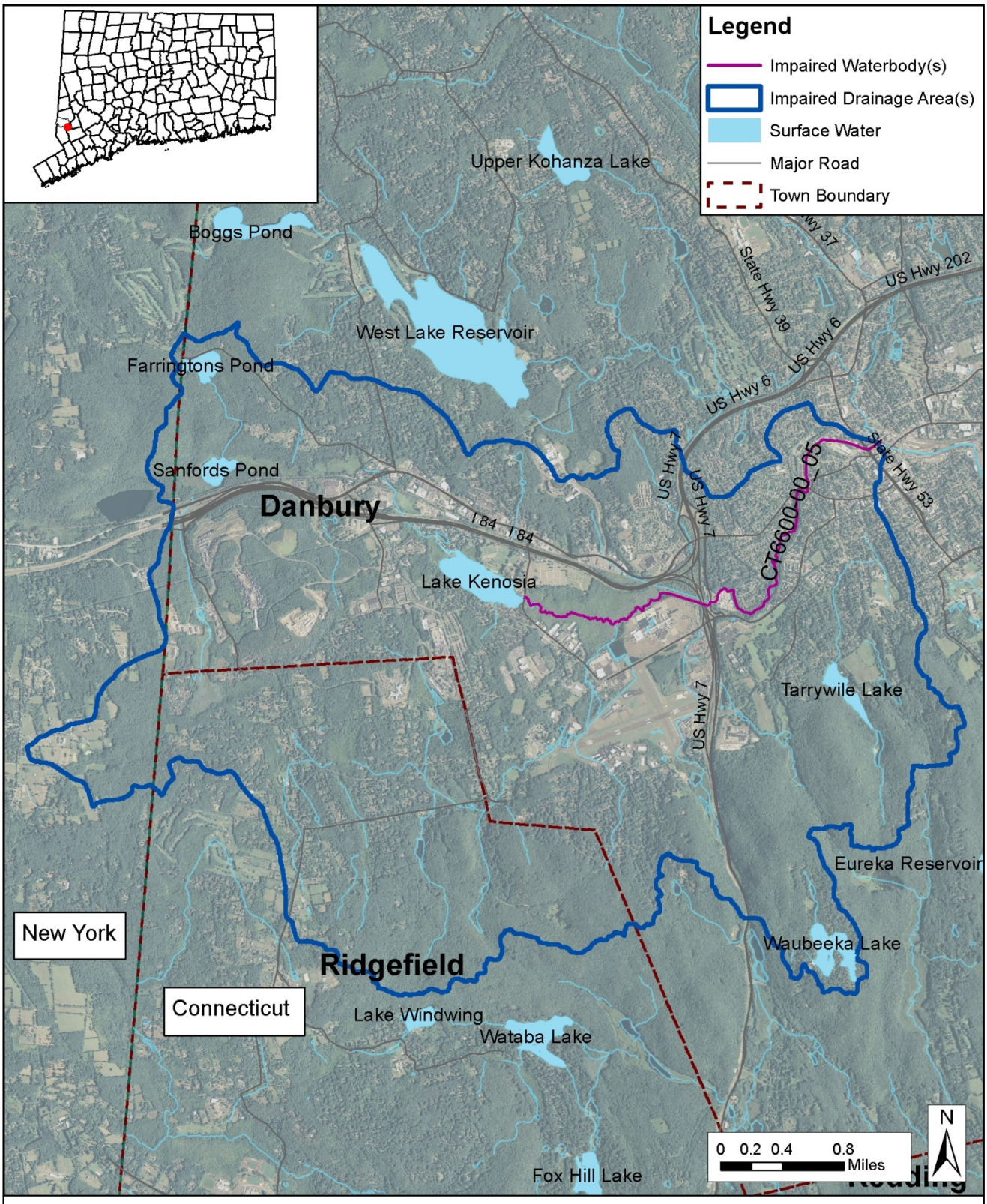
Still River is a tributary to the Housatonic River. From upstream to downstream, the impaired segment of Still River (CT6600-00_05) consists of 3.87 miles of the upstream portion of the river and begins at the outlet of Lake Kenosia in Danbury, CT (Figure 2). The river flows east through a forested wetland area towards the Danbury Mall. The river then flows along the northeast edge of the mall, and crosses Route 7. The river continues east adjacent to a concrete plant before and crosses under railroad tracks. Still River then flows through a narrow forested area with some residential development on both sides, crosses under Old Mill Road and West Street before. The river then crosses Kennedy Avenue and the Main Street crossing (Route 53). The river then becomes channelized as it borders heavy development on Crosby Street. The impaired segment of Still River ends at the confluence with Padanaram Brook just upstream of the White Street crossing and Route 53. Still River eventually empties into the Housatonic River in Brookfield.

