



# SUPPLY LINES WITH THE SOURCE



Newsletter of the NHDES Drinking Water & Groundwater Bureau  
on the web at [www.des.nh.gov](http://www.des.nh.gov)

Spring 2016

## Water Supply Lands Permanently Protected with State Grants

Land trusts and municipalities will soon protect 4,522 acres of water supply land with help from three state-supported grant programs.

NHDES' Water Supply Land Protection Grant Program awarded \$1.3 million in May 2015. Funds are provided by the New Hampshire Department of Transportation to protect water supply lands in the Lake Massabesic watershed and the I-93 corridor towns south of Manchester. The program awarded:

Funding	Project Description
\$635,000	Town of Derry to protect 63 acres in the wellhead protection area for the Willow Bend system
\$270,775	Southeast Land Trust of NH (SELT) to protect 60 acres in Manchester Water Works' Lake Massabesic watershed
\$397,175	SELT to protect 109 acres in Salem Water Department's Arlington Pond watershed

Grantees provide matching funds worth at least 50 percent of the project value. For more information, contact Holly Green at [holly.green@des.nh.gov](mailto:holly.green@des.nh.gov) or (603) 271-3114.

In December 2015, the Land and Community Heritage Investment Program (LCHIP) and NHDES' Aquatic Resource Mitigation (ARM) Program announced awards for 26 projects totaling \$4.1 million. The ARM Fund is a mitigation option for certain wetlands projects. LCHIP's mission is to preserve the state's most important cultural and natural resources. Many projects combine funding from ARM and LCHIP. The following projects include water supply lands. The water systems whose sources will be protected are listed in parentheses.

Funding	Project Description
\$300,000 (ARM)	115 acres in the Penacook Lake watershed (City of Concord)
\$362,385 (ARM) \$325,000 (LCHIP)	995 acres in Enfield in the Lake Mascoma watershed (City of Lebanon)
\$148,000 (ARM) \$380,000 (LCHIP)	195 acres to create a new forest reservation in Durham, Madbury and Lee on the Oyster River, protecting over one mile of river frontage (UNH/Durham)
\$150,000 (ARM)	236 acres in the Contoocook River watershed in Sutton (City of Concord)
\$100,000 (ARM)	203 acres of forest land, 4,327 linear feet of frontage on the Ammonoosuc River and over 7,500 linear feet of streams (Lisbon and Woodsville)
\$217,200 (ARM) \$25,000 (LCHIP - Goffstown only)	500 acres in Pittsfield and 101 acres in Goffstown, all in the Merrimack River watershed (Pennichuck Water Works, City of Nashua)
\$500,000 (LCHIP)	1,509 acres in Barrington in the Lamprey River Watershed (Town of Durham)
\$190,000 (LCHIP)	537 acres to create a 1,349-acre Milan Community Forest, including 421 feet of frontage on the Androscoggin River (City of Berlin)

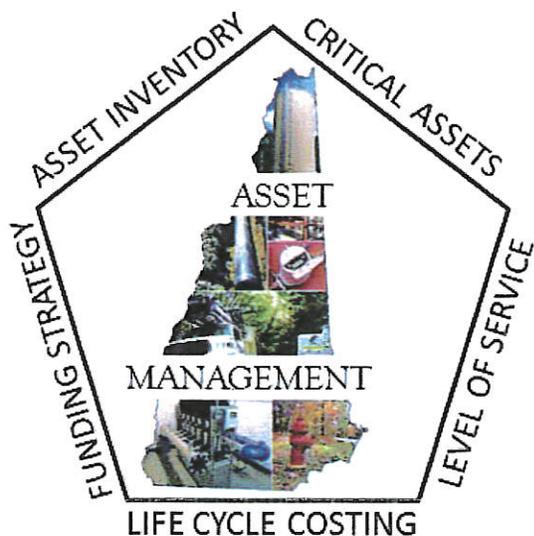
(Water Supply Lands, continued on pg 2)

(Water Supply Lands, continued from pg 1)

For more information about ARM, contact Lori Sommer at [lori.sommer@des.nh.gov](mailto:lori.sommer@des.nh.gov) or (603) 271-4059. For information about LCHIP, visit <http://www.lchip.org/>.

