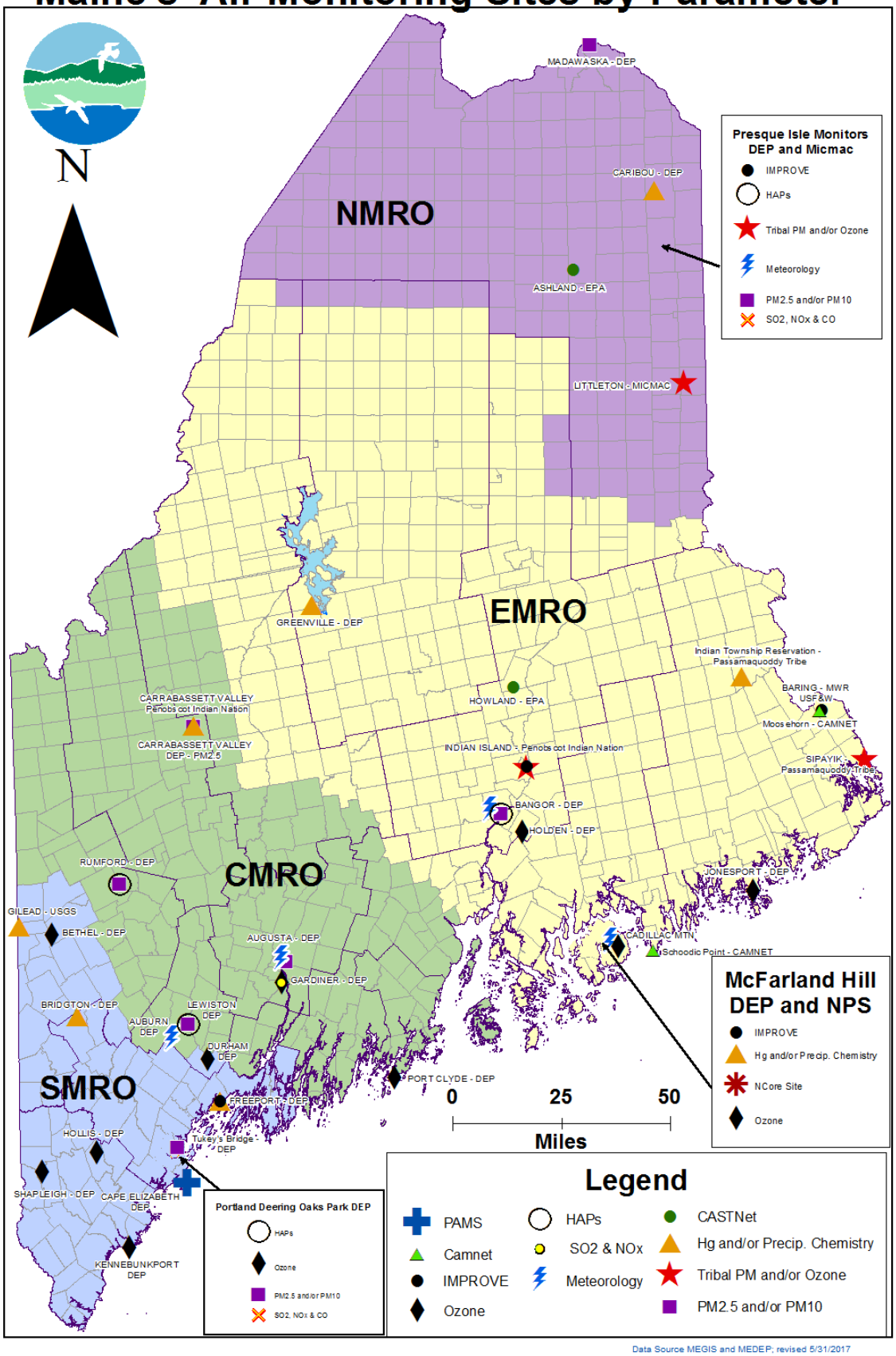
Annual Air Monitoring Plan 2018

Maine Department of Environmental Protection
Bureau of Air Quality
July 5, 2017

Maine's Air Monitoring Sites by Parameter



Data Source MEGIS and MEDEP; revised 5/31/2017

Introduction

The Maine Department of Environmental Protection (DEP) Bureau of Air Quality (BAQ) operates and maintains a network of air samplers in the state to evaluate ambient air quality in Maine. The Code of Federal Regulations (CFR) and the Federal Environmental Protection Agency (EPA) requires state and local agencies to conduct ambient air quality monitoring to determine whether the ambient concentrations of any of several pollutants in the state exceed established standards. The data also documents trends that may be occurring in the concentrations of these pollutants, supports the Maine DEP in providing background information for the licensing program and, when necessary, the development of pollution control strategies. In recent years, the BAQ has invested in automated polling and reporting technology to provide continuous hourly data to the public and scientific community that is used for timely forecasting of regional air quality conditions for Maine citizens and visitors to the state

The Maine BAQ has been monitoring air quality in Maine since the DEP was formed in 1972, working in partnership with the EPA to uphold the tenets of the 1970 Clean Air Act and subsequent amendments. The BAQ is responsible for most of the ambient air quality monitors located in Maine. Additional monitoring is conducted by several federal agencies such as the EPA, the National Park Service, the U.S. Fish and Wildlife Service as well as by several of the Indian tribes in Maine. In 2007, Maine BAQ entered into a Primary Quality Assurance Organization (PQAO) agreement with the Aroostook Band of Micmacs, the Passamaquoddy Tribe at Pleasant Point and the Penobscot Indian Nation in Maine to conduct air monitoring with shared quality assurance plans, practices and procedures.

The air-monitoring program in Maine has evolved as air quality standards have tightened, scientific knowledge has improved, the levels of concern for different pollutants have evolved, and the technology to monitor these pollutants has developed. The DEP initially concentrated resources on neighborhood monitoring of air pollutants, primarily from local sources. As the impact on the ambient environment from local sources was reduced, the state monitoring network began to focus on establishing statewide background levels and improving air quality forecasts.

Maine is a state with many regions of varying topography. Pollutant impacts in one area of the state may be very different from pollutant impacts in another area. Mountain valleys in the western part of the state may experience higher pollution levels at times because of atmospheric inversions, which trap ground-level pollution in the valleys for extended periods, whereas the coastal locations, with higher dispersion of pollutants due to the constant onshore and offshore winds, may not. Aroostook County may record higher particulate levels because of widespread farming operations and the type of soil found in the county. Southern Maine may record higher ozone levels because of air masses originating in the large metropolitan areas down the east coast of the U.S. or from some of the utilities and industries located in the central part of the U.S. Some pollutants monitored may come from the other side of the world, such as particulates from volcanic eruptions, large forest fires, or emissions from less-controlled sources in some of the rapidly developing countries around the world.

The DEP must also deal with changing federal regulations. As more data are collected and more health study results are published, the impacts of various pollutants need to be reviewed. Pollution standards and controls may need to be updated to reflect revised recommendations. The EPA is required to review the National Ambient Air Quality Standards (NAAQS) every five years. Most recently, in December 2015 the air quality standard for ozone was reduced from 75 to 70 parts per billion (ppb). Tightened standards may mean the implementation of additional monitoring requirements.

In 2011, the First Regular Session of the Maine Legislature enacted Public Law 206 Section 19, which revised 38 MRSA Section 584-A “Ambient Air Quality Standards,” so that all state ambient air quality standards would

be consistent with the federal ambient air quality standards. The law also repealed the state ambient air quality standards for toluene, perchloroethylene, hydrocarbons, and chromium. A listing of the current State and National Ambient Air Quality Standards (NAAQS) are in the table below.

National Ambient Air Quality Standards (NAAQS)

from: https://www.epa.gov/criteria-air-pollutants/naaqs-table
(as of April 2017)

The EPA has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria" air pollutants. The current standards are listed below:

Pollutant [links to historical tables of NAAQS reviews]		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO2)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		primary and secondary	1 year	53 ppb (2)	Annual Mean
Ozone (O_3)		primary and secondary	8 hours	0.070 ppm (3)	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	$PM_{2.5}$	primary	1 year	12.0 µg/m^3	annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m^3	annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years
	PM_{10}	primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO_2)		primary	1 hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards additionally remain in effect in some areas. Revocation of the previous (2008) O3 standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

By July 1st of each year, the DEP is required to submit to the EPA a proposed monitoring plan for the next calendar year. In 2006, the EPA also required states to make their proposed plan available for a 30-day comment period prior to submittal to the EPA. The DEP annual monitoring plan is constantly subject to change as standards are revised, new pollutants of concern are identified, monitoring sites are no longer acceptable to property owners and staffing and budget cuts affect the ability to meet a program objective. Consequently, the monitoring plan proposed in this document is our best effort to project what we will be able to do next year given our current standards, staffing, and budget constraints.

Network Overview

The Maine DEP BAQ monitors air quality as required by the 1970 Clean Air Act and subsequent amendments, the Code of Federal Regulations (CFR), and the Federal Environmental Protection Agency (EPA.) Much of the monitoring effort focuses on the six criteria pollutants: ground level ozone, particulate matter, sulfur dioxide, and nitrogen dioxide, carbon monoxide and lead.

Ozone monitoring continues to be a priority for DEP. Ozone at ground level can trigger a variety of health problems, particularly in young children, the elderly, and those with health problems. It is also harmful to vegetation, buildings and infrastructure. Ground level ozone is not usually emitted directly into the air from any source, but it is created through the presence of sunlight acting on other airborne pollutants like those found in vehicle exhaust, chemical solvents and gasoline vapors. Since the Clean Air Act of 1970, Maine has operated ozone monitoring stations at many locations, each selected to optimize the assessment of ozone levels across the state.

Quantification of fine airborne particulate matter ($PM_{2.5}$) is another major component of the DEP ambient monitoring program. Particulate matter (PM) is the term used for any air borne mixture of solid particles and liquid droplets, such as those found in soot, dust, and smoke. The particles can be large enough, like pollen, to be seen with the unaided eye, while others are so fine that they can only be detected with electron microscopes. Of particular concern are those particles, generally 10 microns in size (PM_{10}) and less, which are inhalable, for they can become lodged in the lungs and even enter directly into the bloodstream. Fine particulate ($PM_{2.5}$) monitoring in Maine has been evolving since 1999 when the program was initially established. The Total Suspended Particulate (TSP) and PM_{10} program in Maine began shortly after the DEP was established in 1972. Recent DEP efforts have focused on introducing more of the continuous $PM_{2.5}$ monitors into the network.

Nitrogen dioxide (NO_2) is one of a group of highly reactive gasses known as "oxides of nitrogen," or "nitrogen oxides (NO_x)." EPA's National Ambient Air Quality Standard uses NO_2 as the term representing the larger group of nitrogen oxides that include NO, NO_2, NO_x, and NO_y. Nitrogen Oxide (NO) is created during the combustion stage of engine and boiler operations. The NO, NO_2, NO_x, and NO_y forms of nitrogen oxides react at different rates in the atmosphere in a process that is dependent on sunlight and temperature. NO_x is measured at ground level while NO_y is the reactive form measured at ten meters above ground level. In addition to contributing to the formation of ground-level ozone and fine particle pollution, the oxides of nitrogen are linked with a number of adverse effects on the respiratory system.

Sulfur dioxide (SO_2) and a group of other sulfur oxides, collectively known as SO_x, are emitted into the atmosphere from the burning of fossil fuels by power plants, industrial facilities, ships, locomotives and heavy equipment. Short-term exposure to SO_2 and SO_x compounds can harm the respiratory system. Children, the elderly, and those with asthma or other breathing troubles are particularly sensitive to these sulfur compounds.

Carbon monoxide (CO) is another harmful gas emitted from combustion processes. The majority of this colorless, odorless yet extremely harmful gas comes from mobile sources like cars and trucks and found primarily in the United States in and around large urban areas. CO reduces the amount of oxygen that can be absorbed by the body, particularly the heart and brain. At high concentrations, CO can lead to death.

Lead (Pb) in the atmosphere is emitted as particles - mainly from smelters, ore and metal processing facilities, waste incinerators, public utilities and lead-acid manufactures. Piston aircraft continue to use leaded aviation fuel. Since tetraethyl lead was removed from motor vehicle fuel, the ambient levels of lead in Maine dropped significantly and concentrations are currently at or below minimum detection limits for most Pb monitors.

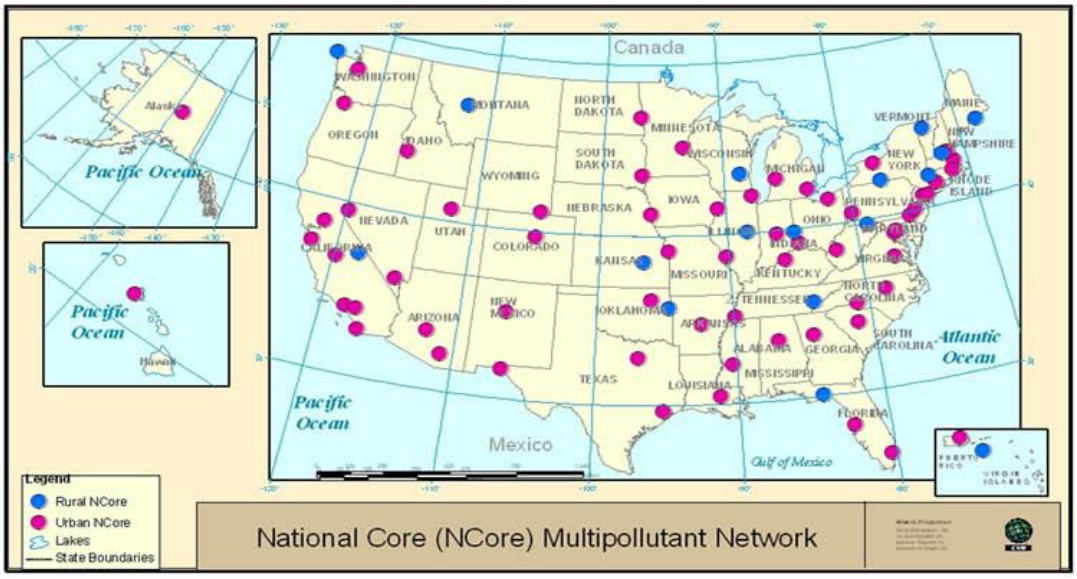
The DEP also tests the ambient air for many, non-criteria, yet hazardous air pollutants (HAPs) in the state. Because of this effort, a priority list of hazardous pollutants has been established and DEP is establishing background concentrations for several of the pollutants on the list. The list is modified as additional data becomes available.

The following section details the individual networks for the various parameters monitored in Maine, any changes that are proposed, and present any identified future needs for monitoring.

Monitoring Networks

Most of the sites in the Maine air-monitoring network are designated as **SLAMS** - State & Local Air Monitoring Stations. The SLAMS in Maine are part of a standardized, national network administered by the EPA in accordance with the Clean Air Act and subsequent Federal Regulations. Every state must monitor for the criteria air pollutants, following strict criteria set by EPA that govern all aspects of the monitoring and reporting process. SLAMS sites must meet all stringent monitor siting requirements and utilize specified equipment types. The pollution monitoring instruments at these sites must be approved by the EPA, and be designated as either Federal Reference Method (FRM) or Federal Equivalence Method (FEM). In addition, SLAM site operators must follow all quality assurance criteria, and must submit detailed quarterly and annual monitoring results to EPA. Data from SLAMS stations are used to determine attainment/nonattainment areas.

Established in 2011, the **NCore** (National Core) network is comprised of a specialized subset of SLAMS sites.



https://www3.epa.gov/ttnamti1/ncorenetworks.html

The purpose of the NCore network, in addition to aiding in the determination of nonattainment/attainment areas, is to provide data to the scientific community, from a specific suite of monitors, which is used to make health and ecosystem assessments, to establish long-term trends for criteria and certain precursor pollutants, and to develop and evaluate pollutant transportation models. The NCore site in Maine, located at McFarland Hill near Bar Harbor, is designated as a rural or background site. At McFarland Hill, as well as at each NCore site throughout the U.S., the following suite of parameters is monitored:

$PM_{2.5}$ speciation	Organic and elemental carbon, major ions and trace metals (24 hour average; every 3rd day); IMPROVE or CSN
$PM_{2.5}$ FRM mass	24 hr. average at least every 3rd day
Continuous $PM_{2.5}$ mass	1 hour reporting interval; FEM or pre-FEM monitors
$PM_{(10-2.5)}$ mass - aka PM_{coarse}	Filter-based or continuous
Ozone (O_3)	All gases through continuous monitors
Carbon monoxide (CO)	Capable of trace levels (low ppm and below) where needed
Sulfur dioxide (SO_2)	Capable of trace levels (low ppb and below) where needed
Nitrogen oxide (NO)	Capable of trace levels (low ppb and below) where needed
Total reactive nitrogen (NO_y)	Capable of trace levels (low ppb and below) where needed
Surface meteorology	Wind speed and direction (reported as "Resultant"), temperature, RH

The **CASTNet** (Clean Air Status and Trends Network) is a nationwide monitoring operation that collects air pollutant concentrations to evaluate the effectiveness of national and regional emission control programs, to determine compliance with the National Ambient Air Quality Standards for ozone, and to determine rural trends in ozone, nitrogen and sulfur concentrations. It was established in 1991 as a cooperative program with the EPA, the National Park Service, and state and local partners. The data are now incorporated in several regional air quality models.

The U.S. Fish and Wildlife Service (USFWS) and the U.S. Geological Survey each operate monitoring sites in Maine as part of their respective national networks.

The Aroostook Band of Micmacs, the Passamaquoddy Tribes at Indian Township and Sipayik, and the Penobscot Nation each operate several monitoring sites in Maine. These are independently managed but each tribe has agreed to operate their sites in accordance with Maine DEP Quality Assurance Project Plans.

Special Purpose Monitors are often set at locations to monitor specific pollutants for a period, usually not exceeding two years, to investigate localized complaints, or to reconnoiter a location for a possible long-term site.

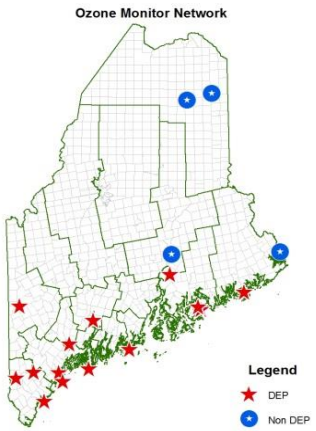
The Deering Oaks Park site in Portland is a special long-term Special Purpose site. It is in a location, determined by the American Lung Association, as being representative of the greater Portland area, used to provide data useful in tracking relationships between pollutant levels and emergency department visits. Since the Deering Oaks Park location does not meet SLAMS siting requirements, the ozone and nitrogen dioxide data are not used in determining attainment or nonattainment status for criteria pollutants. The information is useful however for other purposes such as air quality forecasting and modeling.

A continuous $PM_{2.5}$ monitor is running as a special purpose monitor in Carrabassett Valley at the Town Office. Established in November 2016 the hourly values were expected to be helpful in forecasting inversions in the

Western Mountains Region of Maine. To date the reported values have been lower than anticipated. A decision will be made later in 2017 whether to discontinue the monitoring at the Carrabassett location or to make the necessary monitoring upgrades to include the site in the SLAMS network.

Other specialized networks including IMPROVE, MDN, CAMNET and PAMS are discussed in more detail below.

