CONNECTICUT RIVER

Combined Sewer Overflows Fact Sheet

Prepared by the Pioneer Valley Planning Commission with the support of the Connecticut River Clean-up Committee

CSO Fact Sheet #1: Combined Sewer Overflows (CSOs) and Our Rivers

An Information Series on Combined Sewer Overflows and the Benefits of Cleaner Water on the Connecticut River

Our Rivers

The Pioneer Valley is blessed with an abundance of extraordinary and beautiful rivers. The Connecticut River is the largest river in New England and is one of fourteen designated American Heritage Rivers in the United States. The Westfield River is the home of nationally renowned wildwater races and was the first designated National Wild and Scenic River in Massachusetts. The Chicopee river is clean enough in its headwater streams to provide drinking water to Boston through the Quabbin Reservoir. All these rivers suffer from pollution due to combined sewer overflows (CSOs) in their lower, urbanized reaches.

The Connecticut River

The Westfield River

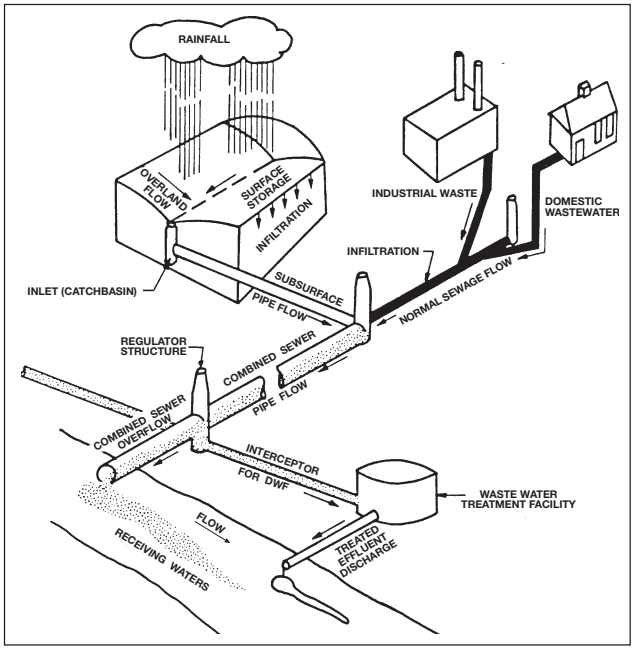
A CSO emptying into the Connecticut River

What are CSOs and how do they work?

In modern infrastructure development, one collection pipe is used to carry away sanitary sewage from homes and businesses to a wastewater treatment plant and a separate pipe is used to carry stormwater runoff from roadways and the surrounding landscape. In the late 1800s and early 1900s, however, sewers were constructed to carry both sanitary sewage and stormwater runoff in the same pipe. At a time when pollution prevention was not a concern, these combined sewer systems were designed to purposely overflow during wet weather events when stormwater enters and overloads the sanitary sewer systems, resulting in discharges directly to our rivers. Combined sewers were considered a reasonable and costeffective engineering solution. They were designed to prevent back-ups of untreated wastewater into homes and businesses, street flooding, and infrastructure failures.

Today communities face federal requirements to reduce the effects of combined sewer overflows. CSO discharges into the rivers are significant

How Combined Sewer Overflows Work in Wet Weather



sources of fecal bacteria contamination during wet weather events that result in the rivers failing to meet their water quality standards and designated uses.

Why are CSOs a problem?

Every year 1.8 billion gallons of combined sewer overflow are discharged into the Connecticut River or its tributaries from seventy eight different discharge pipes, according to the MA Department of Environmental Protection. These CSOs are located in Chicopee, Holyoke, Springfield, Ludlow, South Hadley, and West Springfield.

CSOs can cause public health concerns because of the potential exposure of river users to viruses, bacteria, pathogens, and other CSO related pollutants from untreated sewage and stormwater. CSOs can limit recreational activities. Individuals exposed to this water can develop gastroenteritis, respiratory infections, eye and ear infections, skin rashes, hepatitis, and other diseases. The public should be warned to stay out of the water for forty eight hours after any rain event in CSO areas.

Many older communities across the United States are faced with CSO problems. In New England, more than 100 communities are confronted with the problem of CSO pipes discharging untreated sewage and stormwater into waterways after heavy rains.

What are the effects of discharges from CSO events on river users and residents?