Table 1: Segments in the Still River Sub-Regional Basin from the Connecticut 2012 Integrated Water Quality Report (impaired segment addressed in this TMDL highlighted in gray)

Waterbody ID	Waterbody Name	Location	Miles	Aquatic Life	Recreation
CT6600-00_01	Still River (New Milford/ Brookfield)-01	From mouth at confluence with Housatonic River (DS of Railroad crossing), New Milford, US to Silvermine Road crossing (USGS station), Brookfield (just DS of Route 7 crossing, and DS of confluence with Charles Pickneys Brook), Brookfield.	8.48	NOT	NOT
CT6600-00_02	Still River (Brookfield/ Danbury)-02	From Silvermine Road crossing (USGS station), Brookfield (just DS of Route 7 crossing, and DS of confluence with Charles Pickneys Brook), US to confluence with Limekiln Brook (just US of I84 crossing), Danbury.	6.21	NOT	NOT
CT6600-00_03	Still River (Danbury)-03	From confluence with Limekiln Brook (just US of I84 crossing), US to confluence with Sympaug Brook (just US of Cross Street crossing), Danbury.	2.19	NOT	NOT
CT6600-00_04	Still River (Danbury)-04	From confluence with Sympaug Brook (just US of Cross Street crossing), US to confluence with Padanaram Brook (just US of White Street crossing, river runs between Railroad tracks), Danbury.	1.56	NOT	U
CT6600-00_05	Still River (Danbury)-05	From confluence with Padanaram Brook (just US of White Street crossing, river runs between Railroad tracks), US to Lake Kenosia outlet (just US of Kenosia Avenue crossing), Danbury.	3.87	NOT	NOT

NOT = Designated Use Not Supported
U = Designated Use Not Assessed

Figure 2: The Still River Watershed



Waterbody(s) within Still River Watershed with
Impairment to Habitat for Fish, Other Aquatic Life and Wildlife

Created: CT DEEP, July 2012

For surface water quality class A, the criteria to meet aquatic life use support includes the following:

> Biological Condition: Sustainable, diverse biological communities of indigenous taxa shall be present. Moderate changes, from natural conditions, in the structure of the biological communities, and minimal changes in ecosystem function may be evident; however, water quality shall be sufficient to sustain a biological condition within the range of Connecticut Biological Condition Gradient Tiers 1-4 as assessed along a 6 tier stressor gradient of Biological Condition Gradient (See Appendix G of the Water Quality Standards).

Data used to assess these waters are summarized in Table 2.

Table 2: Data used to assess Still River (CT6600-00_05). An "x" indicates that data has been used in the assessment process.

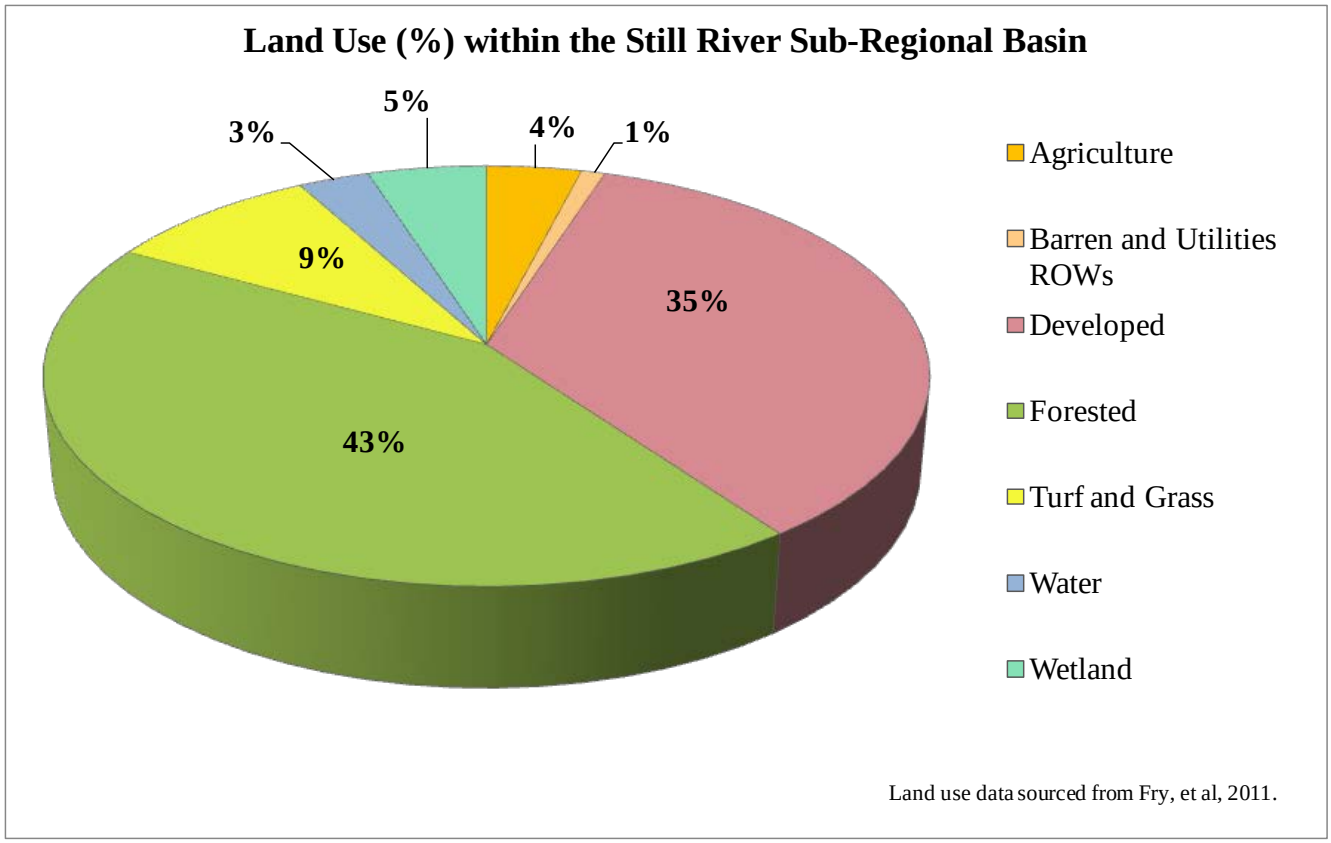
Segment ID	Waterbody Name	Macroinvertebrate Community	Fish Community	Volunteer RBV Data	Macroinvertebrate Model	Water Chemistry	Whole Effluent Toxicity	External Data	Listing Cycle
CT6600-00_05	Still River-05	x	x			x	x	x	2000

