

US EPA ARCHIVE DOCUMENT

# The Local Landscape

## Safe & Eco-Friendly Winter Roads in New England

Municipalities want their roads as safe as possible in winter storms, but more salt isn't necessarily better. Road salt has its dark side by increasing water contamination after spring runoff, attracting animals to the roads and increasing the chances of vehicular collisions, plus it corrodes roads, pipes and vehicles. With different techniques, equipment and chemicals; roads can actually become safer with less salt.

Road salt can reach drinking supplies in two ways: runoff into storm drains and streams can carry it off to lakes, ponds and reservoirs and it can infiltrate to groundwater and collect within wells. Once salt reaches groundwater it can stay there for decades. Even in low levels salt in drinking water can seriously affect people with chronically high blood pressure.



When snowmelt occurs, the salt that has accumulated throughout the winter is carried off along with collected oil, grease and other vehicular byproducts into drains and streams. That oily salt can clog storm drains and needs to be dealt with as hazardous waste. When

it does make its way to water bodies it can harm and kill aquatic plant and animal life.

Kamloops, BC, Canada saw car accidents decrease by 8% after using low salt methods.

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## Seventy-four Communities Joined the Challenge to Save Energy in 2007!

In New England we see some of the most extreme weather conditions, from high humidity to frigid winter chills, costing close to \$1 billion to heat, cool and light municipal facilities. EPA New England's Community Energy Challenge set off in full swing in 2007 to help communities save money through energy efficiency. Partnered with EnergyStar, the Challenge provides free training materials and technical assistance to benchmark and see the

energy use and waste in your municipal buildings. To join, each town agrees to reduce energy use by at least 10% —though many are finding that reducing as much as 20-30% comes with relative ease after making the initial improvements.

Approximately 20% of New England's population lives in the cities and towns in the challenge. If your town or city isn't onboard yet, make it a resolution in 2008.

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## (cont.) Winter Roads

### Salt & Sand Application

**Right Material** – Use sand only in low-speed intersections, curves and hills. Use a chemical that is effective at current road surface temperatures, consider alternatives to salt on bridges and source water areas.

**Right Amount** – Applying salt correctly depends on the surface temperature, use infrared thermometers on spreading trucks.

**Right Place** – Use salt only where it will do the most good; shaded areas, hills/ curves, but use alternatives when possible. Any section of road below 10° Fahrenheit won't benefit from rock salt.

**Right Time** – It takes significantly more salt to melt accumulated snow than to prevent it from sticking to the roads. Apply preventively rather than reactive.

### Storage

Improper municipal storage of salt and sand can cause severe environmental damage because of concentrated runoff.

- \* Regularly inspect and maintain storage areas
- \* Locate away from source of drinking water, wetlands and floodplains
- \* Site on an impermeable (paved) pad with a drain that directs runoff for treatment
- \* Cover storage areas with at least three sides and a roof

Studies have shown that even sand can lose its effectiveness on roads after as few as **10** cars pass over it.

Idaho transportation officials switched to liquid magnesium chloride on one stretch of road and saw the number of accidents fall by 83%.

Not every case will necessarily show this success, keep in mind though that the safety of motorists, municipal budgets and the environment all win when road salt is used efficiently.

Winter road crews should take the training programs offered in every state by local Technology Transfer centers, and follow the 4 R's! ♣

For more information:  
[www.epa.gov/admiweb/naturalevents/snow-ice.html#highways](http://www.epa.gov/admiweb/naturalevents/snow-ice.html#highways)

For training, contact your local Technology Transfer (T2) center:  
CT: (860) 486-5400  
MA: (413) 545-2604  
ME: (207) 624- 3270  
NH: (603) 862-2826  
RI: (401) 874-9405  
VT: (802) 654-2652

## Upgrade Indoor Heating Efficiency

Energy efficiency reduces municipal energy bills and drastically improves indoor comfort. Many common problems like moisture on window panes; ice dams; peeling paint; and mold can also be solved by boosting efficiency.