There are many negative effects from discharges of untreated sewage and stormwater into a water body, including:

- Health problems due to exposure to unsafe pollutants
- Bans on swimming, canoeing, and other recreational activities
- "No fishing" advisories
- Flooded basements
- Unpleasant odors from river
- Decreased property values for landowners near river
- Dying fish and wildlife in and around river
- Loss of scenic beauty

Chicopee CSO outfall

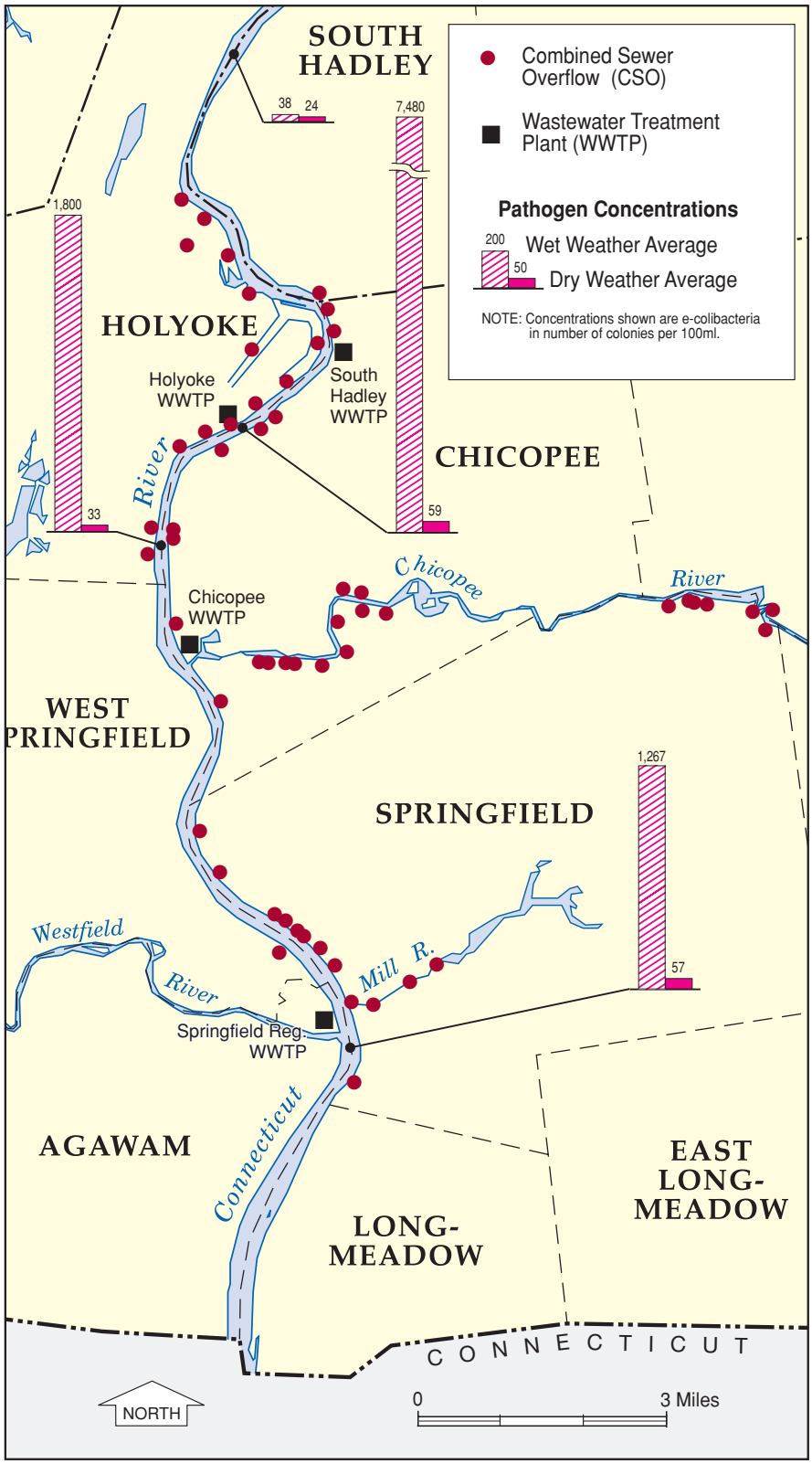
A CSO at work

Water Quality Status in the Connecticut River

In 1995, the Massachusetts Department of Environmental Protection (DEP) noted in its report *Connecticut River Watershed Resource Assessment and Management Report* (DEP Office of Watershed Management, March 1995) that

> "the water quality of the entire length of the Connecticut River main stem in Massachusetts does not support uses designated for Class B (fishable/swimming) waters. This non-support status is due to the presence of priority organics, in particular, PCBs (polychlorinated byphenols), which violate DEP's new water quality standards for organics, along the entire length of the river. Below the Holyoke Dam, the water quality standards are not met due to pathogens (as measured by coliform bacteria) and suspended solids primarily from urban runoff, combined sewer overflows and unknown sources."

In a 1997 report, the New England Interstate Water Pollution Control Commission *(The Health of the Watershed, NEIWPCC, January 1997)* noted that the key water quality issues on the Connecticut River in Massachusetts are CSOs in the segment below the Holyoke Dam, PCBs in fish in the entire length of the river, coal tar in the river in Holyoke, and flow regulation and fish passage above the Turners Falls Dam.