## Asset Management: A Different Perspective on an Old Term!

Asset management (AM) has been around for a long time but it is traditionally associated with finance. In the mid-1980s Dr. Penny Burns started using the term in Australia in reference to water infrastructure. As David Marlow wrote in *Linking Asset Management with Sustainability: Views from the Australian Sector*, (AWWA Journal, 2010) "much has [since] been written on asset management, and it has been defined in many different ways."



Unfortunately, it has taken the U.S. water industry a long time to embrace the concept and we still have a long way to go. For example, some define AM as "just list of their assets" or "a mapping or budgeting tool" but it is much more than that.

According to Wikipedia, AM is "a systematic process of operating, maintaining, upgrading, and disposing of assets cost-effectively." AM has five core elements: Level of Service, Inventory, Criticality, Life-Cycle Costing, and Funding Strategy. AM is a cradle-to-grave mindset and process. To be successful, it should not just be an ideology but a consistent professional practice of being proactive.

Being proactive means planning ahead, taking action and making changes before they need to be made, rather than waiting until problems develop. In contrast, to be reactive is to do something in response to a problem or situation; reacting to problems when they occur instead of doing something to prevent

them. Unfortunately, most water systems in New Hampshire, and perhaps in the country, have been operating reactively for roughly five decades. A reactive mindset is in large part responsible for the current state of our water infrastructure. It is why our water infrastructure is in crisis and in desperate need of improvements.

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Report Card  
FOR NEW HAMPSHIRE'S  
**Infrastructure**



**DRINKING WATER**

Investment in water infrastructure is increasing significantly due to new state and federal regulations, changes in technology, security issues and a large number of existing facilities reaching their effective design life.

DRINKING WATER	2011 GRADE	C-
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To see the full report, visit

[http://www.infrastructurereportcard.org/wp-content/uploads/2013/02/2011-ASCE-Report-Card\\_web.pdf](http://www.infrastructurereportcard.org/wp-content/uploads/2013/02/2011-ASCE-Report-Card_web.pdf)

It is well documented that any task conducted during a state of emergency will result in higher costs than had it been conducted under normal conditions with a well thought-out plan. AM is about reducing the “guessing factor” in your day-to-day operations and allocating your efforts to areas that need it the most. There is nothing more frustrating than spending three or four times more for an asset because you had to make a quick decision while responding to an emergency. This is where the proactive approach would be preferred over the reactive and the best reason why AM should be implemented at your facility.

However, money is not the only consideration when operating in a reactive mode. Another consideration is safety. Emergencies tend to increase risk factors for injuries as individuals work faster to get things under control. An Asset Management Plan minimizes these emergency situations, which will reduce the potential for injuries, reduce the cost of repairs and, just as importantly, increase communication with your staff, decision-makers and customers.

The benefits of an AM program extend beyond financial and safety considerations. John Jackman of Hoyle, Tanner and Associates Engineering, Portsmouth, NH, has been advocating altering the name of AM to a more fitting name such as “capital investment.” Jackman has stated that “capital investment is a more comprehensive concept in which stakeholders could identify and understand the expectation of return on their investments.” The capital investment term allows people to be more vested in the long-term lifespan of the projects and consider them as investments rather than one-off projects.



*Reactive approach at its “best.” Water main break in Los Angeles, CA.*

(Asset Management continued on page 6)