### Seal Leaks & Ducts

Healthy indoor air quality does require some fresh air and professionals can assess a building need with diagnostic tools that measure its actual air leakage. If sealed too tightly, a fresh air ventilation system may be necessary. After any sealing project, also make sure combustion appliances are venting properly.

Ducts distribute conditioned air for heating and cooling in a forced-air system. Even a typical house however, can lose as much as 20 % of that air by leaks

and poorly sealed duct connections. Multiply that in a larger facility, and there is some serious energy loss and unnecessarily high energy bills.

### Add Insulation

Insulation keeps rooms both warm and cool in each season so long as it's correctly installed. Insulation performance is measured by "R-value" — its ability to resist heat flow. Different R-values are recommended for different locations and installation works best when air is not moving through or around it so seal air leaks before installing insulation for optimal performance.

Sealing and adding insulation are the most cost-effective ways to maintain heat and improve indoor comfort. EnergyStar estimates that

both steps can save up to 20% on heating and cooling costs (or up to 10% on total annual energy bills).  
[www.energystar.gov](http://www.energystar.gov)

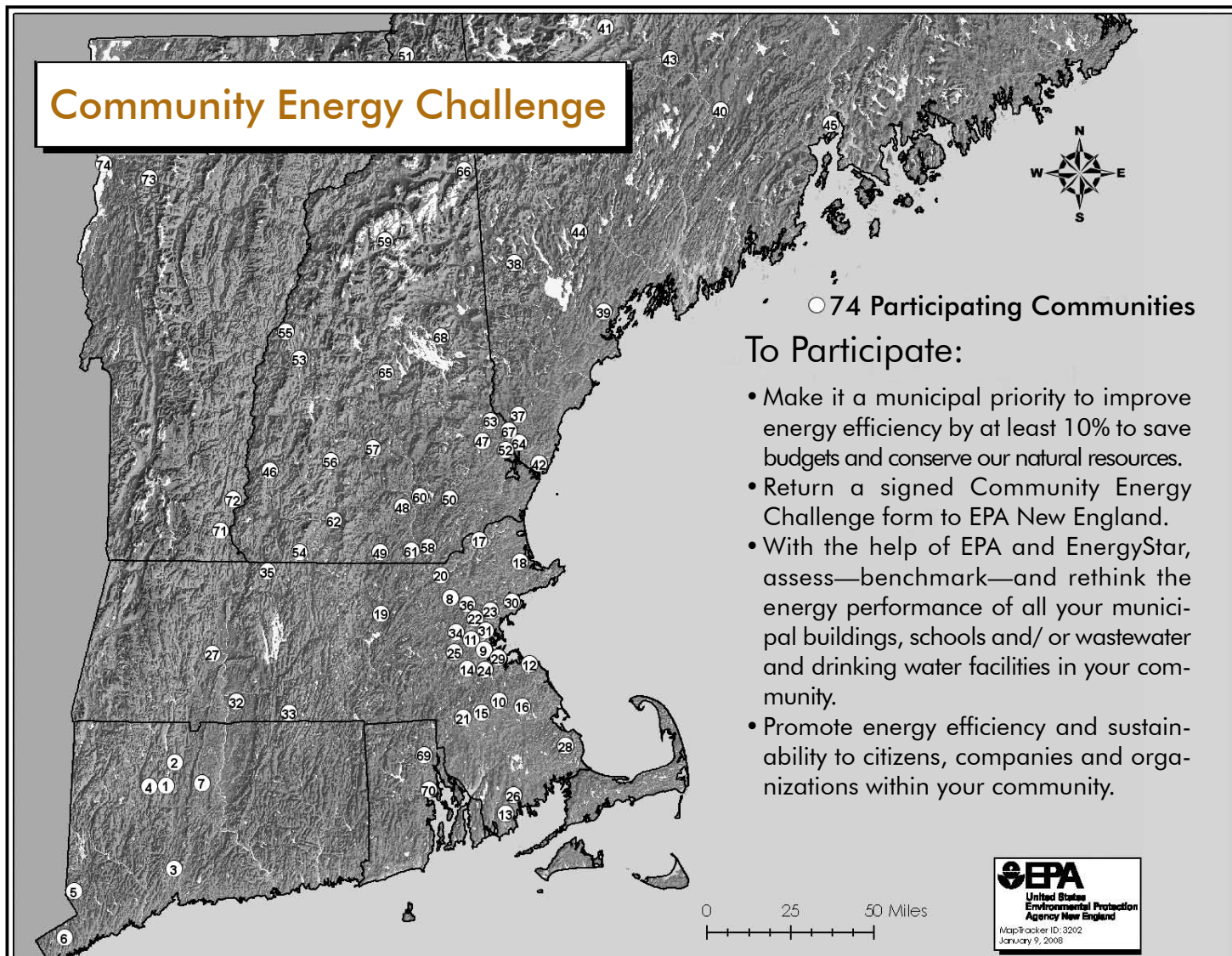
### Replacing Windows

Replacing windows is expensive to perform solely for energy savings, but if they already need replacement due to age, maintenance or for aesthetic reasons make the most of the switch and consider ENERGY STAR certified windows. ENERGY STAR windows, doors, and skylights are twice as efficient as the average windows manufactured just 10 years ago.

[www.energystar.gov/index.cfm?c=remodeling.hm\\_improvement\\_windows](http://www.energystar.gov/index.cfm?c=remodeling.hm_improvement_windows)

# (cont.) Energy Challenge

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Visit [www.epa.gov/region1/eco/energy/energy-challenge.html](http://www.epa.gov/region1/eco/energy/energy-challenge.html) to take the challenge! ♣