CSO Impacts on the Connecticut River

As shown on the chart on the map, during wet weather, combined sewer overflows have dramatic impacts on pathogen (bacteria) concentrations in the Connecticut River. Above the Holyoke Dam, where CSOs are not present, wet weather events have little impact on pathogen concentrations. Below the Holyoke Dam where CSOs are present, average pathogen concentrations during wet weather rise by as much as 12,678%.

Connecticut River Quality Summary by Reach in Massachusetts

Reach	Class	Status	Causes	Source
New Hampshire line to Northfield	B/WWF	NS	Priority Organics Pathogens	Source unknown
Northfield to Montague	B/WWF	NS	Priority Organics	Source unknown
Montague to Greenfield	B/WWF	NS	Priority Organics	Source unknown
Greenfield to Holyoke	B/WWF	NS	Pathogens Priority Organics	Urban runoff/ storm sewers Source unknown
Holyoke to Connecticut state line	B/WWF	NS	Pathogens Suspended solids Priority organics	Combined sewer overflows Urban runoff/ storm sewers Source unknown

B/WWF – suitable for fishing, swimming, and warm water fisheries
NS – non-supporting (i.e. failing)

Note: The upper Connecticut River in Massachusetts was meeting Class B water quality standards until recently when water quality classification criteria were revised to include organics, such as PCBs.

Source: *Commonwealth of Massachusetts Summary of Water Quality*, Mass. Department of Environmental Protection, 1992

Massachusetts Surface Water Quality Standards (314 CMR 4.00)

Inland Water Classes	
Class A	These waters are designated as a source of public water supply.
Class B	These waters are designated as habitat for fish, other aquatic life and wildlife, and for primary and secondary contact recreation.
Class C	These waters are designated as habitat for fish and other aquatic life, and for secondary contact recreation.

CSO Fact Sheet #2: The Benefits of Cleaner Water

An Information Series on Combined Sewer Overflows and the Benefits of Cleaner Water on the Connecticut River

What are the economic benefits of cleaner water?

Cleaner water in the Connecticut River and its tributaries is a key to spurring tourism, recreation, and riverfront development in urban areas, along with the resulting economic benefits and jobs. A cleaner river creates increased civic pride in the riverfront area, higher property values, and greater potential for valuable riverfront projects.

Connecticut River Walk construction

Some examples of economic benefits that have been, or could be, spurred by cleaner water include:

- Tourism-related development, such as the new Basketball Hall of Fame and the State Tourist Information Center in Springfield
- Riverfront development, such as restaurants, housing, and hotels
- Recreational business development, such as marinas, bike or canoe rentals, and boathouses
- Downtown revitalization projects, such as the Holyoke Canalwalk and the Adriaen's Landing Project along Connecticut River in Hartford, Connecticut
- Attractive locations for corporate offices
- Riverfront events, such as concerts, fishing tournaments, and rowing races
- Riverboat cruises, such as the "Tinker Belle" in Springfield

Tinker Belle boat tour

In Springfield alone, more than $113 million will be spent on the Basketball Hall of Fame and Tourist Information Center projects, and associated riverfront development. These developments will result in the creation of 400 construction and 1,100 permanent jobs, and are expected to attract both residents and tourists.

Property values will benefit from cleaner water. Properties abutting clean rivers are more attractive, and property values tend to increase along rivers and lakes when the water is clean. Aesthetics play a large role in property values, and with cleaner waters comes a more aesthetically appealing area. Developing public recreational amenities nearby, such as riverfront parks, can also increase property values.

What are some of the recreational benefits of cleaner water?

Clean water fosters the potential for additional recreation on the Connecticut River. Opportunities for recreation increase significantly as CSO events are decreased or eliminated. More people will be able to boat, fish, and picnic in more areas along the river. Recreational events for fishing, rowing, or sailing are more likely to occur with a cleaner river. For example, national conventions for bass fishing and rowing have been held on the river in Hartford, Connecticut and riverboat cruises are already offered from Springfield's Riverfront Park.The potential exists for additional riverfront recreation areas to open up with picnic areas, boat launches, river cruises, and concert areas. As CSOs decrease, river aesthetics will improve and pollution advisories will become less frequent.

Connecticut riverfront and downtown Springfield

Cleaner waters will bring people back to the Connecticut River, increasing recreation and promoting potential economic benefits. Here are a few examples of how the residents of the region will be

Cooling off in the Connecticut River in Holyoke

Connecticut RiverWalk and Basketball Hall of Fame under construction

able to enjoy recreating on or along a cleaner Connecticut River:

- Bicycling, running, walking, or rollerblading along the Connecticut River Walk and Bikeway in Springfield, Agawam, West Springfield, and Chicopee
- Picnicking, fishing, or enjoying the views in Riverfront Park in Springfield, Pynchon Point Park in Agawam, Springdale Park in Holyoke, and other riverside parks
- Strolling the Holyoke Canalwalk in Holyoke
- Canoing, kayaking, or boating from existing marinas or increased small boat access areas
- Fishing at the Holyoke Dam or other locations along the river
- Enjoying the Chicopee Riverwalk and Bikeway

Connecticut Bikeways Advisory Committee hike the Connecticut riverfront in Chicopee

What are some of the benefits of cleaner water on property values?

