Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
William X. Wall Experiment Station • 37 Shattuck Street, Lawrence MA 01843 • 978-682-5237

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

Massachusetts 2023 Air Monitoring Network Plan
Response to Comments

December 21, 2023

MassDEP operates a network of 24 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 August 22, 2023, MassDEP published a draft 2023 Network Plan for a 30-day public comment period that closed on September 22, 2023. MassDEP received comments on the draft Plan from EPA and from citizens and local organizations. MassDEP has summarized and responded to the comments below.

1. **Comment** (EPA)**:** Page 7, Ozone (O3) Network – We appreciate the addition of language regarding the Chelmsford Manning Road Near Road site not meeting siting criteria for ozone in the initial paragraph. The footnote indicating it is nonregulatory is also helpful as well.

   Response: MassDEP appreciates EPA's comment. MassDEP located the Chelmsford site to meet near-road nitrogen dioxide (NO_2) monitoring requirements. Ozone monitoring is not required at this site and the location is too close to the road to meet ozone siting requirements; however, MassDEP believes it is still useful to monitor ozone at this location for informational purposes.

2. **Comment** (EPA)**:** Page 12, PM_{10} continuous – We acknowledge that all three sites monitoring for particulate matter with diameter less than 10 micrometers (PM_{10}) have installed continuous instrumentation. EPA only requires collocated sampling for manual PM_{10} samplers. See 40 CFR part 58, section 3.3.4 *Collocated Quality Control Sampling Procedures for Manual PM_{10}*. This presents MassDEP with a cost savings opportunity by discontinuing the collocated PM_{10} sampler at the Boston - Harrison Ave site.

   Response: MassDEP will continue to run the PM_{10} samplers as a useful quality assurance check and does not currently have plans to discontinue the collocated PM_{10} sampler at the Boston - Harrison Ave site. MassDEP will continue to consider cost saving strategies in the PM network.

3. **Comment** (EPA)**:** Page 15, $PM_{2.5}$ Collocated Quality Assurance and Quality Control (QA/QC) Sampling Procedures – The fine particulate matter ($PM_{2.5}$) Collocation Summary Table indicates that a Beta attenuation monitor (BAM) is being operated at the Haverhill and Springfield site. EPA understands that the BAM has been replaced with a T640. This should be corrected in the table.

   Response: MassDEP has updated this section of the report to show that the BAMs at Haverhill and Springfield have been replaced with T640 monitors.

4. **Comment** (EPA)**:** Page 16, $PM_{2.5}$ Network – On January 15, 2013, EPA revised the National Ambient Air Quality Standard (NAAQS) for $PM_{2.5}$. In that rule, EPA also established that all continuous $PM_{2.5}$Federal Equivalent Method (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 MassDEP's instruments have an FEM designation. We are pleased that MassDEP will use data from all its continuous FEM monitors for comparison to the NAAQS.

   Response: MassDEP will continue to use data from all continuous FEM $PM_{2.5}$ monitors for comparison with the NAAQS.

5. **Comment** (EPA)**:** Page 18, Photochemical Assessment Monitoring Stations (PAMS) – Relative to enhanced ozone related monitoring activities, we formally approved your PAMS implementation plan for your Lynn site on May 9, 2018; and on August 15, 2019, we approved your Enhanced Monitoring Plan (EMP).

   Response: MassDEP appreciates EPA's approval of its enhanced ozone monitoring plan.

6. **Comment** (EPA)**:** Page 19, Enhanced Monitoring in Environmental Justice Communities – We acknowledge and support your effort described under "Enhanced Monitoring in Environmental Justice Communities." EPA requests that MassDEP continue to communicate the progress of establishing additional sites and ensure that these sites meet siting criteria based on sampling objectivities.

   Response: MassDEP will continue to communicate the progress of establishing additional sites and ensure that these sites meet siting criteria based on sampling objectivities.

7. **Comment** (EPA)**:** Page 20, Summary of Recent and Proposed Network Changes – We note and acknowledge the following as your "Summary of Recent and Proposed Network Changes." Please also include the Haverhill Air monitoring site move which is scheduled to occur during this plan's reporting period.

   Response: MassDEP added the planned Haverhill site move to the Network Plan.

8. **Comment** (EPA)**:** Page 23, Attachment 1 – Monitoring Site Descriptions. Boston – Harrison Ave still has the T640 listed at the PM2.5 instrumentation. Please change to reflect the recent replacement with the T640x.

   Response: MassDEP has updated Attachment 1 of the report to show a T640x for the Boston – Harrison Avenue site.

9. **Comment** (EPA)**:** Attachment 1 – Monitoring Site Descriptions. Brockton, Haverhill, Lynn, North Adams, and Springfield still have a BAM listed as the $PM_{2.5}$ instrumentation. Please change to reflect the recent replacement with T640 instruments.

   Response: MassDEP has updated Attachment 1 to show T640s instead of BAMs for these sites.

10. **Comment** (EPA)**:** Attachment 1 – Monitoring Site Descriptions. Ware and Worcester Summer Street still have a BAM listed as the $PM_{2.5}$ instrumentation. Please change to reflect the recent replacement with the T640x. Also remove the information regarding PM10 filter sampling.

    Response: MassDEP has updated Attachment 1 to show a T640x and to remove filter sampling for the Ware and Worcester Summer Street sites.