Ozone Network



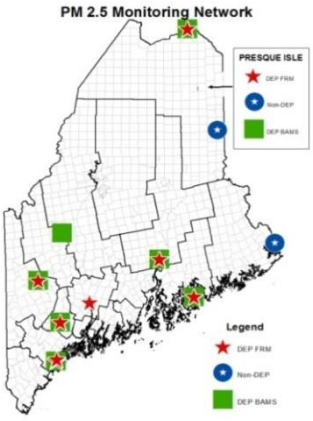
The DEP currently operates ground level ozone monitoring sites throughout the state in accordance with SLAMS network requirements. The EPA operates two ozone sites, in Ashland and Howland, as part of the CASTNet. The EPA site in Howland is at tree top level and not for regulatory purposes. The Maine Indian tribes operate three additional sites. Three of the Maine DEP sites operate year-round while the "seasonal sites" operate during the April through September ozone season. The Bowdoinham site was discontinued at the end of 2015, with expectations to utilize the equipment from that site at Popham Beach State Park. Budget concerns, staffing cuts, and unexpected costs associated with the installation at the State Park resulted in a DEP decision to forgo any ozone monitoring at Popham Beach. Situating an ozone monitor somewhere on the coast of Maine within the large gap between ozone sites at Cape Elizabeth and Port Clyde remains a BAQ objective.

The federally required ozone season for Maine runs from April through September. Because of BAQ concerns over high O_3 concentrations forecasted, and now recorded, in March, most of the Maine sites now operate from the first of March through the first of October, weather permitting. The Maine sites are scattered throughout the state, with most of them situated along the coast and in southern Maine. The highest ozone concentrations tend to occur along the coast because plumes of contaminated air are often transported into the Gulf of Maine from metropolitan areas to the south. These air masses are subsequently blown ashore and carried inland. In addition to determining attainment/nonattainment status, the ozone sites in Maine collect data that is used by the mapping and forecasting programs to provide the public and scientific community with quality data in a timely fashion and to forecast air quality alerts when necessary.

Ozone Monitoring Site Address	Site Type	Monitoring Objective	Sampling Frequency
Ashland - Loring AFB	CASTNet	Background	Continuous
Bar Harbor - McFarland Hill	NCore	Transport, Background	Continuous
Bar Harbor - Top of Cadillac Mountain	SLAMS	Transport	Continuous - Seasonal
Bethel, Smith Farm Road	SLAMS	Max. Conc., Transport	Continuous - Seasonal
Cape Elizabeth - Two Lights State Park	SLAMS	Transport	Continuous
Durham - Fire Station - Route 9	SLAMS	Max. Concentration	Continuous - Seasonal
Gardiner - Pray Street, Schoolyard	SLAMS	Max. Conc., Transport	Continuous - Seasonal
Holden - Rider Bluff	SLAMS	Max. Conc., Transport	Continuous - Seasonal
Howland - Ameriflux Site	CASTNet	Treetop Canopy Level	Continuous
Indian Island - Penobscot Nation	Tribal	-	Continuous
Jonesport - Public Landing	SLAMS	Max. Concentration	Continuous - Seasonal
Kennebunkport - Parsons Way	SLAMS	Max. Conc., Transport	Continuous - Seasonal
Perry - Pleasant Point/Sipayik, 184 County Road	Tribal	-	Continuous
Port Clyde - Marshall Point Lighthouse	SLAMS	Max. Conc., Transport	Continuous - Seasonal

Ozone Monitoring Site Address	Site Type	Monitoring Objective	Sampling Frequency
Portland - Deering Oaks	SPMS	High Pop. Exposure	Continuous
Presque Isle - 8 Northern Road	Tribal	-	Continuous
Shapleigh - Ball Park, West Newfield Road	SLAMS	Max. Conc., Transport	Continuous - Seasonal
West Buxton - Plains Road Fire Dept.	SLAMS	Transport	Continuous - Seasonal

$PM_{2.5}$ Network



In 1999, the DEP began a $PM_{2.5}$ monitoring program, on one day in three or one day in six sampling schedules, using filter-based samplers that met the Federal Reference Method (FRM), with 15 sites started up during the first year of operation. After three years of data collection demonstrated compliance with the $PM_{2.5}$ standard at all of the sites, some of the samplers were relocated or modified to collect PM_{10} data. Currently the DEP is monitoring for $PM_{2.5}$ using the filter-based FRM samplers at 11 sites. All of the current sites comply with the $PM_{2.5}$ standard. They remain in operation to gather additional trend data and to document future attainment status. The filters can be analyzed to determine levels of some of the hazardous air pollutants that are on the priority list.

The DEP initiated continuous monitoring of $PM_{2.5}$ in 2000 using Tapered Element Oscillating Microbalance (TEOM) samplers. The continuous monitors generate hourly average data that is available in near real-time and very useful in helping to forecast air quality. TEOM sites were set up in Bangor, Bar Harbor, Greenville, Lewiston, and Portland. The Passamaquoddy Tribe operates a TEOM monitor in Perry, and the Micmac Tribe operates monitors in Presque Isle and Littleton. The TEOM models employed in Maine were not an EPA-approved Federal Equivalent Method (FEM), and the DEP did not pursue the required analysis to exclude the use of their data for comparison with the $PM_{2.5}$ standards.

In 2012, the TEOMs were nearing the end of their expected life cycle, so that year the DEP initiated a program to procure new continuous $PM_{2.5}$ monitors known as Beta Attenuation Monitors (BAM). The BAMs are an EPA-approved FEM, so Maine DEP will be demonstrating compliance with the $PM_{2.5}$ NAAQS using both the filter-based FRM and the continuous BAM FEM monitors throughout the state. BAMs replaced the TEOMs in Lewiston, Bangor, and Bar Harbor. The TEOM in Portland remained in operation alongside the new BAM for comparison of methods until the end of June 2015. Initially the BAMs were installed to supplement the filter-based FRM samplers at locations in Madawaska, Presque Isle, and Rumford. In November 2015, a "stand-alone" BAM was started up at a special purpose monitoring site in Carrabassett Valley. At the end of 2017, the DEP will determine if the data collected warrants additional monitoring at Carrabassett Valley. If the decision is to continue BAM operation at Carrabassett Valley, a collocated BAM will be required in the Maine network, at a site with significantly higher $PM_{2.5}$ concentrations.

The continuous, hourly averaged $PM_{2.5}$ record has permitted better forecasting for particulate levels under specific weather conditions for many parts of the state. The Rumford and Carrabassett Valley sites were chosen to meet a long-standing interest in having real-time continuous data from western mountain valley locations. Complex meteorological conditions in Maine's western mountains and the subsequent dispersion of fine particulates like wood smoke are of particular interest to the DEP as it strives to produce better air quality forecasts in a region with few monitors and sparse data. The BAQ is considering the replacement of some the older FRM filter-based samplers with continuous $PM_{2.5}$ monitors for more real-time hourly data, but the BAQ is not yet satisfied with the correlations between continuous and filter based results, especially at the low concentrations often found in the State.

When the Bangor, Kenduskeag Pump Station site was established in 1978, the location was chosen because of the heavy traffic pattern in the area. Changes in road, bridge and highway configurations over the years have resulted in a significant reduction in the number of vehicles encountered at that monitoring site. BAQ staff, working with State and local transportation engineers, has identified a possible new monitoring location much closer to Interstate 95 and commercial parks where traffic counts are among the highest in the area. It is hoped that the superintendent of schools will make the roof of the Mary Snow Elementary school available for monitoring. It is possible that the negotiations can be finalized and equipment can be set up during the summer of 2017. The BAQ will maintain a continued $PM_{2.5}$ presence at the Kenduskeag Pump station for at least one year to establish a relationship between the two sites.

No other $PM_{2.5}$ changes are anticipated for 2018.

$PM_{2.5}$ Monitoring Site Address	**Site Type**	**Monitoring Objective**	**Sampling Method and Frequency**
Augusta – Lincoln Street School	SLAMS	200K Pop. Coverage	FRM, every 6 days
Augusta – Lincoln Street School	SLAMS	Collocated	FRM, every 12 days
Bangor – Kenduskeag Pump Station	SLAMS	AQI Forecasting/Mapping	FEM, continuous
Bangor – Kenduskeag Pump Station	SLAMS	200K Pop. Coverage	FRM every 6 days
Bar Harbor – McFarland Hill	NCore	Transport	FRM, every 3 days
Bar Harbor – McFarland Hill	SLAMS	Mapping	FEM, continuous
Carrabassett Valley, Town Office	SLAMS	Background	FEM, continuous
Lewiston – Country Kitchen Lot	SLAMS	200K Pop. Coverage	FRM, every 6 days
Lewiston – Country Kitchen Lot	SLAMS	Mapping	FEM, continuous
Madawaska – Public Safety Bldg.	SLAMS	High Pop. Exposure	FRM, every 6 days
Madawaska – Public Safety Bldg.	SLAMS	AQI Forecasting/Mapping	FEM, continuous
Littleton	Tribal	Mapping	TEOM, continuous
Perry - Pleasant Point/Sipayik, 184 County Road	Tribal	Mapping	TEOM, continuous
Portland – Deering Oaks	SLAMS	MSA of 200-500K	FEM, continuous
Portland – Deering Oaks	SLAMS	MSA of 200-500K	FEM, every 6 days
Portland – Deering Oaks	SLAMS	Collocated	FEM, every 12 days
Portland – Tukey's Bridge	SLAMS	High Traffic	FRM, every 6 days
Presque Isle – 8 Northern Road	Tribal	Mapping	FEM, continuous
Presque Isle – Regional Office	SLAMS	Background	FRM, every 6 days
Presque Isle – Riverside Street	SLAMS	AQI Forecasting/Mapping	FEM, continuous
Presque Isle – Riverside Street	SLAMS	200K Pop. Coverage	FRM, every 6 days
Rumford – Rumford Avenue	SLAMS	AQI Forecasting/Mapping	FEM, continuous
Rumford – Rumford Avenue	SLAMS	High Pop. Exposure	FRM, every 6 days

200K Pop. – 200,000 Population; AQI – Air Quality Index; MSA – Metropolitan Statistical Area

PM Speciation Network (IMPROVE)

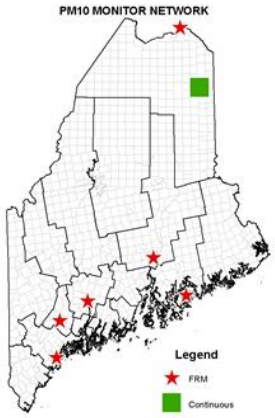
Many stunning and breathtaking vistas at National Parks and Wilderness Areas may be lost or diminished due to the haze formed by air pollutants. These light scattering hazes cause discoloration, loss of texture, and reduced visual range. Recognizing the importance of visual air quality, Congress included legislation in the Clean Air Act to prevent and remedy visibility impairment. To aid in the implementation of this legislation, the Interagency Monitoring of Protected Visual Environments (IMPROVE) program was initiated in 1985. DEP

operates one IMPROVE site in Freeport, Maine at Wolfe's Neck Farm. The National Park Service and the U.S. Fish & Wildlife Service operate IMPROVE sites in Maine's designated Class 1 visibility areas in Acadia National Park and Moosehorn Wildlife Refuge, respectively. IMPROVE sites are also operated by the Penobscot and Micmac Tribes in Old Town, Indian Island, and Presque Isle, respectively.

In 2015 the EPA reassessed each of the IMPROVE sites in an effort to optimize the Chemical Speciation Network. As a result of that process, the Bridgton site was discontinued on January 1, 2016. The DEP understands the continued value and importance of the IMPROVE network, and if BAQ funds become available, the Bridgeton monitors may be re-installed.

IMPROVE Site Address	Site Type	Monitoring Objective	Sampling Frequency
Bar Harbor – McFarland Hill	NPS/NCore	Regional Haze	Every 3 days
Baring – Moosehorn Wildlife Ref.	USFWS	Regional Haze	Every 3 days
Freeport – Wolfe's Neck Road	SLAMS	Deposition Project	Every 3 days
Indian Island – Penobscot	Tribal	-	Every 3 days
Presque Isle – 8 Northern Road	Tribal	-	Every 3 days

PM_{10} Network



The DEP operates most of the current filter-based PM_{10} network using the FRM samplers modified with the fine-particle separators removed to collect PM_{10} particles. The dichotomous samplers that collected $PM_{2.5}$ and $PM_{10-2.5}$ (a.k.a., PM_{coarse}), and calculated PM_{10} as the sum of the two parameters were removed in early November 2016 and replaced with new single $PM_{2.5}$ and PM_{10} samplers after a troublesome maintenance history threatened recovery rates.

A continuous PM_{10} TEOM monitor is operated in Presque Isle as part of the control strategy for the historically high PM_{10} levels there. The PM_{10} TEOM provides hourly data used by city officials to determine when high levels are occurring and whether street sweeping or other control strategies need to be implemented.

Reduced in size since PM_{10} sampling began shortly after the inception of the DEP, the current PM_{10} network is comprised of seven sites around the state. All of the sites are currently meeting the PM_{10} NAAQS with no exceedances of the standard having been recorded anywhere during the last several years. The filters collected in the PM_{10} program can be used for the lead monitoring program if needed.

The PM_{10} monitoring at Bangor Kenduskeag Pump Station, if plans work out as outlined in the $PM_{2.5}$ section above, will eventually be conducted at the Mary Snow Elementary School in Bangor. No other changes are planned for 2018.

PM_{10} Monitoring Site Address	Site Type	Monitoring Objective	Sampling Frequency
Augusta – Lincoln Street School	SLAMS	Attainment/Nonattainment	FRM, every 6 days
Bangor – Kenduskeag Pump Sta.	SLAMS	Attainment/Nonattainment	FRM, every 6 days
Bar Harbor – McFarland Hill	NCore	Rural Background	FRM, every 3 days

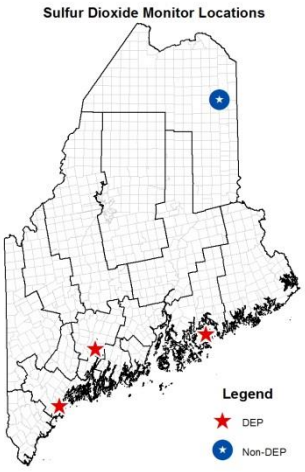
PM_{10} Monitoring Site Address	Site Type	Monitoring Objective	Sampling Frequency
Lewiston – Country Kitchen Lot	SLAMS	Attainment/Nonattainment	FRM, every 6 days
Madawaska – Public Safety Bldg.	SLAMS	Attainment/Nonattainment	FRM, every 6 days
Portland – Tukey's Bridge	SLAMS	Attainment/Nonattainment	FRM, every 6 days
Portland – Tukey's Bridge	SLAMS	Collocated	FRM, every 12 days
Presque Isle – Riverside Street	SLAMS	Attainment/Nonattainment	TEOM, continuous

PM_{Coarse} Network

Required PM_{Coarse}, or $PM_{10-2.5}$ measurements at the NCore site in Bar Harbor are obtained by the difference method. At that site two FRM samplers collect PM_{10} and $PM_{2.5}$ data respectively, and the difference between the two concentrations is reported as $PM_{10-2.5}$. If it becomes required, PM_{Coarse} data, utilizing the difference method, can be calculated from the data collected at sites in Madawaska, Bangor, Augusta, and Portland, where simultaneous PM_{10} and $PM_{2.5}$ data are being collected.

PM_{Coarse} Site Address	Site Type	Monitoring Objective	Sampling Frequency
Bar Harbor – McFarland Hill	NCore	Rural Background	FRM, every 3 days

Sulfur Dioxide Network



The DEP currently operates three long-term monitors for sulfur dioxide (SO_2). Two are trace-level monitors. A required trace-level monitor is located at the NCore site in Bar Harbor and a second one operates as a rural/background site in Gardiner. The third SO_2 monitor is a special purpose sampler located in Portland to track levels in the highest population area of the state as well as to provide urban background data for the air emission licensing program. The Micmac Indian Tribe operates an SO_2 monitor in Presque Isle.

Proposed changes to the SO_2 standard were finalized on June 2, 2010. The final rule requires an SO_2 monitor in Core Based Statistical Areas (CBSA) based on a population-weighted emissions index for the area. Maine does not have any CBSAs that would require a monitor. Consequently, the only required monitoring in Maine at this time is the monitor for the NCore site. On May 21, 2013, EPA released a draft Technical Assistance Document, describing in more detail, modeling and monitoring guidance refining the agency's approach for implementing the SO_2 standard. On August 21, 2015, EPA finalized the SO_2 1-hour NAAQS. Maine does not have any sources covered by the Data Requirements Rule that would require monitoring. No changes in the current long-term SO_2 network are anticipated for 2018.

SO2 monitoring Site Address	Site Type	Monitoring Objective	Sampling Frequency
Bar Harbor – McFarland Hill	NCore	Background	Continuous
Gardiner – Pray Street, Schoolyard	SLAMS	Background	Continuous
Portland – Deering Oaks	SPMS	High Pop. Exposure	Continuous
Presque Isle – 8 Northern Road	Tribal	-	Continuous

Nitrogen Oxides Network (NO_2, NOx, NO, NOy)

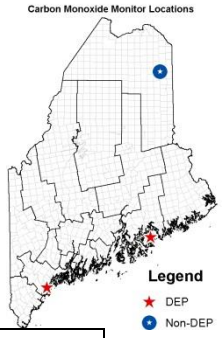
The DEP currently operates two trace-level NO_2 monitors and two NO_y monitors. The NO_2 monitors are located at the Deering Oaks site in Portland and at the Pray Street School site in Gardiner. The two NO_y monitors are located at the NCore site in Bar Harbor and the Cape Elizabeth PAMS location. The Micmac Tribe also operates a trace-level NO_2 monitor at their site in Presque Isle.

EPA provisions for near-roadway NO_2 monitoring in population areas with between 500,000 and 1,000,000 persons, as set initially forth in Phase III of the program, were rescinded on December 30, 2016. The Phase I and Phase II near-road sites already in operation did not produce expected high levels of NO_2, and there was nothing in the data to suggest that monitoring along less-traveled roads, such as those in Portland, would produce higher concentrations of NO_2. There are no longer any requirements for near-roadway monitoring for NO_2 in Maine.

There are no other changes in the Nitrogen Oxides Network planned for 2018.

Nitrogen Oxides Network Site Address	Site Type	Monitoring Objective	Sampling Frequency
Portland – Deering Oaks (NO_2)	SPMS	Maximum Concentration, Urban Background	Continuous
Bar Harbor – McFarland Hill (NO_y)	NCore	Transport (trace-level)	Continuous
Cape Elizabeth – Two Lights State Park (NO_y)	PAMS	Transport (trace-level)	Continuous
Gardiner – Pray Street, Schoolyard (NO_2)	SPMS	Background (trace-level)	Continuous
Presque Isle – 8 Northern Road (NO_2)	Tribal	(trace-level)	Continuous

Carbon Monoxide Network



The DEP currently operates two carbon monoxide (CO) monitors. Monitors are located at the NCore site in Bar Harbor (a trace-level) and the Deering Oaks site in Portland. The Micmac Indian Tribe also operates a trace-level CO monitor at their site in Presque Isle. The CO standard has been reviewed, and no change was made in the level or the form of the standard. No changes are planned for 2018.