Property values can benefit from cleaner water. Properties abutting strongly CSO-contaminated waters may be negatively affected by odors and unattractive views. Where CSOs continue to exist,

people will be warned of the dangers of using the water, and the value of land near the river or water body will decrease. Properties abutting clean rivers are more attractive, and property values tend to increase along rivers and lakes when the water is clean. Aesthetics play a large role in property values, and with cleaner waters comes a more aesthetically appealing area. Having public recreational amenities nearby, such as riverfront beaches or parks, can also increase property values.

Boating in South Hadley

What are the benefits of cleaner water to fish and wildlife?

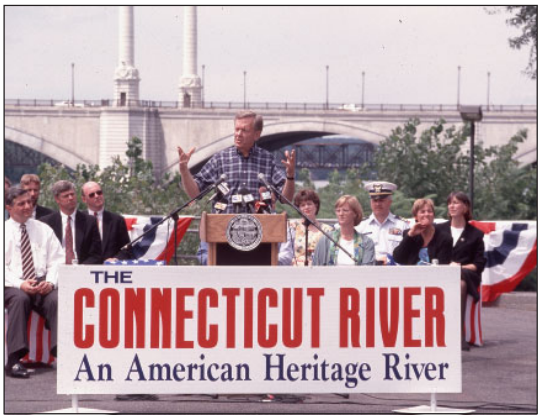
Cleaner water provides better and safer habitats for fish and wildlife. Eliminating CSO events can reduce the threat of bacteria getting into the fish and wildlife habitats, which can be fatal for some species of fish and wildlife. CSOs discharge untreated sewage and stormwater to the river, polluting fish and wildlife habitats with a buildup of polluted sediments, increased water temperature, increased turbidity, and reduced oxygen levels in the water.

Fishing in Holyoke

In May 2001, the Massachusetts Board of Public Health responded to PCB contamination by issuing a fish consumption advisory for the main stem of Connecticut River from Northfield to Longmeadow (although this does not apply to tributary streams). According to this advisory, channel catfish, white catfish, American eel, and yellow perch caught in the river should not be consumed by anyone; furthermore, pregnant women, nursing mothers, and children under twelve should not consume any fish from the river. The advisory does not apply to stock fish, which have a short residence time in the Connecticut River.

How will tourism increase with cleaner waters?

The Connecticut River received national notoriety in the 1960s when the *New York Times* referred to it as "the nation's best landscaped sewer." In 1999, however, the Connecticut River received more positive fame when President Clinton named it one of thirteen American Heritage Rivers. This designation was bestowed upon the Connecticut River for its natural beauty and its important role in the historical development of the United States.



American Heritage River designation ceremony

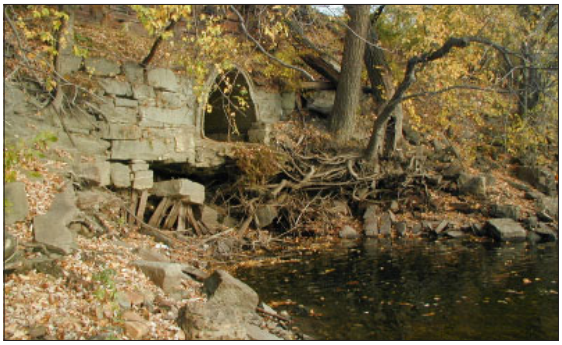
Cleaner water will attract tourists to visit the Basketball Hall of Fame, to enjoy the natural beauty of the river along the Connecticut River Walk, to canoe the Connecticut River Water Trail, and to visit the many historic sites and features throughout the river valley.

People are especially drawn to waterways where they can enjoy the natural beauty of the area while enjoying recreational amenities. Cleaner water will allow more retail and riverfront projects to open up, bringing more tourists to the area.

CSO Fact Sheet #3: The Current State of the River

An Information Series on Combined Sewer Overflows and the Benefits of Cleaner Water on the Connecticut River

One hundred thirty four combined sewer overflows (CSOs) were identified in the seven communities located in the southern reach of the Connecticut River below the Holyoke Dam, in a 1988 engineering study completed for the Massachusetts Division of Water Pollution Control. This study, the Lower Connecticut River Phase II Combined Sewer Overflow Study (Metcalf & Eddy, Inc.), identified CSO locations, water quality issues associated with CSOs, and steps and costs for addressing the problem. CSO issues in seven communities–Agawam, Chicopee, Holyoke, Ludlow, South Hadley, Springfield, and West Springfield–were addressed in this study. The study determined that ninety percent of existing CSO discharges would need to be eliminated within the seven communities to achieve the fishable/swimmable goal, at a cost of $377 million. In 2005, 72 CSOs in six communities remained.



