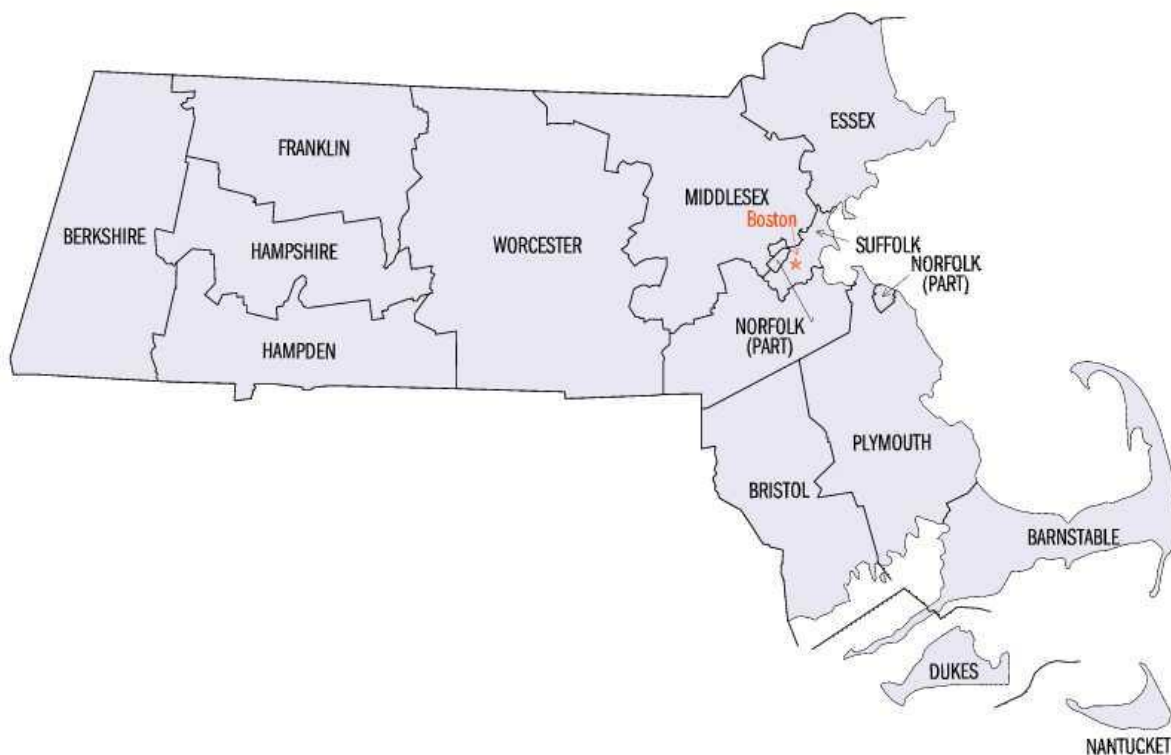


Toxics in Massachusetts:

A Town-by-Town Profile



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Toxics in Massachusetts: A Town-by-Town Profile

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About Toxics Action Center

Toxics Action Center provides assistance to residents working to prevent or clean up toxic hazards in their communities. Since 1987, Toxics Action Center has helped more than 625 communities clean up hazardous waste sites, decrease industrial pollution, curb pesticide spraying, and oppose the siting of dangerous waste, energy and industrial facilities. When the government won't take action and the company denies that there is a problem, Toxics Action Center is a resource for residents concerned with toxic hazards in their communities. We provide residents with information about environmental laws, strategies for organizing, a network of activists throughout the state, and access to legal and technical experts. Toxics Action Center is funded by donations from concerned citizens and grants from private foundations. This financial support enables us to provide our services free of charge to communities facing the threats of toxic pollution.

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Acknowledgements

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Preface

Toxics in Massachusetts: A Town-by-Town Profile is an easy-to-use source of information about many types of hazardous sites in Massachusetts. For each town this report lists:

- National Priority List Superfund Sites
- State Superfund Hazardous Waste Sites
- Solid Waste Incinerators
- Large Quantity Hazardous Waste Generators
- Partially Capped or Uncapped Landfills
- Capped Landfills
- Filthy Five Power Plants

Toxics in Massachusetts: A Town-by-Town Profile contains the most current data available at the time of printing; therefore readers must keep in mind that the information presented in the report may not be completely up to date.

More information about specific communities or specific types of toxic pollution can be found by contacting the sources of this information directly or by contacting Toxics Action Center at (617) 292-4821 or info@toxicsaction.org.

Introduction to Toxics in Massachusetts

Massachusetts is a beautiful state with a long colonial history. It is the most populous of the six New England states, and most of its population of 6.6 million lives in the greater Boston metropolitan area. As the 7th smallest state in the United States, its compact borders contain surprisingly rich diversity. There are modern urban skylines, sprawling suburbs, and historic town centers with village greens. Eastern Massachusetts is densely populated and largely suburban. Central Massachusetts encompasses Worcester County, and includes a number of cities and small upland towns, forests and small farms. The Quabbin Reservoir borders the western side of the county, and is the main water supply for the eastern part of the state. The Pioneer Valley along the Connecticut River in Western Massachusetts is urbanized from the Connecticut border north as far as Northampton. West of the valley, the small mountain range known as the Berkshires dominates the landscape and serves as a destination for vacation-goers. Although much of the state was cleared for agriculture years ago, traces of old growth forest remain, and forests cover almost two-thirds of the state.

Massachusetts has extensive coastline and a declining commercial fishery that still harvests a variety of species including Atlantic cod, haddock and American lobster. A significant number of North Atlantic Right Whales summer on feeding grounds in Cape Cod Bay, and the islands off the Atlantic coast are beautiful, prized vacation destinations for out-of-state residents.

Unfortunately, Massachusetts's landscape is also littered with a toxic legacy. During the 19th century, Massachusetts and the New England region became a national and world leader in the Industrial Revolution, with the development of machine tools and textiles. The economy transformed at the time from primarily agricultural to industrial, making use of its many rivers, and today old industrial cities are full of historic toxic contamination. Massachusetts has thousands of potential and identified hazardous waste sites awaiting cleanup, some of the worst air quality in the nation, and rivers and lakes polluted by industrial contaminants and toxic mercury. Asthma and cancer rates are some of the highest in the country, and both can be linked to environmental causes. Massachusetts is also plagued by economic disparities. Poor urban areas are often the most overburdened by toxic pollution. Since World War II, Massachusetts has been transformed from an industrial economy to a service and high-tech economy, as well as a center for higher education.

Twenty years ago when people thought of protecting the environment they thought of picking up litter and about protecting our wilderness and wildlife. Yet in the late 1970s, toxic contamination at Love Canal near Niagara Falls, New York, a nuclear accident at Three Mile Island in Pennsylvania, and a leukemia cluster in Woburn, Massachusetts, made national news. Unfortunately, these tragedies were not isolated incidents, and Massachusetts has its own toxic legacy that will take decades to fully clean up.

Despite significant threats to public health and the environment, we have an opportunity to protect and improve the quality of life in Massachusetts. The good news is that resources exist in the Bay State that could be allocated to protect public health. Additionally, local decision-making power in towns and cities allows communities to take action when state bureaucracy is unresponsive or lacks sufficient resources to enforce the law. The following pages outline actions that the government and citizens should take to make Massachusetts a safer and healthier place to live.

Recommendations

Phase Out Persistent Toxic Chemicals

Persistent toxic chemicals can be found in places we live, work and play. These contaminants can cause cancer, birth defects and other reproductive problems, immune system challenges and damage to the nervous and respiratory systems. Massachusetts agencies should protect the public from toxic chemicals and ensure the safety of all products on the market through comprehensive chemical reform.

Massachusetts agencies can start by phasing out the use of deca or PBDE, a flame retardant used in everyday electronics such as television and computers, as well as carpet and furniture, and DEHP, a chemical found in medical equipment and building materials. PBDE flame retardants have been shown to permanently impair learning and behavior in animals. DEHP has been linked to stunted reproductive development in baby boys and to the development of asthma in children and adults. Massachusetts agencies should also require that manufacturers prove their products are safe before they go on the market, and should use their authority to ban or restrict the use of a chemical if it poses a risk of environmental contamination or can harm human health, and if safer alternatives are available.

The legislature should pass the Safer Alternatives Bill to begin the process of chemical reform by assisting businesses in switching to safer alternatives. The Commonwealth already passed the Toxics Use Reduction Act (TURA), creating a highly successful system to assist industrial users of large quantities of toxic chemicals to reduce their toxics use. This program has been good for public health and also resulted in significant cost savings for many participating businesses. The Safer Alternatives Bill would preserve existing TURA programs and expand them to seek safer substitutes for toxic chemicals in consumer products and other sources. Furthermore, the Toxics Use Reduction Institute established by TURA should be maintained at full levels of funding. This agency plays an invaluable role in assisting businesses to identify and switch to safer alternatives.

Assure Appropriate Cleanup of Hazardous Waste

Hazardous waste sites can pose a health threat due to direct exposure or contamination of water or soil. According to the Massachusetts Department of Environmental Protection (MassDEP), there are thousands of potential or identified active hazardous waste sites in this state that are classified by priority. The U.S. Environmental Protection Agency (EPA) and the State of Massachusetts oversee the identification, listing, storage, and cleanup of hazardous waste sites. The EPA and State must establish shorter timelines to ensure that these sites are cleaned up in a manner that fully protects public health and the environment. Contaminated sites often go for years and sometimes decades without being fully cleaned up. The state must ensure that there are proper resources and oversight for effective cleanups. Furthermore, the “polluter pays fees” from the national Superfund program expired in 1995, and they have not been reinstated. On the 30th anniversary of the Superfund program, taxpayers are paying to clean up hazardous waste sites classified on the federal Superfund list. This provision should be reinstated, and the Massachusetts delegation should work at the federal level to strengthen the Superfund.

Create a Waste Plan that Maximizes Waste Reduction and Moves Towards Zero Waste

Massachusetts residents generate more trash than any other New England state, creating almost 13 million tons of waste annually, of which 8.7 million tons are household and commercial waste, or municipal solid waste. Only one-third of municipal solid waste is recycled each year and the rest is burned incinerators or buried in landfills.¹ Recycling rates are stagnant, and each of the 25 active landfills in the state and 7

incinerators poses significant threats to the health of Massachusetts residents. The Environmental Protection Agency states that all landfills eventually leak, and what they leak, both into groundwater supplies and into the air, is toxic. Incinerators emit, among many pollutants, sulfur dioxide, nitrogen oxides, mercury, lead, particulate matter, dioxins, and carbon monoxide. These air pollutants have been linked to birth defects, asthma, respiratory disease, and cancer. Massachusetts needs to continue to take steps away from burning and burying its trash, which pollutes air and water and threatens public health. In addition to increasing recycling, the state agencies must reduce waste at its source. We could recycle or divert 70-90% of what is currently thrown away, and Massachusetts should implement a “zero waste” plan that includes aggressive recycling, commercial composting programs, and education programs focused on reducing waste.

Zero waste includes 'recycling' but goes beyond it by taking a 'whole system' approach to the vast flow of resources and waste through society. Zero waste maximizes recycling, minimizes waste, reduces consumption and ideally ensures that products are made to be reused, repaired or recycled back into nature or the marketplace. Economic incentives should promote closed-loops, bringing consumers' discards back to manufacturers and contractors to reprocess and reuse. Nantucket serves as a home-grown example of zero waste. Twenty years ago Nantucket had a 7% recycling rate and the town's landfill was nearing capacity. Today, the municipality diverts more than 92% of waste from landfills through aggressive recycling and waste reduction practices and has extended the life of the landfill for decades.ⁱⁱ Massachusetts should retire its incinerators and create a goal of zero waste and an implementation plan for how to reach it. Specific policies include enforcing waste bans on recyclable materials, updating the Bottle Bill to include water bottles and designer sports drinks, extending Pay As You Throw programs, implementing commercial and residential composting programs, and passing extended producer responsibility legislation.

