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Executive Office of Energy & Environmental Affairs

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Massachusetts 2019 Air Monitoring Network Plan
Response to Comments
October 30, 2019

MassDEP operates a network of 21 ambient air quality monitoring stations at locations across the Commonwealth as part of a comprehensive program to provide information about air quality to the public and to determine compliance with National Ambient Air Quality Standards (NAAQS). Each year, MassDEP is required to submit to the U.S. Environmental Protection Agency (EPA) an Air Monitoring Network Plan in accordance with Title 40 CFR Part 58.10. On July 22, 2019, MassDEP published a draft 2019 Network Plan for a 30-day public comment period. MassDEP received comments on the draft Network Plan from EPA and from citizens and local officials. MassDEP has summarized and responded to these comments below.

EPA's Comments

1. **Comment**: The addition of information to the annual network plan is appreciated especially the final section where each site is identified separately with siting information as well as a picture of the shelter.

   Response: Per EPA's comment, MassDEP plans to continue to include this information in future network plans.

2. **Comment**: Page 8, Sulfur Dioxide (SO_2) Network – We are pleased that MassDEP has established all trace-level instruments at the six sites being operated. We had previously suggested that MassDEP should consider disinvesting in low value SO_2 monitors or ensure all remaining SO_2 monitors measuring low concentrations are appropriate for the task (i.e., "trace" if measuring low concentrations).

   Response: MassDEP will continue to evaluate ways to optimize its SO_2 monitoring network.

3. **Comment**: Page 11, Carbon Monoxide Network – We understand that MassDEP has requested to discontinue CO monitoring at the Springfield site as it is no longer required by the Limited Maintenance Plan (LMP) for the Boston Metropolitan area, Lowell, Springfield, Waltham, and Worcester. That LMP was approved by EPA on July 1, 2019 (84 FR 31026). This monitor can be discontinued upon final approval of this plan.

   Response: MassDEP will discontinue CO monitoring in Springfield.

4. **Comment**: Page 13. PM_{10}. We note with the plan to reduce Boston – Harrison Avenue from "1 in 3" day sampling to "1 in 6" days. This is acceptable only for the collocated monitor at this location. NCore requirements obligate the submission of PMcoarse on a 1 in 3 schedule.

   Response: MassDEP will only reduce sampling frequency at the collocated monitor.

5. **Comment**: Page 15. $PM_{2.5}$ Network – On January 15, 2013, EPA revised the $PM_{2.5}$ standard. In that rule, EPA also established that all continuous $PM_{2.5}$ FEM monitors operating for more than 24 months should be used for comparison to the NAAQS unless a State specifically requests that the data be excluded under 40 CFR 58.11(e) and EPA approves that request. All of MassDEP's BAMs have a Federal Equivalent Method (FEM) designation. We are pleased that MassDEP will use data from all its FEM monitors for comparison to the NAAQS.

   We note that there is a collocated FEM located at the Boston Von Hillern Street site for quality assurance purposes. This monitor must be coded 88101 since the initial 2-year time frame has passed and should be used for collocation purposes.

   While the State has recently availed itself of many potential resource saving opportunities relative to the $PM_{2.5}$ network, particularly for filter based FRMs, more opportunities remain if the continuous FEM were considered the primary monitor at the site (for quality assurance purposes). We strongly recommend that in all cases where a FEM (BAM) is operating, that it be identified as the "primary' monitor. This will allow you to eliminate or reduce the frequency of FRMs that are required. We also acknowledge that MassDEP plans to identify a replacement site for the North Street site.

   Response: MassDEP has updated the code to 88101 for the collocated FEM monitor at the Boston Von Hillern Street site. MassDEP will continue to evaluate opportunities to rely more on continuous FEM monitors and reduce filter-based monitoring as EPA has recommended.

6. **Comment**: Page 13. Air Toxics – We acknowledge that MassDEP completed a focused air toxic monitoring study in the Fore River Basin area in Weymouth, Braintree, Quincy, and Hingham. We also acknowledge that there is a need to establish a permanent air monitoring station and will work with the state to ensure that siting is appropriate.

   Response: MassDEP appreciates EPA's assistance in ensuring that the new monitoring station will meet EPA's siting criteria requirements.

7. **Comment**: Page 19. We note and acknowledge your "Summary of Recent and Proposed Network Changes." In your final Annual Network Plan for 2018 also submitted on July 22, 2018, you discussed both PAMS and your Enhanced Monitoring Plan (EMP). On May 9, 2018, EPA approved your PAMS implementation plan for your Lynn site which will be obligated to make all measurements required by 40 CFR Part 58 Appendix D, paragraph 5(b). EPA will act on the approval of the Enhanced Monitoring Plan when it acts on the final 2018 plan in the near future.