Land Use in the Watershed

The existing land use in a watershed can affect the water quality of the waterbodies within that watershed (USEPA, 2011b). In an undeveloped watershed, natural processes such as infiltration of stormwater into the soil and plant uptake of water and nutrients can occur. As watersheds become more developed with commercial, residential, and industrial land uses, the amount of stormwater runoff increases as the natural landscape is altered with impervious surfaces, such as rooftops, roads, and sidewalks. The amount of pollutants, such as nutrients and bacteria from leaking septic systems, oil and grease from automobiles, and sediment from construction activities, can also increase, can become entrained in this runoff, and negatively affect nearby waterbodies. Agricultural land use activities, such as fertilizer application and manure from livestock, can also increase pollutants in nearby waterbodies (USEPA, 2011b).

As shown in Figure 3, the Still River sub-regional basin consists of 43% forests, 35% developed areas, and 9% turf and grasses. Other land uses include agriculture, wetlands, water, and barren land/utility right-of-ways.

Figure 3: Land uses within the Still River Sub-Regional Basin



Impervious Cover (IC)

Another way to measure land use impacts to aquatic life in streams is to evaluate the amount of impervious cover (i.e. roads, roofs, driveways, parking lots). Increasing the percentage of IC in a watershed is linked to decreasing stream health (CWP 2003, Bellucci 2007). Stormwater runoff from impervious surfaces contains pollutants such as oils, heavy metals, nutrients, bacteria sediment (USEPA 1983) and can cause temperature impacts to receiving waterbodies. The amount of stormwater pollutants transported during a rainstorm is directly related to the amount of impervious cover in the watershed.

The extent of land area associated with IC cover can be calculated by analyzing the types of land cover (developled, forested, agriculture, etc.) present in the landscape. The total percentage of impervious cover (%IC) can be compared to levels that are linked to impaired streams receiving excessive stormwater runoff. The %IC is used in the *Connecticut Watershed Response Plan for Impervious Cover* (Plan) as a surrogate to represent the impacts associated with stormwater runoff pollution. Figure 4 shows the %IC for the watershed for the impaired segment of the Still River (14%).

CT DEEP has determined that to limit effect of stormwater pollution an IC area of less than 12% is needed to support habitat for fish, other aquatic life and wildlife use in these waterbodies. However, stormwater pollution is categorized under two types of pollutant loads: point and non-point sources. Point sources are permitted a waste load allocation (WLA) and regulated under the National Pollutant Discharge Elimination System (NPDES), but a load allocation (LA) is also contributed by non-point sources where no regulations are applicable. It is not feasible to draw a clear distinction between stormwater pollution originating from point and non-point sources because insufficient data are available for each parcel in the watershed and the fact that stormwater pollution is highly variable in frequency and

duration. Consequently, a Margin of Safety (MOS) is incorporated into the %IC target in order to account for uncertainties regarding the relationship between water quality and sources (point and non-point). Therefore, a MOS of 1% IC was subtracted from the %IC target to account for uncertainty in the analysis, resulting in a combined target of 11% for Waste Load Allocation (WLA) and Load Allocation (LA). The reduction in impervious cover necessary to reach the target for the impaired waterbody in the Still River sub-regional basin is shown in Table 3. The Plan target of 11% IC is intended to guide the application of Best Management Practices (BMP) and Low Impact Development (LID) techniques to reduce the *impact* of impervious surfaces.