Advance Renewable Energy Technologies

As global warming quickly becomes one of the most serious environmental and public health problems of the 21st century, the United States needs to lead the way in ending reliance on dirty and dangerous sources of energy and drastically reduce greenhouse gas emissions across the country. One of the largest sources of greenhouse gas emissions is fossil fuel power plants that burn coal, oil, or natural gas to create electricity and pollute our air and water with toxic air emissions like sulfur dioxide, nitrogen oxides, carbon monoxide, carbon dioxide, and lead. Many states like Massachusetts rely also on dangerous nuclear power plants, like Pilgrim, that threaten public health and the environment with constant low-level radiation exposures and the possibility of nuclear accident. Instead of building new fossil fuel-burning power plants or re-licensing Pilgrim, Massachusetts has an opportunity to lead the way with energy efficiency and renewable energy technologies that are truly clean. Massachusetts needs a new approach focusing on long-term energy planning that requires utilities to purchase low-cost energy, starting with all available cost-effective resources for energy efficiency. After energy efficiency, utilities should be required to purchase all cost-effective clean energy. The Commonwealth has the resources to generate 3,000 megawatts of clean power annually by 2020, enough to repower over 1 million homes, create 10,000 jobs and replace the largest coal-burning power plant in the state in Somerset. Massachusetts is already leading the way nation-wide by passing a law to cap global warming pollution but could better promote clean energy sources like wind and solar. This plan will save money for Massachusetts ratepayers, stimulate jobs growth in green industry, and protect public health and the environment.

Reduce Pesticide Exposures

Pesticides are chemicals deliberately added to the environment to kill living things and are, therefore, toxic by design. Pesticides have been linked to a growing list of health problems, including cancer, reproductive harm, learning disabilities and genetic damage. Pesticides are currently regulated in Massachusetts through

a patchwork of use-specific regulations that fail to address questions about cumulative exposures that arise from repeated use of pesticides in different settings. More than 230 lakes and ponds are treated with pesticides each year to manage invasive weeds, and these recklessly dangerous incidents of legal pesticide dumping threaten drinking water and the environment. Pesticides are also sprayed across Massachusetts highways, along rail lines and electrical lines throughout the Commonwealth and applied to parks, landscapes and lawns.

The Children and Families Protection Act was passed in 2001, positioning Massachusetts at the forefront of a movement to reduce children's exposure to harmful pesticides by restricting pesticide use in private and public schools and daycare centers and increasing right-to-know. Unfortunately, the law has been implemented unevenly across the state. The Massachusetts State Legislature should adopt legislation strengthening this Act to end pesticide use on school grounds and inside school buildings, and also enact legislation including requirements for pesticide use broader reporting, the establishment of buffer zones restricting pesticide use around surface water bodies, and the end to the use of pesticides on State of Massachusetts property. Furthermore, state agencies should phase out pesticide use along rights-of-ways throughout the Commonwealth, including MBTA rails, Massachusetts highways and the Massachusetts Turnpike.

Protect Water Quality and Quantity

Clean, fresh water is a critical resource for the Commonwealth. Our rivers and streams provide drinking water for millions of people, serve as an economic resource for residents and tourists, bringing in \$1.5 billion each year in revenue, and support a unique ecology with more than 100 endangered species. Unfortunately, the way Massachusetts residents live and work has profound impacts on the state's water quality and water quantity. Leaking septic systems, phosphorous run-off from farmland, and urban stormwater runoff containing automotive fluids, lawn chemicals, pet waste, and sediment also threaten Massachusetts's environment. Groundwater is threatened by active hazardous waste sites, active and closed landfills, underground storage tanks, and pesticides. Water quantity is threatened by unwise development, suburban sprawl and global warming. These threats decrease water levels causing streams like the Ipswich River to dry up almost every summer. The Metropolitan Area Planning Council predicts that 44 communities will face drinking water shortages by 2020.

To protect water quality and quantity, the State of Massachusetts should take initiative to enforce existing laws and ensure that water sources meet current water quality standards. The state should also work proactively to prevent future contamination of ground water and manage water use. We need to establish science-based standards for how much water should be left in our rivers, and use the water we do withdraw as wisely as possible. In addition, the state should support the Clean Water Restoration Act at the federal level to strengthen the Clean Water Act and ensure that water quality is protected. This bill would restore Clean Water Act protections weakened over the last decade to protect all waterways.

Take Action with an Environmental Organization

Toxics Action Center provides assistance to residents working to prevent or clean up toxic hazards in their communities. Since 1987, Toxics Action Center has helped over 625 communities clean up hazardous waste sites, reduce the use of industrial toxicants, decrease industrial pollution, curb pesticide spraying, and oppose the siting of dangerous facilities. When the government won't take action and the company denies that there is a problem, we are a resource for residents concerned with toxic hazards in their communities. We provide residents with information about environmental laws, strategies for organizing, a network of activists throughout the state, and access to legal and technical experts. For more information on the programs available through Toxics Action Center visit: www.toxicsaction.org/

The organizations listed below offer additional opportunities to learn about and get involved with environmental, environmental justice and community action issues. They represent a sampling of environmental and health organizations in Massachusetts.

Acton Citizens for Environmental Safety	Massachusetts Breast Cancer Coalition
Alliance for a Healthy Tomorrow	Massachusetts Coalition for Clean Air
Alternatives for Community and Environment (ACE)	Massachusetts Coalition for Occupational Safety and Health (MASSCOSH)
American Lung Association of New England	Massachusetts League of Environmental Voters
Massachusetts Audubon	Massachusetts Public Interest Research Group (MASSPIRG)
Berkshire Environmental Action Team	Massachusetts Public Health Association
Beyond Pesticides	MassRecycle
BU Superfund Research Program	Massachusetts Sierra Club
Charles River Watershed Association	Neighborhood Pesticide Action Committee
Citizens Leading Environmental Action Network	Networking Friends
Clean Power Now	People of Ayer Concerned about the Environment
Clean Water Action	Pilgrim Watch
Coalition on the Environment and Jewish Life	Regional Environmental Council in Worcester
Coalition for Social Justice	Residents for Alternative Trash Solutions (RATS)
Concerned Citizens of Russell	Salem Alliance for the Environment
Conservation Law Foundation	Saugus Action Volunteers for the Environment
Corporate Accountability International	Saugus River Watershed Council
Environment Massachusetts	Silent Spring Institute
Environmental League of Massachusetts	Stop the Power
GreenCAPE	Stop Toxic Incineration in Springfield
Green Century Funds	Sudbury Earth Decade Committee
Green Decade Coalition	Taunton River Watershed Alliance
Green Futures	Toxics Use Reduction Institute
Green Roundtable	Water Not Waste
Haverhill Environmental League	Wellesley Cancer Prevention Project
Health Care Without Harm	Westminster for an Environmentally Safe Town (WEST)
Healthlink	Women's Community Cancer Project
Housatonic River Initiative	
League of Women Voters	

Toxic Users & Releasers

Introduction

The Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (MassDEP) document the release of toxic chemicals into our environment through tracking Large and Small Quantity Hazardous Waste Generators, the Toxics Release Inventory, and the National Pollution Discharge Elimination System. The accompanying map shows Large Quantity Hazardous Waste Generators in Massachusetts. Other toxic users and releasers not shown on the map include Small Quantity Hazardous Waste Generators, Toxic Release Inventory Sites, and Permitted Water Pollution Sources under the National Pollution Discharge Elimination System.

Large Quantity Hazardous Waste Generators (LQG) are defined by the EPA and MassDEP as facilities that generate 1,000 kilograms per month (2,200 lbs) or more of hazardous waste, or more than one kilogram per month (2.2 lbs) of acutely hazardous waste. LQG are monitored by the EPA's Resource Conservation and Recovery Act (RCRA) passed by Congress in 1976 to address the increasing amounts of hazardous waste being generated. In 2009, 1,103 LQG site locations existed in Massachusetts.

Small Quantity Hazardous Waste Generators (SQG) are defined as facilities that generate between 100 kilograms per month (220 lbs) and 1,000 kilograms (2,200 lbs) per month of hazardous waste. Massachusetts's inspection requirements for LQG and SQG are more stringent than EPA's.

(Source: <http://www.epa.gov/osw/hazard/generation/>)

Toxics Release Inventory (TRI) facilities include hazardous waste generators of any of 650 specified toxic chemicals used, manufactured, treated, transported, or released into the environment. The locations and quantities of chemicals stored are reported to the EPA and are listed in the TRI database. There are more than 85,000 chemicals on the market today that are used in consumer products, a tiny minority of which are tested fully for effects on human health.

(Source: http://www.epa.gov/enviro/html/tris/tris_query.html)

Permitted Water Pollution Sources and the National Pollution Discharge Elimination System

Congress passed the Clean Water Act in 1972. This piece of legislation set a goal of eliminating pollution for all of the country's lakes, rivers, and coastal waters. The Environmental Protection Agency (EPA) estimates that this law keeps more than 900 million pounds of sewage and a billion pounds of toxic chemicals out of our waterways each year. Many of these bodies of water provide drinking water to residents throughout the United States. The EPA sets national standards for tap water through a three-step process:

- Identifying contaminants that may adversely affect public health and occur in drinking water with a frequency and at levels that pose a threat to public health
- Determining a maximum contaminant level goal for contaminants it decides to regulate
- Specifying the maximum permissible level of a contaminant in drinking water that is delivered to any user of a public water system

This process works to ensure consistent quality in the nation's water supply. However, in 2003 the EPA decided not to regulate any new contaminants in tap water. The EPA has set standards for approximately 90 contaminants in drinking water under seven major categories:

- **Microbes**- Microbes include Coliform bacteria and E. coli bacteria, among others
- **Radionuclides**- Radionuclides include radioactive materials (alpha, beta/photon emitters), Radium 226 and 228 and Radon
- **Inorganic Contaminants**- Inorganic contaminants include asbestos, mercury, copper, cadmium, lead, arsenic and fluoride, among others
- **Synthetic Organic Contaminants**- Synthetic organic contaminants include pesticides and herbicides
- **Volatile Organic Contaminants**- Volatile organic contaminants include benzene, vinyl chloride, toluene and styrene, among others
- **Disinfectants**- Disinfectants include those found in household cleaners such as chlorine and chlorine dioxide
- **Byproducts of Disinfectants**- Byproducts of disinfectants include bromate, chlorite and haloacetic acids, among others

(For more complete information about these categories, visit <http://www.epa.gov/OGWDW/hfacts.html>)

The Water Permits Division of the EPA's Office of Wastewater Management leads and manages the **National Pollutant Discharge Elimination System (NPDES)** permit program in partnership with EPA Regional Offices, states, tribes and other stakeholders. You can find out more information at:

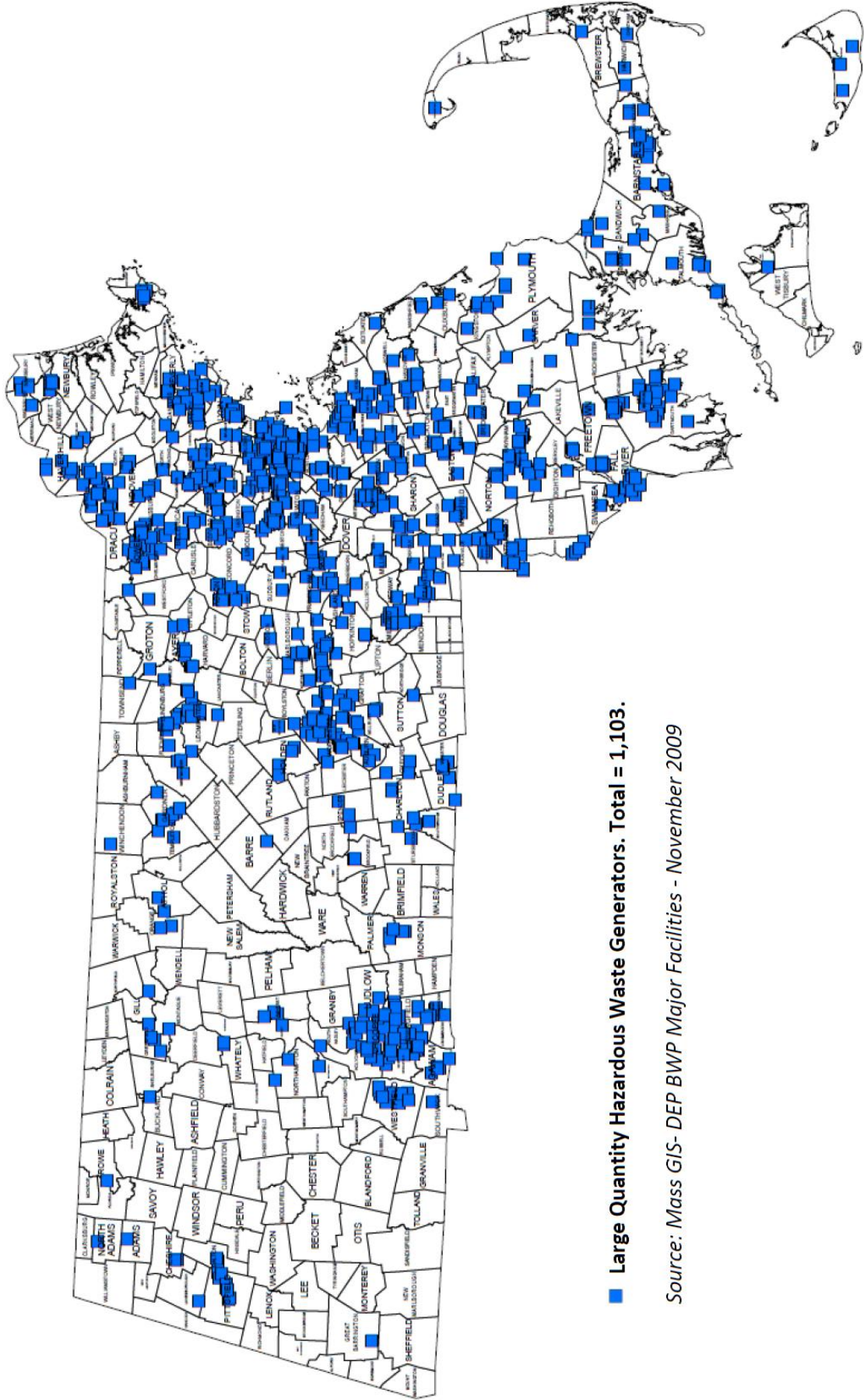
<http://cfpub.epa.gov/npdes/about.cfm>. And you can search for NPDES sites in your town through this search engine: http://www.epa.gov/enviro/html/pes/pes_query_java.html.