   Response: MassDEP appreciates EPA's support of our network changes.

Other Comments

8. **Comment** (Berkshire Environmental Action Team): The format on the website (https://www.mass.gov/service-details/massdep-ambient-air-quality-monitoring-network-annual-plan) is almost impossible to read. Surely MassDEP can put together a table that is more compact so you can line up the pollutant with your city. It looks to me like Pittsfield is not being monitored for CO, toxics, or lead. I am very glad $PM_{2.5}$ appears to be being monitored. The station, if it is really on Silver Lake Blvd, is in a location that misses most pollution – certainly not a neighborhood. I would like to see the station set up near the waste transfer station on Hubbard Ave. I tried standing out there along Hubbard Ave and was too sick from diesel fumes to stay any longer than 15 minutes. I do not feel that Pittsfield is being appropriately monitored.

   Response: MassDEP has updated its website so that the summary of monitored pollutants is easier to read. MassDEP's monitoring network is designed primarily to determine compliance with EPA's National Ambient Air Quality Standards (NAAQS) for criteria pollutants. Air monitoring station locations are based on several considerations including the purpose of the monitoring, EPA siting criteria defined by 40 CFR Part 58 Appendix E, availability of resources and physical constraints such as space, accessibility, availability of utilities, etc. The primary purpose of the Pittsfield monitoring station is to measure regional ozone levels in Berkshire County, and its location was selected based on that purpose and the other considerations noted above with the goal of providing the best scientific data possible. Therefore, MassDEP does not plan to move the Pittsfield monitoring site.

9. **Comment** (Franklin W. Olin College of Engineering): First, given the increasing confidence with which the epidemiology community has linked ultrafine particles with mortality and morbidity, I think it is crucial that the Massachusetts DEP initiate monitoring and reporting these UFPs on a number concentration basis.

Second, the low spatial density of sensors is a problem that needs to be remedied, with particular attention paid to increasing the spatial density of monitoring in high-risk areas in Chinatown and in East Boston/Winthrop near Logan Airport. While I acknowledge that full-scale DEP monitoring sites are prohibitively expensive to establish in the numbers required to provide exposure-relevant data, I encourage the DEP to explore emerging robust approaches utilizing distributed, lower-cost sensors such as the ARISense system developed locally at Aerodyne Research, as well as the networked sensors and data services employed by new startup QuantAQ. These lower-cost approaches have the distinct advantage of allowing 100x deployments for the capital cost associated with a single, traditional DEP site. The EPA is currently testing these sensors and installing them in areas that demand greater spatial coverage, and I highly encourage the MassDEP to be domain leaders by being early adopters of this technology.

Response: MassDEP's monitoring network is designed primarily to determine compliance with EPA's National Ambient Air Quality Standards (NAAQS) for criteria pollutants. EPA's current list of criteria pollutants does not include ultrafine particles (UFP) and EPA has not issued NAAQS for UFP, nor has EPA established federal reference monitoring methods for UFP. While there are increasingly lower cost monitors being developed, deploying these monitors would still be resource and labor intensive, and there would be uncertainty in interpreting monitoring results. However, MassDEP will continue to evaluate emerging air monitoring technologies in consultation with EPA.

10. **Comment** (Winthrop Airport Hazards Committee): This letter is to request that MassDEP expand its Ambient Air Quality Monitoring Network to include a sensor in Winthrop, specifically the Point Shirley neighborhood nearby Coughlin Park which is under Logan Airport's runway 9/27 flightpath.

    The use of runway 9/27 and its flight path for arrivals and departures leads to planes flying at low altitude (often within 500 feet) and directly passing above Winthrop's Point Shirley Neighborhood. Pollution from over 90,000 flights impacted the Point Shirley residents last year. In addition to aircraft flight pollution, idling plane pollution and exhaust from all other runway operations permeate every part of Town when the winds are west.

    Particle pollution is at particularly high levels at low flying altitude, making Winthrop without a doubt one of the most severely affected neighborhoods – and possibly the single most severely affected neighborhood – in the Commonwealth. Thus, as an important stakeholder, the debilitating effects of air pollution on our community should receive great attention. There is an urgent need to capture data in Winthrop on pollution created by aviation activities at Logan International Airport. Particle pollution has been linked to asthma and COPD, and there is abundant evidence in the medical literature that pollutants such as volatile compounds as well as certain small particles may be associated with higher rates of certain cancers. Over seventeen thousand citizens of Winthrop, as well as the thousands of out of town beachgoers visiting each summer, are living and recreating in a hazardous air environment. With Logan Airport approved to expand by up to sixty-five percent, it is imperative that pollution impacts be tracked and quantified.