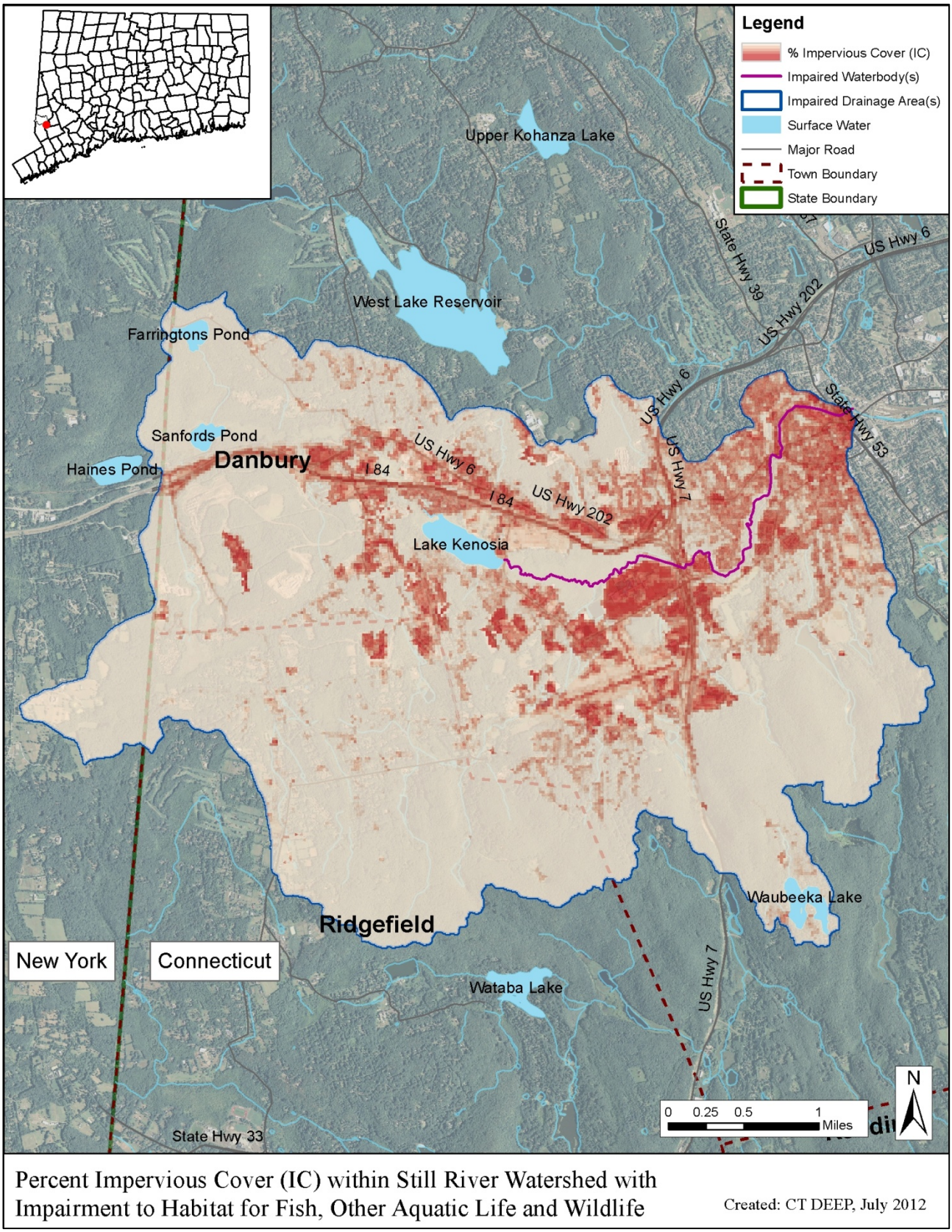
Table 3: Current impervious cover and the percent reduction to achieve the Plan target for the impaired segment in the Still River Sub-Regional Basin

Impaired Segment	Current Watershed Impervious Cover	%IC Target [1]	Margin of Safety (MOS)	Percent IC Reduction to Meet Plan Target
Still River (CT6600-00_05)	14%	11%	1%	21%

Implementation of this Plan is directed at improving the condition of the aquatic life use support in these waterbodies. The impairments will be resolved once the instream monitoring and assessment as conducted by CT DEEP indicates an attainment of WQS. It is important to note that the aquatic life use impairment may not be due solely to the presence of IC, but that reducing the effect of IC within the basin is expected to improve water quality and support attainment of aquatic life use goals. Additionally, the IC reduction targets are guidance values to help address the component of the impairment which the current information suggests is attributable to IC due to stormwater pollutants. The reduction targets are not recommended as regulatory limits for incorporation into permits. Best Management Practices to reduce the effect of IC through stormwater management are discussed below as appropriate implementation practices for permitted and non-permitted stormwater discharges.

[1] These are target goals, not end-of pipe effluent limits, unless otherwise indicated in a permit issued pursuant to the National Pollutant Discharge Elimination System (NPDES) program.

Figure 4: Impervious cover (%) for the Still River Watershed



Percent Impervious Cover (IC) within Still River Watershed with Impairment to Habitat for Fish, Other Aquatic Life and Wildlife

Created: CT DEEP, July 2012

CURRENT MANAGEMENT ACTIVITIES

Permitted Stormwater Sources

The control of stormwater pollution from regulated sources is noteworthy for addressing the effect of IC. Regulated stormwater discharges consist of those authorized under the General Permit for the Discharge of Stormwater from Municipal Separate Storm Sewer Systems (MS4 GP), General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Construction GP), General Permit for the Discharge of Stormwater Associated with Industrial Activity (Industrial GP), and General Permit for the Discharge of Stormwater from Commercial Activities (Commercial GP). Each of these general permits requires the implementation of control measures and some type of a stormwater management plan (for more information go to www.ct.gov/deep/stormwater).

Permitted sources existing within the watershed that could potentially contribute to impairments in the Still River sub-regional basin are identified in Tables 4 and Figure 5. This table includes permit types that may or may not be present in the impaired watershed. A list of active permits in the watershed is included in Table 5. Additional investigation and monitoring could reveal the presence of additional discharges in the basin.

Table 4: General categories of stormwater permitted discharges

Permit Code	Permit Description Type	Number in watershed
GSC	Stormwater Discharge Associated with Commercial Activity (Commercial GP)	1
GSI	Stormwater Associated with Industrial Activity (Industrial GP)	10
GSM	Part B Municipal Stormwater MS4 (MS4 GP)	2
GSN	Stormwater Registration – Construction (Construction GP)	5

Municipalities have been working hard to meet the challenges of stormwater management. The City of Danbury and the Town of Ridgefield, CT have developed and implemented programs to protect water quality. As indicated previously, all of Danbury and Ridgefield are regulated under the MS4 program. The MS4 GP requires municipalities to develop a Stormwater Management Plan (SMP) to reduce the discharge of pollutants from storm sewer discharges to improve water quality. The SMP must address the following 6 minimum measures:

1. Public Education and Outreach
2. Public Involvement/Participation
3. Illicit discharge detection and elimination
4. Construction site stormwater runoff control
5. Post-construction stormwater management in new development and redevelopment
6. Pollution prevention/good housekeeping for municipal operations

Subsequent to the initial preparation and implementation of the SMP, each municipality must submit an annual update outlining the steps they are taking to meet the six minimum measures. Relevant stormwater management measures are summarized below.