Toxic Map: Large Quantity Generators in Massachusetts

Large Quantity Hazardous Waste Generators (LQG) are defined by the EPA and MassDEP as facilities that generate 1,000 kilograms per month (2,200 lbs) or more of hazardous waste, or more than one kilogram per month (2.2 lbs) of acutely hazardous waste. LQG are monitored by the EPA's Resource Conservation and Recovery Act (RCRA) passed by Congress in 1976 to address the increasing amounts of hazardous waste being generated. In 2009, 1,103 LQG site locations existed in Massachusetts.

(Source: <http://www.epa.gov/osw/hazard/generation/>)

Large Quantity Hazardous Waste Generators in Massachusetts



■ Large Quantity Hazardous Waste Generators. Total = 1,103.

Source: Mass GIS- DEP BWP Major Facilities - November 2009

Air Pollution Point Sources

Introduction

The Environmental Protection Agency (EPA) has set national health-based air quality standards for six common pollutants. These six “criteria pollutants” and, according to the Agency for Toxic Substances and Disease Registry, their related human health effects, are listed below:

- **Carbon Monoxide**- Cardiovascular effects, vision problems with repeated exposure or high concentrations; premature death related to extremely high concentrations
- **Nitrogen Dioxide**- Respiratory effects, lung disease, and emphysema related to nitric acid and other particles; asthma and lung disease related to ground level smog; visibility impairment
- **Sulfur Dioxide**- Breathing difficulty and respiratory symptoms related to sulfate particulates
- **Lead**- Kidney, brain, liver, nerve damage, and reproductive damage; high blood pressure especially in men, related to lead exposure; seizures, mental retardation and behavioral problems associated with very high concentrations
- **Ozone**- Respiratory problems, wheezing, coughing associated with ozone exposure; permanent lung damage related to repeated exposure
- **Particulate Matter**- Aggravated asthma, chronic bronchitis and other respiratory problems associated with particulate matter

Ambient Air Quality Standards are set for pollutants considered harmful to public health and the environment. The Clean Air Act established two types of national air quality standards:

- **Primary standards** set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly.
- **Secondary standards** set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation and buildings.

For each of the six pollutants listed above, EPA tracks two kinds of air pollution trends:

- **Air concentrations** based on actual measurements of pollutant concentrations in ambient (outside) air.
- **Emissions** based on estimates of the total tons of pollutants released into the air each year.

Individual states are required to develop state implementation plans explaining how they will clean up polluted areas. Despite the progress made in the last 30 years, millions of people live in counties with monitor data showing unhealthy air for one or more of the six common pollutants.

(Source: <http://www.epa.gov/air/urbanair/6poll.html>)

Power Plants

Introduction:

Nuclear power facilities generate large quantities of toxic, radioactive waste that is difficult to store safely for the long-term. In the event of a waste or operation accident, nuclear emissions release harmful radioactivity into the air and water. Increased rates of thyroid cancer, blood disorders, miscarriages and birth defects have been linked to radiation exposure.

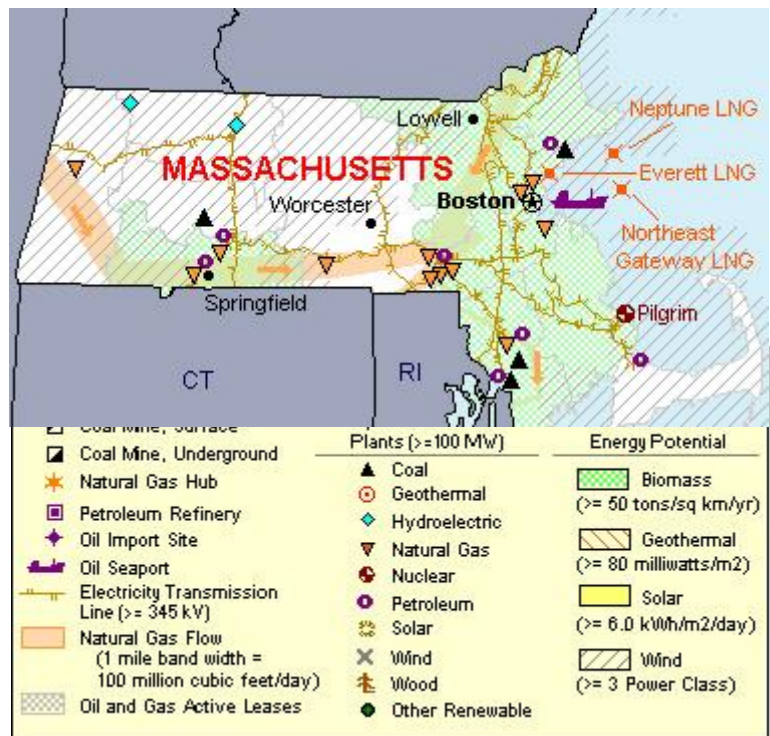
Fossil fuel power plants burn coal, oil and natural gas, which are finite in supply. These fuels cause a variety of environmental problems when burned such as acid rain, which has left hundreds of lakes unable to sustain life, soot and smog pollution that causes asthma and respiratory problems, and mercury contamination, a neurotoxin that is now found in all our waterways.

Massachusetts is the only New England State that relies significantly on coal-fired power plants, with coal accounting for one-fourth of electricity generation. The Everett and Offshore Boston liquefied natural gas (LNG) import facilities are the only LNG terminals located in the United States serving the Northeast.

The State of Massachusetts's electric power generation in 2007 was broken down as follows:

- 30% Natural gas generation
- 28% Oil generation
- 16% Coal generation
- 13% Nuclear generation
- 13% Other (Pumped storage, hydro, municipal solid waste incineration, renewables, etc.)

(Sources: http://www.mass.gov/Eoeea/docs/doer/pub_info/ma_01-2010_profile.pdf, and http://www.nwf.org/Global-Warming/~media/PDFs/Global%20Warming/Clean%20Energy%20State%20Fact%20Sheets/MASSACHUSETTS_10-22-2_ashx, and http://www.eia.doe.gov/emeu/states/sep_sum/html/sum_btu_eu.html)



Electrical plants pollute the air quality in Massachusetts. The majority of these plants are internal combustion, gas turbines, and steam turbines. These plants mostly utilize natural gas, fuel oil, and coal as their fuel sources. As a result, they emit pollutants such as carbon dioxide, carbon monoxide, unburned hydrocarbons, sulfur dioxide, particle pollution, and lead.

Operating nuclear power plants release large quantities of low-level radiation that have been linked to cancer, genetic defects, and immune deficiencies, and create long-lived, high-level radioactive waste. Pilgrim Nuclear Power Plant in Plymouth is the only nuclear plant in Massachusetts.

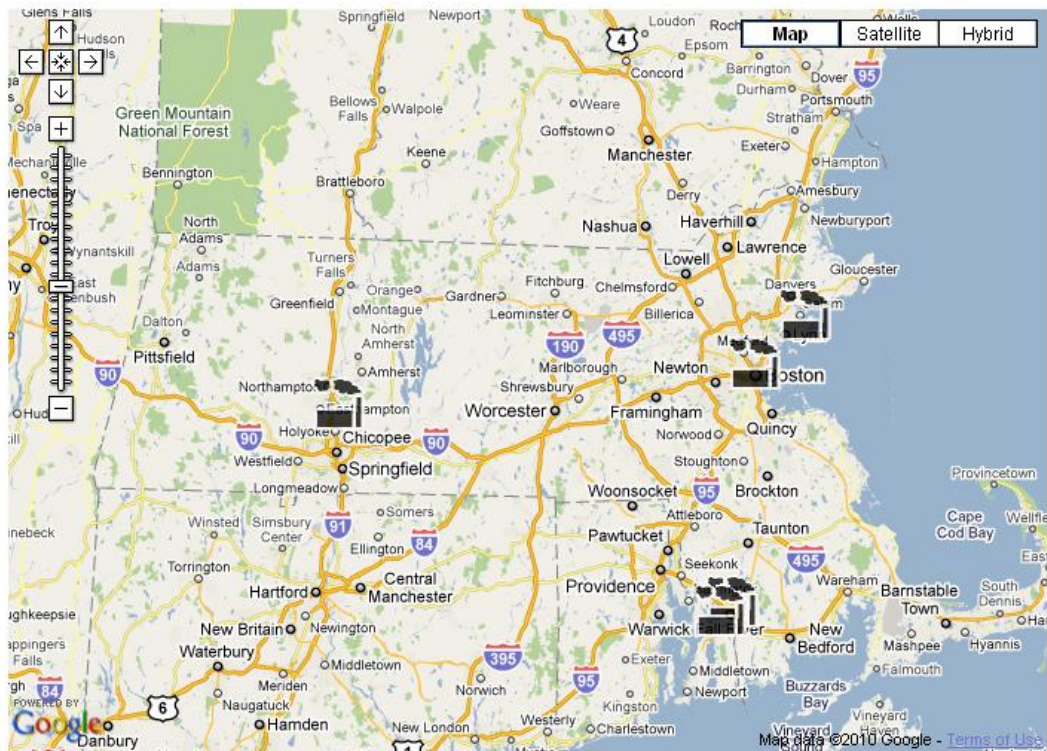
Toxic Map: Filthy Five Power Plants

Coal- and oil-fired power plants are Massachusetts' worst industrial air polluters. The "Filthy Five"—the state's oldest and dirtiest plants—are responsible for about 90 percent of all power plant pollution. For more than 30 years, these plants exploited a loophole allowing them to avoid cleaning up to modern emissions standards. Toxics Action Center, Clean Water Action, MASSPIRG, Conservation Law Foundation and other groups convinced the state to clean up these dirty, outdated plants in 2001, releasing a mandate to reduce mercury pollution from these plants by 90 percent, global warming pollution by 10 percent, and smog and soot pollution by more than 50 percent. Today, despite significant reductions, these power plants remain significant sources of pollution. Brayton Point Station in Somerset, Salem Harbor Station in Salem, Mt. Tom Station in Holyoke, Mystic in Everett, and Canal Station in Sandwich all continue to operate. NRG Somerset Station in Somerset shut down indefinitely on January 2, 2010. Filthy Five power plants are shown on the accompanying map.

Filthy Five Power Plants



Click on points to show name of facility and 2005 emissions quantity.