Carbon Monoxide Site Address	Site Type	Monitoring Objective	Sampling Frequency
Bar Harbor – McFarland Hill	NCore	Transport	Continuous
Portland – Deering Oaks	SPMs	High Pop. Exposure	Continuous
Presque Isle – 8 Northern Road	Tribal	-	Continuous

PAMS Network

Regional transport of hazardous air pollutants has been well documented by the two Photochemical Assessment Monitoring Station (PAMS) locations that operated in Maine from 1993 until 2014. The data trends from those sites helped track the results of new control strategies in upwind states. Both of the PAMS sites in Maine were initially required by the EPA because of serious non-attainment areas in other states. The Maine PAMS sites

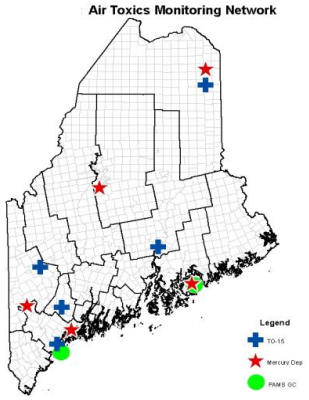
were required to be operational for the June – August period, but historically they were in operation during May and September also. At the end of 2014, the Cadillac Mountain PAMS site in Acadia National Park was shut down after the EPA revised the National PAMS program.

The remaining PAMS site in Maine, at Cape Elizabeth, is considered an extreme downwind site for the Greater Connecticut area, which continues to remain in a non-attainment status. The monitoring regulations for PAMS provide for the collection of an "enhanced" ambient air quality database, which can be used to better characterize the nature and extent of the ozone problem, aid in tracking volatile organic compounds (VOC) and nitrogen oxides (NOx) emission inventory reductions, assess air quality trends, make attainment/non-attainment decisions, and evaluate photochemical grid-model performance. These PAMS compounds, known as ozone precursors, play a large role in ozone formation.

The 2015 Ozone NAAQS regulation requires that states submit an enhanced monitoring plan documenting the need to collect additional data to help determine the distribution of ozone in the state and region. The continued operation of the Cape Elizabeth site in Maine is justified for the next three years as a means to achieve this additional monitoring.

Site Address	Site Type	Monitoring Objective	Sampling Frequency
Cape Elizabeth - Two Lights State Park	PAMS	Transport	Continuous - Seasonal

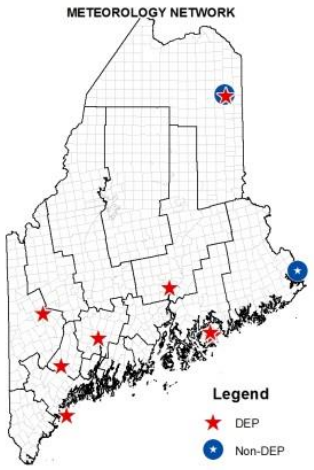
Hazardous Air Pollutants (HAPs) Network



Although not a required monitoring network, the DEP samples for 108 HAPs compounds at five Special Purpose Monitoring Site (SPMS) locations around the state and at the PAMS Site in Cape Elizabeth. The monitoring objective is to document background concentrations around the state and to establish whether there are any trends in the levels of these compounds. In addition, several of the metals that are listed as HAPs are also being measured at the particulate monitoring sites. Maine continues to expand its sub-ambient canister sampling equipment inventory for measuring acrolein using EPA's TO-15 method and may establish additional monitoring locations if emissions inventory data indicates the potential for a "hotspot" area for any HAPs.

Site Address	Site Type	Monitoring Objective	Sampling Frequency
Bangor – Kenduskeag Pump Sta.	SPMS	Maximum Conc.& Trends	Every 6 days
Cape Elizabeth – Two Lights Park	PAMS	Maximum Conc.& Trends	Every 6 days
Lewiston – Country Kitchen Lot	SPMS	Maximum Conc.& Trends	Every 6 days
Portland – 356 State Street	SPMS	Maximum Conc.& Trends	Every 6 days
Presque Isle – Riverside Street	SPMS	Maximum Conc.& Trends	Every 6 days
Rumford – Rumford Avenue	SPMS	Maximum Conc.& Trends	Every 6 days

Meteorological Network



The DEP, and the Passamaquoddy and Micmac tribes fund, operate and maintain a number of year-round meteorological sites throughout the state to collect data for use in the analysis and evaluation of air pollutant data.) Some of these are stand-alone sites, and some are collocated with air pollutant monitoring equipment. All of the sites measure scalar wind speed and direction, resultant wind speed and direction, and sigma theta (an indicator of the amount of variability in the wind direction). A few of the sites collect additional parameters such as relative humidity, barometric pressure, temperature, and solar radiation. State forecasters also have access to NOAA weather data from airport stations and other sites located throughout the state, although not all of these data consist of hourly averages from continuous observations, making the DEP sites more desirable.

The Presque Isle DEP meteorological location was deemed somewhat redundant as it was within a one-mile radius of the NOAA and Micmac tribal meteorological sites in the city that provided forecasters and modelers with similar information. The DEP site was shut down on September 21, 2016. The equipment will be moved to Jonesport in 2017.

The Maine DEP BAQ and the Maine Department of Agriculture, Forestry, and Conservation recently initiated a Memorandum of Agreement permitting the installation of a 10-meter meteorological tower adjacent to the DAFC Public Landing Building at Jonesport, Maine. Seasonal wind data will augment hourly ozone concentrations that are measured at the site.

Site Address	Site Type	Monitoring Objective	Sampling Frequency
Auburn – L/A Airport	SLAMS	Data Analyses & Modeling	Continuous
Augusta – State Airport	SLAMS	Data Analyses & Modeling	Continuous
Bar Harbor – Cadillac Mountain	SLAMS	Transport	Continuous – Seasonal
Bar Harbor – McFarland Hill	NCore	Transport	Continuous
Cape Elizabeth – Two Lights Park	PAMS	Transport	Continuous
Presque Isle – Regional Office	SLAMS	Data Analyses & Modeling	Continuous
Presque Isle – 8 Northern Road	Tribal	-	Continuous
Rumford - Rumford Avenue Parking	SLAMS	Data Analyses & Modeling	Continuous
Sipiyak – 184 County Road	Tribal	-	Continuous

Atmospheric Deposition Network

There is an extensive atmospheric deposition network in the State of Maine with several sites operated by the Maine DEP. All but two of the sites are part of the National Atmospheric Deposition Program's Mercury Deposition Network (MDN) in addition to being a part of the National Trends Network (NTN) that measures precipitation chemistry. Early in the program, a number of agencies and organizations participated and provided funds for the operation of these deposition network sites. As funds have diminished and budgets have been cut, the continued operation of some of these sites has been in question. The data from this program

are used by a wide variety of researchers, and the continued operation of these sites is very important to maintain the continuous record of deposition occurring around the state. No changes are proposed for 2018.

Site Address	Site Type	Monitoring Objective	Sampling Frequency
Bar Harbor – McFarland Hill (NTN and MDN)	NPS-SPMS	Transport/Trends	Weekly Composite
Bridgton – Upper Ridge Road (NTN and MDN)	SPMS	Transport/Trends	Weekly Composite
Caribou – Airport (NTN and MDN)	SPMS	Transport/Trends	Weekly Composite
Carrabassett Valley – Airport (NTN and MDN)	Tribal	Transport/Trends	Weekly Composite
Freeport – Wolfe's Neck Farm (NTN and MDN)	SPMS	Transport/Trends	Weekly Composite
Gilead – White Mtn. Nat'l. Forest (NTN)	USGS	Transport/Trends	Weekly Composite
Greenville Station (NTN and MDN)	SPMS	Transport/Trends	Weekly Composite
Indian Township (NTN)	Tribal	Transport/Trends	Weekly Composite

Lead Network

In 2008 EPA promulgated a lead (Pb) standard and issued some minimum monitoring requirements to the states. At that time, Maine was going to be required to operate one Pb monitor in the Portland CBSA (Core-based statistical area). The state purchased an X-ray fluorescence (XRF) analyzer to measure lead concentrations from PM_{10} filters. The EPA Pb requirement was subsequently revised to require Pb monitoring at urban NCore sites only. The Bar Harbor NCore site is designated as a rural site, so there is no requirement for Pb monitoring in Maine.

Maine DEP, with the capability and capacity to analyze particulate filters for Pb and other metals, entered into reimbursable agreements with Rhode Island and New Hampshire to perform XRF metals analysis of their PM filters. Five years of filters from Rhode Island were analyzed and reported until the program ended in 2016. A similar arrangement was initiated with the State of New Hampshire in 2015, and that study wrapped up in 2016 as well. As schedules permit, random selections from archived Maine PM filters are being analyzed with the XRF to determine what the state background levels might be for lead and other metals, such as arsenic and chromium.

Camnet

Maine DEP, along with a number of other state and local agencies, and non-profit organizations, helps support the Northeast States for Coordinated Air Use Management (NESCAUM) operate Camnet - a network of real time visibility cameras situated throughout the Northeast. In Maine, the Camnet location is on Schoodic Point. Cameras point west towards Acadia National Park on Mount Desert Island. Corresponding air quality sensors at each site allow users of Camnet to see the effects of air pollution on visibility.

https://www.hazecam.net/

Proposed Calendar Year 2018 Network Changes

As usual, the monitoring network proposed for 2018 is an ambitious one and will require a significant effort from Air Bureau staff to accomplish. The program is always subject to adjustment because of staffing changes, budget cuts, and the disposition of landowners who allow the placement of air-monitoring sites on their property. The field monitoring staff continues to look for increased efficiencies, especially through automation and improved remote access to monitors, to optimize DEP resources.

The following changes are being contemplated or are likely to occur:

- The monitoring results at Bangor Kenduskeag Pump Station on Washington Street may no longer be representative of the worst particulate concentrations in the city. Traffic pattern changes in Bangor have reduced traffic flow in the area and an alternative location for the monitoring equipment, on the roof of the Mary Snow Elementary school, is being considered for placement during the summer of 2017.

- A special wood smoke survey was conducted during the 2016/2017 winter in Farmington, Maine at the University of Maine at Farmington's Prescott Field. Sampling commenced November 1, 2016 and continued through the end of March 2017. Sampling instruments included a tube style PAH measurement system, a HAPs canister sampler, a filter based $PM_{2.5}$ monitor and a PM_{10} sampler operating on a 1 in 3 day sample schedule. Hourly average values were obtained throughout the study from a continuously recording aethalometer, a continuous $PM_{2.5}$ monitor as well as wind speed and direction from a meteorological tower erected on the shelter. The PM_{10} filters will be used to determine PM_{10} concentrations, then examined for metals with our XRF, and finally tested for levoglucosan levels by New Hampshire Department of Environmental Services. Future woodsmoke surveys are anticipated but none are planned for the 2018 calendar year.

The monitoring program operated by the Maine DEP undergoes constant review to ensure that the monitoring is appropriate to meet monitoring goals, does not contain irrelevant monitoring, and can be accomplished within the available budget. While there are presently no indications the following actions would be necessary, should budget and staffing issues require cuts in the monitoring program, some potential initial cuts could include the carbon monoxide monitor at Portland, Deering Oaks.

Discussions will be held with EPA staff prior to any site location and monitoring changes.

Monitoring Equipment Used by Maine DEP

PARAMETER	INSTRUMENT	METHOD*
Atmospheric Deposition	Aerochem Metrics wet/dry collector	
Barometric Pressure	Climatronics Met One	
Carbon Monoxide	Thermo Model 48C, 48i, 48iTLE Teledyne API Model T300	RFCA-0981-054 RFCA-1093-093
Hazardous Air Pollutants	24 – hour 6 liter sub-ambient canister samplers, designed and built by ME DEP	TO-15
Lead	R&P/Thermo Sequential Model 2025, 2025i R&P/Thermo Single Model 2000, 2000i Spectro XEPOS XRF Spectrometer	
Mercury Deposition	Aerochem Metrics N-CON Wet Deposition collector	
Nitrogen Dioxide	Thermo Model 42C, 42i	RFNA-1289-074
Organic/Elemental Carbon	Sunset Semicontinuous OC/EC Carbon Aerosol Analyzer	
Other Metals such as Arsenic, Chromium, etc.	R&P Sequential Model 2025, 2025i R&P Single Model 2000, 2000i Spectro XEPOS XRF Spectrometer	
Oxides of Nitrogen	Thermo Model 42iY	
Ozone	Thermo Models 49C, 49i Teledyne API Model T400	EQOA-0880-047 EQOA-0992-087
PM 10 Continuous	R&P TEOM Model 1400AB	EQPM-1090-079
PM 10 FRM	R&P/Thermo Sequential Model 2025, 2025i R&P/Thermo Single Model 2000, 2000i	RFPS-1298-127 RFPS-1298-126
PM 2.5 Continuous	MET One BAM Model 1020 Thermo Scientific Model 5030i SHARP	EQPM-0308-170 EQPM-0609-184
PM 2.5 FRM	R&P/Thermo Sequential Model 2025, 2025i R&P/Thermo Single Model 2000, 2000i	RFPS-0498-118 RFPS-1006-145 RFPS-0498-117 RFPS-1006-143
PM Coarse	Difference Method PM10-PM2.5	RFPS-0509-176
PM Speciation	IMPROVE Sampler	
Precipitation	ETI Instrument Systems NOAH IV	
Relative Humidity	Climatronics Met One	
Solar Radiation	Climatronics Met One	
Sulfate Continuous	Thermo Model 5020	
Sulfur Dioxide	Thermo Model 43C, 43C-TLE, 43i, 43i-TLE Teledyne API Model T100	EQSA-0486-060 EQSA-0495-100
Temperature	Climatronics Met One	
Total PAH	Ecochem PAS 2000	
VOC's (PAMS)	Perkin Elmer Clarus 580	
Wind Speed/Direction	Climatronics F460 Met One	

* Designated Reference and Equivalent Methods as of December 17, 2016.

Integrated Sampler Schedule

2018

JANUARY

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

FEBRUARY

S	M	T	W	T	F	S
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

MARCH

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

APRIL

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29	30					

MAY

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20	21	22	23	24	25	26
27	28	29	30	31		

JUNE

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17	18	19	20	21	22	23
24	25	26	27	28	29	30

JULY

S	M	T	W	T	F	S
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST

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12	13	14	15	16	17	18
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26	27	28	29	30	31	

SEPTEMBER

S	M	T	W	T	F	S
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

OCTOBER

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14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

NOVEMBER

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

DECEMBER

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

1 in 12, 1 in 6, and 1 in 3 sample dates

1 in 6, and 1 in 3 sample dates

1 in 3 sample dates

State Holiday

2018 Monitoring Site Information

The following pages present descriptions of the ambient air monitoring sites maintained and operated by both the Maine Department of Environmental Protection Bureau of Air Quality and the Tribal Nations. The following pages present the site descriptions alphabetically by Town – Site Name. This table offers an index to the sites based on AQS Site ID.

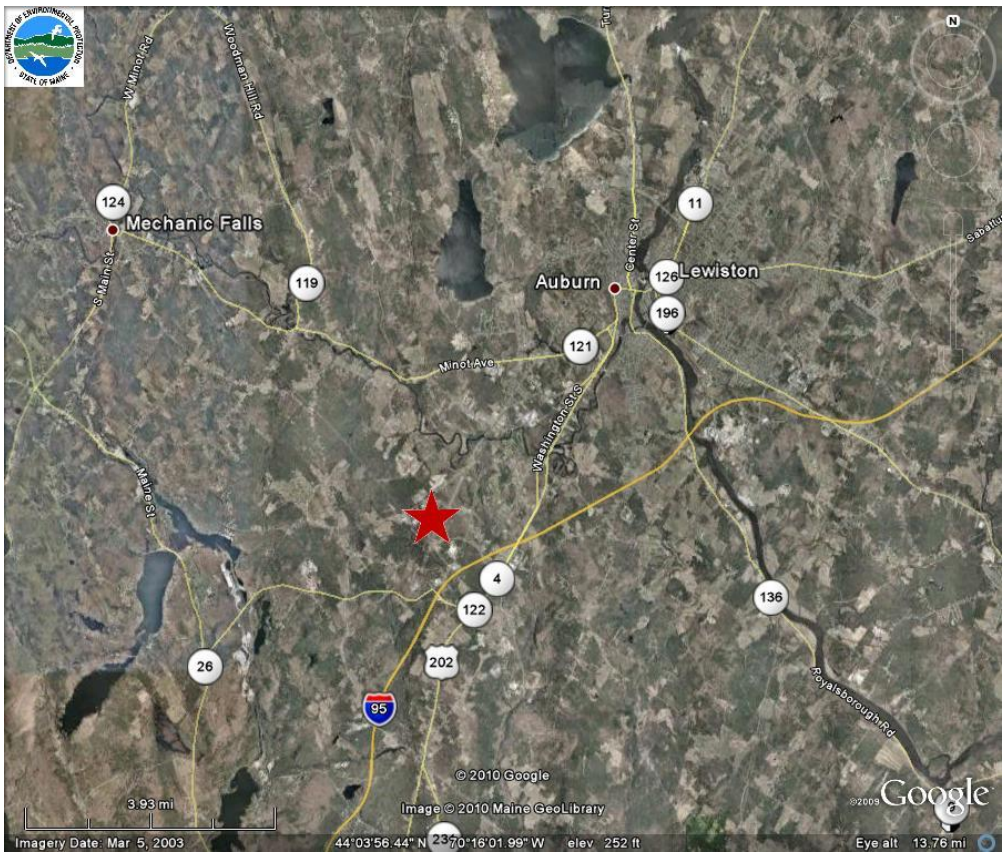
AQS Site ID	Town - Site	County	Page #
23-001-0005	**Auburn – Lewiston-Auburn Airport**	**Androscoggin**	20
23-001-0011	**Lewiston – Country Kitchen Parking Lot**	**Androscoggin**	58
23-001-0014	**Durham – Fire Station**	**Androscoggin**	42
23-003-0014	**Madawaska – Public Safety Bldg**	**Aroostook**	60
23-003-1002	**Caribou – Caribou Airport**	**Aroostook**	38
23-003-1008	**Presque Isle – DEP Regional Office**	**Aroostook**	68
23-003-1011	**Presque Isle – Riverside St.**	**Aroostook**	70
23-003-1100	**Micmac Tribe -- Presque Isle Shelter**	**Aroostook**	79
23-003-1101	**Micmac Tribe -- Littleton**	**Aroostook**	77
23-005-0002	**Bridgton**	**Cumberland**	34
23-005-0015	**Portland – Tukey's Bridge**	**Cumberland**	66
23-005-0029	**Portland – Deering Oaks Park**	**Cumberland**	64
23-005-2003	**Cape Elizabeth – Two Lights Park**	**Cumberland**	36
23-005-9002	**Freeport – Wolfes Neck Farm**	**Cumberland**	44
23-007-2002	**Carrabassett Valley – Town Office**	**Franklin**	40
23-009-0102	**Bar Harbor – Cadillac Mountain, Acadia National Park**	**Hancock**	28
23-009-0103	**Bar Harbor – McFarland Hill, Acadia National Park**	**Hancock**	30
23-011-0008	**Augusta – Civil Air Patrol Hanger**	**Kennebec**	22
23-011-0016	**Augusta – Lincoln Street School**	**Kennebec**	24
23-011-2005	**Gardiner – Pray Street, Schoolyard**	**Kennebec**	46
23-013-0004	**Port Clyde – Marshall Point Lighthouse**	**Knox**	62
23-017-2011	**Rumford – Rumford Ave. Parking Lot**	**Oxford**	72
23-017-3002	**Bethel – Smith Farm Road**	**Oxford**	32
23-019-0002	**Bangor – Kenduskeag Pump Station**	**Penobscot**	26
23-019-1100	**Penobscot Nation - Indian Island**	**Penobscot**	85
23-019-4008	**Holden – Rider's Bluff**	**Penobscot**	50
23-021-0001	**Greenville**	**Piscataquis**	48
23-029-0019	**Jonesport – Public Landing**	**Washington**	54
23-029-0032	**Passamaquoddy Tribe -- Perry, Pleasant Point/Sipiyak**	**Washington**	83
23-031-0038	**Hollis/West Buxton – Fire Department**	**York**	52
23-031-0040	**Shapleigh – Shapleigh Ball Park**	**York**	74
23-031-2002	**Kennebunkport – Parson's Way**	**York**	56
None	**Passamaquoddy Tribe -- Indian Township**	**Washington**	81

MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION

MONITORING SITES

FOR 2018

Town – Site:	**Auburn – Lewiston-Auburn Airport**		
County:	**Androscoggin**	Latitude:	**44.0457**
Address:	**Lewiston Junction Rd.**	Longitude:	**-70.2902**
AQS Site ID:	**23-001-0005**	Elevation:	**79 meters**
Spatial Scale:	**Regional**	Year Established:	**1978**
Statistical Area:	**Lewiston-Auburn, ME**		



Auburn – Lewiston-Auburn Airport
Pollutant and Meteorological Parameters:

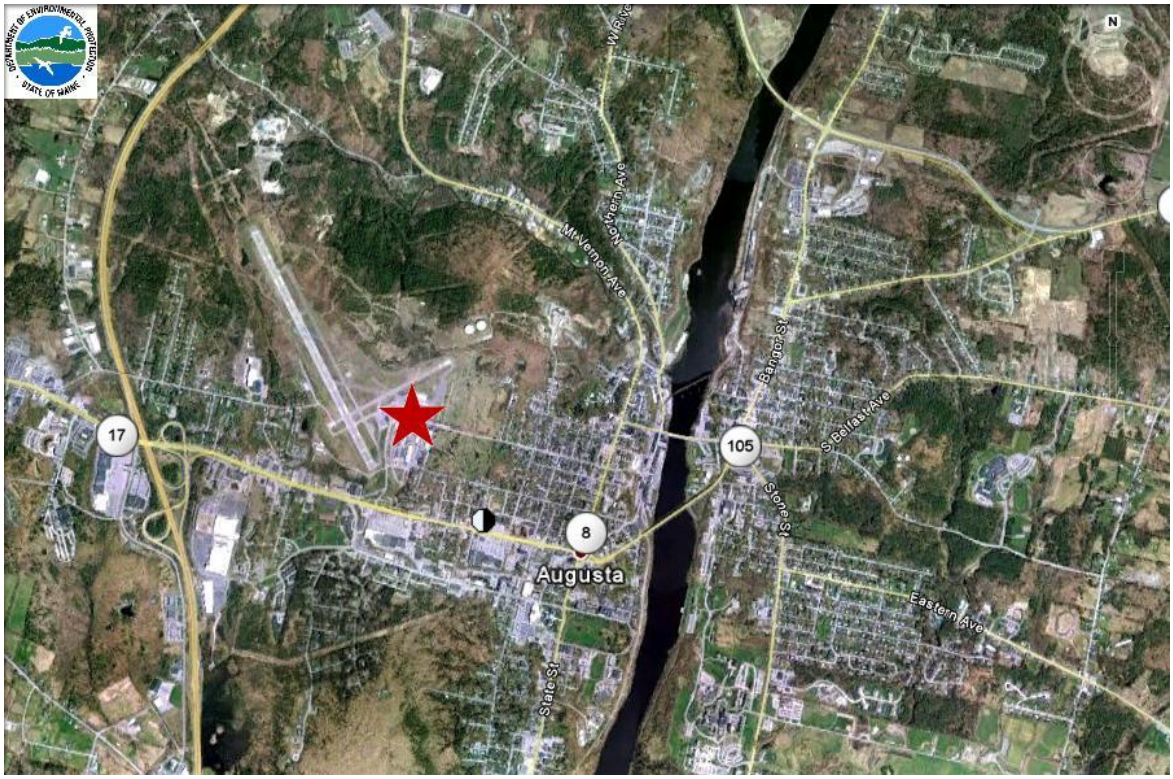
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	10/18/1978	
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The site is located in a light industrial park located 4 ½ miles southwest of downtown Auburn. Wind Speed and Direction sensors are mounted on a 10-meter retractable tower located on the roof of the maintenance equipment shed at the Auburn-Lewiston Municipal Airport. A data acquisition system and modem are located in a storage room within the equipment shed.

Monitoring Objectives:
Modeling.

Planned changes for 2018:
None.

Town – Site:	**Augusta – Airport**		
County:	**Kennebec**	Latitude:	**44.3179**
Address:	**Augusta State Airport**	Longitude:	**-69.7919**
AQS Site ID:	**23-011-0008**	Elevation:	**107 Meters**
Spatial Scale:	**Regional**	Year Established:	**1981**
Statistical Area:	**Augusta-Waterville, ME**		



Augusta – Airport
Pollutant and Meteorological Parameters:

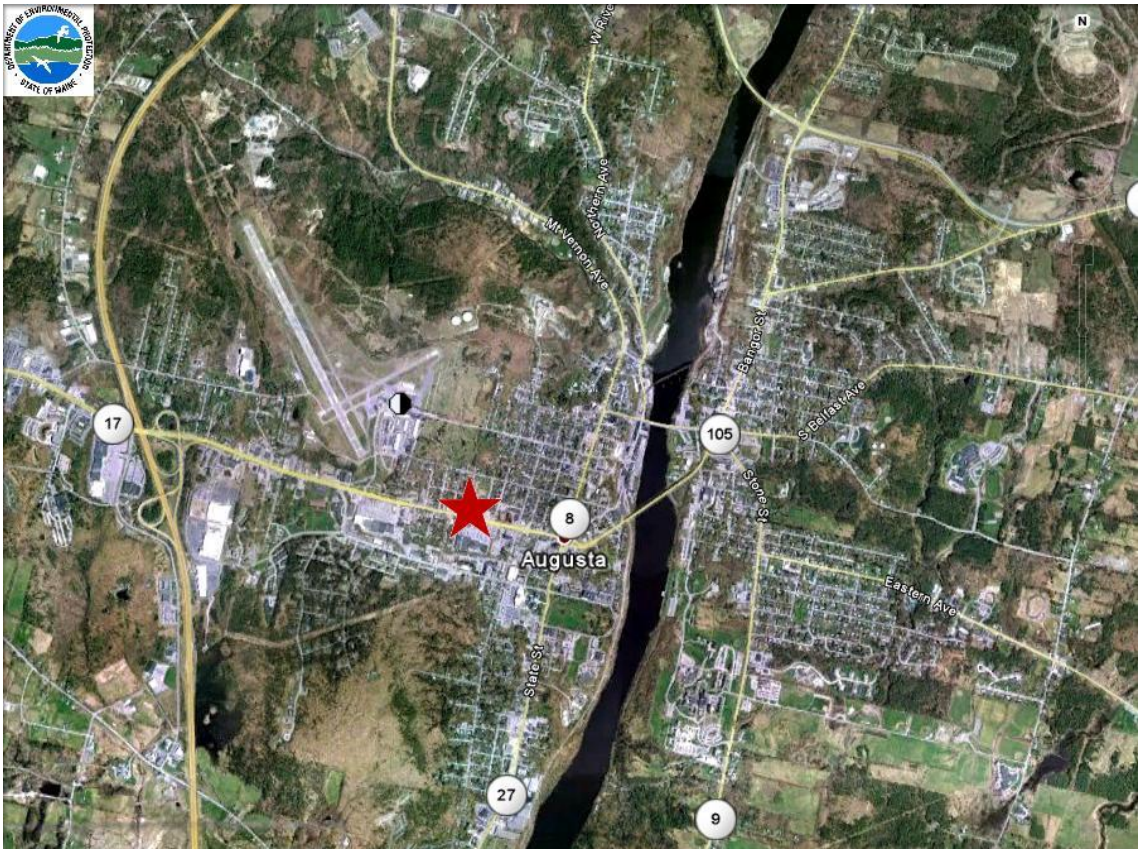
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	01/20/1981	
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
A retractable tower with wind speed and direction sensors is situated on the roof of the Airport Terminal Building at the Augusta State Airport, 0.8 miles NW of the state capitol. The data acquisition equipment and modem are located in the adjacent equipment shed to the west. The 10 meter tower is raised only to the height of the surrounding antennae due to the proximity of the flight line. The tower and equipment were moved to the terminal in October 2015 because the Civil Air Patrol Hanger, where the tower was originally situated, was slated for replacement.

Monitoring Objectives:
Modeling.

Planned changes for 2018:
None.

Town – Site:	**Augusta – Lincoln Street School**		
County:	**Kennebec**	Latitude:	**44.3123**
Address:	**30 Lincoln Street**	Longitude:	**-69.7867**
AQS Site ID:	**23-011-0016**	Elevation:	**71 Meters**
Spatial Scale:	**Neighborhood**	Year Established:	**1999**
Statistical Area:	**Augusta-Waterville, ME**		



Augusta – Lincoln Street School
Pollutant and Meteorological Parameters:

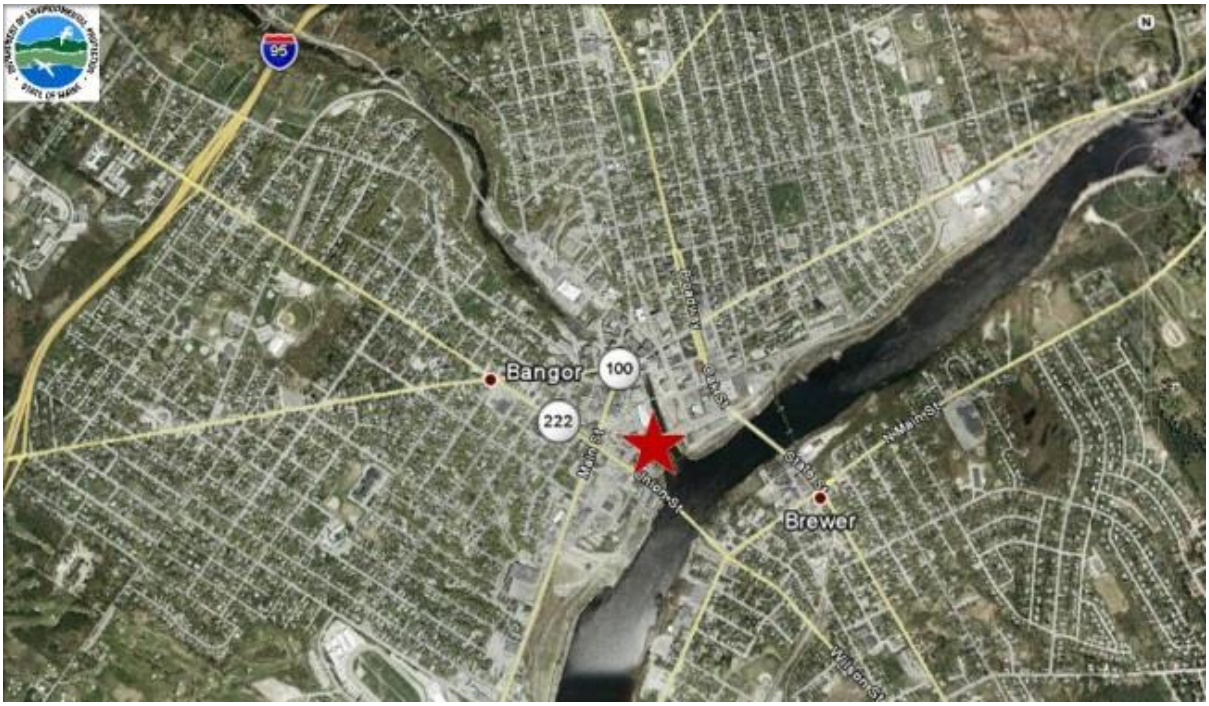
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	01/01/1999		SO_2		
PM2.5 Colo	01/01/1999		SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM	12/02/2002		NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Lincoln Street School is located in Augusta just off Western Avenue, 0.4 miles northwest of the state capitol. A wooden platform is situated on the roof of the gymnasium. Particulate monitors are attached to the platform.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. High Population Exposure.

Planned changes for 2018:
None.

Town – Site:	**Bangor – Kenduskeag Pump Station**		
County:	**Penobscot**	Latitude:	**44.7989**
Address:	**Washington Street**	Longitude:	**-68.7697**
AQS Site ID:	**23-019-0002**	Elevation:	**10 Meters**
Spatial Scale:	**Neighborhood**	Year Established:	**1977**
Statistical Area:	**Bangor, ME**		



Bangor – Kenduskeag Pump Station
Pollutant and Meteorological Parameters:

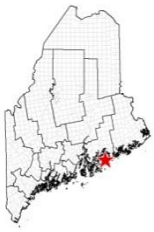
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	1-1-1999		SO_2	1-1-1986	7-1-1987
PM2.5 Colo	12-1-1999	12-29-2003	SO_4		
PM2.5 TEOM	1-1-2007	12-30-2013	Ozone		
PM2.5 BAM	1-7-2013		NOx		
PM10 FRM	1-1-2003		NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs	2-12-2004	
PM10 BAM			Wet Deposition - Mercury		
PM Coarse	2-7-2014		Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead	1-1-1978	10-1-1992	Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

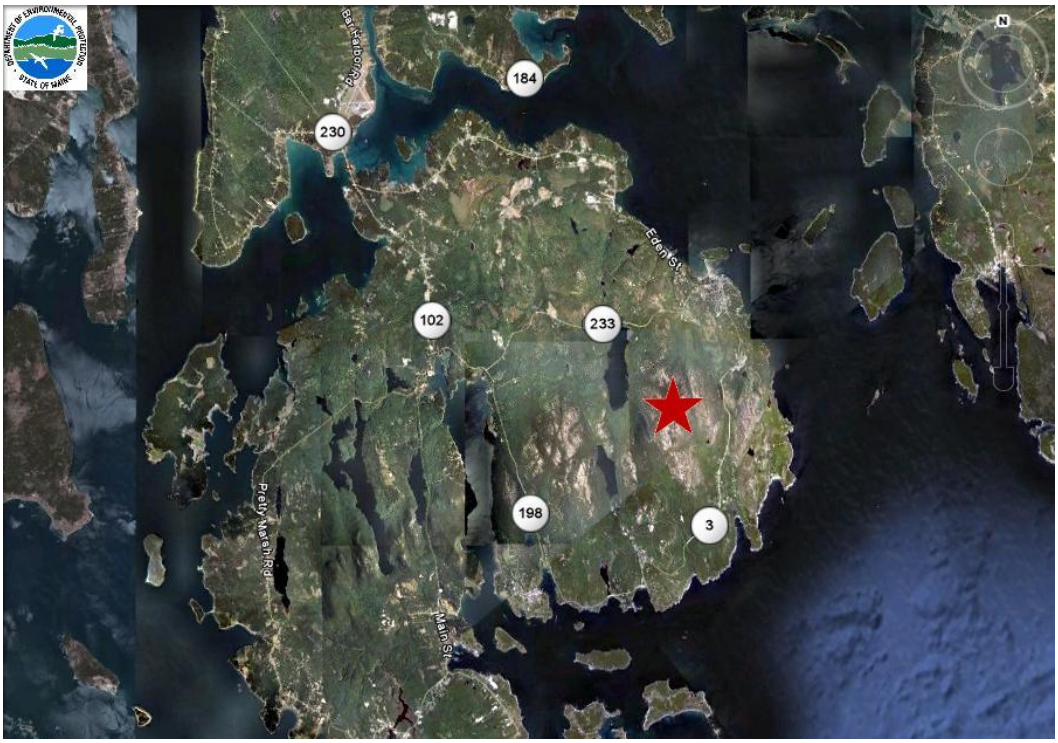
Site Description:
Monitors are located on the roof of a pumping station building for the Bangor treatment plant. It is located on the shore of the Kenduskeag Stream near the Penobscot River and sits in the bowl of downtown Bangor. The site was originally established to help define the extent of the particulate problems in Bangor. The pump station roof was replaced, and a new sampler platform was installed in December 2013.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. High Population Exposure. AQI Forecasting and Mapping.

Planned changes for 2018:
Monitoring results at the Kenduskeag pump station on Washington Street in Bangor may no longer be representative of the worst particulate concentrations in the city. Traffic pattern changes in Bangor have reduced traffic flow in the area of the pump station monitoring site and an alternative location for the monitoring equipment is being considered.

Town – Site:	**Bar Harbor – Cadillac Mountain, Acadia National Park**		
County:	**Hancock**	Latitude:	**44.3517**
Address:	**Top of Cadillac Mountain**	Longitude:	**-68.2272**
AQS Site ID:	**23-009-0102**	Elevation:	**463 M (1519 ft)**
Spatial Scale:	**Regional**	Year Established:	**1995**
Statistical Area:	**None**		





Bar Harbor – Cadillac Mountain, Acadia National Park
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	7-25-1995	
PM10 FRM			NOx	4-1-2004	9-30-2007
PM2.5 BAM			NOy	1-1-2008	9-30-2014
PM10 Colo			VOCs (PAMS)	5-1-1996	9-30-2014
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	5-6-1996	
Cont. OC/EC			Outdoor Temperature	4-19-1996	6-30-2013
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity	4-19-1996	11-30-2015
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO	4-1-2002	10-1-2003	Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Located on the top of Cadillac Mountain in Acadia National Park. It is a seasonal ozone site operating during the months of April to October.

Monitoring Objectives:
Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
After the removal of the PAMS equipment in the shelter at Cadillac much of the oversized 8' x 16' shelter remained unused. The remaining equipment was moved to one side of the shelter and partitioned off with a temporary partition. This arrangement reduces the amount of temperature-controlled volume inside the shelter and has lowered electrical costs at the site. The DEP plans to replace the existing shelter at Cadillac with an 8'x 8' shelter. This swap will necessitate coordination with the National Park Service. The shelters will have to be lifted in and out of the monitoring compound with the services of a boom truck, and such a truck will be required when one of the Park's large communication towers at the site is serviced.

Town – Site:	**Bar Harbor – McFarland Hill, Acadia National Park**		
County:	**Hancock**	Latitude:	**44.3771**
Address:	**Route 233**	Longitude:	**-68.2609**
AQS Site ID:	**23-009-0103**	Elevation:	**156 Meters**
Spatial Scale:	**Regional**	Year Established:	**1998**
Statistical Area:	**None**		

Bar Harbor – McFarland Hill, Acadia National Park
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	1-1-1999		SO_2	2-1-2004	
PM2.5 Colo			SO_4	10-1-2004	
PM2.5 TEOM	10-1-2003	10-30-2013	Ozone	2-1-1998	
PM2.5 BAM	11-12-2013		NOx		
PM10 FRM	1-1-2010		NOy	2-1-2004	
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury	1998	
PM Coarse	1-1-2010		Wet Dep. - Precip Chem.	1998	
IMPROVE	3-2-1988		Wind Direction/Speed	2-1-1998	
Cont. OC/EC	6-29-2004		Outdoor Temperature	2-1-1998	
Cont. Sulfate	6-26-2004		Bar. Pressure		
Black Carbon			Relative Humidity	2-1-1998	
Cont. PAH			Dew point		
Lead			Precipitation Amount	2-1-1998	
CO	2-1-2004		Solar Radiation	2-1-1998	
CO_2			UV-b Radiation		

Site Description:
Site is located in a field on the side of McFarland Hill in Bar Harbor. Site slopes to the south/southeast with the hill rising to the north. The site was established by the National Park Service but has since grown to include a variety of monitors for EPA programs, special studies such as the Rural Aerosol Intensive Network and most recently has received approval as the NCore site for Maine. Monitoring at this site is a joint effort between the NPS and the Maine DEP.