City of Danbury (Permit GSM000080) (from the 2011 Annual Stormwater Management Report)

- Candlewood Lake Authority and the City of Danbury continued with public outreach to spread awareness about the watershed, vegetation buffers, and stormwater management.
- The Danbury Water Pollution Control Plant constructed an interim nitrogen removal facility in 2010 and is working with the DEP to conduct a Nutrient Reduction Study to ensure the continued protection of the Still River and Housatonic River basins from water pollution.
- Verified and mapped all of the catch basins in City streets and outfalls within the 2000 Census urbanized area of the City.
- Continued repairs to City storm drainage system.
- Continued monitoring of outfalls.
- In the process of revising a draft illicit discharge ordinance.
- Continued to enforce a program to reduce pollutants in stormwater runoff that result from construction sites.
- Stenciled all newly installed catch basins to notify the public that dumping is not allowed.
- Swept approximately 245 miles of roads in 2011 and roads in the downtown area were swept more than once.
- Constructed a 17,671 square foot sand/salt facility/dome structure in 2007 to store the City's winter sand/salt supply. Previously all piles were located outside and covered with tarps.
- Updated Stormwater Pollution Prevention Plans and trained facilities staff.

Town of Ridgefield (Permit GSM000041) (from the 2011 Stormwater Management Plan Annual Report)

- Completed several educational fact sheets
- Continued to inventory stormwater structures greater than 12" in diameter.
- Health Department continues to review all septic designs to verify compliance.
- All restaurants are required to install a grease trap to collect associated wastes.
- Continued to sweep streets once a year, each spring.
- Continued to evaluate streets to be swept twice annually in urban areas.
- Continued to clean stormwater structures once a year and repairs are completed as necessary.
- Continued to use treated salt material for snow and ice removal procedures.

MS4 GP discharges

MS4 dischargers must implement the Stormwater Management Plan (SMP) required by the MS4 permit reissued on January 9, 2011, and as amended. The SMP includes best management practices (BMPs) grouped into six Minimum Control Measures, which consist of Public Education and Outreach, Public Involvement/ Participation, Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff, Post Construction Stormwater Management in New Development and Redevelopment, and Pollution Prevention/Good Housekeeping. Compliance with the MS4 GP, as amended, including implementation of the SMP and six Minimum Control Measures.

Construction GP discharges

The Construction GP regulates the runoff from construction with 5 or more acres of soil disturbance for projects with municipal land use approvals and with 1 or more acres of soil disturbance for projects

without municipal land use approvals. The Construction GP requires controls to reduce the discharge of sediment during construction and includes measures to address the long term impacts related to post-construction stormwater discharges. While the Construction GP reissued on April 9, 2010 (current permit) does not address impaired waters, the proposed modified Construction GP, expected to be reissued in 2013, specifies post-construction runoff standards. These post-construction discharges require the retention and/or infiltration of stormwater using LID and runoff reduction methods. Although the proposed post-construction performance standards are not based on the percentage of impervious cover, the runoff retention standards specified will serve to reduce and/or disconnect impervious area.

Industrial GP discharges

Industrial facilities are required to develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must include control measures (similar to BMPs) to reduce or eliminate the discharge of pollutants from the site. Typically, industrial sites are highly impervious. However site constraints, and cost considerations will complicate the reduction of impervious cover. To address the effect of IC, industrial sites where site expansion or redevelopment is planned should focus on the reduction and minimization of impervious area. The industrial facility can consider which BMPs are appropriate for the site as well as those to address specific sources.

Commercial GP discharges

The Commercial GP regulates commercial sites with impervious surfaces exceeding 5 acres, such as malls and "big box" stores. The strategy to address the control of stormwater pollutants from these sites is called a Stormwater Management Plan (SMP). While the Commercial GP reissued on May 1, 2001 (current permit) does not discuss stormwater discharges to impaired waters, future versions of the permit will include measures similar to the Industrial and MS4 GPs. The commercial site can consider which BMPs are appropriate for the site as well as those to address specific sources.