Data source: [ToxMap](http://www.toxmap.org)

<http://library.silentspring.org/heis/GoogleSSITRIsitesFilthyFiveIdentify3.htm>

Mapping by Silent Spring Institute (www.silentspring.org) using the Massachusetts Health and Environment Information System

Sources:

www.eia.doe.gov/cneaf/electricity/page/eia860.html

http://tonto.eia.doe.gov/state/state_energy_profiles.cfm?sid=MA

http://www.mass.gov/Eoeea/docs/doer/pub_info/ma_01-2010_profile.pdf

Toxic Map: Incinerators in Massachusetts

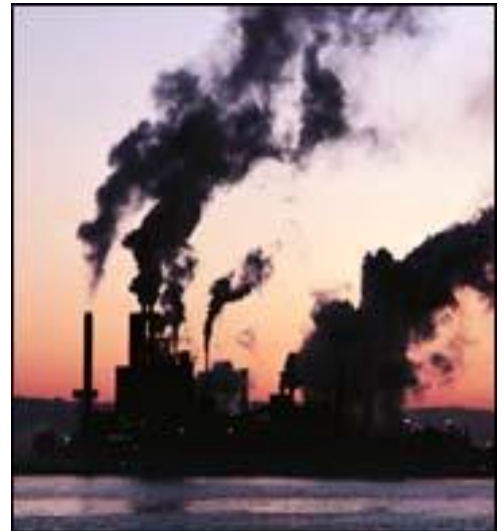
The toxic sources represented on the accompanying map are incinerators, major point pollution sources.

Incinerators are noxious emitters of air pollution, known to release sulfur dioxide, nitrogen oxides, mercury, lead, particulate matter, dioxins, and carbon monoxide. Massachusetts has seven active municipal solid waste incinerators in Haverhill, Pittsfield, Agawam, Millbury, North Andover, Saugus, and West Wareham.

Approximately 38% of the waste generated in Massachusetts is burned in incinerators. Incinerators pollute the air with toxic chemicals, and hazardous toxicants are also left over in ash that must be landfilled.

A new generation of waste-to-energy technology, including gasification, pyrolysis and plasma arc, is no better, and is still considered incineration by the U.S. Environmental Protection Agency. These facilities release the same toxic chemicals into the air as traditional incinerators, and produce hazardous slag which ultimately must be disposed of in landfills. Incineration also directly competes with recycling.ⁱⁱⁱ

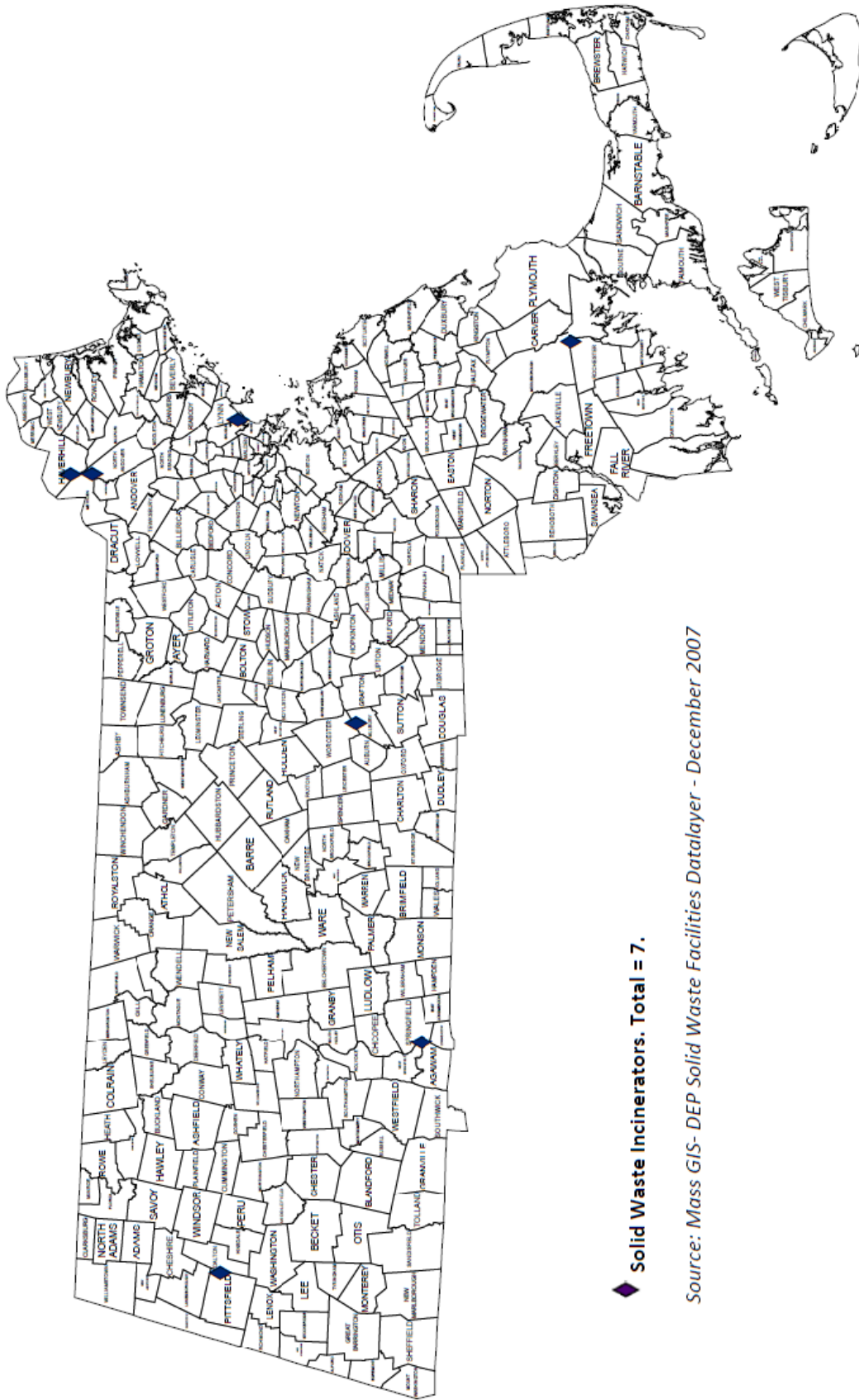
- Incinerators emit more carbon dioxide per megawatt-hour than coal-fired, natural-gas-fired, or oil-fired power plants.^{iv}
- Health studies have demonstrated that residents closer to incinerators have higher rates of cancer including non-Hodgkin's lymphoma and soft tissue sarcoma.^v
- Burning trash releases ultra-fine particulate matter, dioxins, mercury and other heavy metals, carbon monoxide, hydrogen chloride, and sulfur dioxide at similar levels. Many of these chemicals are carcinogenic and threaten the public health even at low levels.^{vi}
- Landfills and incinerators are often sited in lower income and minority neighborhoods. The rate of exposure to environmentally hazardous facilities and sites is four times greater for lower income communities and over twenty times greater for high minority communities.^{vii}



Sources Used for the Incinerators Map:

*DEP Solid Waste Facilities (<http://www.mass.gov/dep/recycle/solid/mwc.htm>)
Data on active incinerators was obtained from EPA's Region 1 combustion unit page
(<http://www.epa.gov/region1/eco/combustion/located.html>)*

Solid Waste Incinerators in Massachusetts



Hazardous Waste Sites

Introduction

Toxic waste sites across Massachusetts continue to threaten the health of communities and the safety of drinking water supplies. Massachusetts General Law, Chapter 21E, the state Superfund law, was originally enacted in 1983 (and amended several times since then) and created the waste site cleanup program. The regulations adopted to implement 21E are called the Massachusetts Contingency Plan (MCP).

Because DEP could not oversee cleanup of thousands of toxic sites at a fast enough pace, changes to the law in 1992 privatized the program, meaning that potentially responsible parties (those responsible for cleaning up contamination) hire licensed site professionals to oversee most cleanups with limited DEP oversight. This allows DEP to focus its resources on the most severe sites and on certain key stages of testing and cleanup.

When a contaminated site is discovered, the responsible party has a year to clean it up. After a year if the site is not cleaned up, they are required to determine the site's severity of pollution, called a tier designation. Sites are ranked according to how contaminated and hazardous they are, and designated Tier 1A, 1B, 1C, or 2. Citizens can have input into the tier designation by working with DEP and responsible parties. At any time after a waste site is discovered, citizens may request that the site adopt a Public Involvement Plan (PIP) to give the public information about the cleanup and input into the cleanup process. If anyone submits a petition with at least ten residents' signatures, the responsible party must prepare a PIP that establishes the community involvement process for the remainder of the cleanup.

Massachusetts also has a Technical Assistance Grant (TAG) program to help communities or towns be involved in cleaning up polluted sites. In lean budget years, grants are often unavailable, but often communities can apply for funding once a site is tier-classified to support a variety of actions: to hire consultants to explain technical information and give expert analysis about the cleanup approach being taken, to make information about a site more accessible to the general public, or to produce newsletters or provide for other means of public education.

(Source: <http://www.mass.gov/dep/cleanup/laws/bhfs.doc>)

Definition of hazardous waste in Massachusetts:

Hazardous waste means a waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical or infectious characteristics may cause, or significantly contribute to an increase in serious irreversible, or incapacitating reversible illness or pose a substantial present or potential hazard to human health, safety, public welfare or the environment when improperly treated, stored, transported, used or disposed of, or otherwise managed, however, not to include solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act of 1967 as amended, or source, special nuclear, or by product material as defined by the Atomic Energy Act of 1954, as further described in 310 CMR 30.000.

State Superfund

There are approximately 2,000 hazardous waste sites awaiting cleanup across the state of Massachusetts. As required under the Massachusetts Contingency Plan, hazardous waste sites are classified into tiers based on a variety of factors. These include the site's complexity, the type of contamination, and the potential for human

or environmental exposure to the contaminants. Out of approximately 1,900 tier-classified sites in Massachusetts, 893 are Tier 1 sites, requiring direct Department of Environmental Protection oversight during site investigation, remediation and post-remediation monitoring. Within the Tier 1 category, there are 106 Tier 1A sites, which are the most complex or severe.

Search for hazardous waste sites in your town at: <http://db.state.ma.us/dep/cleanup/sites/search.asp>.

Federal Superfund

The National Superfund Program grew out of citizen concern in the late 1970s regarding health and environmental effects of intensive or continuous chemical waste dumping practices across the nation. The concern led Congress to establish the **Comprehensive Environmental Response Compensation and Liability Act** (CERCLA) in 1980 (commonly known as Superfund) to locate, investigate, and clean up the worst sites nationwide. These sites are discovered by various parties including citizens, state agencies, and Environmental Protection Agency (EPA) Regional offices. Once discovered, sites are entered into the **Comprehensive Environmental Response Compensation and Liability Information System** (CERCLIS), EPA's computerized inventory of potential hazardous substance release sites. EPA then evaluates the potential for a release of hazardous substances from the site.

Archived sites: If site investigations and assessments conducted by EPA indicate that a CERCLIS site is safe, the site is deleted from CERCLIS and no further cleanup action is taken. These sites are called "archived" sites. Sites that contain hazardous waste below levels that capture EPA's attention are referred to the states for cleanup.

National Priorities List (NPL): Sites that pose a significant threat to human health and the environment are listed on the NPL and cleaned up by **Potentially Responsible Parties**, such as a polluting corporation, EPA, the state or tribe. The NPL is a list of the worst hazardous waste sites that have been identified by Superfund. These are the sites shown on the accompanying map.