CSO on Lower Connecticut River

Agawam has eliminated all of its CSOs. This constitutes a forty percent reduction in the number of CSOs between 1988 and 2002. Dry weather overflows were reduced from thirty one in 1988 to zero in 2005.

Status of Combined Sewer Overflow Clean-up, 2005

COMMUNITY	Number of Combined Sewer Overflows in 1988	in 2001	in 2005	Number of Dry Weather Overflows in 1988	in 2001	in 2005
Agawam	14	0	0	4	0	0
Chicopee	39	33	30	19	2*	0
Holyoke	20	15	14	1	1	0
Ludlow	10	1	1	0	0	0
South Hadley	11	3	3	2	0	0
Springfield	32	25	24	5	0	0
West Springfield	8	1	0	0	0	0
TOTAL	**134**	**78**	**72**	**31**	**3**	**0**

*eliminated as of June 30, 2001
Source: 1988 CSOs based on Metcalf and Eddy Study
2001 and 2005 CSOs based on interviews with municipal public works superintendents

Using mostly local funds, combined with community development block grants, state revolving funds, and federal earmark funds, the seven communities have eliminated 62 of the original 134 CSOs, and all of the original 31 dry weather overflows.

While this progress is significant, it should be noted that most of the CSOs eliminated to date were comparatively smaller in size and cost. The largest volume and most costly CSOs remain intact, along with their impact on the river. Based on recent Long-term CSO Control Plans completed by Springfield, Chicopee, and Holyoke, the total clean-up cost is now estimated at $325 million.

EPA Administrative Orders

In March 1997, the U.S. Environmental Protection Agency issued Administrative Orders to Springfield, Chicopee, Holyoke, West Springfield, Agawam, South Hadley, and Ludlow to eliminate CSOs. These Administrative Orders set timelines and goals for abating combined sewer overflows. The combined sewer overflow problem on the Connecticut River is creating severe financial consequences for rate payers. A great economic hardship exists for the communities addressing the CSO problem.

Cleanup Costs

Connecticut River communities have responded to EPA administrative orders with ambitious projects to develop Long-term CSO Control Plans and by accelerating the pace of needed CSO abatement projects. Holyoke has spent $500,000 and Springfield has spent over $1.1 million to date to develop CSO plans.

The City of Holyoke is facing an estimated $45 million in costs to implement its plan for CSO control, which will raise local sewer rates by 61% to 81% to over $500 per household. The City of Springfield is facing a total CSO cost of $139.7 million, which will raise local sewer rates at least 66% to $384 per household. The City of Chicopee is facing the largest CSO price tag of $140 million. The total clean-up cost for the three cities is now estimated at $325 million.

CSO abatement projects are projected to cost the communities millions of dollars. Issues related to obtaining funding for the CSO abatement projects include:

- Strong competition for State Revolving Fund loan monies
- A lack of federal and state grant funding to assist communities

Projected Costs and Sewer Fee Increases Attributed to CSO Abatement

MUNICIPALITY	Estimated CSO Capital Costs to Meet EPA/DEP CSO Policies	Existing Estimated Average Annual Household Cost for Wastewater	Additional Estimated Annual Cost per Household for CSO Abatement	Financing Scenario with State Revolving Funds
Chicopee	$140 million	$240 per year	Awaiting further information	Awaiting further information
Holyoke	$45 million	$176-200 per year	$154-229 per year	$98-147 per year
Springfield	$139.7 million	$198-230 per year	$154 per year	$116 per year

Source: Massachusetts Department of Environmental Protection

CSO Fact Sheet #4: Progress Made To Date

An Information Series on Combined Sewer Overflows and the Benefits of Cleaner Water on the Connecticut River

While the task of cleaning up the Connecticut River remains formidable, progress has been made by communities working to correct Combined Sewer Overflow (CSO) outfalls, one by one.

Connecticut River Clean-up Committee

The Connecticut River Clean-up Committee (CRCC) is composed of representatives from five Massachusetts communities (Springfield, Chicopee, Holyoke, Ludlow, and South Hadley) and the Pioneer Valley Planning Commission (PVPC). Each of the five municipal members are under EPA Administrative Orders to address the negative water quality impacts to the Connecticut River from CSOs. CRCC was formed in 1993, with the signing of an intergovernmental compact between the communities and PVPC. The committee is an action-oriented entity that explores funding sources and opportunities for intermunicipal cooperation on river cleanup. CRCC has been instrumental in leading efforts to secure federal funding for CSO control.

Interstate Coalition for CSO Clean-up of the Connecticut River

In 1997, representatives from Massachusetts and Connecticut formed the Interstate Coalition for CSO Clean-up of the Connecticut River to seek federal funding for CSO cleanup in both states. Members include the Hartford Metropolitan District Commission, the Capital Region Council of Governments, and all CRCC members. This group has been effective in securing the support of members of Congress from both Massachusetts and Connecticut for federal funding.