Response: MassDEP's monitoring network is designed primarily to determine compliance with EPA's National Ambient Air Quality Standards (NAAQS) for criteria pollutants. MassDEP currently operates three air monitoring stations that monitor $PM_{2.5}$ in the City of Boston (Kenmore Square, Von Hillern Street and Harrison Avenue), and is planning to establish a fourth additional $PM_{2.5}$ monitor in the downtown area. The data generated by the existing sites is considered representative of ambient conditions in the Boston Metropolitan area and show that $PM_{2.5}$ levels are well below the NAAQS (see MassDEP's 2018 Air Quality Report at https://www.mass.gov/files/documents/2019/08/16/18aqrpt.pdf). While located in Boston, the planned new monitoring station will be closer to the airport than the existing monitoring stations and will provide additional representative $PM_{2.5}$ ambient air data. MassDEP is not planning to further expand the monitoring network at this time.

11. **Comment** (Conservation Law Foundation): Conservation Law Foundation ("CLF") recommends a change to the Massachusetts 2019 draft Air Monitoring Network Plan ("draft network plan") that results in the addition of at least one fine particulate matter monitoring station in Boston's Chinatown neighborhood. CLF is a nonprofit, member-supported organization dedicated to conserving natural resources, protecting public health, and promoting thriving communities for all in New England. CLF's mission includes safeguarding the health and quality of life of New England communities facing the adverse effects of air pollution. We work to ensure that Massachusetts residents have access to the vibrant, welcoming, and healthy neighborhoods we all need to thrive.

    The draft network plan is designed to comply with the Clean Air Act and its implementing regulations. The purpose of the Clean Air Act is to protect and enhance the quality of the nation's air resources as to promote the public health and welfare and the productive capacity of its population. MassDEP discontinued a fine particulate matter ("$PM_{2.5}$") air monitor located at the Boston North Street monitoring station (25-025-0043) in April 2018 due to loss of site access. The draft network plan suggests that MassDEP may identify a replacement $PM_{2.5}$ monitoring site in downtown Boston.

    CLF urges MassDEP to install multiple new $PM_{2.5}$ monitors in Boston's Chinatown neighborhood close to the highway interchange of I-90 and I-93. Prior to selecting the location of $PM_{2.5}$ air monitors, we recommend that MassDEP meet with community organizations including, but not limited to, Chinese Progressive Association and Asian Community Development Corporation, and municipal officials to determine suitable locations that would collect air samples that are representative of air emissions that Chinatown residents and workers breathe. Establishing $PM_{2.5}$ air monitors in Chinatown will enable the public to measure and monitor air quality in an environmental justice ("EJ") community located adjacent to major highways and the South Station bus and train station that bears the burden of poor air quality resulting from vehicle emissions.

    EJ communities, or communities of color, immigrant communities, and low-income communities, disproportionately suffer the negative impacts of transportation emissions. Asian American residents in Massachusetts are exposed to $PM_{2.5}$ concentrations from on-road transportation that are, on average, 36 percent higher than the exposure of white

residents. The census tract with the highest level of vehicle emissions in Massachusetts is in Boston's Chinatown, near the interchange between I-90 and I-93. As temperatures rise, so will rates of asthma and respiratory disease in neighborhoods through the Commonwealth as increased heat exacerbates the impacts of air pollution. It is necessary to have good air quality data to inform policy federal, state, and local policy decisions that could and should result in air quality improvements in Chinatown, other EJ communities, and all neighborhoods.

The draft network plan includes the addition of a volatile organic compound ("VOC") monitor in the Fore River Basin area in Braintree, Hingham, Quincy, and Weymouth to monitor the impacts of the proposed Atlantic Bridge natural gas compressor station project. CLF supports addition [of] a VOC air monitor in the Fore River Basin area after agreeing on an appropriate location following conversations with municipal officials, community organizations, residents, and workers.

Response: As noted in the draft Network Plan, MassDEP is planning to establish an additional $PM_{2.5}$ monitor in the Boston downtown area. MassDEP will consider Chinatown neighborhood as it evaluates the best suitable option of the $PM_{2.5}$ monitor.