<u>Non-Regulated Discharges</u>

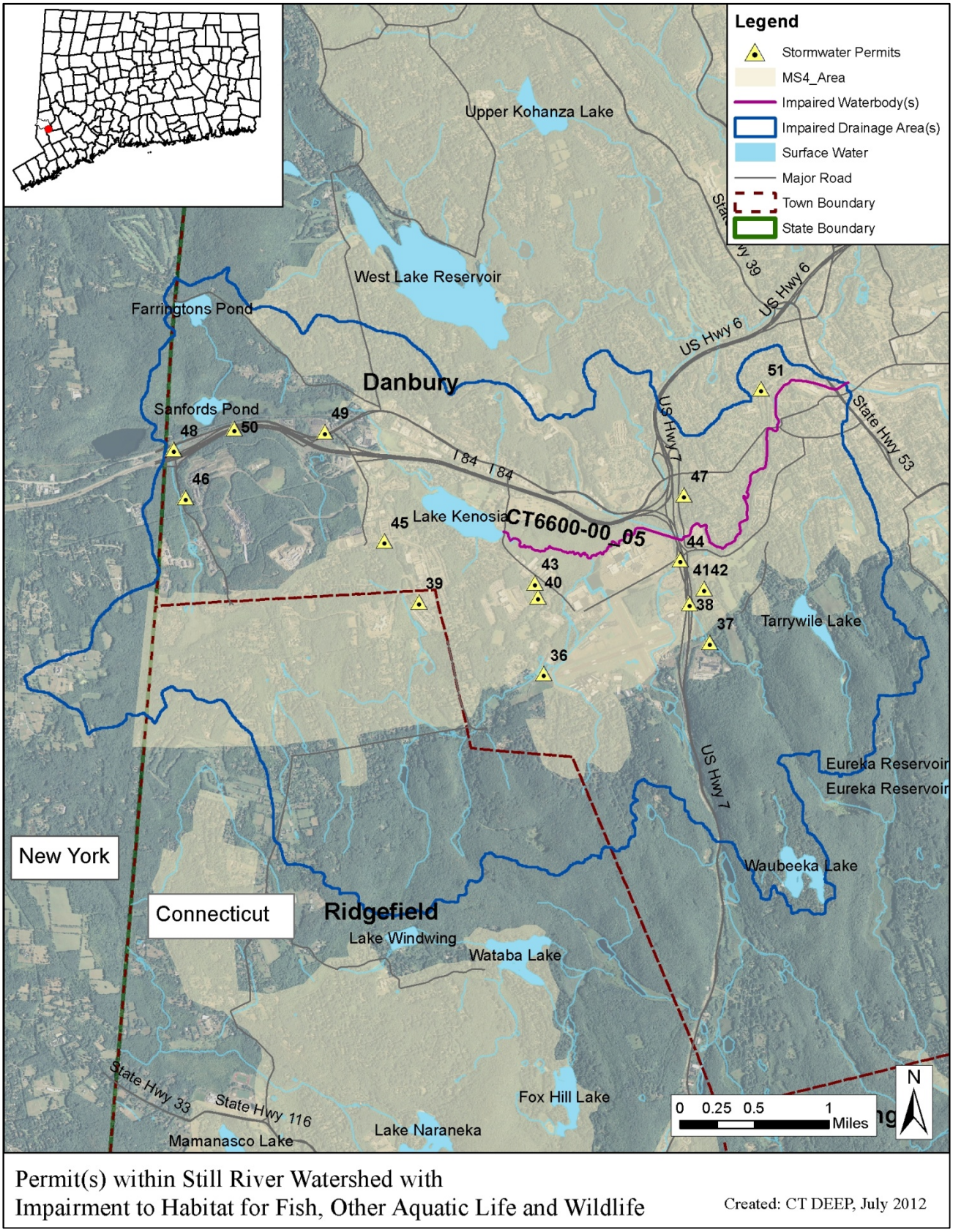
Many municipalities in Connecticut do not do not fall under the current MS4 permit (reissued January 9, 2011). Non-MS4 municipalities can voluntarily implement the BMPs within the MS4 permit and this document. Any facilities that discharge non-regulated stormwater can update their Pollution Prevention Plans to include BMPs that can reduce pollutants from entering surface waters. These BMPs could include revised housekeeping procedures to reduce pollutants or techniques that increase infiltration to reduce runoff. Additionally, sites or areas that are not regulated by a NPDES permit (such as small scale commercial and construction sites, residential sites, etc.) should consider implementation measures to minimize and/or disconnect impervious areas. Improving water quality within the community to address nonpoint source pollution requires actions, large and small, by the community.

Table 5: Permitted stormwater facilities within the Still River Watershed

Municipality	Permit ID	Permittee	Permit Type	Latitude	Longitude	# in Figure 5
Danbury	GSC000179	Danbury Associates LLC	Commercial GP	41.392	-73.521	49
Danbury	GSN001204	Toll Ct. Ii, L.P.	Construction GP	41.390	-73.541	48
Danbury	GSN001700	Wrxxii, LLC	Construction GP	41.386	-73.539	46
Danbury	GSN001708	Windermere, LLC	Construction GP	41.377	-73.472	41
Danbury	GSN001759	PJ's Construction	Construction GP	41.377	-73.472	42
Danbury	GSN002169	State of Connecticut Department of Transportation	Construction GP	41.392	-73.533	50
Danbury	GSI000585	O & G Industries, Inc.	Industrial GP	41.386	-73.475	47
Danbury	GSI000727	Allied Sinterings, Incorporated	Industrial GP	41.382	-73.513	45
Danbury	GSI000973	Federal Express Corporation	Industrial GP	41.369	-73.493	36
Danbury	GSI001133	City of Danbury	Industrial GP	41.376	-73.474	38
Danbury	GSI001432	Goodrich Corporation	Industrial GP	41.372	-73.471	37
Danbury	GSI001785	Kingswood Kitchens Co., Inc.	Industrial GP	41.397	-73.465	51
Danbury	GSI001843	Marcus Dairy, Incorporated	Industrial GP	41.380	-73.475	44
Danbury	GSI002178	Hologic Inc.	Industrial GP	41.376	-73.494	40
Danbury	GSI002179	Hologic Inc.	Industrial GP	41.378	-73.494	43

Municipality	Permit ID	Permittee	Permit Type	Latitude	Longitude	# in Figure 5
Ridgefield	GSI000691	Boehringer Ingelheim Coporation	Industrial GP	41.376	-73.509	39
Danbury	GSM000080	City of Danbury	MS4 GP	--	--	--
Ridgefield	GSM000041	Town of Ridgefield	MS4 GP	--	--	--

Figure 5: Permitted Stormwater Facilities in the Still River Watershed including MS4s (numbers correspond with permitted facilities in Table 5)



Permit(s) within Still River Watershed with
Impairment to Habitat for Fish, Other Aquatic Life and Wildlife

Created: CT DEEP, July 2012

RECOMMENDED NEXT STEPS

CT DEEP can assist with reducing the effect of IC by providing technical and financial assistance to the watershed towns and local citizen watershed advocacy groups, effectively administering stormwater permitting programs, and monitoring aquatic life in the surface waters. Under Section 319 of the Clean Water Act (§319 C.W.A.), the U.S. Environmental Protection Agency awards a grant annually to the CT DEEP to fund eligible projects that control and/or abate nonpoint source pollution through a competitive bid process. More information on grant programs can be found on the Department's website (http://www.ct.gov/deep/cwp/view.asp?a=2719&q=325594&deepNav_GID=1654).