A Chicopee CSO

Federal Funding for River Cleanup

Since 1999, over $9 million in improvements in combined sewer overflows have been funded through a special federal budget appropriation for Connecticut River clean-up. The appropriation was established through sponsorship of Massachusetts Representative John Olver, with the support of Massachusetts Representative Richard Neal, and Connecticut Representative John Larson, Massachusetts Senators Edward Kennedy, John Kerry, and Connecticut Senators Christopher Dodd and Joseph Lieberman. Funding awards are made based on a contract between the U.S. Environmental Protection Agency and the Pioneer Valley Planning Commission. Federal funds have been provided in a federal budget earmark in seven successive years (FY99 through FY05).

Summary of Connecticut River CSO Clean-Up Projects (4/27/05)

	Federal Contract Maximum	Total Project Cost including Local Share	CSO Effluent Reduction (mgy)
FY99 PROJECTS			
#1: Holyoke - Green Brook Separation	$275,000	$500,000	15.6 mgy
#2: Springfield - York Street Pumping Station	$470,461	$855,384	2.0 mgy
#3: Chicopee - Front St.& East Main Street DWOs Elimination	$24,179	$43,962	44.5 mgy
#4: Chicopee - Ames Ave. / Grape St. Sewer Separation	$111,331	$202,420	0.1 mgy
#5: Chicopee - Sandy Hill Sewer Separation	$50,132	$91,149	1.1 mgy
#6: South Hadley - Phase 2, East Side Sewer Separation	$105,397	$191,631	1.0 mgy
Project Administration	$7,500	$13,636	–
Total	**$1,044,000**	**$1,898,182**	**64.3 mgy**
FY00 PROJECTS			
#1: Springfield - Mill River CSO Control Projects	$487,799	$886,907	3.2 mgy
#2: Ludlow - State Street CSO Abatement Project	$93,601	$170,184	–
#3: Holyoke - Mosher St. Sewer Separation - Year One	$284,350	$517,000	*see FY03*
#4: Chicopee - Ames Ave. / Grape St. CSO Separation	$76,675	$139,409	*see FY99*
#5: Springfield -Connecticut River Reg. Water Quality Assess. Model	$174,605	$317,464	–
Project Administration	$7,500	$13,636	–
Total	**$1,124,530**	**$2,044,600**	**3.2 mgy**
FY01 PROJECTS			
#1: Holyoke- Mosher Street Sewer Separation - Year Two	$377,227	$685,867	*see FY03*
#2: Springfield - Systemwide Floatables Control	$265,738	$483,160	–
#3: Ludlow - Hubbard Street CSO Abatement Project	$82,500	$150,000	1 mgy
Project Administration	$7,565	$13,755	–
Total	**$733,030**	**$1,332,782**	**1 mgy**
FY02 PROJECTS			
#1: Chicopee - Whittlesey Ave./ Lower Montgomery St./Deady Br. CSOs	$273,600	$497,455	41.2 mgy
#2: Holyoke - Mosher Street Sewer Separation - Year Three	$189,435	$344,427	*see FY03*
Project Administration	$7,565	$13,755	–
Total	**$470,600**	**$855,636**	**41.2 mgy**
FY03 PROJECTS			
#1: Holyoke - Mosher Street Sewer Separation - Year Four	$616,915	$1,121,664	24 mgy
Project Administration	$7,478	$13,596	–
Total	**$624,393**	**$1,135,260**	**24 mgy**
FY04 PROJECTS			
#1: Holyoke - Appleton Street Sewer Separation	$33,500	$60,909	0.2 mgy
#2: Chicopee - Whittlesey Ave, Fisher Road, Front/Depot St.	$351,940	$639,891	2.3 mgy
Project Administration	$7,565	$13,755	–
Total	**$393,005**	**$714,555**	**2.5 mgy**
FY05 PROJECTS			
#1: Chicopee - Fairview Area and Jones Ferry CSOs	$558,000	$1,014,545	174.0 mgy
#2: Holyoke - Jones Ferry Road Sewer Separation	$42,000	$76,364	0.9 mgy
Total	**$600,000**	**$1,090,909**	**174.9 mgy**
TOTAL	**$4,989,558**	**$9,071,924**	**311.1 mgy**

While the funding is modest in relation to the enormous community need, these federal funds have resulted in meaningful CSO improvements. The federal appropriations from FY99 to FY05 will eliminate or reduce 28 CSOs and reduce CSO outfall volumes by 118 million gallons per year. When other projects now committed to by Springfield, Chicopee, and Holyoke are added in, construction will eliminate 50% of the remaining discharges on the Connecticut River and 60% of CSO discharges on the Chicopee River. All CSO discharges on thew Mill River have also been recently eliminated.