- |                    |                   |                        |                        |
|--------------------|-------------------|------------------------|------------------------|
| 1 Burlington CT    | 20 Lowell MA      | 39 Falmouth ME         | 58 Hudson NH           |
| 2 Canton CT        | 21 Mansfield MA   | 40 Benton ME           | 59 Lincoln NH          |
| 3 Hamden CT        | 22 Medford MA     | 41 Kingfield ME        | 60 Manchester NH       |
| 4 Harwinton CT     | 23 Melrose MA     | 42 Kittery ME          | 61 Nashua NH           |
| 5 Ridgefield CT    | 24 Milton MA      | 43 Madison ME          | 62 Peterborough NH     |
| 6 Stamford CT      | 25 Needham MA     | 44 Mechanic Falls ME   | 63 Rochester NH        |
| 7 West Hartford CT | 26 New Bedford MA | 45 Stockton Springs ME | 64 Rollinsford NH      |
| 8 Billerica MA     | 27 Northampton MA | 46 Alstead NH          | 65 Sanbornton NH       |
| 9 Boston MA        | 28 Plymouth MA    | 47 Barrington NH       | 66 Shelburne NH        |
| 10 Brockton MA     | 29 Quincy MA      | 48 Bedford NH          | 67 Somersworth NH      |
| 11 Cambridge MA    | 30 Salem MA       | 49 Brookline NH        | 68 Tuftonboro NH       |
| 12 Cohasset MA     | 31 Somerville MA  | 50 Chester NH          | 69 North Providence RI |
| 13 Dartmouth MA    | 32 Springfield MA | 51 Colebrook NH        | 70 Warwick RI          |
| 14 Dedham MA       | 33 Wales MA       | 52 Dover NH            | 71 Brattleboro VT      |
| 15 Easton MA       | 34 Waltham MA     | 53 Enfield NH          | 72 Putney VT           |
| 16 Hanson MA       | 35 Warwick MA     | 54 Fitzwilliam NH      | 73 Richmond VT         |
| 17 Haverhill MA    | 36 Woburn MA      | 55 Hanover NH          | 74 South Burlington VT |
| 18 Ipswich MA      | 37 Berwick ME     | 56 Hillsborough NH     |                        |
| 19 Lancaster MA    | 38 Denmark ME     | 57 Hopkinton NH        |                        |