## DWGB Calendar of Events & Deadlines: April-September 2016

- April 9 Saving Special Places Land Conservation Conference, Alton <http://savingspecialplaces.org/>
- April 21 Treatment, distribution & combined grade 1A drinking water operator exam
- May 2 Drinking Water State Revolving Fund (DWSRF) Pre-Applications available, contact Johnna McKenna at (603) 271-7017 or [johnna.mckenna@des.nh.gov](mailto:johnna.mckenna@des.nh.gov)
- May 4 New Hampshire Children’s Water Festival and Science Fair, Dover
- May 11 NHDES Drinking Water Source Protection Conference, Concord
- June 30 Annual Permit to Operate (PTO) application and fee due  
[http://des.nh.gov/organization/divisions/water/dwgb/permit\\_pws\\_pto.htm](http://des.nh.gov/organization/divisions/water/dwgb/permit_pws_pto.htm)
- June-July Grant application period for Leak Detection Grant open, dates to be determined  
[http://des.nh.gov/organization/divisions/water/dwgb/water\\_conservation/](http://des.nh.gov/organization/divisions/water/dwgb/water_conservation/)
- July 1 Drinking Water State Revolving Fund (DWSRF) Pre-Applications due, contact Johnna McKenna at (603) 271-7017 or [johnna.mckenna@des.nh.gov](mailto:johnna.mckenna@des.nh.gov)
- July 1 Consumer Confidence Reports (CCRs) due  
<http://des.nh.gov/organization/divisions/water/dwgb/capacity/consumer.htm>
- July 10 Consumer Confidence Report (CCR) Certifications due  
<http://des.nh.gov/organization/divisions/water/dwgb/capacity/consumer.htm>
- July 21 Treatment, distribution & combined grade 1A drinking water operator exam
- Anytime Record Drawing Grant applications accepted  
<http://des.nh.gov/organization/divisions/water/dwgb/index.htm>

# Drinking Water Infrastructure Funding Programs:

Is your water system in need of improvements? Is it time to beef up protection of your source(s)? Maybe your storage tank needs to be inspected. Do you suspect leaks in your system that you can't find? Have you developed an asset management program? There are many funding programs available through the Drinking Water and Groundwater Bureau to help you with one or more of these projects. Check out the flyers on the next two pages for information on funding programs, assistance programs such as storage tank inspection grants, and upcoming programs such as energy audit grants that will be available later this year. 💧

## NH Drinking Water Infrastructure Financing Programs

### GRANT PROGRAMS

Grant Program	What Can Be Funded?	Who Is Eligible?	Terms & Application Deadline	Contact
Local Source Water Protection Grants	Development and implementation of programs to protect existing (active) or planned sources of public drinking water (delineation, assessment, planning, implementation, security)	Community and Non-community, non-transient systems, Municipalities, Regional Planning Commissions & Non-profit Organizations	-\$20,000 maximum grant -No match required -Fall	Amy Hudnor 603-271-2950 <a href="mailto:Amy.hudnor@des.nh.gov">Amy.hudnor@des.nh.gov</a>
Asset Management Grants	Development or expansion of asset management activities (inventory, financial, implementation)	Community systems serving 500 people or more	-\$15,000 maximum grant -50% match required -Fall	Luis Adorno 603-271-2472 <a href="mailto:Luis.adorno@des.nh.gov">Luis.adorno@des.nh.gov</a>
Leak Detection Grants	Acoustic leak detection surveys	Community systems	-No maximum -No match -Early Summer	Kelsey Vaughn 603-271-0659 <a href="mailto:Kelsey.vaughn@des.nh.gov">Kelsey.vaughn@des.nh.gov</a>
Storage Tank Inspection Grants 	Full tank inspections	Community systems serving 500 people or fewer and tanks 20,000 gallons or smaller	-\$4,000 maximum grant per tank -50% match required -Fall	Luis Adorno 603-271-2472 <a href="mailto:Luis.adorno@des.nh.gov">Luis.adorno@des.nh.gov</a>
Record Drawing Grants	Preparation or update of record drawings to accurately reflect the location of critical water system infrastructure	Community systems serving 500 people or fewer	-\$1,500 maximum grant -50% match required -Anytime	Johnna McKenna 603-271-7017 <a href="mailto:Johnna.mckenna@des.nh.gov">Johnna.mckenna@des.nh.gov</a>
Energy Efficiency Grants 	Energy audits	Community systems serving between 500-10,000 people	-\$7,500 maximum -No match -Deadline-TBD	Luis Adorno 603-271-2472 <a href="mailto:Luis.adorno@des.nh.gov">Luis.adorno@des.nh.gov</a>