Progress on Funding

In 1999, the Pioneer Valley Planning Commission and the Interstate Coalition for Connecticut River Clean-up launched an interstate campaign to seek a federal budget line item to provide funding for clean up of CSOs. With the assistance of Massachusetts and Connecticut legislators, a total of $6.3 million has been approved for this purpose over seven consecutive federal fiscal years between FY99 and FY05, and divided between Massachusetts and Connecticut communities. When combined with local match monies, the total value of CSO projects in Massachusetts and Connecticut funded under this campaign is $11.3 million to date.

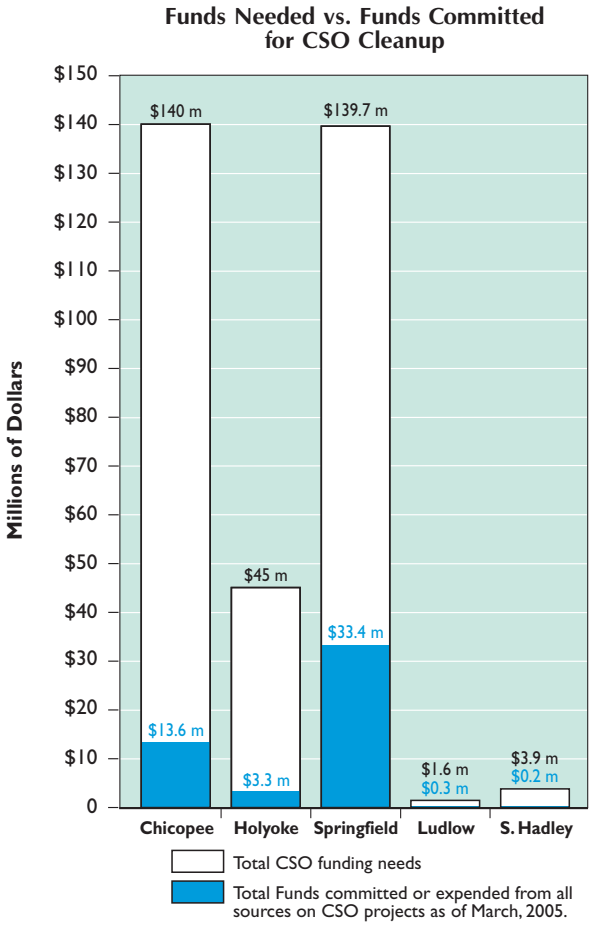
Additional federal funds will be sought in subsequent years to continue this effort. Funding at a higher level will be needed to address community funding needs which are estimated at $325 million in Massachusetts and $100 million in Connecticut.

Projects Completed or Underway

Chicopee:

Construction to abate CSO discharges into the Chicopee River is complete in Chicopee in the Ames Avenue/Grape Street area. Approximately 2,600 linear feet of new sanitary sewer pipe was installed. This separated all combined sewers within the drainage area.

Chicopee construction



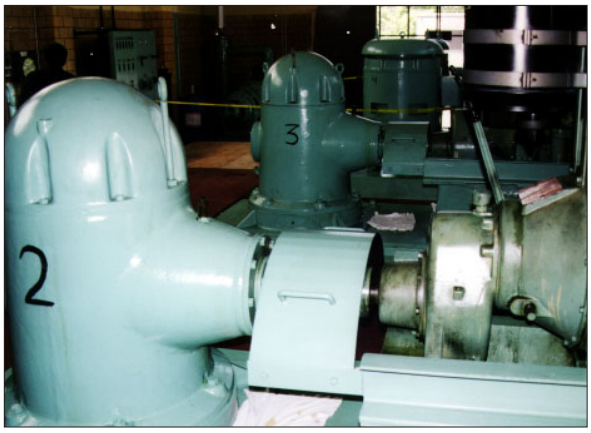
Holyoke:

Separation of Green Brook from the combined sewer system resulted in a seventy percent reduction in stormwater overflow volumes to the Connecticut River from the River Terrace CSO, which is the third largest CSO in the city. This construction project reduced the peak overflow rate by 23.3 million gallons per day for each 1-year storm.

Holyoke sewer separation

Springfield:

Improvements were made to the York Street Pump Station to comply with the high flow management Plan required by the Department of Environmental Protection. The modifications reduced the amount of untreated combined wastewater entering the Connecticut River by approximately forty to seventy million gallons per day over the course of a single storm event.



Pump rehabilitation at Springfield's York Street Pump-Station

Holyoke construction

Springfield also designed improvements to address CSOs in the Mill River watershed, including interceptor relief and local CSO storage. The construction phase of this project reduced CSO volumes by ninety-eight percent at the largest CSO on the Mill River.

Ludlow:

Direct stormwater discharge from thirty five acres of residential area in the Little Canada area of town was eliminated from the sanitary sewer system. The result of this work is a reduction of 1.2 million gallons per day of overflow into the Chicopee River for each one-year 24-hour storm. This is one of the last phases of Ludlow's CSO work, which started ten years ago.