# Questions about Your Community: Residential Wood Combustion

This winter as we huddle indoors from the cold, be sure to educate your community about the hazards of a greater reliance on the wood stove for heat. Research indicates that indoor and outdoor wood-burning appliances and fireplaces may emit large quantities of unhealthy air pollutants. Wood releases hundreds of chemical compounds when burned; including: nitrogen oxides, carbon monoxide, organic gases, and fine particles, also called PM or particulate matter. Even limited exposure to wood smoke can be harmful, particularly to the health of children, the elderly and those with chronic conditions. Fine particles are about 30 times smaller than a human hair and can aggravate heart or respiratory problems regardless of age.

## What regulations are in place?

In both urban and rural neighborhoods, wood burning is a significant contributor to air pollution. EPA has taken steps to reduce this air pollution source.

Properly installed EPA-certified wood or pellet stoves produce less particle pollution than older stoves, and work as a good supplement to an oil or gas furnace. Wood stoves manufactured since 1988 must be EPA certified which means they produce the same heat with 1/3 less wood than older stoves, and emit 50% to 60% less pollution. EPA-certified stoves carry a special label and hang tag making them easier to identify.

A catalytic combustor can be installed on an existing stove, (just like on a car exhaust system). These help stoves burn cleaner and as a result, chimneys and stove pipes require less cleaning and the chances of a chimney fire are greatly reduced.

Indoor 'free-standing' wood stoves and fireplace inserts sold after July 1, 1992, must meet stricter emission limits for both catalytic and non-catalytic stoves. However, these requirements do not cover indoor masonry fireplaces and although EPA discourages their use, EPA regulations do not prohibit the use of stoves manufactured before 1992.

In general, states and municipalities have lead roles in regulating wood-burning. Some municipal governments have developed regulations or voluntary programs to address the problem that most stoves are still not EPA-certified and in some cases, have prohibited the use of woodstoves during certain air-quality conditions.

Until recently, EPA and New England states have mainly focused on indoor wood stoves, but now attention is also on outdoor wood fired hydronic heaters (OWHHs), also called outdoor wood boilers, which have become popular in recent years. These boilers typically consist of a firebox that heats water to supply a nearby building with heat, hot water or both. Although the concept may be appealing, these boilers commonly produce excessive smoke and pollution, negatively impacting nearby residences. EPA recently developed a voluntary two-part strategy to reduce harmful emissions from OWHHs. This strategy includes (1) a Memorandum of Understanding between EPA and manufacturers to produce cleaner units, and (2) a

model rule (developed in partnership with The Clean Air Association of the Northeast States (NESCAUM)) that can be used by states, tribes and communities considering regulating OWHHs. In April 2007, Vermont became the first New England state to enact a regulation for OWHHs, and Maine recently enacted a similar regulation.

Check this winter within your municipality and state to see what regulations are in place for wood smoke and indoor air quality.

For more information visit these EPA websites:

More information about wood stoves, fireplaces and the health effects of wood smoke exposure is available at: [www.epa.gov/woodstoves](http://www.epa.gov/woodstoves)

For a list of cleaner burning outdoor wood-fired hydronic heaters:

[www.epa.gov/owhh/models.htm](http://www.epa.gov/owhh/models.htm)

For a list of EPA-certified wood stoves and fireplace inserts see:

[www.epa.gov/compliance/resources/publications/monitoring/caa/woodstoves/certifiedwood.pdf](http://www.epa.gov/compliance/resources/publications/monitoring/caa/woodstoves/certifiedwood.pdf)



# Carbon Monoxide Poisoning: What Your Community Needs to Know

Carbon Monoxide (CO) is a familiar villain resulting from vehicle exhaust. Outdoors, the highest levels of CO typically occur during the colder months when 'inversion conditions' are present and air pollution becomes trapped near the ground beneath a layer of warm air. In New England, cars, trucks, buses, marine engines and construction equipment account for 80 to 90 % of carbon monoxide emissions, but it's important to note that fuel combustion in residential housing, businesses, industry and utilities accounts for the other 10 to 20%.