(Sources: <http://www.epa.gov/oerrpage/superfund/about.htm> and <http://www.mass.gov/dep/cleanup/laws/regulati.htm#mcp>)

Toxic Map: National Priorities List Superfund Sites in Massachusetts

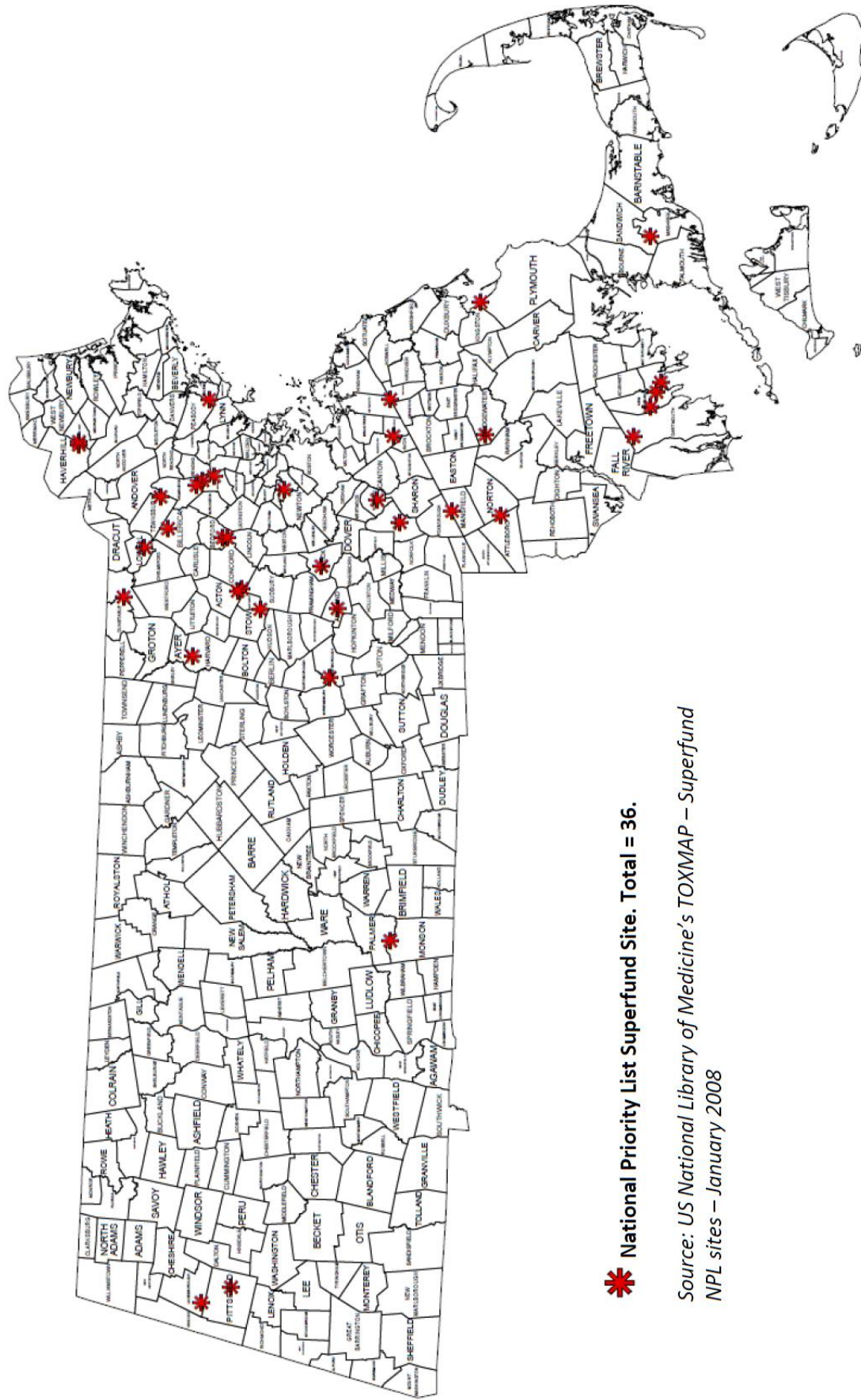
A **Superfund** site is any land that has been contaminated by hazardous waste and is identified by the EPA as a candidate for cleanup because it poses a risk to health and/or the environment. National Priorities List sites are the most hazardous sites identified under Superfund by the EPA. NPL sites on the map are sites on the Final NPL list or are part of an NPL site.

Source Used for NPS Superfund Sites in Massachusetts Map:

www.epa.gov/superfund/sites/query/advquery.htm

US National Library of Medicine's TOXMAP – Superfund NPL Sites – January 2008

National Priority List Superfund Sites in Massachusetts



*** National Priority List Superfund Site. Total = 36.**

Source: US National Library of Medicine's TOXMAP – Superfund NPL sites – January 2008

Toxic Map: Tier 1A, 1B, 1C and 1D Hazardous Waste Sites in Massachusetts

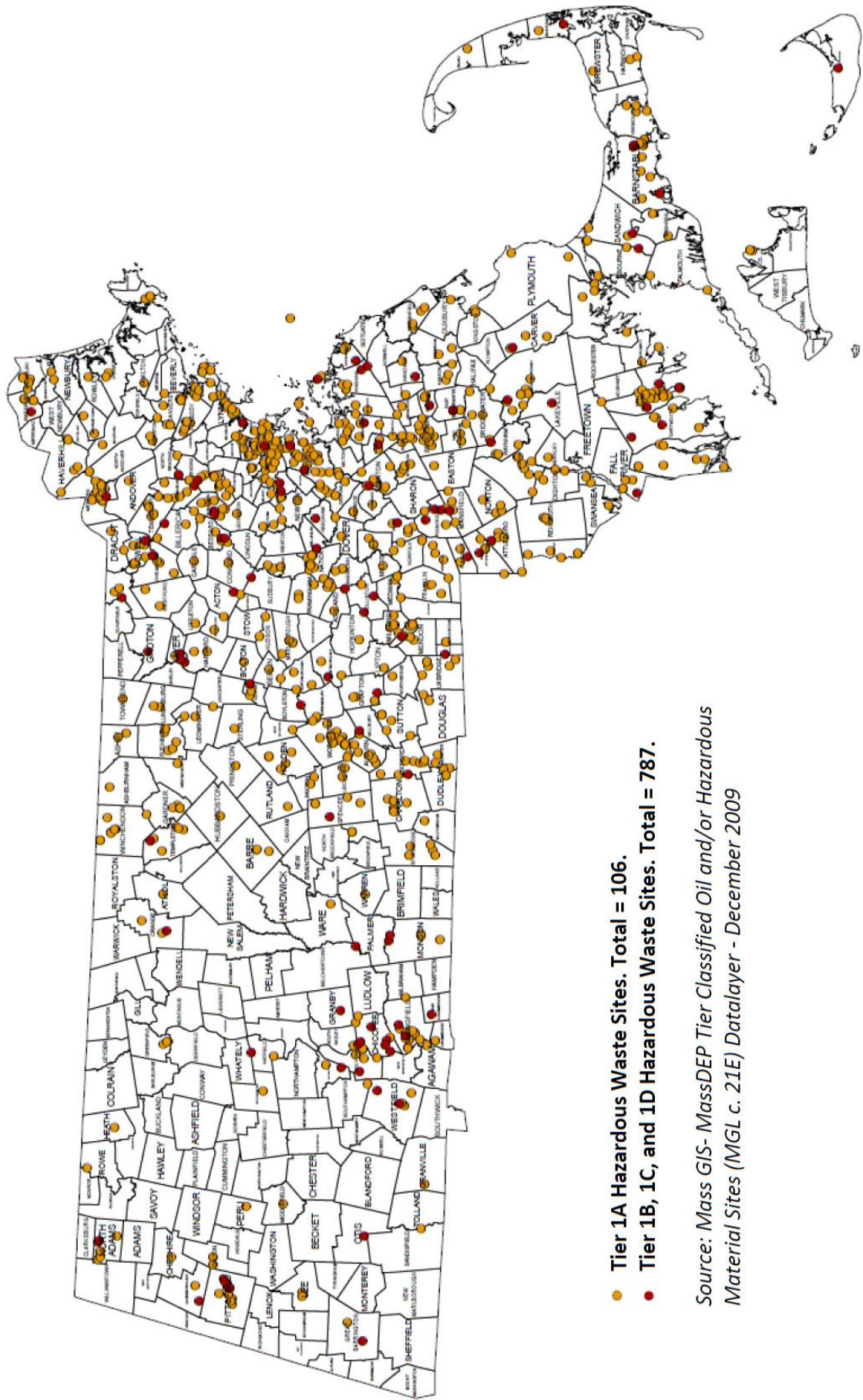
As required under the Massachusetts Contingency Plan, hazardous waste sites are classified into tiers based on a variety of factors. These include the site's complexity, the type of contamination, and the potential for human or environmental exposure to the contaminants. Out of approximately 1,900 tier-classified sites in Massachusetts, 893 are Tier 1 sites, requiring direct Department of Environmental Protection oversight during site investigation, remediation and post-remediation monitoring. Within the Tier 1 category, there are 106 Tier 1A sites, which are the most complex or severe.

Source Used for Tiered Hazardous Waste Sites in Massachusetts:

<http://db.state.ma.us/dep/cleanup/sites/search.asp>

<http://www.mass.gov/dep/cleanup/sites/sdown.htm>

Tier 1 Hazardous Waste Sites in Massachusetts



- Tier 1A Hazardous Waste Sites. Total = 106.
- Tier 1B, 1C, and 1D Hazardous Waste Sites. Total = 787.

Source: Mass GIS- MassDEP Tier Classified Oil and/or Hazardous Material Sites (MGL c. 21E) Datalayer - December 2009

Landfills in Massachusetts

Introduction

For most of this century, Massachusetts towns have operated dumps or landfills as centers for disposal of industrial as well as household waste. Most landfills were owned and operated by municipalities. They generally lacked liners and modern controls for leachate and gas produced as waste decomposes. Over time concern about waste management practices increased, following an increase in contamination of surface water, groundwater supply wells, and soils.

Some of the contamination was linked to Massachusetts's disposal and landfill sites. In response, there are now stricter controls on the disposal of industrial and household wastes, improved landfill design, construction and operation standards. In 1990, Massachusetts adopted its first Solid Waste Master Plan, a blueprint for managing solid waste that is generated, reused, recycled and disposed in the Commonwealth. Since then, efforts by citizens, businesses, and state and local government have led recycling rates that hover around 33 percent for municipal solid waste. Small, unlined "town dumps" dotting the state's landscape were replaced with larger lined landfills, recycling centers, and large municipal solid waste incinerators. The new, larger landfill facilities still pose a threat to groundwater and their air emissions can pose a risk to human health, and incinerators pose an even greater risk through air emissions of substances like sulfur dioxide, nitrogen oxides, mercury, particulate matter, dioxins, carbon monoxide, lead and other heavy metals.

(Source: <http://www.mass.gov/dep/recycle/swintro.htm>)

There are 25 active landfills in Massachusetts: 17 municipal solid waste landfills, 7 ash landfills, and 1 sludge landfill. The municipal solid waste landfills are located in Barre, Bourne, Chicopee, Dartmouth, Fall River, Granby, Hull, Middleborough, Nantucket, Northampton, South Hadley, Southbridge, Sturbridge, Taunton, Warren, Wayland, and Westminister. The ash landfills are located in Agawam, Carver, Haverhill, Peabody, Saugus, Shrewsbury, and Somerset. They are permitted to receive either incinerator ash or coal ash. The sludge landfill is located in Adams.

(Source: <http://www.mass.gov/dep/recycle/actlf.pdf>.)

Toxic Map: Active and Closed Landfills in Massachusetts

The landfills on the accompanying map can be separated into two categories:

- **Partially Capped or Uncapped Landfills**

There are 247 partially capped or uncapped landfills in Massachusetts. A number of these are active and others are inactive. Without a cap on the landfill, it is even more likely that surface areas surrounding the landfill will be contaminated and that leachate from the landfill will contaminated the groundwater. Landfill leachate contains toxic chemicals and is usually acidic, including hydrogen sulfide, methane and ammonia.