Monitoring Objectives:
Background. NCore Site. Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
Maine DEP and the National Park Service continue to work cooperatively in moving equipment from the two overcrowded and aging shelters at the location into a new structure that was constructed specifically to meet all current monitoring requirements with some extra capacity for future efforts. The two old shelters will be removed during the summer/fall of 2017.

Town – Site:	**Bethel – Smith Farm Road**		
County:	**Oxford**	Latitude:	**44.377794**
Address:	**Smith Farm Road**	Longitude:	**-70.854697**
AQS Site ID:	**23-017-3002**	Elevation:	**203 Meters**
Spatial Scale:	**Regional**	Year Established:	**2016**
Statistical Area:	**None**		

Bethel – Smith Farm Road
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	5-12-2016	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The site is located approximately 3.5 miles southwest of Bethel, Maine on Smith Farm Road. The shelter is situated in a field along the power line right of way.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Western Mountain Location

Planned changes for 2018:
None.

Town – Site:	**Bridgton**		
County:	**Cumberland**	Latitude:	**44.1074**
Address:	**Upper Ridge Road**	Longitude:	**-70.7290**
AQS Site ID:	**23-005-0002**	Elevation:	**223 meters**
Spatial Scale:	**Regional**	Year Established:	**1980**
Statistical Area:	**Portland-South Portland-Biddeford, ME**		

Bridgton
Pollutant and Meteorological Parameters:

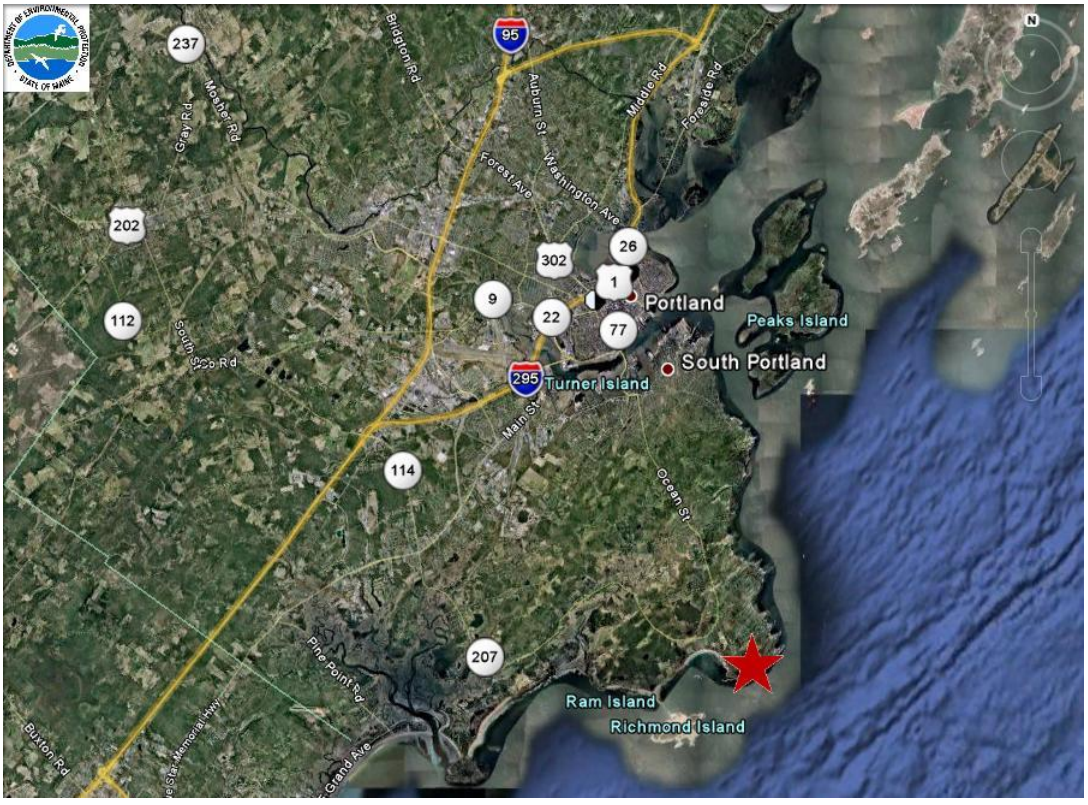
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury	6-3-1997	
PM Coarse			Wet Dep. - Precip Chem.	1-1-1980	
IMPROVE	3-14-2001	1/1/2016	Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Site is located on a ridge in an open field area just off the Upper Ridge Road.

Monitoring Objectives:
Long-term tracking of deposition. Western Mountain Location

Planned changes for 2018:
IMPROVE monitoring was discontinued at the end of 2015. The BAQ is seeking alternative funding to re-establish IMPROVE monitoring in the future.

Town – Site:	**Cape Elizabeth**		
County:	**Cumberland**	Latitude:	**43.5610**
Address:	**Two Lights State Park**	Longitude:	**-70.2073**
AQS Site ID:	**23-005-2003**	Elevation:	**24 meters**
Spatial Scale:	**Regional**	Year Established:	**1981**
Statistical Area:	**Portland-South Portland-Biddeford, ME**		



Cape Elizabeth
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	1-1-1999	12-17-2002	SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	1-1-1981	
PM2.5 BAM			NOx	6-9-1993	10-31-1995
PM10 FRM			NOy	6-26-1995	
PM10 Colo			VOCs (PAMS)	6-1-1993	
PM10 TEOM			HAPs	12-6-2013	
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	6-25-1985	
Cont. OC/EC			Outdoor Temperature	6-7-1994	
Cont. Sulfate			Bar. Pressure	6-7-1994	
Black Carbon			Relative Humidity	6-7-1994	
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO	5-1-2001	10-1-2007	Solar Radiation	6-7-1994	
CO_2			UV-b Radiation	6-1-1995	

Site Description:
The Cape Elizabeth site is located in an open elevated area in the Two Lights State Park in Cape Elizabeth. With the exception of the ozone and meteorological parameters, this site is normally operated during the ozone season only.

Monitoring Objectives:
Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
None.

Town – Site:	**Caribou – Caribou Airport**		
County:	**Aroostook**	Latitude:	**46.8683**
Address:	**Caribou Airport**	Longitude:	**-67.9931**
AQS Site ID:	**23-003-1002**	Elevation:	**191 meters**
Spatial Scale:	**Regional**	Year Established:	**1982**
Statistical Area:	**None**		

Caribou – Caribou Airport
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.	1-1-1982	
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount	1-1-1982	
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Site is located in a grassy area inside the fence and off the south end of the runway.

Monitoring Objectives:
Long-term monitoring of wet deposition chemistry and precipitation amount in northern Maine

Planned changes for 2018:
None.

Town – Site:	**Carrabassett Valley – Town Office**		
County:	**Franklin**	Latitude:	**45.080200**
Address:	**1001 Carriage Rd Carrabassett Valley**	Longitude:	**-70.211817**
AQS Site ID:	**23-007-2002**	Elevation:	**264 Meters**
Spatial Scale:	**Western Mountains**	Year Established:	**2015**
Statistical Area:	**None**		

Carrabassett Valley – Town Office
Pollutant and Meteorological Parameters:

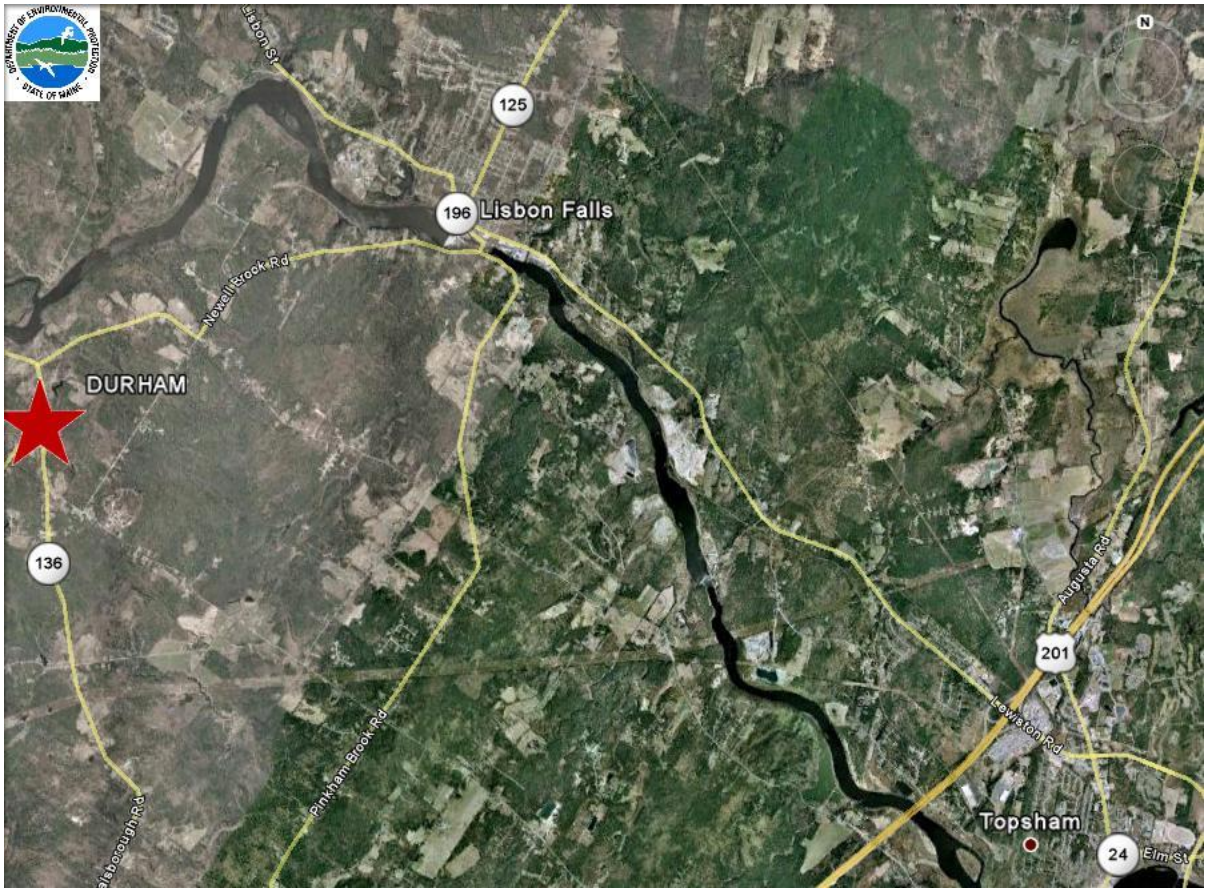
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM	11-5-2015		NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury	2002	
PM Coarse			Wet Dep. - Precip Chem.	2002	
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
An 8'x 8' shelter is located behind the Carrabassett Valley Town Office, Pool and Recreation Area in a grassy area at the south end of an airport runway, situated adjacent to samplers for the ME04 NADP site. The NADP site is operated by the Penobscot Nation, and they also assist ME DEP with the operation of the continuous $PM_{2.5}$ monitor in the shelter. ME DEP forecasters requested hourly $PM_{2.5}$ values from Carrabassett Valley to help them with their predictions of inversion events in the Western Mountains of Maine.

Monitoring Objectives:
Special Purpose Monitoring for hourly forecast verification. Western Mountain Location.

Planned changes for 2018:
ME DEP will decide whether to maintain the continuous $PM_{2.5}$ monitoring at CVTO and make the network changes necessary to designate the monitor as SLAMS, or remove the equipment at the end of the 2017 monitoring year.

Town – Site:	**Durham – Fire Station**		
County:	**Androscoggin**	Latitude:	**43.9745**
Address:	**Route 9**	Longitude:	**-70.1249**
AQS Site ID:	**23-001-0014**	Elevation:	**50 meters**
Spatial Scale:	**Regional**	Year Established:	**2004**
Statistical Area:	**Lewiston-Auburn, ME**		



Durham – Fire Station
Pollutant and Meteorological Parameters:

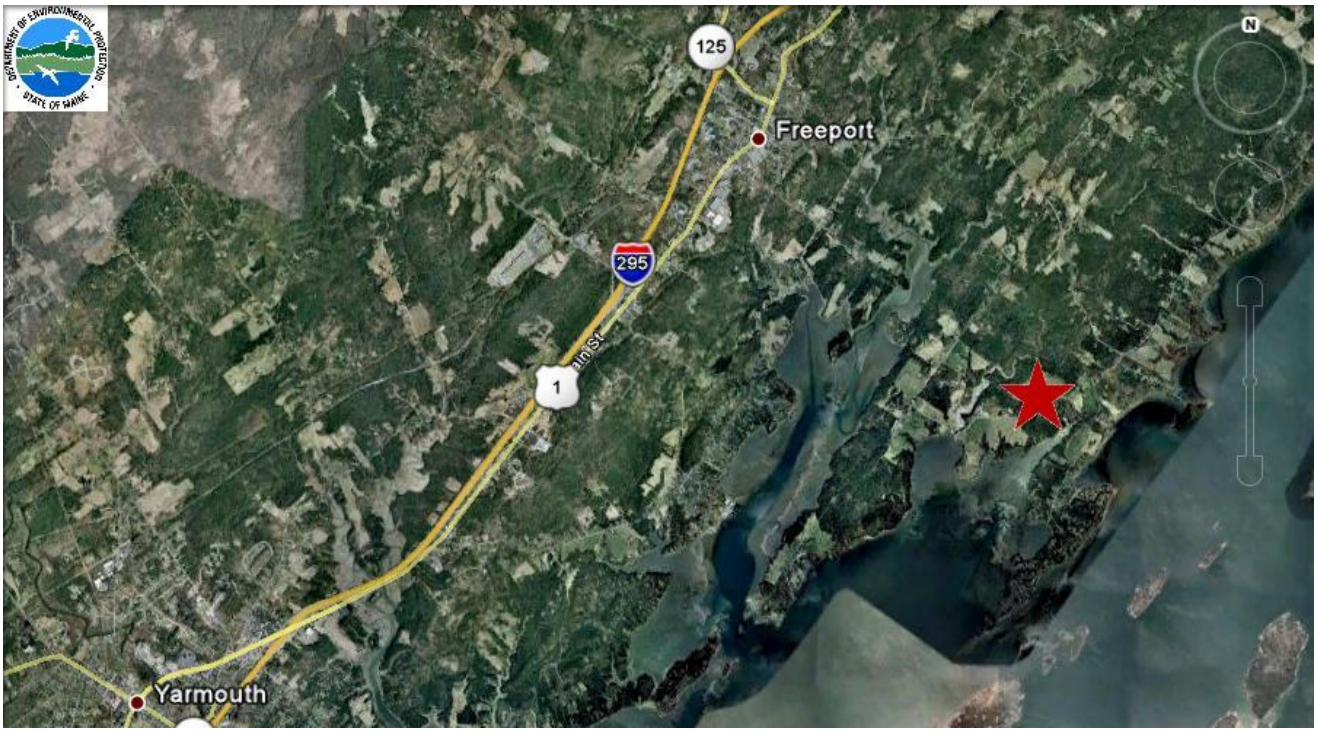
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	04/01/2004	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The site is located on the grounds of the Durham Fire Station, 9 ½ miles SE of Lewiston. An ozone monitor is located within an 8'x8'x8' environmentally controlled shelter. The shelter was installed in 2006. During the summers of 2004 and 2005, an ozone monitor was set up temporarily in a corner of the fire station with a probe attached to the roof edge to determine if the location warranted continued monitoring.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment.

Planned changes for 2018:
None.

Town – Site:	**Freeport – Wolfes Neck Farm**		
County:	**Cumberland**	Latitude:	**43.8325**
Address:	**Wolfe's Neck Road**	Longitude:	**-70.0644**
AQS Site ID:	**23-005-9002**	Elevation:	**27 Meters**
Spatial Scale:	**Regional/Neighborhood**	Year Established:	**1998**
Statistical Area:	**Portland-South Portland-Biddeford, ME**		



Freeport – Wolfes Neck Farm
Pollutant and Meteorological Parameters:

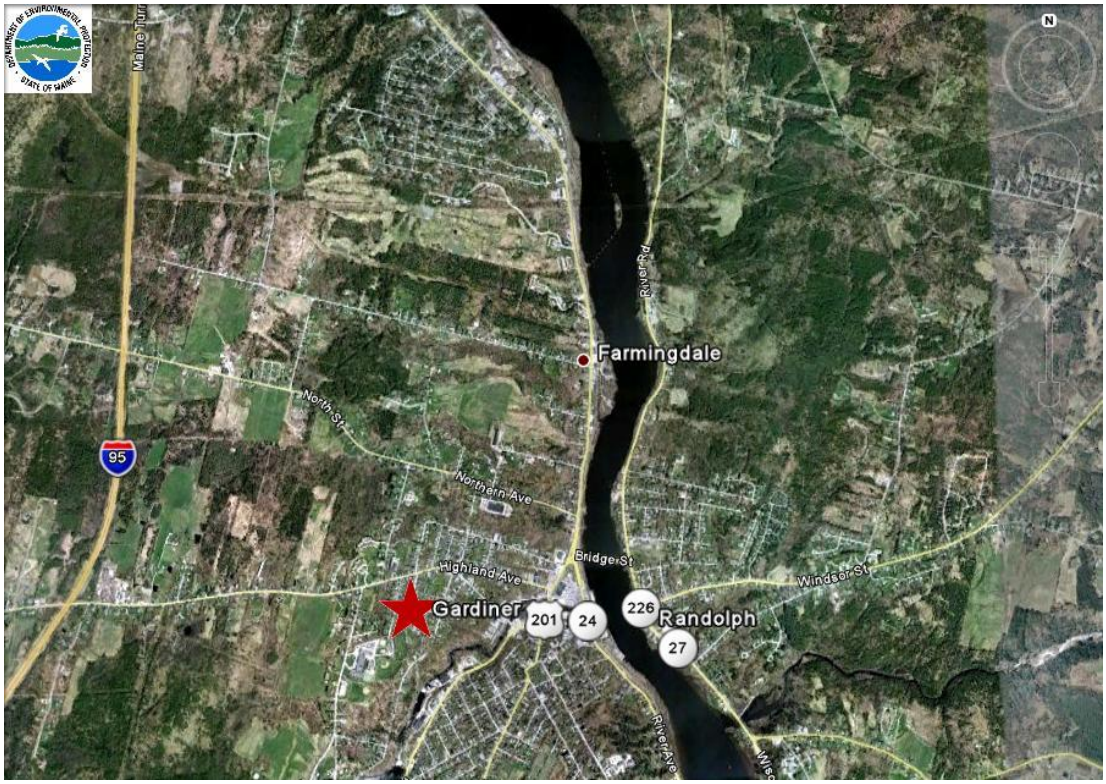
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury	1-7-1998	
PM Coarse			Wet Dep. - Precip Chem.	1-7-1998	
IMPROVE	3/14/2001		Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount	1-7-1998	
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Site is located within a fenced in area in the middle of a large open field used as a pasture by the Wolfe's Neck farm.