<http://des.nh.gov/organization/divisions/water/dwgb/index.htm>

# 2016 Drinking Water State Revolving Loan Fund (DWSRF)

If your system needs infrastructure improvements, consider the Drinking Water State Revolving Loan Fund (DWSRF). The DWSRF is a low-interest loan program available to any community water system or non-profit, non-community, non-transient water system. Pre-application forms for the next round of loans will be available in May and due at the end of June. Disadvantaged water systems that meet affordability criteria will be eligible for subsidies in the form of principal forgiveness. Applicants applying in 2016 have until June 2017 to obtain the authority to borrow. For more information on the DWSRF, visit [www.des.nh.gov](http://www.des.nh.gov), A to Z list, then click on "Grants & Loans" or contact Rick Skarinka at (603) 271-2948 or [richard.skarinka@des.nh.gov](mailto:richard.skarinka@des.nh.gov) or Johnna McKenna at (603) 271-7017 or [johnna.mckenna@des.nh.gov](mailto:johnna.mckenna@des.nh.gov).

## NH Drinking Water Infrastructure Financing Programs

### CONSTRUCTION LOAN PROGRAM



#### Drinking Water State Revolving Fund (DWSRF)

##### Eligible Organizations

- Publicly & Privately owned community water systems
- Non-profit non-community/non-transient water systems

##### Eligible Projects

Nearly all water system capital improvement projects are eligible\*, as long as they facilitate compliance with federal primary drinking water regulations or otherwise significantly further health protection objectives of the Safe Drinking Water Act.

Examples of eligible projects include:

- Costs for planning and engineering design associated with an eligible project
- Replacement of contaminated sources with new sources
- Construction or upgrade of treatment facilities
- Replacement of aging infrastructure including distribution piping, storage tanks, and pumping facilities
- System consolidation or interconnection to address source capacity or quality issues
- Land acquisition integral to an eligible project
- Energy efficiency, water efficiency, green infrastructure and environmentally innovative drinking water projects
- Installation of service meters and back flow prevention devices
- Asset Management Plans

##### Program Eligibility Guidelines

- Project must achieve or maintain compliance with the Safe Drinking Water Act
- Projects are prioritized based on public health risk and other factors such as affordability and criticality

\* Ineligible projects include new water systems and expansion of existing water systems

### DWSRF Loan Program AT-A-GLANCE

LOCAL APPROVAL  
Authority to borrow on the total project cost

TERMS and RATES

Term (yr.)	5	10	15	20
Rate (%)*	0.77	1.54	2.31	2.464

\*Rates subject to change. Effective as of 12/14/15

TIMELINE  
Pre-applications are typically due in June of each year. A public hearing is held in August for selected projects. Fundable projects have until spring of following year to obtain authority to borrow and submit final application.

QUALIFYING DISADVANTAGED SYSTEMS  
Term: up to 30 years  
Interest Rate: same as 20 year  
A disadvantaged system is a community water system that serves residents whose median household income is less than the statewide average.

PRINCIPAL FORGIVENESS  
If the resulting project user rate for a qualifying disadvantaged system exceeds affordability criteria the system may be eligible for principal forgiveness. Forgiveness is provided for each debt services payment.

CONSTRUCTION  
During construction, interest will be calculated at 1% on funds disbursed. Construction interest may be paid at first repayment or it may be capitalized over the life of the loan.

REPAYMENT SCHEDULE  
Repayment begins one year following final project completion with annual payments. For privately-owned systems, repayment begins 6 months following final completion with interest-only monthly payments for 6 months.