- **Capped Landfills**

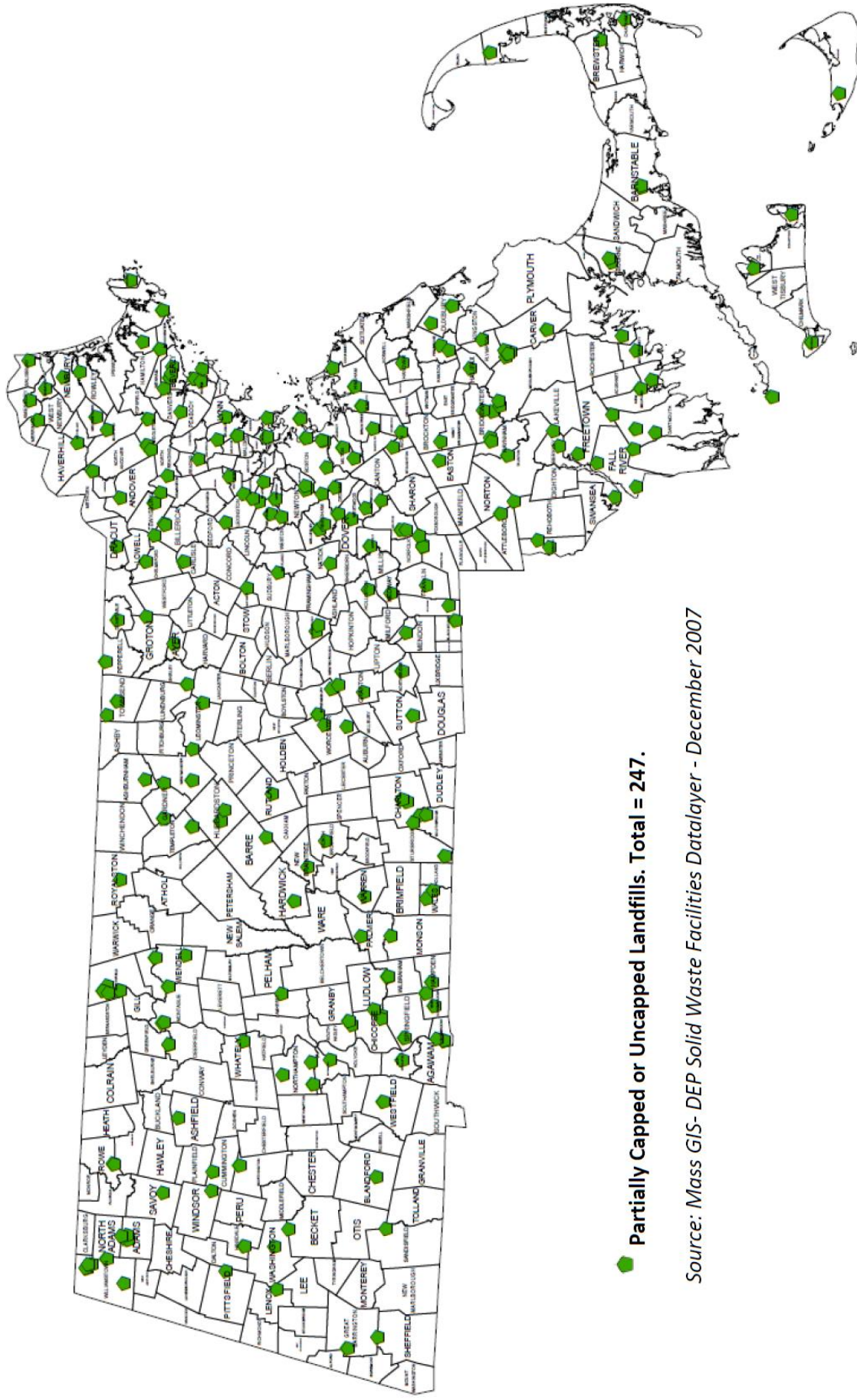
All of the 264 capped landfills in Massachusetts are closed. However landfill leachate may still contaminate groundwater beneath these sites. In some Massachusetts towns, former landfill sites have been converted into waste transfer stations. **Waste transfer stations** are facilities where municipal solid waste is unloaded from collection vehicles and briefly held while it is reloaded onto larger long-distance transport vehicles for shipment to landfills or other treatment or disposal facilities but have not been noted on this map. Trash transfer stations can threaten neighboring communities with the same nuisances as landfills, releasing odors, leaking toxic leachate, and attracting vermin.

(Sources: <http://www.epa.gov/epawaste/nonhaz/municipal/> and <http://www.mass.gov/dep/recycle/solid/swfacil.htm>)

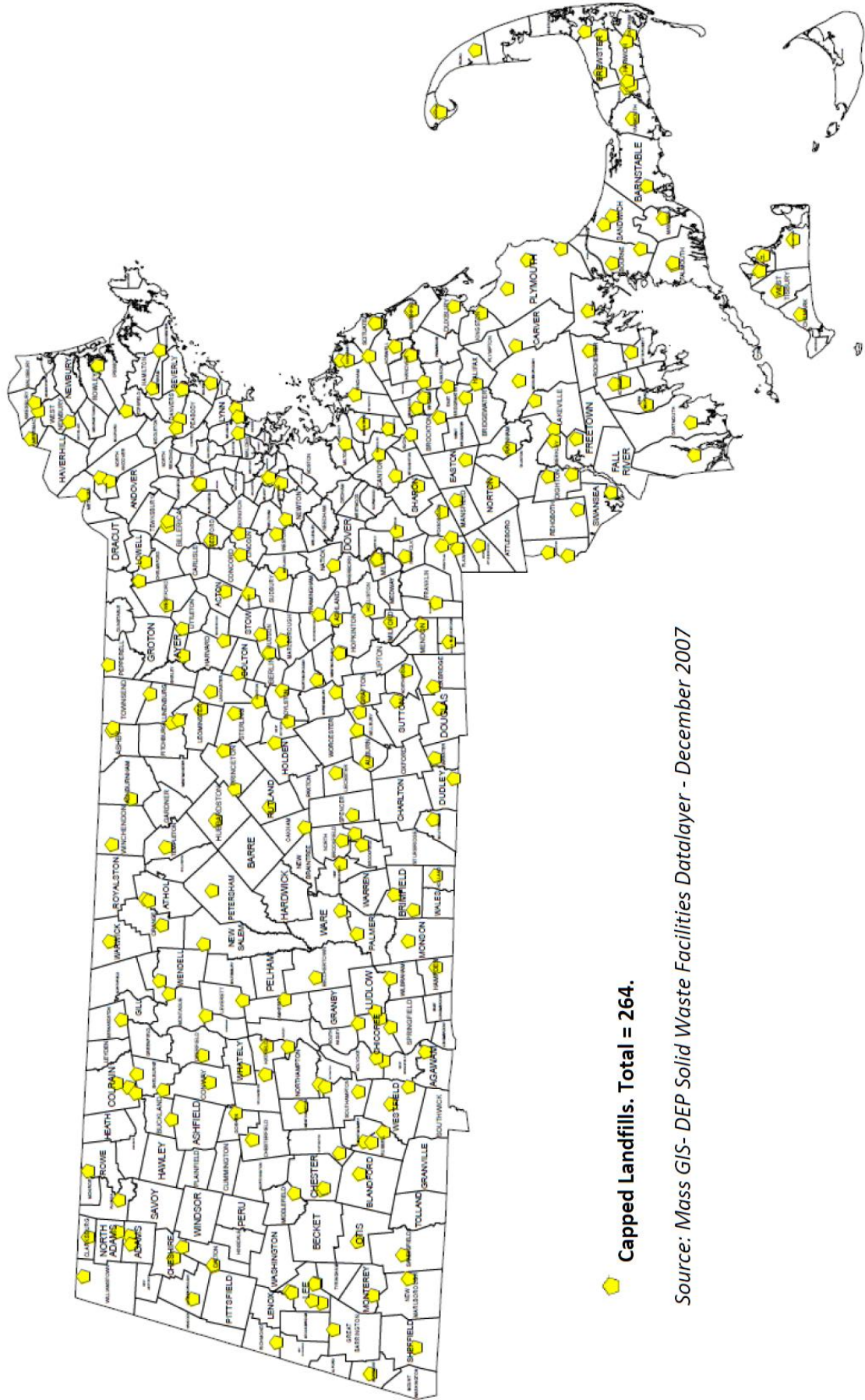
Sources for Partially Capped, Uncapped and Capped Landfills Map in Massachusetts:

DEP Solid Waste Facilities – December 2007
<http://www.mass.gov/dep/recycle/solid/swfacil.htm>

Partially Capped or Uncapped Landfills in Massachusetts

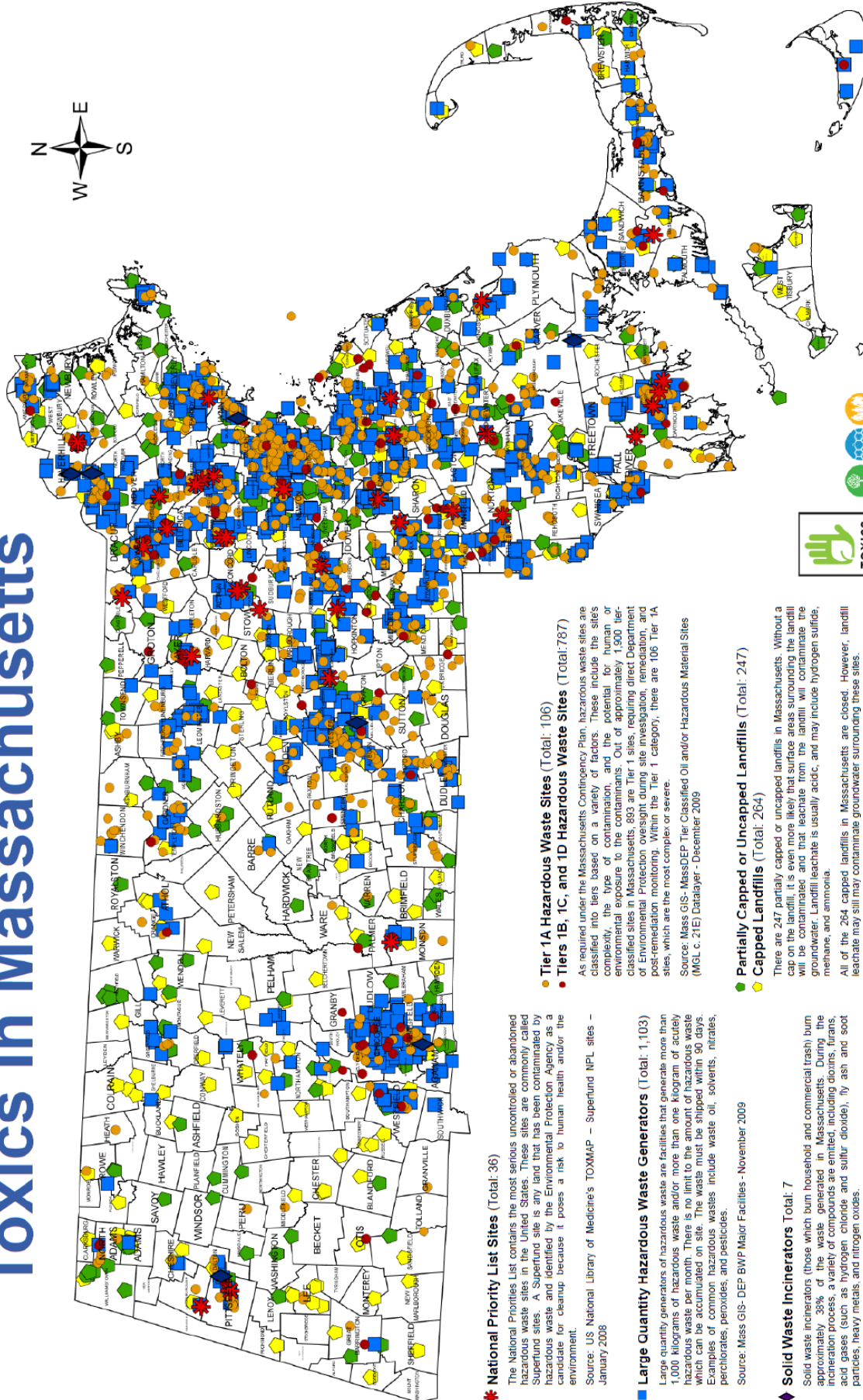


Capped Landfills in Massachusetts



Source: Mass GIS- DEP Solid Waste Facilities Datalayer - December 2007

Toxics In Massachusetts



★ National Priority List Sites (Total: 36)

The National Priorities List contains the most serious uncontrolled or abandoned hazardous waste sites in the United States. These sites are commonly called Superfund sites. A Superfund site is any land that has been contaminated by hazardous waste and identified by the Environmental Protection Agency as a candidate for cleanup because it poses a risk to human health and/or the environment.

Source: US National Library of Medicine's TOXMAP – Superfund NPL sites – January 2008

■ Large Quantity Hazardous Waste Generators (Total: 1,103)

Large quantity generators of hazardous waste are facilities that generate more than 1,000 kilograms of hazardous waste and/or more than one kilogram of acutely hazardous waste per month. There is no limit to the amount of hazardous waste which can be accumulated on site. The waste must be shipped within 90 days. Examples of common hazardous wastes include waste oil, solvents, nitrates, perchlorates, peroxides, and pesticides.