1) Reduce the effect of impervious cover in the Still River Sub-Regional Basin through the implementation of BMPs to control stormwater runoff.

As noted previously, 35% of the Still River sub-regional basin is considered developed and the municipalities within the watershed are MS4 communities regulated by the MS4 program. The amount of IC in the watershed for the impaired segment of the Still River is 14%.

Reducing the effect of IC in the watershed is an important step to decrease the impacts of stormwater runoff on water quality. For new development, LID principles (http://www.ct.gov/deep/watershed) should be utilized to retain and infiltrate stormwater runoff and/or reduce the amount of runoff from IC. In developed areas, IC should be disconnected from surface waterbodies, where practicable. Disconnection of impervious surface runoff should be pursued to the degree feasible when reconstruction of a site and/ or its infrastructure occurs. For example, stormwater outfalls could be redirected to vegetated areas to encourage natural filtration before reaching nearby waterbodies.

An excellent guide on how to implement a reduction in IC is found in Appendix 3 of the core document and on the web (http://clear.uconn.edu/projects/tmdl/). A retrofit assessment of the watershed would identify areas where BMPs such as gravel wetlands, porous pavement, and vegetated buffers could be implemented to most effectively treat stormwater runoff throughout the watershed. This type of assessment could be linked to existing Municipal Comprehensive or Master Plans, MS4-required SMPs or watershed management plans.

2) Prevent future degradation of Still River and its tributaries by evaluating local stormwater control ordinances.

As the amount of IC in the Still River sub-regional basin is greater than 12%, the adoption of a municipal stormwater ordinance can be an effective method to protect the water quality in the watershed. Stormwater ordinances can focus on different aspects of stormwater management to reduce the quantity and quality of the stormwater that reaches nearby waterbodies. Effective stormwater ordinances prohibit non-stormwater discharges (to the storm sewer or surface waterbodies) such as sanitary sewage and wastewater discharges, require the use of adequate controls to prevent erosion and sedimentation, and specify enforcement mechanisms to address non-compliance. In addition to local ordinances, the establishment of a stormwater utility (i.e. a user fee) can be an effective way to address the impact of stormwater runoff from impervious surfaces while also providing the fiscal means of addressing municipal stormwater infrastructure needs. Utility fees are usually based on the size of effective impervious area and so, strongly encourage the reduction of impervious area.

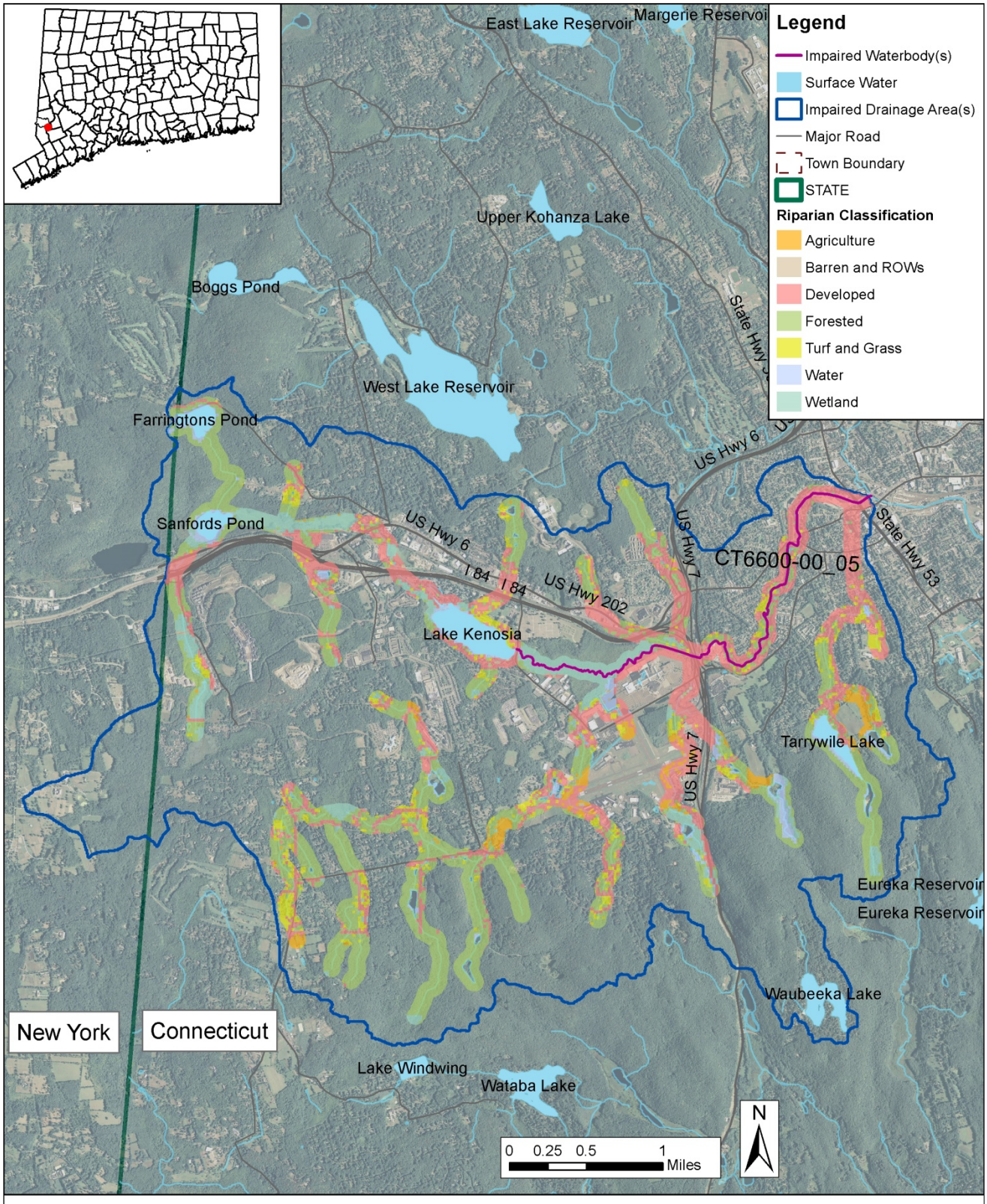
3) Protect existing buffers along the riparian corridor and other conservation lands throughout the watershed.