CONTACTS  
For additional information on the DWSRF please contact:  
Johnna McKenna 603-271-7017  
[johnna.mckenna@des.nh.gov](mailto:johnna.mckenna@des.nh.gov)  
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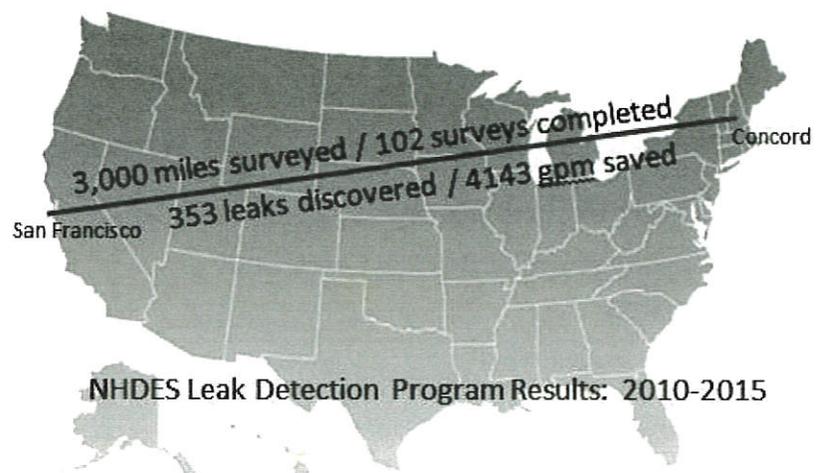
(Asset Management, continued from pg 3)

It has been a slow journey, but with the expanded awareness of AM and the increased institutional knowledge industry-wide, there is hope that we are not too far away from changing our culture with respect to both AM and capital investment.

The next issue of this newsletter will further explore AM and the implementation process. In the meantime, if you have any questions or would like to get more information regarding AM, visit NHDES' AM website at <http://des.nh.gov/organization/divisions/water/dwgb/asset-management/index.htm> or contact Luis Adorno at (603) 271-2472 or [luis.adorno@des.nh.gov](mailto:luis.adorno@des.nh.gov). ♦

## A Drop About Leak Detection

The NHDES Leak Detection Grant Program has completed 102 leak detection surveys since 2010 and has received 39 grant applications from community water systems for the 2016 field season. In 2015, leak detection contractor Arthur Pyburn & Sons Inc. completed 27 surveys covering 737 miles, and discovered 85 leaks totaling 632 gallons per minute, enough water to serve 10,000 people! The grant application period for the 2017 season will open at the end of June. ♦



## Local Source Water Protection Grants Awarded

Ten Local Source Water Protection Grant applications submitted in November for the 2015 grant round will receive funding (pending Governor and Council approval) from NHDES for a variety of source security and source water protection projects. Funded projects include the addition of security fences around public water supply wells and treatment buildings; defraying transaction costs associated with permanently conserving 115 acres near Penacook Lake, Concord's surface water supply; a study to determine sources of sediment being deposited into Pennichuck Water Works' supply ponds; and the installation of a stormwater bioretention practice to treat stormwater runoff discharged into Lake Waukewan, Meredith's water supply source.

Applications for the 2016 grant round will be available in late spring and due November 1, 2016. More information can be found at [www.des.nh.gov](http://www.des.nh.gov); search for "LSWP grants." ♦

## Save the Date - Wednesday, May 11, 2016 Annual NHDES Drinking Water Source Protection Conference

Don't miss this year's annual source protection conference at the Grappone Center in Concord, New Hampshire from 8:30 AM to 3:30 PM on Wednesday, May 11. The event offers a wide array of topics, including how to improve protection and minimize contamination of local drinking water resources. Registration will be available online at the American Ground Water Trust's website, [www.agwt.org](http://www.agwt.org). New Hampshire Water Works Operator Credit will be available for certified operators. ♦

# Seasonal System Start-up Procedures

This year, seasonal public water systems must perform start-up procedures before opening and certify to NHDES that procedures have been completed per Env-Dw 506. Start-up procedures include inspecting the sanitary protective area and all components of the distribution system, correcting any open sanitary defects and disinfecting and flushing all distribution lines.