Source: Mass GIS- DEP BWP Major Facilities - November 2009

◆ Solid Waste Incinerators Total: 7

Solid waste incinerators (those which burn household and commercial trash) burn approximately 38% of the waste generated in Massachusetts. During the incineration process, a variety of compounds are emitted, including dioxins, furans, acid gases (such as hydrogen chloride and sulfur dioxide), fly ash and soot particles, heavy metals, and nitrogen oxides.

Source: Mass GIS- DEP Solid Waste Facilities Datalayer - December 2007

● Tier 1A Hazardous Waste Sites (Total: 106)

As required under the Massachusetts Contingency Plan, hazardous waste sites are classified into tiers based on a variety of factors. These include the sites' ownership, the nature and extent of the contamination, and the potential for human or environmental exposure to the contaminants. Out of approximately 1,500 tier classified sites in Massachusetts, 893 are Tier 1 sites, requiring direct Department of Environmental Protection oversight during site investigation, remediation, and post-remediation monitoring. Within the Tier 1 category, there are 106 Tier 1A sites, which are the most complex or severe.

Source: Mass GIS- MassDEP Tier Classified Oil and/or Hazardous Material Sites (MGL c. 21E) Datalayer - December 2009

● Partially Capped or Uncapped Landfills (Total: 247)

There are 247 partially capped or uncapped landfills in Massachusetts. Without a cap on the landfill, it is even more likely that surface areas surrounding the landfill will be contaminated and that leachate from the landfill will contaminate the groundwater. Landfill leachate is usually acidic, and may include hydrogen sulfide, methane, and ammonia.

All of the 264 capped landfills in Massachusetts are closed. However, landfill leachate may still contaminate groundwater surrounding these sites.

Source: Mass GIS- DEP Solid Waste Facilities Datalayer - December 2007



Additional Resources: MassHEIS

The Massachusetts Health and Environment Information System (MassHEIS) is a free online tool created by Silent Spring Institute which simplifies complicated health and environment information and allows users to map data for all municipalities in Massachusetts.

Why use MassHEIS?

- Make and print your own maps to show neighbors and bring to meetings
- Investigate 200 health and environment data sets
- Identify disparities in health and environmental quality across the state
- Examine trends over time and explore relationships among the factors
- Form hypotheses that highlight areas for future study
- Access the unique datasets of the Cape Cod Breast Cancer and Environment Study
- Browse links to informative sites

What information is available?

Breast cancer • Roads • Air pollution • Superfund sites • Toxic Release Inventory sites • Air monitors • Asthma rates • Land use • Pesticide spraying areas • Massachusetts Military Reservation • Prostate cancer • Poverty • Age distribution • Race • Ponds and streams • Cancers often associated with chemical exposures • Income levels • And many more



Massachusetts Health and Environment Information System

[ABOUT](#) | [HELP](#) | [SSI HOME](#)


GET STARTED

Common Cancers Incidence

Select Town

WATCH A SHORT TUTORIAL

Follow a user looking for:



Breast cancer rates in her town.



MassHEIS allows you to explore the health and environment of communities across Massachusetts through interactive maps and supporting information.

[NEWS](#)

Explore The Tool's Features

1	2	3	4	5
<p>MAP WINDOW</p> <p>You can view exactly the information you are interested in...</p> <ul style="list-style-type: none"> + pan across the state + select a different type of cancer... and the map will redraw to your selection. 	<p>LAYERS AND LEGEND TABS</p> <ul style="list-style-type: none"> + Click on a checkbox to display or hide a data layer + View the key to the symbols in the Legend tab. + Click on a layer name to reveal an info box about the data. 	<p>TOOL BAR</p> <p>The toolbar allows you to:</p> <ul style="list-style-type: none"> + Zoom in and out + Select a specific item and learn more about it + Search + Print + And more! 	<p>LINKS</p> <p>Links to other websites provide more information about the health problem and local area of interest and ways to get involved.</p>	<p>HELP / FAQ</p> <p>Questions! Watch a short introductory video or explore the interactive map guide or FAQs.</p>

[WWW.SILENTSPRING.ORG/MASSHEIS](http://www.silentspring.org/massheis)

To use MassHEIS, visit
<http://www.silentspring.org/massheis>

MassHEIS

Massachusetts Health and Environment Information System

Silent Spring Institute is a non-profit scientific research organization dedicated to identifying the links between the environment and women's health, especially breast cancer.

29 Crafts St., Newton, MA 02458 617-332-4288
 info@silentspring.org www.silentspring.org

Toxic Sources: Town-by-Town Totals

	NPL Sites	Tier 1A Sites	Tier 1B, 1C, and 1D Sites	Solid Waste Incinerators	Large Quantity Hazardous Waste Generators	Partially Capped or Uncapped Landfills	Capped Landfills
Abington	0	0	2	0	1	0	1
Acton	1	1	1	0	9	0	1
Acushnet	0	0	1	0	1	1	2
Adams	0	0	0	0	1	3	2
Agawam	0	0	1	1	5	0	1
Alford	0	0	0	0	0	0	0
Amesbury	0	1	4	0	2	1	2
Amherst	0	0	0	0	3	1	1
Andover	0	0	1	0	10	1	0
Aquinnah	0	0	0	0	0	1	0
Arlington	0	0	0	0	4	2	0
Ashburnham	0	0	1	0	0	1	1
Ashby	0	0	2	0	0	0	2
Ashfield	0	0	0	0	0	1	0
Ashland	1	1	1	0	3	0	1
Athol	0	0	1	0	2	0	1
Attleboro	1	1	5	0	23	1	0
Auburn	0	0	8	0	7	0	1
Avon	0	0	4	0	0	0	0
Ayer	0	3	1	0	2	1	1
Barnstable	0	3	9	0	11	2	1
Barre	0	0	3	0	1	1	0
Becket	0	0	0	0	0	1	0
Bedford	2	2	2	0	12	0	1
Belchertown	0	0	0	0	0	0	1
Bellingham	0	0	1	0	1	1	1
Belmont	0	0	1	0	1	1	0
Berkley	0	0	1	0	0	2	2
Berlin	0	0	2	0	0	0	1
Bernardston	0	0	0	0	0	0	1
Beverly	0	0	1	0	4	4	1
Billerica	1	1	4	0	12	3	2
Blackstone	0	0	2	0	0	1	1
Blandford	0	0	0	0	0	1	1
Bolton	0	0	1	0	0	0	1
Boston	0	2	43	0	80	6	0
Bourne	0	0	4	0	4	2	2
Boxborough	0	0	2	0	0	0	1
Boxford	0	0	1	0	0	1	0
Boylston	0	1	0	0	0	0	1
Braintree	0	1	5	0	8	1	1
Brewster	0	0	1	0	0	1	2
Bridgewater	1	0	3	0	5	5	0

	NPL Sites	Tier 1A Sites	Tier 1B, 1C, and 1D Sites	Solid Waste Incinerators	Large Quantity Hazardous Waste Generators	Partially Capped or Uncapped Landfills	Capped Landfills
Brimfield	0	0	0	0	0	0	2
Brockton	0	0	18	0	10	1	1
Brookfield	0	0	0	0	0	0	1
Brookline	0	0	0	0	2	3	0
Buckland	0	0	0	0	1	0	1
Burlington	0	2	5	0	6	0	0
Cambridge	0	0	6	0	29	1	1
Canton	0	1	7	0	5	0	1
Carlisle	0	0	1	0	0	1	0
Carver	0	1	3	0	1	6	1
Charlemont	0	0	0	0	0	0	0
Charlton	0	0	8	0	4	2	0
Chatham	0	0	0	0	1	1	2
Chelmsford	0	1	4	0	3	1	1
Chelsea	0	0	2	0	5	1	0
Cheshire	0	0	1	0	2	0	2
Chester	0	0	0	0	0	0	2
Chesterfield	0	0	0	0	0	0	1
Chicopee	0	4	3	0	12	3	2
Chilmark	0	0	0	0	0	0	1
Clarksburg	0	0	0	0	0	0	1
Clinton	0	2	2	0	0	0	1
Cohasset	0	1	3	0	0	0	2
Colrain	0	0	0	0	0	0	3
Concord	1	0	3	0	0	0	1
Conway	0	0	0	0	0	0	2
Cummington	0	0	0	0	0	1	0
Dalton	0	0	2	0	4	0	2
Danvers	0	0	5	0	12	1	1
Dartmouth	1	2	4	0	8	4	1
Dedham	0	0	3	0	1	1	0
Deerfield	0	0	0	0	3	0	1
Dennis	0	0	0	0	1	0	3
Dighton	0	0	4	0	3	0	2
Douglas	0	0	1	0	0	0	1
Dover	0	0	2	0	0	1	0
Dracut	0	0	2	0	4	1	0
Dudley	0	0	2	0	4	0	1
Dunstable	0	0	0	0	0	1	0
Duxbury	0	0	1	0	2	2	1
East Bridgewater	0	1	5	0	1	0	2
East Brookfield	0	0	3	0	1	0	1
East Longmeadow	0	1	0	0	6	2	0
Eastham	0	1	1	0	0	0	0
Easthampton	0	1	1	0	1	1	2
Easton	0	0	1	0	4	1	1
Edgartown	0	0	0	0	0	1	1
Egremont	0	0	0	0	0	0	1

	NPL Sites	Tier 1A Sites	Tier 1B, 1C, and 1D Sites	Solid Waste Incinerators	Large Quantity Hazardous Waste Generators	Partially Capped or Uncapped Landfills	Capped Landfills
Erving	0	0	0	0	0	1	2
Essex	0	0	0	0	0	1	0
Everett	0	1	10	0	8	0	0
Fairhaven	1	1	0	0	4	1	0
Fall River	0	1	3	0	19	2	0
Falmouth	1	0	1	0	7	0	2
Fitchburg	0	0	6	0	10	0	1
Florida	0	0	0	0	0	0	1
Foxborough	0	3	4	0	1	0	1
Framingham	0	0	7	0	10	0	1
Franklin	0	0	3	0	9	1	0
Freetown	0	0	1	0	4	1	1
Gardner	0	0	7	0	7	2	0
Georgetown	0	0	2	0	0	1	0
Gill	0	0	0	0	0	2	0
Gloucester	0	0	3	0	6	1	0
Goshen	0	0	0	0	0	0	1
Gosnold	0	0	0	0	0	1	0
Grafton	0	1	3	0	4	1	1
Granby	0	1	0	0	1	1	0
Granville	0	0	1	0	0	0	0
Great Barrington	0	1	1	0	1	2	1
Greenfield	0	0	3	0	3	2	0
Groton	0	1	0	0	1	1	0
Groveland	1	0	0	0	2	0	0
Hadley	0	0	0	0	1	0	1
Halifax	0	0	0	0	1	1	1
Hamilton	0	0	1	0	0	0	1
Hampden	0	0	0	0	0	1	1
Hancock	0	0	0	0	0	0	0
Hanover	0	1	1	0	4	1	1
Hanson	0	0	3	0	1	0	1
Hardwick	0	0	0	0	0	1	0
Harvard	1	0	2	0	5	0	0
Harwich	0	0	2	0	1	0	2
Hatfield	0	1	1	0	0	0	1
Haverhill	1	0	4	1	8	1	0
Hawley	0	0	0	0	0	0	0
Heath	0	0	1	0	0	0	0
Hingham	0	2	4	0	1	1	0
Hinsdale	0	0	0	0	0	1	0
Holbrook	1	0	2	0	1	1	1
Holden	0	0	6	0	4	0	1
Holland	0	0	0	0	0	0	1
Holliston	0	2	1	0	1	1	1
Holyoke	0	3	7	0	7	0	2
Hopedale	0	1	4	0	2	1	0
Hopkinton	0	0	1	0	3	0	1
Hubbardston	0	0	1	0	0	2	1