Monitoring Objectives:
Long-term monitoring of wet deposition chemistry and precipitation amount in northern Maine**.** IMPROVE Site

Planned changes for 2018:
Enclosure of IMPROVE Instrumentation and modernization of electrical distribution is planned for Summer/Fall 2016

Town – Site:	**Gardiner – Pray Street, Schoolyard**		
County:	**Kennebec**	Latitude:	**44.2306**
Address:	**Pray Street**	Longitude:	**-69.7850**
AQS Site ID:	**23-011-2005**	Elevation:	**55 Meters**
Spatial Scale:	**Regional**	Year Established:	**1991**
Statistical Area:	**Augusta-Waterville, ME**		



Gardiner – Pray Street, Schoolyard
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2	03/07/2012	
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	04/01/1991	
PM2.5 BAM			NOx	03/07/2012	
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The site is located on the north edge of the Gardiner Area High School grounds. The Pray Street Elementary School next door at 14 Pray Street has closed and is now housing a Boys and Girls Club. Monitors are housed in an 8'x8'x8' environmentally controlled shelter, situated outside the fence line of the playing fields. The shelter was replaced in 2006.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
None.

Town – Site:	**Greenville**		
County:	**Piscataquis**	Latitude:	**45.4893**
Address:	**Squaw Brook**	Longitude:	**-69.6637**
AQS Site ID:	**23-021-0001**	Elevation:	**339 Meters**
Spatial Scale:	**Regional**	Year Established:	**1980**
Statistical Area:	**None**		

Greenville

Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury	1997	
PM Coarse			Wet Dep. - Precip Chem.	1980	
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount	1980	
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:

Site is located in a small clearing on private property to the northwest of Greenville Junction. This is one of the oldest deposition monitoring sites in the country.

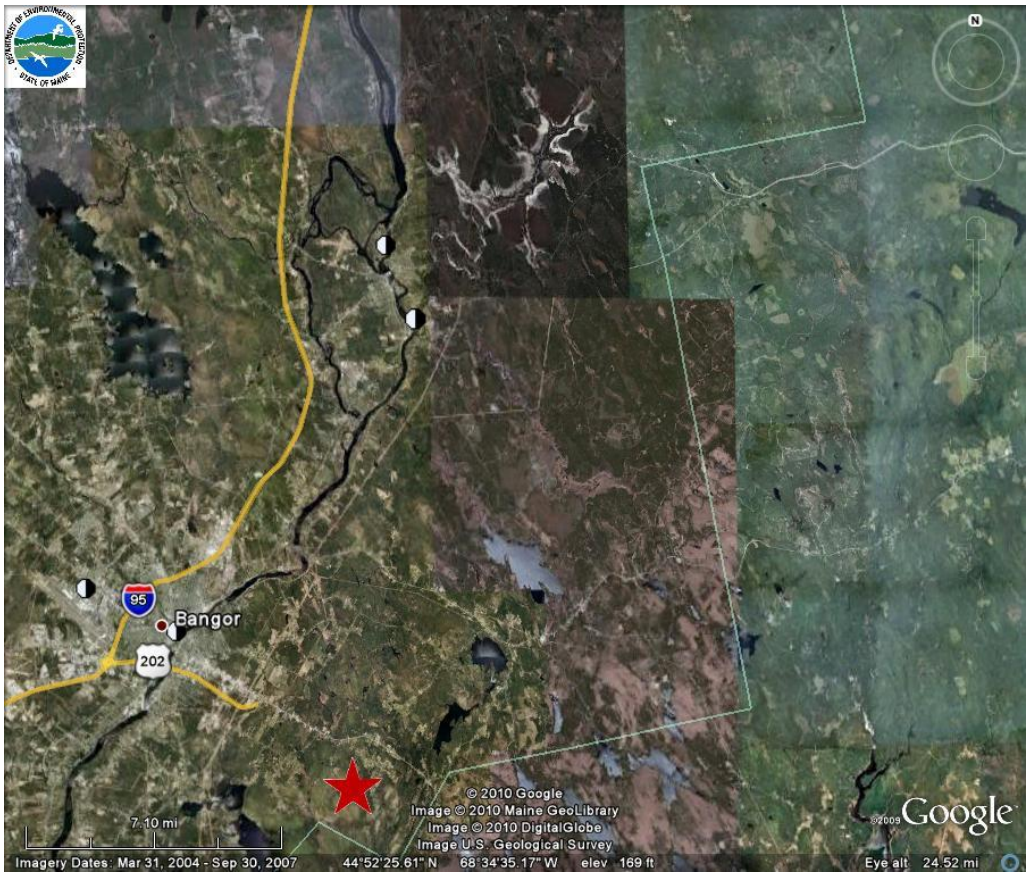
Monitoring Objectives:

Long-term monitoring of wet deposition chemistry and precipitation amount in western Maine

Planned changes for 2018:

None.

Town – Site:	**Holden**		
County:	**Penobscot**	Latitude:	**44.7365**
Address:	**Summit of Rider's Bluff**	Longitude:	**-68.6711**
AQS Site ID:	**23-019-4008**	Elevation:	**250 Meters**
Spatial Scale:	**Regional**	Year Established:	**1993**
Statistical Area:	**Bangor, ME**		



Holden

Pollutant and Meteorological Parameters:

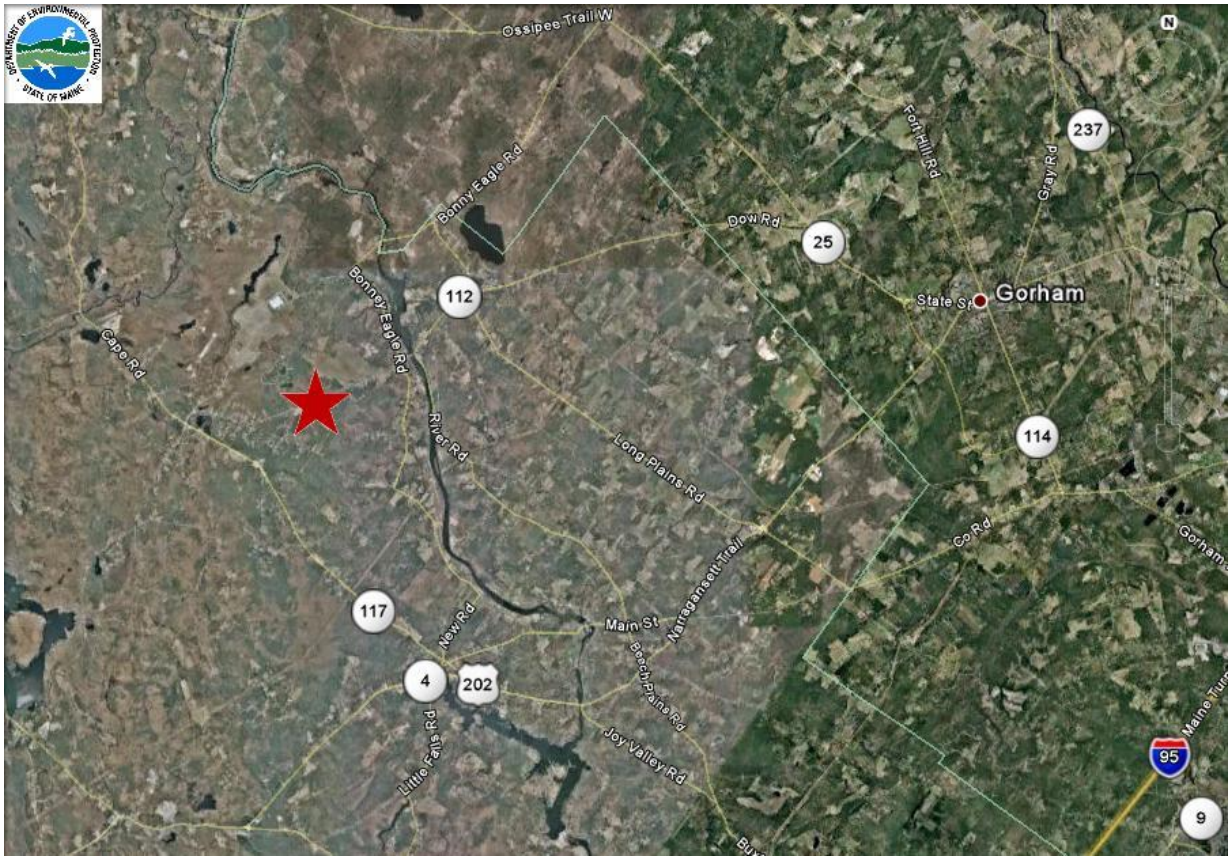
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	5-19-1993	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Site is a transmission tower location for a local TV station at the top of a hill in Holden with good exposure in all directions.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
None.

Town – Site:	**Hollis/West Buxton – Fire Department**		
County:	**York**	Latitude:	**43.6568**
Address:	**Plains Road**	Longitude:	**-70.6291**
AQS Site ID:	**23-031-0038**	Elevation:	**84 Meters**
Spatial Scale:	**Regional**	Year Established:	**1999**
Statistical Area:	**Portland-South Portland-Biddeford, ME**		



Hollis/West Buxton – Fire Department
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	4-1-1999	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Monitor is located in an 8x8x8 shelter in an open area around the West Buxton Fire Department building.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Western Mountain Location. Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
None.

Town – Site:	**Jonesport – Public Landing**		
County:	**Washington**	Latitude:	**44.5319**
Address:	**Public Landing**	Longitude:	**-67.5959**
AQS Site ID:	**23-029-0019**	Elevation:	**16 Meters**
Spatial Scale:	**Regional**	Year Established:	**1989**
Statistical Area:	**None**		

Jonesport – Public Landing
Pollutant and Meteorological Parameters:

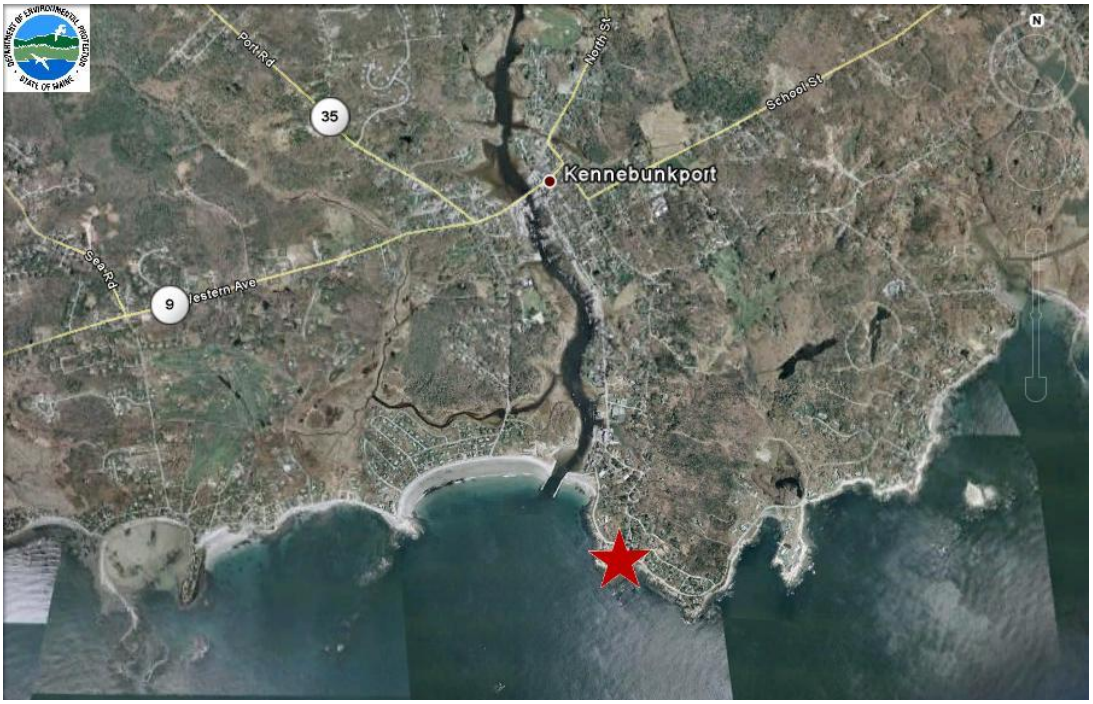
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	5-19-1989	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Monitor is located in a town building at the Public Landing in Jonesport.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment.

Planned changes for 2018:
Planning is underway for the erection of a 10 meter meteorological with wind speed and direction sensors during the summer of 2017. Seasonal wind data will provide additional information about ozone transport patterns.

Town – Site:	**Kennebunkport – Parson's Way**		
County:	**York**	Latitude:	**43.3431**
Address:	**Ocean Avenue**	Longitude:	**-70.4714**
AQS Site ID:	**23-031-2002**	Elevation:	**6 Meters**
Spatial Scale:	**Regional**	Year Established:	**1983**
Statistical Area:	**Portland-South Portland-Biddeford, ME**		



Kennebunkport – Parson's Way
Pollutant and Meteorological Parameters:

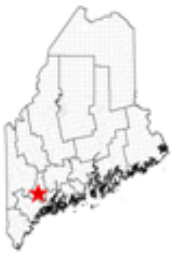
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	1-1-1983	
PM2.5 BAM			NOx	6-1-1990	9-1-1990
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

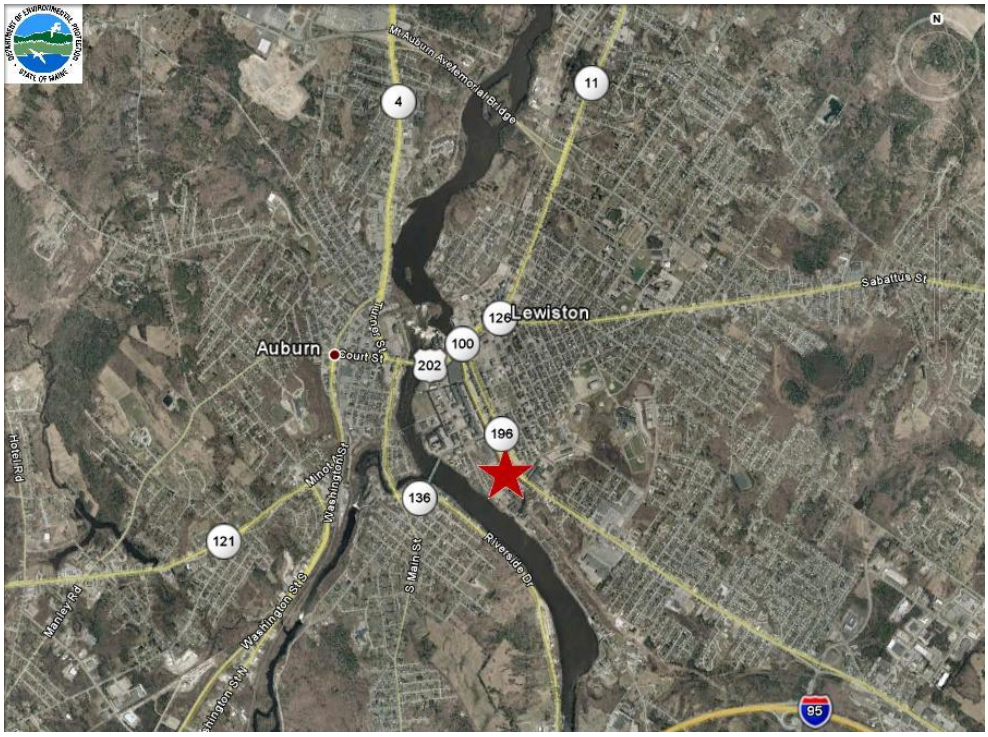
Site Description:
Site is located on a rocky beach area just off Ocean Avenue. Site has good exposure and has recorded some of the highest ozone concentrations in the state. The shelter, including the power and phone line, has to be removed each fall and re-installed each spring to avoid winter storm damage.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
A new shelter was setup during the fall and winter of 2016/2017. With the permission of the Town of Kennebunkport, ME DEP, and FEMA, the more esthetically pleasing structure is to remain in place year round. It replaced the old Ekto shelter that had been temporarily set up each spring and removed each fall since 1983. Beginning in 2018, with the more permanent structure in place, the DEP expects to avoid the usual start-up delays in ozone monitoring each spring.

Town – Site:	**Lewiston – Country Kitchen Parking Lot**		
County:	**Androscoggin**	Latitude:	**44.0894**
Address:	**Canal Street**	Longitude:	**-70.2141**
AQS Site ID:	**23-001-0011**	Elevation:	**50 meters**
Spatial Scale:	**Neighborhood**	Year Established:	**1981**
Statistical Area:	**Lewiston-Auburn ME**		





Lewiston – Country Kitchen Parking Lot
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	01/01/1999		SO_2	07/13/1998	12/30/2002
PM2.5 Colo			SO_4		
PM2.5 TEOM	01/01/2000	09/12/2013	Ozone		
PM2.5 BAM	09/12/2013		NOx		
PM10 FRM	04/01/2004		NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs	06/14/2004	
PM10 BAM			Mercury Deposition		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead	06/01/1989	12/31/1993	Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The site is located in downtown Lewiston in the parking lot of the Country Kitchen Bakery. An 8'x8'x8' shelter houses electronic monitoring equipment, data acquisition system and modem, in a climate controlled environment, with PM monitors and intakes situated on the roof.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. High Population Exposure

Planned changes for 2018:
None.

Town – Site:	**Madawaska – Public Safety Bldg.**		
County:	**Aroostook**	Latitude:	**47.3553**
Address:	**East Maine St.**	Longitude:	**-68.3211**
AQS Site ID:	**23-003-0014**	Elevation:	**177 meters**
Spatial Scale:	**Neighborhood**	Year Established:	**2009**
Statistical Area:	**None**		

Madawaska – Public Safety Bldg.
Pollutant and Meteorological Parameters:

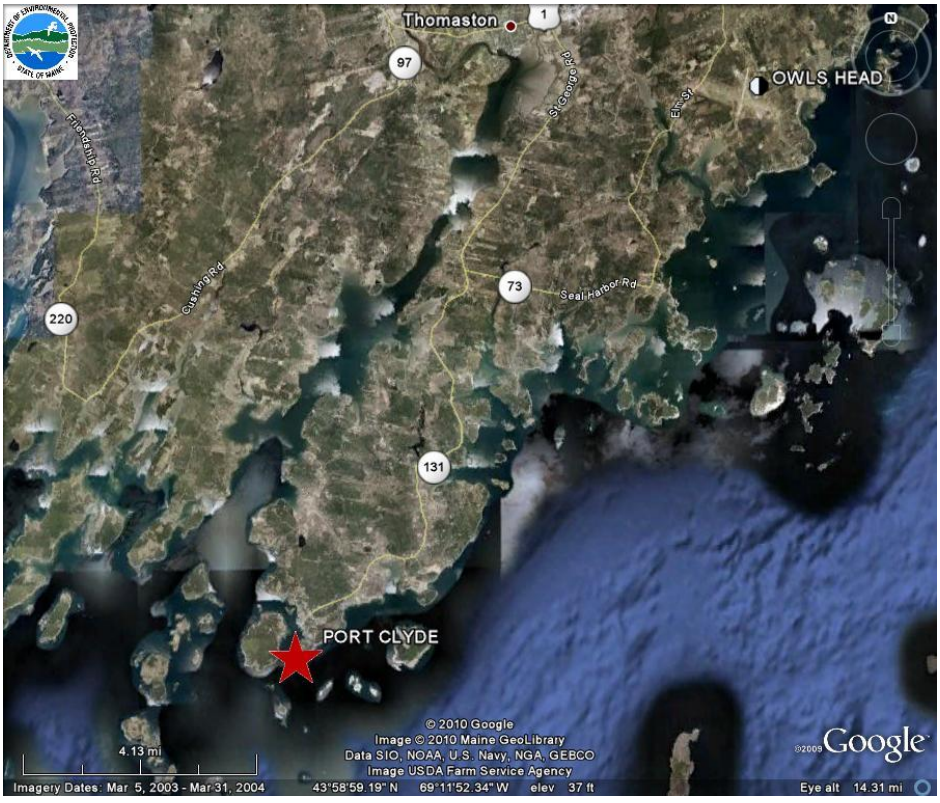
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	8-1-2009		SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM	1-17-2014		NOx		
PM10 FRM	8-1-2009		NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Mercury Deposition		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
New site established in 2009 to replace the Tang's Palace site, which was no longer available for use after June, 2009.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment.