Ludlow sewer separation

CONNECTICUT RIVER
Combined Sewer Overflows Fact Sheet
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CSO Fact Sheet #5: Potential Strategies to Address CSO Cleanup

An Information Series on Combined Sewer Overflows and the Benefits of Cleaner Water on the Connecticut River

Addressing Combined Sewer Overflow (CSO) pollution will require both engineering solutions and funding sources to pay for these pollution control projects. Individuals can also help reduce CSOs by taking some simple steps to clean up their contributions to the combined sewer system.

Engineering Strategies

Area communities are working to control the CSO problem using a number of solutions, including:

- *Long-term control plans*–Chicopee, Holyoke, and Springfield have developed plans to identify and priortize appropriate abatement measures.
- *Sewer separation*–Separate storm drain and sewer lines can be installed to separate combined flows in the existing system and to allow for more capacity in the collection system.
- *In-line storage*–Holding tanks or enlarged storage pipes can be installed to hold combined flows until a storm has passed and the flows in the system have peaked. Those flows would then be returned to sewers instead of the river.
- *Increased treatment capacity*–Pump stations and wastewater treatment facilities can be upgraded to increase their capacity to handle additional storm flow, thereby decreasing flows to the river.
- *Reduced infiltration and inflow*–Sewer pipes can be improved to reduce inflow of groundwater and to separate streams from combined systems.
- *Innovative strategies*–Communities such as Portland, Oregon, and Hartford, Connecticut, have successfully used innovative strategies to reduce the amount of stormwater that enters the combined sewer system, such as flow slipping, disconnecting roof downspouts from combined sewers, detecting and removing illicit connections, and constructing wetland storage and treatment systems.

A Springfield CSO

Funding Strategies

Communities on the lower Connecticut River in Massachusetts (Holyoke, Chicopee, Springfield, and South Hadley) continue to face the huge financial burden of cleaning up the remaining eighty two combined sewer overflows at a cost of over $341 million plus an estimated cost of $100 million for CSO projects in Hartford, Connecticut. The Connecticut River in Massachusetts and Connecticut

received federal appropriations in seven consecutive fiscal years from 1999-2005, including the following two-state totals:

FY 1999 – $1.3 million
FY 2000 – $1.4 million
FY 2001 – $1.0 million
FY 2002 – $588,250
FY 2003 – $780,491
FY 2004 – $491,256
FY 2005 – $750,000

MA/CT Total $ 6,309,997 (federal funds only)
MA/CT Total $11,472,721 (with local matches)

This support from the federal government has been an important step in solving the CSO problem, but without additional federal support, many of the large correction projects will be delayed. These large CSO correction projects have been identified as priority projects by the Long-Term Control Plans completed in Springfield, Holyoke, and Chicopee. Many of these large projects will cost tens of millions of dollars, and these economically strapped communities simply do not have the resources to meet this financial burden without state and federal support. Funding sources available to communities to pay for CSO projects include:

- *Federal budget earmark (received in 1999-2005)* – The Connecticut River Clean-up Committee and Interstate Coalition for Connecticut River CSO Clean-up have been successful in working with the Congressional delegation in both Massachusetts and Connecticut to secure earmarks in the past seven fiscal years. Continuing this funding in future years and increasing annual funding levels, will be vital to communities.
- *State budget earmark* – Communities will need grant assistence from state government in order to handle the enormous costs of CSO clean-up.
- *State Revolving Fund (SRF)* – The SRF is a revolving loan fund that provides loans at a two percent interest rate for wastewater treatment projects. Federal funds pay for this program, which is administered by the Massachusetts Department of Environmental Protection.
- *Community development block grants* – Some communities, such as West Springfield, have used federal CDBG grant monies to correct CSOs, particularly in low income neighborhoods.
- *Sewer fees*–Sewer use fees are the most common method for paying for the municipal costs of wastewater treatment improvements. Sewer use fees are either flat fees or are based on the amount of flow generated by each customer.
- *Stormwater utility*–Communities can establish stormwater utilities to help fund needed wastewater infrastructure improvements. A utility is funded by adopting a user fee for using the municipal stormwater management system. This user fee can be based on the amount of impervious surface each customer has (you pave, you pay).

What Individuals Can Do to Help

Homeowners and residents can help to reduce the CSO problem through changes in their home or behavior:

- *Disconnect roof leaders*–Make sure your roof leader, or downspout, is not connected to the municipal combined sewer system. Roof leaders can be directed to a gravel-filled infiltration basin in the backyard or to rain barrels for watering your lawn or garden.
- *Create yard-edge buffers*–Consider leaving an unmaintained natural area along the downslope edge of your yard to absorb runoff pollution impacts.
- *Avoid over-fertilizing your yard*–Don't use excessive fertilizer that will run off into waterways or sewers.
- *Dispose of used motor oil correctly*–Don't pour used motor oil down storm drains. Return it to the retailer or a municipal recycling center. Recycle antifreeze and car batteries as well.
- *Wash your car responsibly*–Wash your car at a commercial wash or a place where suds, oil, and grease cannot drain into storm drains or streams.