## Inspection:

1. Wellhead cap/cover - Must be secure, seals intact and have a screened vent.
2. Sanitary protective area (SPA) - Ensure at least 75 to 200 feet around the well is maintained clear of fuels, septic system components, animal manure, fertilizers, etc.
3. Pump house - Maintain proper sanitary and safety conditions, locked, no water leaks or exposed electrical wires.
4. Treatment facilities - Verify whether fully operational, with proper chemical storage, air gap on backwash discharge.
5. Storage tank - Check tank integrity, whether hatch is sealed and vent and overflow are screened.
6. Distribution piping, valves and service lines - Reconnect all the plumbing and pressurize the system. Exercise valves and blow-offs, repair leaks.
7. Dump station cross connection control - Testable RPZ or sustained air gap must be in place.
8. Sample locations - Should be clean, labeled, accessible, 12" above floor.



## Disinfection:

Follow the instructions in fact sheet DWGB-4-3 Disinfecting Public Water Systems at

<http://des.nh.gov/organization/commissioner/pip/factsheets/dwgb/documents/dwgb-4-3.pdf>

## Monitoring:

Collection of general system evaluation bacteria samples after disinfection and prior to monthly bacteria testing is recommended.

The Start-up Certification form must be submitted to NHDES within 30 days after starting up for the season. Failure to complete start-up procedures or submit certification will result in violation(s) and public notice. A start-up checklist is available along with the certification form at: <http://des.nh.gov/organization/divisions/water/dwgb/coliform-rule.htm>. For more information, please contact Amy Rousseau at (603) 271-0893 or [amy.rousseau@des.nh.gov](mailto:amy.rousseau@des.nh.gov). ♦

## Monitoring for Unregulated Contaminants in New Hampshire

Every five years, USEPA issues a list of up to 30 unregulated contaminants for which public water systems must monitor under the Unregulated Contaminant Monitoring Rule (UCMR). This monitoring provides occurrence data that USEPA combines with toxicological data to determine which contaminants to propose for regulation. Monitoring under the third UCMR (UCMR 3), which wrapped up in December 2015, included testing for seven volatile organic compounds, six perfluorinated compounds, 1,4-dioxane, six metals, and chlorate. Monitoring by a subset of water systems also included seven hormones and two viruses.

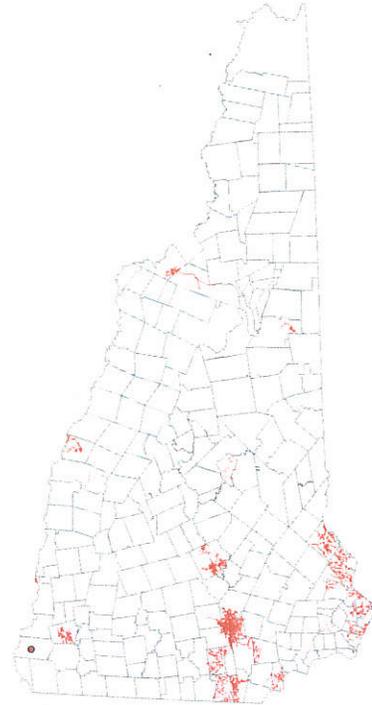
The eighteen water systems in New Hampshire, serving more than 10,000 people, must comply with the UCMR. Five smaller water systems selected by USEPA were also required to monitor under UCMR 3.

(Monitoring continued on pg 8)

(Monitoring continued from pg 7)

A preliminary analysis of available data from UCMR 3 in New Hampshire indicates that only one contaminant, chlorate (a byproduct of drinking water disinfection), occurs at a frequency and concentration that someday could lead to regulatory actions based on USEPA's draft reference levels. A draft reference level is not an action level or a proposed level for a future drinking water regulation. Rather, it is based on publicly-available health information. Thirty-seven percent of the water sources or distribution points sampled in New Hampshire had at least one detection of chlorate above USEPA's draft reference level of 210 micrograms per liter. Twenty percent of the water sources or distribution points sampled in New Hampshire had an average concentration of chlorate above the draft reference level. Other states have also detected chlorate at frequencies and concentrations similar to those in New Hampshire.

The UCMR 3 monitoring results for New Hampshire are similar to national UCMR 3 data available in summary form at <http://www.epa.gov/dwucmr/occurrence-data-unregulated-contaminant-monitoring-rule>. 💧



Location of Community Water Systems with Sample Results Reported from the UCMR Sampling Program as of October 2015



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