Planned changes for 2018:
None.

Town – Site:	**Port Clyde – Marshall Point Lighthouse**		
County:	**Knox**	Latitude:	**43.9180**
Address:	**Marshall Point Road**	Longitude:	**-69.2608**
AQS Site ID:	**23-013-0004**	Elevation:	**9 Meters**
Spatial Scale:	**Regional**	Year Established:	**1987**
Statistical Area:	**Rockland, ME**		



Port Clyde – Marshall Point Lighthouse
Pollutant and Meteorological Parameters:

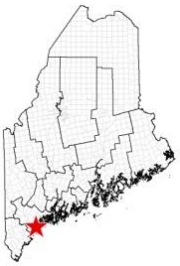
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	05/01/1987	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

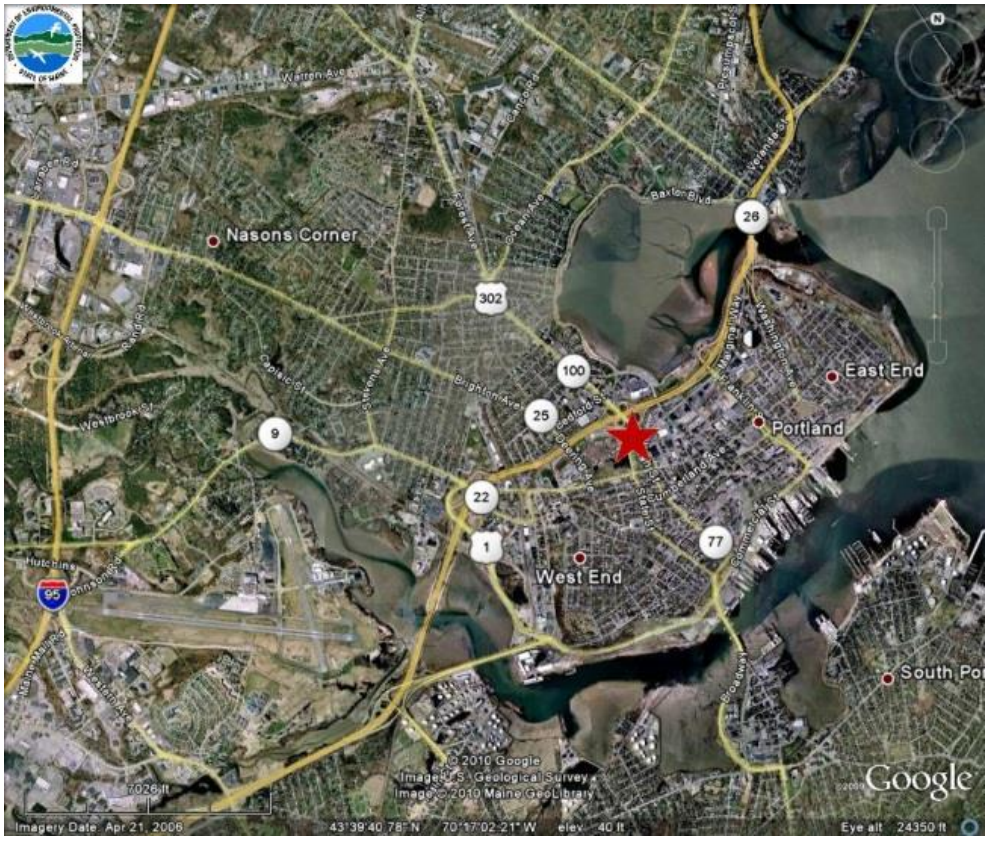
Site Description:
The site is located at Marshall Point on the grounds of the Marshall Point Lighthouse Museum about 14.8 miles southwest of downtown Rockland. An 8'x8'x'8 environmentally controlled shelter houses the monitor, data acquisition equipment and modem.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
None.

Town – Site:	**Portland – Deering Oaks Park**		
County:	**Cumberland**		
Address:	**356 State St.**	Latitude:	**43.6602**
AQS Site ID:	**23-005-0029**	Longitude:	**-70.2690**
Spatial Scale:	**Neighborhood**	Elevation:	**4 meters**
Statistical Area:	**Portland-South Portland-Biddeford, ME**	Year Established:	**2008**





Portland – Deering Oaks Park
Pollutant and Meteorological Parameters:

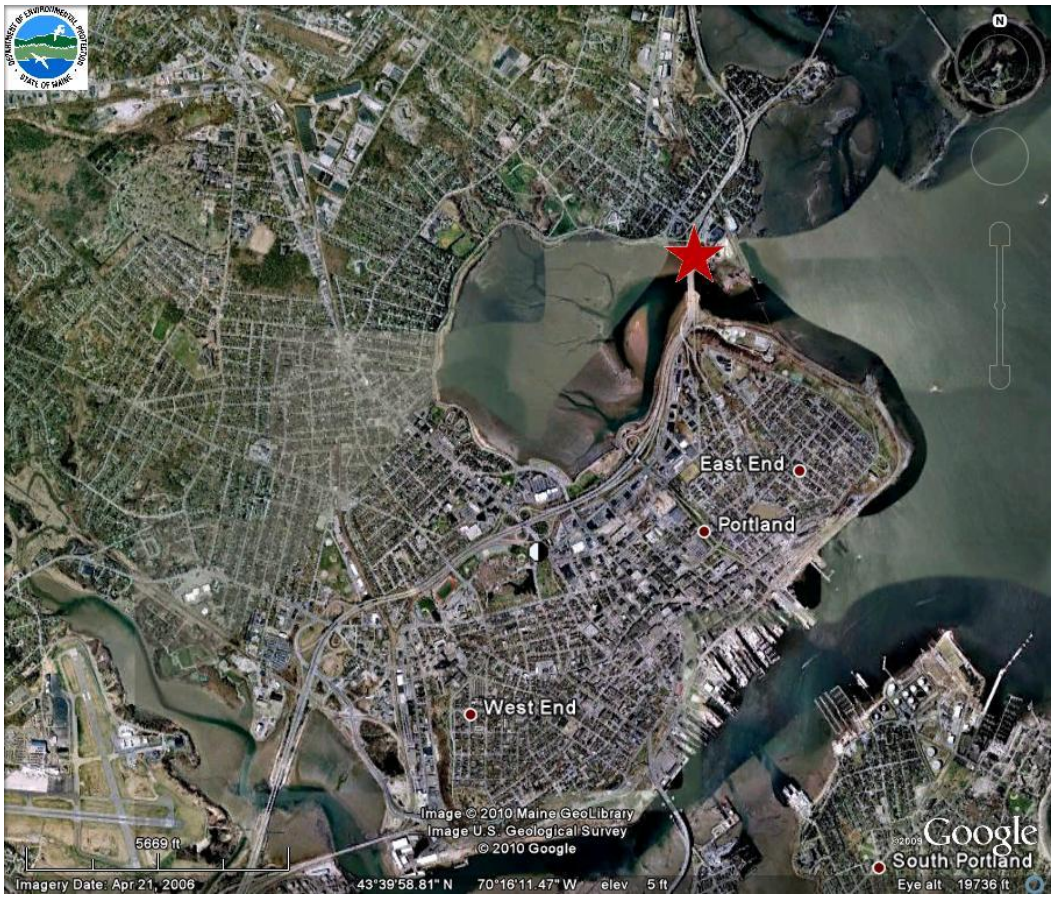
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	1-22-2008		SO_2	1-24-2008	
PM2.5 Colo	1-31-2008		SO_4		
PM2.5 TEOM	1-18-2008	6-30-2015	Ozone	1-18-2008	
PM2.5 BAM	5-7-2013		NOx	2-5-2008	
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs	3-14-2009	
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO	5-1-2008		Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The Deering Oaks site was established in 2008 to replace the Marginal Way site, which had to be removed to make way for development activity. The site is located in a grassy area of the park near the intersection of Forest Avenue and State Street, and close to an off ramp from I-295. To the west of the site is a wooded area of the park as well as numerous athletic fields. The site does not meet strict EPA siting criteria so sample results are not used for regulatory purposes. The location was chosen in cooperation with the Maine and American Lung Association for use in their health statistics. Annual Average Daily Traffic volume on Forest Avenue is around 46,000. EPA also uses the site for a monitor in their radiation network, RadNet.

Monitoring Objectives:
High Population Exposure Neighborhood scale monitoring. The ozone and nitrogen dioxide monitors are special purpose, non-regulatory monitors installed at the request of the Maine Bureau of Health.

Planned changes for 2018:
None.

Town – Site:	**Portland – Tukey's Bridge**		
County:	**Cumberland**	Latitude:	**43.6780**
Address:	**Tukey's Bridge (Route 295)**	Longitude:	**-70.2562**
AQS Site ID:	**23-005-0015**	Elevation:	**6 meters**
Spatial Scale:	**Middle/Micro**	Year Established:	**1981**
Statistical Area:	**Portland-South Portland-Biddeford, ME**		



Portland – Tukey's Bridge
Pollutant and Meteorological Parameters:

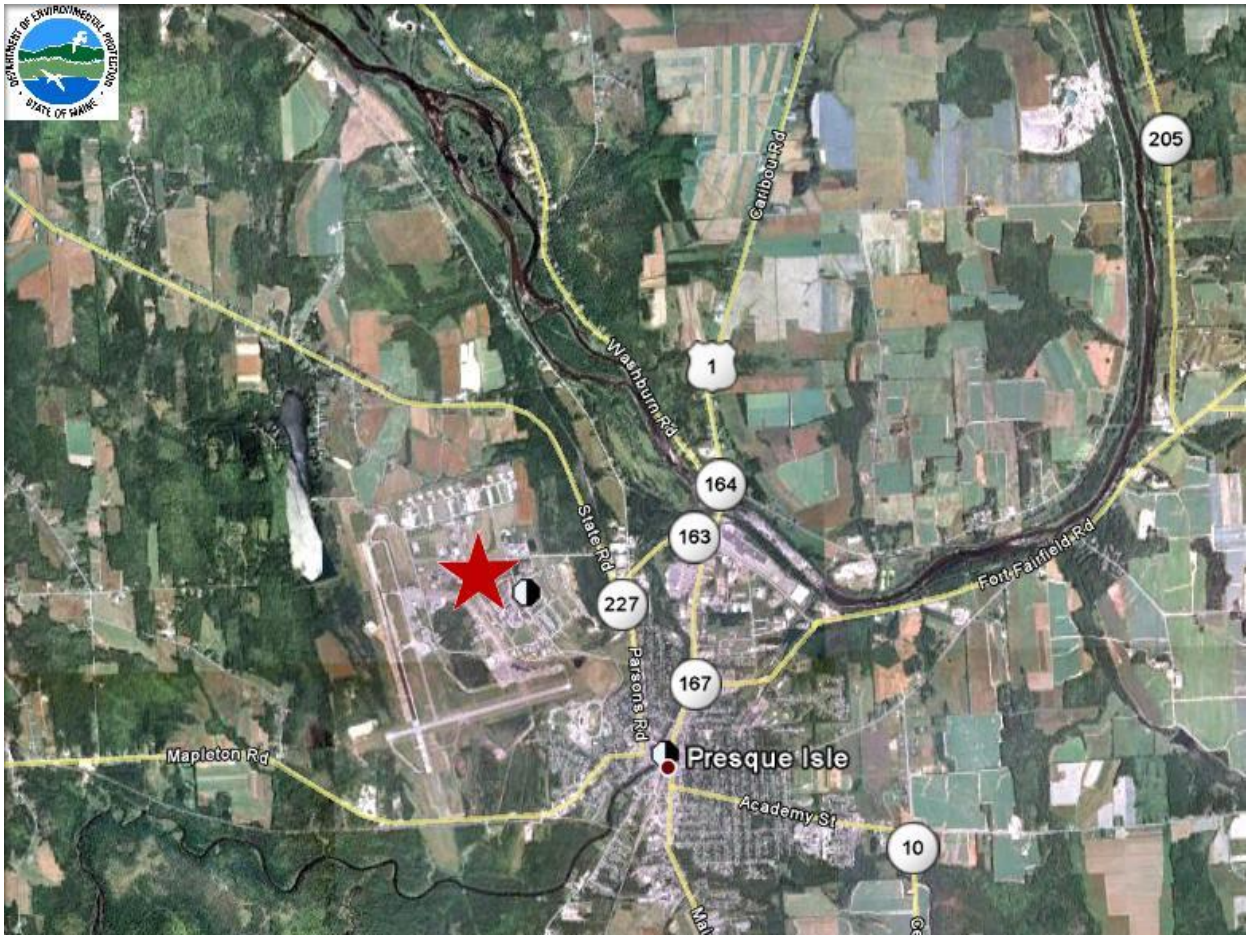
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	1-1-1999		SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM	2-8-1991		NOy		
PM10 Colo	1-9-2003		VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Monitors are located on a platform next to I-295/Washington Street. This section of road has some of the highest annual average daily traffic volume in the state.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. High Traffic Volume**.**

Planned changes for 2018:
Replacement of the monitoring platform was completed December 2015. No changes anticipated in 2018

Town – Site:	**Presque Isle – DEP Regional Office**		
County:	**Aroostook**	Latitude:	**46.6984**
Address:	**528 Central Drive**	Longitude:	**-68.0389**
AQS Site ID:	**23-003-1008**	Elevation:	**158 meters**
Spatial Scale:	**Neighborhood**	Year Established:	**1983**
Statistical Area:	**None**		



Presque Isle – DEP Regional Office
Pollutant and Meteorological Parameters:

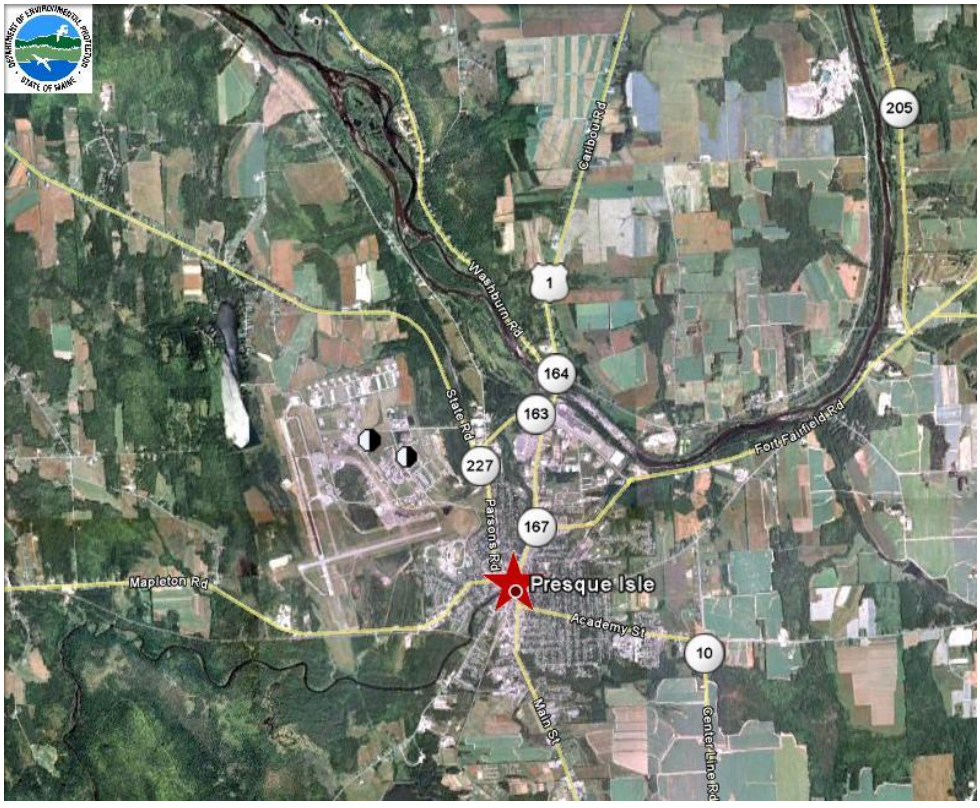
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	9-27-2007		SO_2	8-1-1988	9-21-1989
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	8-1-1988	9-21-1989
PM2.5 BAM			NOx		
PM10 FRM	7-1-1989	9-27-2007	NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	2-13-1983	9-21-2016
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Suburban background site for monitoring PM and wind. Monitors are located in a field next to the regional office in Presque Isle.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Background Site. Modeling

Planned changes for 2018:
$PM_{2.5}$ Sequential Sampler to be replaced by a Single Event $PM_{2.5}$ sampler when one becomes available for more reliable Winter operations.

Town – Site:	**Presque Isle – Riverside Shelter**		
County:	**Aroostook**	Latitude:	**46.6823**
Address:	**Riverside Street**	Longitude:	**-68.0156**
AQS Site ID:	**23-003-1011**	Elevation:	**131 meters**
Spatial Scale:	**Neighborhood**	Year Established:	**1993**
Statistical Area:	**None**		



Presque Isle – Riverside Shelter
Pollutant and Meteorological Parameters:

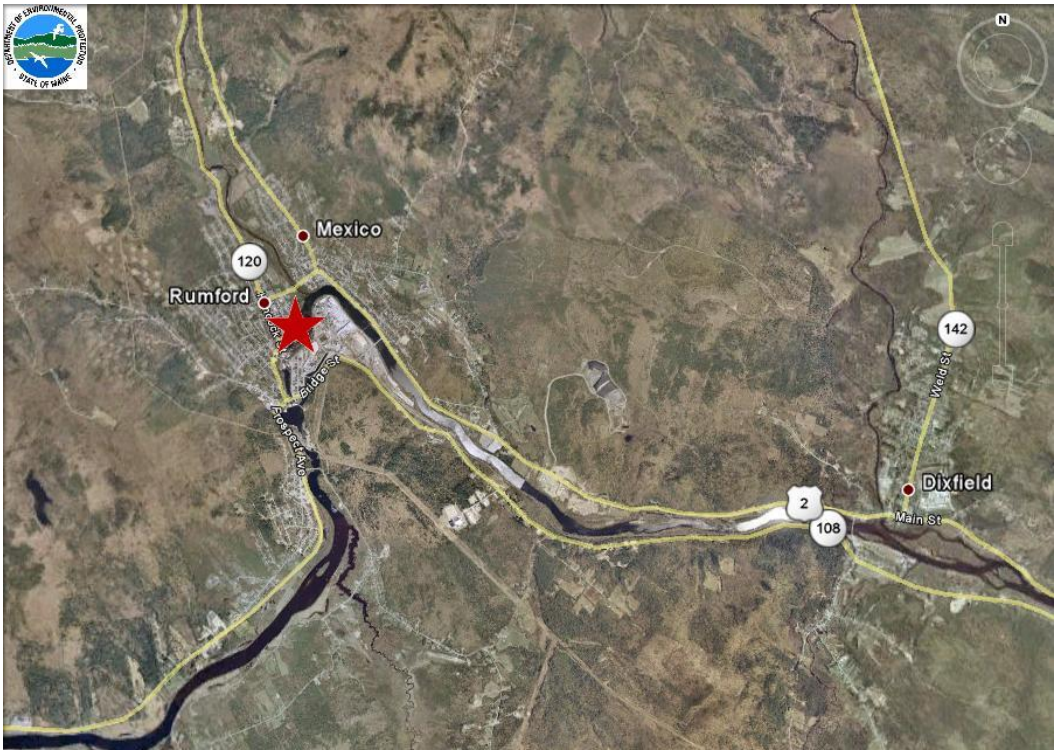
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	10-1-1997		SO_2	9-19-1994	7-2-1996
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM	7-18-2014		NOx		
PM10 FRM	9-10-1993	11-2-1998	NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM	9-15-1995		HAPs	12-14-03	
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Monitors are located in a parking lot off Main Street in the downtown area of Presque Isle. The site is relatively open, next to the railroad tracks and the Presque Isle Stream**.**

Monitoring Objectives:
SLAMS Attainment/Non-Attainment.