	NPL Sites	Tier 1A Sites	Tier 1B, 1C, and 1D Sites	Solid Waste Incinerators	Large Quantity Hazardous Waste Generators	Partially Capped or Uncapped Landfills	Capped Landfills
Hudson	0	0	2	0	2	0	1
Hull	0	1	1	0	0	1	0
Huntington	0	0	0	0	0	0	1
Ipswich	0	0	2	0	0	0	1
Kingston	0	0	2	0	3	0	1
Lakeville	0	1	0	0	1	0	1
Lancaster	0	0	0	0	0	0	1
Lanesborough	1	1	1	0	1	0	1
Lawrence	0	1	10	0	10	0	2
Lee	0	0	2	0	0	0	6
Leicester	0	0	3	0	0	0	1
Lenox	0	0	0	0	0	1	0
Leominster	0	0	2	0	13	1	1
Leverett	0	0	0	0	0	0	1
Lexington	0	0	2	0	6	1	0
Leyden	0	0	0	0	0	0	0
Lincoln	0	0	0	0	1	0	1
Littleton	0	0	1	0	1	0	1
Longmeadow	0	0	1	0	0	3	0
Lowell	1	1	10	0	25	0	1
Ludlow	0	0	0	0	3	0	1
Lunenburg	0	0	2	0	2	0	2
Lynn	0	0	7	0	12	1	1
Lynnfield	0	0	0	0	0	0	0
Malden	0	0	5	0	7	0	0
Manchester	0	0	0	0	0	1	0
Mansfield	1	1	4	0	4	0	1
Marblehead	0	0	6	0	1	1	0
Marion	0	0	1	0	0	1	0
Marlborough	0	0	5	0	5	0	1
Marshfield	0	0	4	0	2	0	2
Mashpee	0	0	2	0	1	0	1
Mattapoisett	0	0	2	0	0	1	1
Maynard	0	0	0	0	1	0	1
Medfield	0	0	4	0	0	1	0
Medford	0	0	2	0	8	0	0
Medway	0	0	2	0	1	1	0
Melrose	0	0	0	0	1	1	0
Mendon	0	0	3	0	0	0	1
Merrimac	0	0	0	0	0	1	1
Methuen	0	0	5	0	5	0	1
Middleborough	0	1	11	0	6	1	1
Middlefield	0	0	1	0	0	0	1
Middleton	0	0	6	0	2	2	1
Milford	0	0	6	0	10	0	1
Millbury	0	1	0	1	4	0	1
Millis	0	0	1	0	2	0	2
Millville	0	1	0	0	0	0	0
Milton	0	0	0	0	0	2	0

	NPL Sites	Tier 1A Sites	Tier 1B, 1C, and 1D Sites	Solid Waste Incinerators	Large Quantity Hazardous Waste Generators	Partially Capped or Uncapped Landfills	Capped Landfills
Monroe	0	0	0	0	0	0	1
Monson	0	0	3	0	2	1	1
Montague	0	0	0	0	1	2	0
Monterey	0	0	0	0	0	0	1
Montgomery	0	0	0	0	0	0	0
Mount Washington	0	0	0	0	0	0	0
Nahant	0	0	0	0	0	0	0
Nantucket	0	1	0	0	4	1	0
Natick	1	0	12	0	6	1	0
Needham	0	1	0	0	2	1	0
New Ashford	0	0	0	0	0	0	0
New Bedford	2	2	23	0	19	0	1
New Braintree	0	0	0	0	0	1	0
New Marlborough	0	0	0	0	0	0	1
New Salem	0	0	0	0	0	0	1
Newbury	0	0	1	0	0	1	0
Newburyport	0	0	1	0	6	1	0
Newton	0	0	3	0	9	0	1
Norfolk	0	0	3	0	4	1	1
North Adams	0	2	5	0	1	1	1
North Andover	0	0	2	1	8	2	0
North Attleborough	0	1	5	0	9	0	1
North Brookfield	0	0	0	0	0	1	1
North Reading	0	1	2	0	1	0	0
Northampton	0	0	0	0	2	3	0
Northborough	0	0	3	0	3	0	1
Northbridge	0	0	1	0	1	1	1
Northfield	0	0	0	0	1	3	0
Norton	0	0	4	0	1	1	1
Norwell	0	0	0	0	3	0	1
Norwood	1	0	1	0	23	2	0
Oak Bluffs	0	0	3	0	1	0	1
Oakham	0	0	0	0	0	0	1
Orange	0	1	2	0	2	0	2
Orleans	0	0	0	0	1	0	1
Otis	0	1	0	0	0	0	1
Oxford	0	1	7	0	3	0	0
Palmer	1	3	0	0	3	1	1
Paxton	0	0	2	0	0	0	0
Peabody	0	0	7	0	12	0	0
Pelham	0	0	0	0	0	0	0
Pembroke	0	0	2	0	0	2	0
Pepperell	0	0	0	0	0	1	1
Peru	0	0	1	0	0	0	0
Petersham	0	0	0	0	0	0	1
Phillipston	0	0	0	0	0	0	0
Pittsfield	1	6	6	1	8	1	0

	NPL Sites	Tier 1A Sites	Tier 1B, 1C, and 1D Sites	Solid Waste Incinerators	Large Quantity Hazardous Waste Generators	Partially Capped or Uncapped Landfills	Capped Landfills
Plainfield	0	0	0	0	0	0	0
Plainville	0	1	2	0	1	0	2
Plymouth	1	0	2	0	9	0	3
Plympton	0	0	0	0	0	1	0
Princeton	0	0	1	0	0	0	2
Provincetown	0	0	0	0	1	0	2
Quincy	0	0	6	0	9	0	1
Randolph	0	1	2	0	5	0	1
Raynham	0	1	3	0	8	1	1
Reading	0	0	0	0	4	1	0
Rehoboth	0	0	4	0	0	0	1
Revere	0	0	4	0	7	0	1
Richmond	0	0	0	0	0	0	1
Rochester	0	0	0	1	1	0	1
Rockland	0	0	1	0	6	0	1
Rockport	0	0	0	0	0	1	0
Rowe	0	0	1	0	1	2	0
Rowley	0	0	1	0	0	1	0
Royalston	0	0	0	0	0	1	0
Russell	0	0	0	0	0	0	3
Rutland	0	0	1	0	0	1	1
Salem	1	0	4	0	6	2	1
Salisbury	0	0	5	0	3	1	0
Sandisfield	0	0	1	0	0	1	1
Sandwich	0	2	2	0	5	0	2
Saugus	0	1	1	1	3	1	1
Savoy	0	0	0	0	0	1	0
Scituate	0	0	0	0	1	0	3
Seekonk	0	0	6	0	6	2	2
Sharon	0	0	0	0	0	0	1
Sheffield	0	0	0	0	0	0	1
Shelburne	0	0	0	0	0	0	1
Sherborn	0	0	3	0	0	0	1
Shirley	0	0	0	0	1	1	0
Shrewsbury	0	0	2	0	6	3	1
Shutesbury	0	0	0	0	0	0	0
Somerset	0	0	2	0	2	1	1
Somerville	0	0	6	0	7	0	0
South Hadley	0	0	1	0	4	1	0
Southampton	0	0	1	0	0	0	1
Southborough	0	0	0	0	2	2	0
Southbridge	0	0	1	0	2	3	1
Southwick	0	0	0	0	1	0	0
Spencer	0	1	4	0	2	0	1
Springfield	0	2	12	0	32	1	1
Sterling	0	0	1	0	0	0	1
Stockbridge	0	0	0	0	0	0	0
Stoneham	0	0	0	0	2	0	0
Stoughton	0	0	4	0	7	1	0

	NPL Sites	Tier 1A Sites	Tier 1B, 1C, and 1D Sites	Solid Waste Incinerators	Large Quantity Hazardous Waste Generators	Partially Capped or Uncapped Landfills	Capped Landfills
Stow	0	0	0	0	0	0	0
Sturbridge	0	0	5	0	1	1	0
Sudbury	1	1	0	0	2	1	1
Sunderland	0	0	0	0	0	0	1
Sutton	0	0	6	0	1	1	1
Swampscott	0	0	1	0	1	0	0
Swansea	0	0	1	0	1	0	0
Taunton	0	0	7	0	13	1	0
Templeton	0	1	5	0	2	1	1
Tewksbury	1	0	7	0	3	2	0
Tisbury	0	0	0	0	0	1	1
Tolland	0	0	0	0	0	0	0
Topsfield	0	0	0	0	0	0	1
Townsend	0	0	1	0	1	2	0
Truro	0	0	1	0	0	0	1
Tyngsborough	1	1	2	0	1	0	0
Tyringham	0	0	0	0	0	0	0
Upton	0	0	1	0	0	0	0
Uxbridge	0	0	7	0	0	0	1
Wakefield	0	0	0	0	3	0	0
Wales	0	0	0	0	0	2	0
Walpole	1	1	4	0	6	2	1
Waltham	0	0	3	0	11	2	0
Ware	0	0	1	0	0	0	1
Wareham	0	0	3	0	4	0	1
Warren	0	0	1	0	0	1	0
Warwick	0	0	0	0	0	0	1
Washington	0	0	0	0	0	1	0
Watertown	1	2	4	0	8	1	1
Wayland	0	0	4	0	1	1	0
Webster	0	0	7	0	3	0	1
Wellesley	0	1	1	0	4	1	0
Wellfleet	0	0	0	0	0	1	0
Wendell	0	0	0	0	0	2	0
Wenham	0	0	0	0	0	0	1
West Boylston	0	0	0	0	2	0	1
West Bridgewater	0	0	3	0	2	0	0
West Brookfield	0	0	0	0	2	0	1
West Newbury	0	0	0	0	0	0	1
West Springfield	0	0	0	0	15	1	0
West Stockbridge	0	0	0	0	0	0	0
West Tisbury	0	0	0	0	0	0	1
Westborough	1	1	2	0	14	0	1
Westfield	0	2	3	0	12	1	2
Westford	0	0	2	0	1	0	1
Westhampton	0	0	0	0	0	0	1
Westminster	0	0	1	0	4	2	0
	NPL	Tier 1A	Tier 1B, 1C,	Solid Waste	Large Quantity	Partially	Capped

	Sites	Sites	and 1D Sites	Incinerators	Hazardous Waste Generators	Capped or Uncapped Landfills	Landfills
Weston	0	0	0	0	0	0	1
Westport	0	0	8	0	0	0	1
Westwood	0	0	4	0	0	1	0
Weymouth	1	0	2	0	14	1	1
Whately	0	0	0	0	0	1	1
Whitman	0	1	3	0	0	0	1
Wilbraham	0	0	1	0	0	2	1
Williamsburg	0	0	1	0	0	0	1
Williamstown	0	0	0	0	0	7	1
Wilmington	1	1	7	0	10	1	1
Winchendon	0	0	7	0	1	0	1
Winchester	0	0	0	0	2	1	0
Windsor	0	0	0	0	0	1	0
Winthrop	0	0	0	0	0	1	0
Woburn	2	1	13	0	17	0	1
Worcester	0	0	25	0	26	2	2
Worthington	0	0	0	0	0	1	0
Wrentham	0	0	4	0	3	3	1
Yarmouth	0	0	5	0	4	0	1
TOTALS	36	106	782	7	1100	247	264

ⁱ <http://www.mass.gov/dep/public/committee/08data.pdf>, Accessed March 1, 2010.

ⁱⁱ http://www.grn.org/conference2009/presentations/Jeff_Willett_Monday_Session_1/PowerPoint/Jeff_Willett_Monday_Session_1.ppt, Presentation by Jeff Willett, Nantucket Director, Department of Public Works, Monday, October 19th. Accessed March 1, 2010.

ⁱⁱⁱ <http://www.actionpa.org/cleanenergy/background.html>. Accessed Dec. 2, 2008.

^{iv} U.S. EPA Clean Energy web page, "How Does Electricity Affect the Environment," <http://epa.gov/cleanenergy/energy-and-you/affect/air-air-emissions.html>. March 23, 2008

^v USEPA. How Does Electricity Affect the Environment? available at: <http://www.epa.gov/cleanrgy/energy-and-you/affect/municipal-sw.html>. accessed 9/11/2008

^{vi} Platt, Brenda (Institute for Local Self-Reliance), David Ciplatt (Global Ant-Incinerator Alliance/Global Alliance for Incinerator Alternatives), Kate M. Bailey and Eric Lombardi (Eco-Cycle). "Stop Trashing the climate." June 2008.

^{vii} Daniel R. Faber and Eric J. Kridge "Unequal Exposure to Ecological Hazards 2005: Environmental Injustices in the Commonwealth of Massachusetts." Philanthropy and Environmental Justice Research Project, Northeastern University. Oct. 2005.