Riparian buffers and other natural landscapes can protect the water quality of waterbodies within a watershed. The riparian buffer zone is the area of land located immediately adjacent to streams, lakes, or other surface waters. The incorporation of buffer requirements in the municipal land use approval process will help protect these areas near the impaired segments of the Still River sub-regional basin from the effect of IC, and these streams can be protected from further degradation due to stormwater runoff.

Riparian zones differ from the uplands because of high levels of soil moisture, frequent flooding, and the unique assemblage of plant and animal communities found there. These areas can reduce the impacts of IC by filtering pollutants and slowing runoff. Through the interaction of their unique soils, hydrology, and vegetation, natural riparian areas influence water quality as contaminants are taken up into plant tissues, adsorbed onto soil particles, or modified by soil organisms. They also can protect the shoreline from erosion, aid in flood control, provide habitat for wildlife, shade waters for fish, and offer scenic value. Any change to the natural riparian buffer zone can reduce the effectiveness of the natural buffer and has the potential to contribute to water quality impairment (USEPA, 2011a).

The riparian zones for the impaired segments in the Still River sub-regional basin are characterized by a mix of land uses including developed, forested, and agriculture (Figure 6). The riparian zone for the impaired segment of Still River is characterized by dense development, with some areas in the upper reaches of the impaired segment with intact forested buffers. The IC within all developed areas is typically transporting stormwater via structured drainage systems that often discharge within the riparian areas or directly to surface waters.

Figure 6: Riparian buffer zone information for the Still River Watershed



Riparian classification within Still River Watershed with Impairment to Habitat for Fish, Other Aquatic Life and Wildlife

UCONN CLEAR: http://clear.uconn.edu/

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4) Continue to encourage citizen involvement to ensure the long-term protection of Still River and its tributaries.

Groups of concerned citizens within a watershed with a shared goal of maintaining or restoring water quality for the use of its residents for future generations have shown to be effective in ensuring the long-term protection of a waterbody. These groups include watershed associations and municipal conservation commissions. Activities include water quality monitoring, developing a public education strategy, and working with local boards to upgrade existing water resource protection laws. Education of citizens regarding the management of stormwater runoff from individual properties is important to ensure long term protection.

5) Evaluate and implement Low Impact Development practices for future development and retrofit opportunities.

LID techniques and BMPs to reduce the impact of stormwater within the Still River watershed are important tools to reduce the effect of IC. A list of these techniques includes (but is not limited to): rain gardens, bioretention areas, "green streets" techniques, porous asphalt, porous concrete, permeable pavers, other permeable pavement systems, green roofs, cisterns and rain barrels, engineered vegetated swales, and tree box filters.

Some resources for more information are:

- NEMO (Nonpoint Education for Municipal Officials) is a University of Connecticut Program for local land use officials addressing the relationship of land use to natural resource protection (http://nemo.uconn.edu/)
- CT DEEP's Watershed Municipal Outreach and Low Impact Development Program (http://www.ct.gov/deep/cwp/view.asp?A=2719&Q=464958).

REFERENCES

Bellucci, C. (2007). Stormwater and aquatic life: Making the connection between impervious cover and aquatic life impairments. Pp. 1003–1018, *In* Proceedings of the Water Environment Federation TDML Conference, Bellevue, WA Water Environment Federation, Alexandria, VA.

CTDEEP (2011). State of Connecticut Water Quality Standards. **Online:** http://www.ct.gov/deep/lib/deep/water/water_quality_standards/wqs_final_adopted_2_25_11.pdf

CWP (2003). Impacts of Impervious Cover on Aquatic Systems. Center for Watershed Protection. **Online**: http://clear.uconn.edu/projects/tmdl/library/papers/Schueler_2003.pdf

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011, Completion of the 2006 National Land Cover Database for the conterminous United States: Photogrammetric Engineering and Remote Sensing, 77:9 858–864.

USEPA (1983). Results of the Nationwide Urban Runoff Program. Volume 1 Final Report. Water Planning Division. United States Environmental Protection Agency. Washington, D.C. 20460

USEPA (2011a). Riparian Zone and Stream Restoration. **Online:** http://epa.gov/ada/eco/riparian.html

USEPA (2011b). Land Use Impacts on Water. Online: http://epa.gov/greenkit/toolwq.htm