Planned changes for 2018:
None.

Town – Site:	**Rumford – Rumford Ave. Parking Lot**		
County:	**Oxford**	Latitude:	**44.5514**
Address:	**Rumford Ave. Parking Lot**	Longitude:	**-70.5463**
AQS Site ID:	**23-017-2011**	Elevation:	**135 Meters**
Spatial Scale:	**Neighborhood**	Year Established:	**1998**
Statistical Area:	**None**		



Rumford – Rumford Ave. Parking Lot
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM	12/01/1998		SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM	10/1/2014		NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs	07/01/1998	
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	12/16/2016	
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The site is located in a paper mill employees' parking lot off of Rumford Avenue in Rumford, Maine across the street from the Eagles Club and Bingo Parlor. An 8'x8'x8' environmentally controlled shelter houses HAPs sampling equipment, data acquisition system, and a BAM 1020 for continuous $PM_{2.5}$ sampling. A Thermo 2025 PM $_{2.5}$ sampler is located on the roof of the shelter.

Monitoring Objectives:
SLAMS Attainment/Non-Attainment. High Population Exposure. Western Mountain Location.

Planned changes for 2018:
A section of Meteorological tower was affixed to the shelter in June 2016. Wind speed and direction data collection started up in mid-December 2016.

Town – Site:	**Shapleigh -- Shapleigh Ball Park**		
County:	**York**	Latitude:	**43.5889**
Address:	**Route 11**	Longitude:	**-70.8773**
AQS Site ID:	**23-031-0040**	Elevation:	**171 Meters**
Spatial Scale:	**Regional**	Year Established:	**2008**
Statistical Area:	**Portland-South Portland-Biddeford, ME**		

Shapleigh -- Shapleigh Ball Park
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	6-13-2008	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Site is located in an open area surrounding a baseball field just off Route 11.

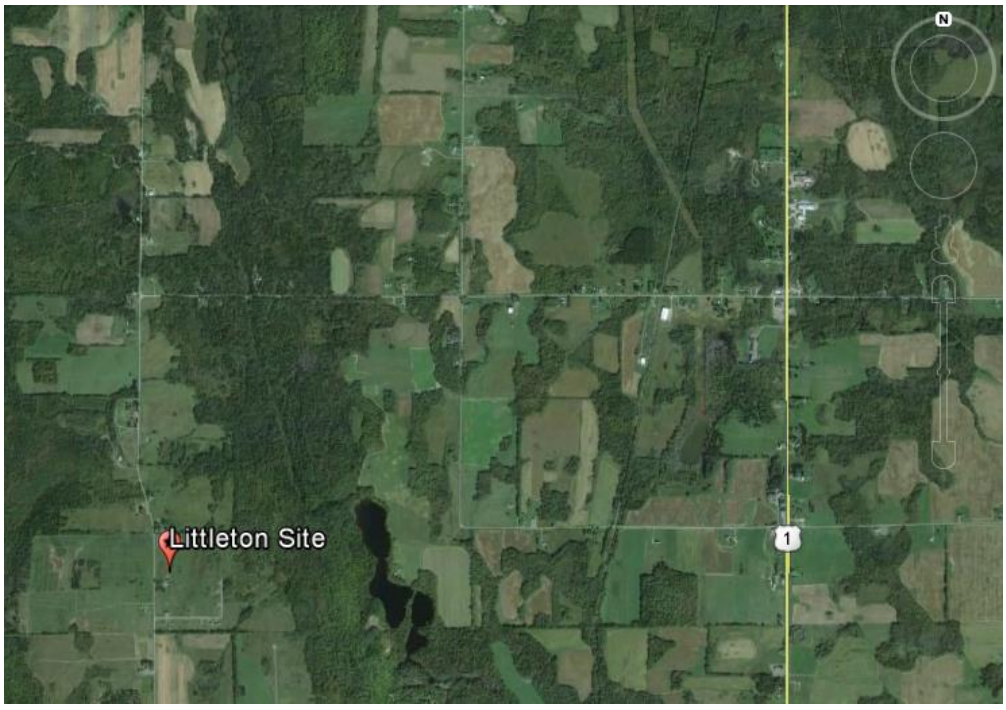
Monitoring Objectives:
SLAMS Attainment/Non-Attainment. Monitoring long-range transport of pollutants on a regional scale.

Planned changes for 2018:
None.

TRIBAL MONITORING SITES

FOR 2018

Tribe – Site Name:	**Micmac Tribe -- Littleton**		
County:	**Aroostook**	Latitude:	**46.228730**
Address:	**198 West Ridge Road**	Longitude:	**-67.82566**
AQS Site ID:	**23-003-1101**	Elevation:	**188 meters**
Spatial Scale:	**Neighborhood**	Year Established:	**2014**
Statistical Area:	**None**		



Micmac Tribe -- Littleton
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM	05-01-2014		Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	05-01-2014	
Cont. OC/EC			Outdoor Temperature	05-01-2014	
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount		
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
The Aroostook Band of Micmacs ambient air monitor site continuously monitors $PM_{2.5}$ and meteorological parameters in Littleton, ME. The PM2.5 TEOM equipment is audited by Maine DEP.

Monitoring Objectives:
Population – Orientated Surveillance

Planned changes for 2018:
None

Tribe – Site Name:	**Micmac Tribe -- Presque Isle Shelter**		
County:	**Aroostook**	Latitude:	**46.6964**
Address:	**8 Northern Road**	Longitude:	**-68.0330**
AQS Site ID:	**23-003-1100**	Elevation:	**165 meters**
Spatial Scale:	**Neighborhood**	Year Established:	**2004**
Statistical Area:	**None**		

Micmac Tribe -- Presque Isle Shelter
Pollutant and Meteorological Parameters:

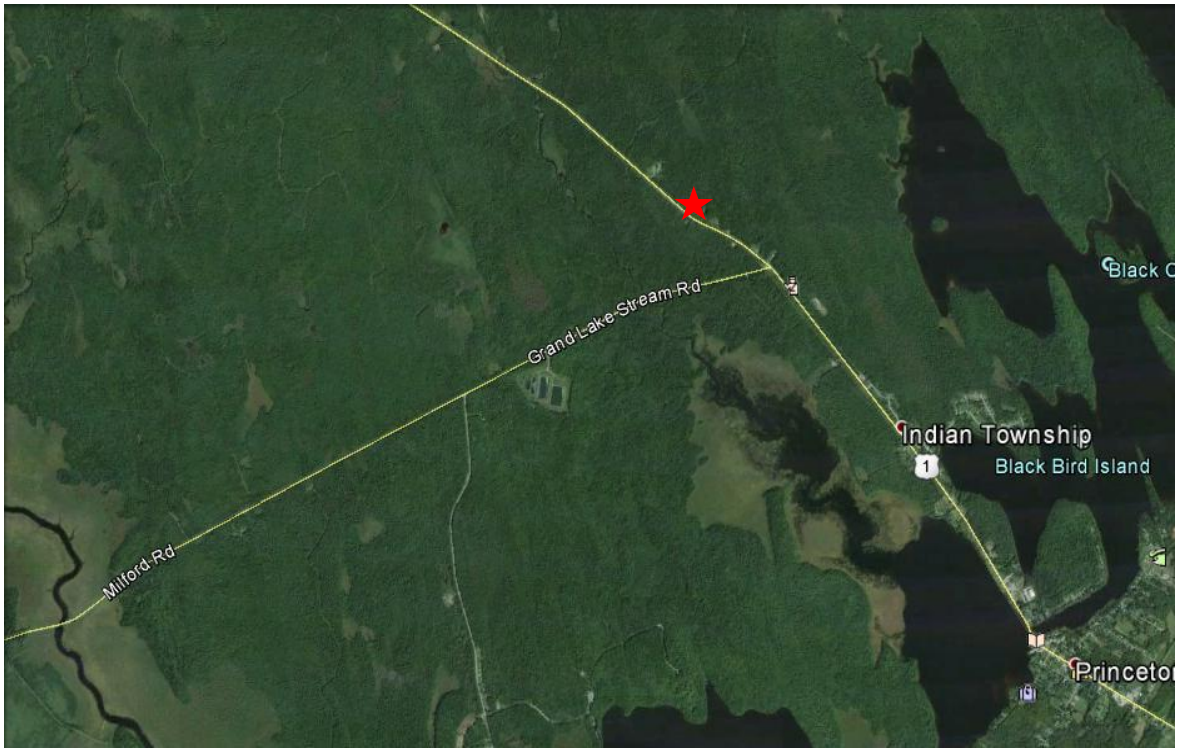
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2	1-1-2006	
PM2.5 Colo			SO_4		
PM2.5 TEOM	1-1-2006		Ozone	1-1-2006	
PM2.5 BAM			NOx	1-1-2006	
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury	3-1-2014	
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE	1-1-2004		Wind Direction/Speed	1-1-2006	
Cont. OC/EC			Outdoor Temperature	1-1-2006	
Cont. Sulfate			Bar. Pressure	1-1-2006	
Black Carbon			Relative Humidity	1-1-2006	
Cont. PAH			Dew point	1-1-2006	
Lead			Precipitation Amount		
CO	1-1-2006		Solar Radiation	1-1-2006	
CO_2	1-1-2006		UV-b Radiation		

Site Description:
The Aroostook Band of Micmacs ambient air monitor site continuously monitors ozone, $PM_{2.5}$, carbon monoxide, sulfur dioxide, nitrogen dioxide, carbon dioxide, mercury, and meteorological parameters in Presque Isle, ME. The equipment is audited by Maine DEP.

Monitoring Objectives:
To provide local air quality information to Aroostook Band of Micmacs

Planned changes for 2018:
Not available

Tribe – Site Name:	**Passamaquoddy Tribe -- Indian Township**		
County:	**Washington**	Latitude:	**45.2436**
Address:	**Indian Township**	Longitude:	**-67.6308**
AQS Site ID:	**None**	Elevation:	**101 meters**
Spatial Scale:	**N/A**	Year Established:	**2013**
Statistical Area:	**None**		



Passamaquoddy Tribe -- Indian Township
Pollutant and Meteorological Parameters:

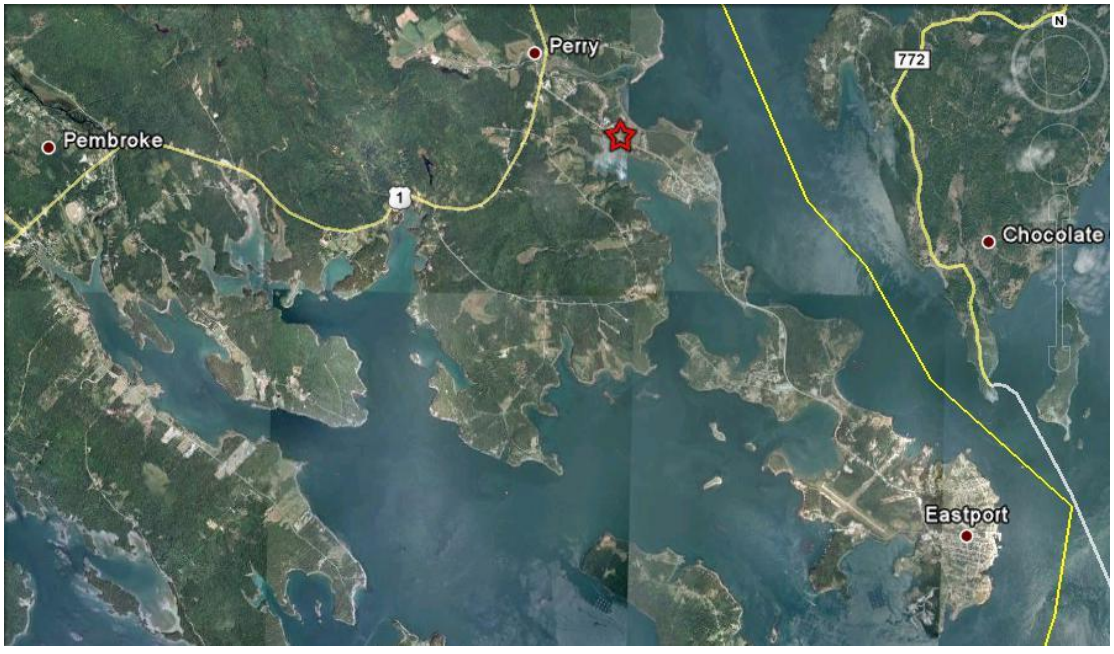
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone		
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.	10-3-2013	
IMPROVE			Wind Direction/Speed		
Cont. OC/EC			Outdoor Temperature		
Cont. Sulfate			Bar. Pressure		
Black Carbon			Relative Humidity		
Cont. PAH			Dew point		
Lead			Precipitation Amount	10-3-2013	
CO			Solar Radiation		
CO_2			UV-b Radiation		

Site Description:
Not available

Monitoring Objectives:
To provide NADP/NDN data from vicinity of Passamaquoddy Tribe -- Indian Township

Planned changes for 2018:
As more information about this NADP/NDN site in Maine becomes available, this page will be updated.

Tribe – Site Name:	**Passamaquoddy Tribe– Perry, Pleasant Point/Sipiyak**		
County:	**Washington**		
Address:	**184 County Road**	Longitude:	**44.9630**
AQS Site ID:	**23-029-0032**	Elevation:	**-67.0592**
Spatial Scale:	**Regional**	Year Established:	**4 meters**
Statistical Area:	**None**	Year Established:	**2006**



Passamaquoddy Tribe– Perry, Pleasant Point/Sipiyak
Pollutant and Meteorological Parameters:

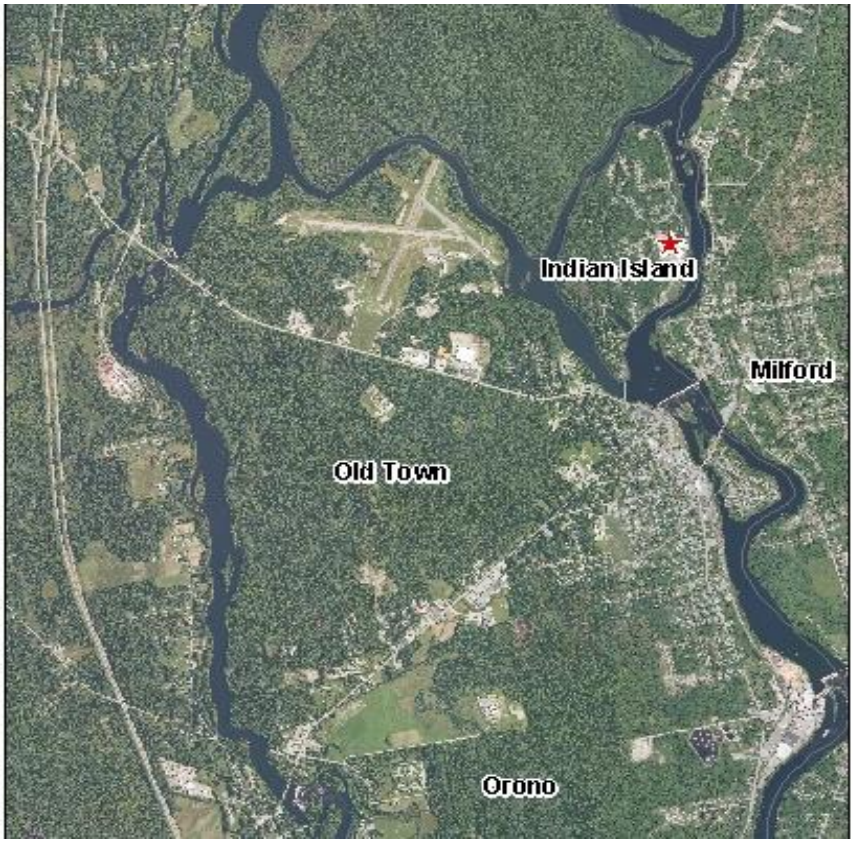
Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM	12-18-2008		Ozone	3-31-2006	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE			Wind Direction/Speed	4-20-2005	
Cont. OC/EC			Outdoor Temperature	4-22-2005	
Cont. Sulfate			Bar. Pressure	4-25-2005	
Black Carbon			Relative Humidity	4-22-2005	
Cont. PAH			Dew point		
Lead			Precipitation Amount	4-27-2008	
CO			Solar Radiation	6-16-2005	
CO_2			UV-b Radiation	6-16-2005	

Site Description: The site was needed because area monitoring was going to be shut down on the Canadian and American side. Pleasant Point decided to handle the criteria pollutants and running a MET station. Indian Township was going to take on the acid and mercury deposition studies. The Passamaquoddy Tribe wanted to start contributing to the monitoring. The data are polled and used by ME DEP BAQ. The ozone and $PM_{2.5}$ instruments are audited by ME DEP on a quarterly basis. Only the ozone hourly data is uploaded into AQS. The met data is shared with the TREX network and posted on their website.

Monitoring Objectives: The site is to provide pollutant data for modeling and forecasting needs. The site fills a void in the region. Otherwise, there would be a data gap in the area.

Planned changes for 2018: The tribal air program is open to monitoring for other pollutants if resources are available. The air program would like to eventually use newer equipment if available.

Tribe – Site Name:	**Penobscot Nation -- Indian Island**		
County:	**Penobscot**	Latitude:	**44.95204**
Address:	**27 Wabanaki Way**	Longitude:	**-68.64768**
AQS Site ID:	**23-019-1100**	Elevation:	**41 meters**
Spatial Scale:	**Regional**	Year Established:	**2006**
Statistical Area:	**None**		



Penobscot Nation -- Indian Island
Pollutant and Meteorological Parameters:

Parameter	Date Began	Date Ended	Parameter	Date Began	Date Ended
PM2.5 FRM			SO_2		
PM2.5 Colo			SO_4		
PM2.5 TEOM			Ozone	1-1-2006	
PM2.5 BAM			NOx		
PM10 FRM			NOy		
PM10 Colo			VOCs (PAMS)		
PM10 TEOM			HAPs		
PM10 BAM			Wet Deposition - Mercury		
PM Coarse			Wet Dep. - Precip Chem.		
IMPROVE	1-14-2006		Wind Direction/Speed	7-2002	
Cont. OC/EC			Outdoor Temperature	7-2002	
Cont. Sulfate			Bar. Pressure	7-2002	
Black Carbon			Relative Humidity	7-2002	
Cont. PAH			Dew point		
Lead			Precipitation Amount	7-2002	
CO			Solar Radiation	7-2002	
CO_2			UV-b Radiation		

Site Description: The original IMPROVE Site location, established on 6/27/2001, was located near the Marsh Island Apartments. That location was shut down on 5/29/2006 having been made redundant after 1/14/2006 when the current IMPROVE site was established on Indian Island.

Monitoring Objectives:
IMPROVE and NADP/NDN data plus local ozone concentrations for Penobscot Nation -- Indian Island

Planned changes for 2018:
Not available