Hundreds of people of all ages die from carbon monoxide poisoning annually. As we huddle indoors and crank up the heat it becomes a greater threat. Fortunately, it can be easily avoided by proper maintenance of heating appliances and by awareness of the exposure signs.

Carbon monoxide is product of the combustion that occurs in furnaces, wood stoves and gas ranges. In proper working condition, they produce very little CO, but malfunctioning or poorly maintained appliances can produce fatal levels.

Carbon monoxide exposure reduces the blood's ability to carry oxygen to the body's organs. The chemical is odorless and the symptoms of carbon monoxide poisoning are difficult to notice only because they are similar to the flu, but with-

## MAKE SURE APPLIANCES FUNCTION CORRECTLY:

- Install professionally, by manufacturers instructions and building codes
- Annually inspect / service heating systems
- Regularly examine vents and chimneys for leaks, rust and stains
- Know the signs of a malfunctioning heating device: decreasing hot water supply, inability to heat the house, soot, and unfamiliar or burning smells
- Install CO detectors that meet the 'UL 2034' requirements

## PREVENTING CO POISONING MEANS NEVER:

- Burn charcoal indoors
- Use propane space heaters in confined areas
- Attempt to fix combustion appliances without a professional
- Use a gas oven for heating
- Vent gas-fired dryers into living spaces
- Leave cars running inside a garage
- Use un-vented fuel-burning appliances in a closed room



For more on carbon monoxide and other indoor air quality facts:  
[www.epa.gov/iaq/co.html](http://www.epa.gov/iaq/co.html)

out the fever: (dizziness, fatigue, headaches, nausea and irregular breathing).

### Cardiovascular Threats

Even low levels of CO are serious for those who suffer from heart disease, clogged arteries, or congestive heart failure. A single exposure to CO can cause chest pain and reduce that person's ability to exercise, repeated exposures may contribute to other cardiovascular effects.

### Central Nervous System

Even healthy people exposed to high levels of CO can develop vision problems, a reduced ability to work or learn and difficulty performing complex tasks.

Usually, carbon monoxide is vented outside homes by chimneys or exhaust vents before posing a problem. However, poorly designed or maintained exhaust systems can keep this poisonous gas indoors.

## New Asthma Web Site

During the winter months EPA New England will be developing a new regional asthma web site that will feature county data for all New England states on the following: current adult asthma rates; lifetime adult asthma rates; current adult smoking rates; adult asthma emergency room visit rates; and adult asthma hospitalization. The site will also have a map of which towns are using EPA's Tools for School Kit, as well as links to funding, best practices, and resources. Stay tuned!

**Asthma is the leading chronic illness of children in the United States and the leading cause of school absenteeism due to chronic illness.**



# Green and Healthy Heating Tips

## A PROGRAMMABLE THERMOSTAT

is ideal for individuals and families who are away from home during set periods of time, like work or school. Through proper use you can save about **\$150** a year.



- Consider pollution effects and health risks when choosing a heating source
- Upgrade to EPA-certified woodstoves or other clean-burning technology
- Dry, well-seasoned wood burns cleaner
- Always provide adequate ventilation and exhaust for a combustion source
- Have your heating system inspected with particular attention to the vents and chimneys every year
- Properly weatherize to reduce heating needs and bills by improving the insulation and seals around windows, doors, and pipes.
- Install a programmable thermostat
- Seal heating and cooling ducts and pipes
- Consider the more than 50 types of products and appliances that are EnergyStar certified for their efficiency
- Smoldering fires give off much more pollution than small, hotter fires
- NEVER burn garbage, plastic, plywood or pressure-treated wood, when burned, they release chemicals that can be inhaled and potentially become hazardous to your health

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[www.epa.gov/region1/communities](http://www.epa.gov/region1/communities)