11. **Comment** (Natick Health Department)**:** Interest in air quality was heightened this summer with the wildfire smoke from Canada affecting our area and raising questions and requests for guidance from the health department about whether sensitive individuals should stay inside during the smoke event. On a particular day affected by the wildfire smoke the AirNow.gov interactive map AQI was in the "good" range. The air monitoring station closest to Natick is located at the Blue Hill Observatory in Milton, which his 16 miles away and sits atop a hill, making it unreliable for ground level ozone measurements and particulate matter.

    I hope MassDEP will consider locating an air monitoring station within the MetroWest region. According to recent data the population growth rate of the 495/MetroWest region has continually outpaced that of the Commonwealth since 1970 and in 2016-2020, 24% of MetroWest residents spoke a language other than English at home, up from 18% in 2000. This diversity indicator highlights the relevance of a monitoring station in the MetroWest area that would support the MassDEP initiative to place air monitoring sensors near environmental justice populations.

    Response: Of the two additional $PM_{2.5}$ monitoring stations MassDEP plans to establish in or near environmental justice populations, MassDEP plans to establish one in the Framingham area to increase monitoring coverage of the MetroWest area and one in or near Saugus. MassDEP notes that the Blue Hill monitoring station monitors ozone but does not monitor particulate matter. However, there is a growing network of low-cost particulate matter (PM) sensors in Massachusetts that are filling in the gaps between MassDEP regulatory PM monitors. The readings from these sensors can be viewed in real time on EPA's Fire and Smoke Map on the AirNow.gov website

(https://fire.airnow.gov/). This map displays user-friendly Air Quality Index (AQI) data based on PM levels from regulatory sites and sensors and is useful for obtaining information on air quality affected by wildfires.

12. **Comment** (Berkshire Environmental Action Team)**:** We request that MassDEP consider adding a NO_2 monitor to the monitoring station in Pittsfield. Berkshire Environmental Action Team (BEAT) and our No Fracked Gas in Mass program also have made this request through the MassDEP Western Regional Office

    We have several reasons for requesting a NO_2 monitor. First, our air quality sensors require collocation and calibration with regulatory monitors for $PM_{2.5}$/PM_{10} and NO_2. Our current option for collocation is in Springfield, which is not geographically and meteorologically similar enough to provide a scientifically sound comparison. Having our collocation there does not provide the full picture for our project's boundaries in Pittsfield. In addition, the life expectancy of the Morningside Neighborhood in Pittsfield, next to the current MassDEP air quality station, is up to 12 years less than the most affluent neighborhood. We believe that air quality could be a factor.

    Response: MassDEP plans to add a NO_2 monitor to the Pittsfield air monitoring station by the end of the calendar year in support of BEAT's community monitoring project and to provide NO_2 population exposure monitoring for this Western Massachusetts urban area. MassDEP will notify BEAT once the monitor is installed.

13. **Comment** (Mystic River Watershed Association)**:** The Mystic River Watershed Association (MyRWA) is currently working on an EPA-funded air quality monitoring project entitled "Community-Led Improvement of Air Quality and Health in the Lower Mystic" (CLEANAIR) in partnership with Tufts University, the Cambridge Health Alliance, Somerville Transportation Equity Partnership (STEP), AIR Inc., and the Cities of Malden and Everett. The goal of the project is to improve air quality and health in communities in the watershed that are most burdened by transportation-related air pollution (TRAP) and disease.

    The CLEANAIR team evaluated the Draft 2023 DEP Annual Air Quality Monitoring Network Plan and noted the invitation to identify additional sites for $PM_{2.5}$ monitoring. Based on our knowledge about the presence of environmental justice populations in the Lower Mystic, elevated population exposures to TRAP, adverse health outcomes, and gaps in monitoring coverage, our team recommends that DEP add monitoring sites in the City of Everett, MA, and Charlestown, MA.

    We highlight that both communities are identified as Environmental Justice Communities and have a markedly higher exposure to TRAP. Populations in Charlestown and Everett are in the 99th percentile in Air Toxics Cancer and Respiratory Risks and 98th and 97th percentiles, respectively, for exposures to diesel particulate matter.

Tufts University has performed an initial survey of air quality in Everett using the Tufts Air Pollution Monitoring Laboratory (TAPL). TAPL is a suite of sophisticated monitoring tools housed in an electric vehicle capable of making high-resolution measurements of $PM_{2.5}$, NOx, and ultrafine particles (UFP). TAPL illustrates the dramatic difference in ultrafine particle concentrations between the industrial/high traffic areas in Everett to the South and the less-urbanized sections to the North. Ultrafine concentrations can be highly variable at local spatial scales.

We commend the choice of studying ultrafine concentrations at Chinatown and Von Hillern site and recommend that communities in Lower Mystic that house the transportation infrastructure that supports metropolitan Boston be considered for future ultrafine monitoring. Because relatively little attention has been focused on air quality issues in Everett and Charlestown, two communities that are highly impacted by TRAP as well as other air pollutants, we believe that these communities should be considered by the DEP as critical locations to site $PM_{2.5}$ monitors and ultrafine particle monitors in the future.

Response: MassDEP does not have the resources to establish a new monitoring station in Everett or Charlestown at this time. However, MassDEP expects to receive additional EPA air monitoring grant funding in 2024 and will consider additional monitoring locations in future Network Plans. Note that MassDEP operates a monitoring station in Chelsea and several in Boston provide data generally representative of ambient conditions in the Boston urban area and plans to add ultrafine monitors at the Chinatown and Von Hillern monitoring stations.

14. **Comment** (Conservation Law Foundation (CLF)): We recommend that MassDEP add monitoring stations in Lawrence and the Revere/Saugus/Lynn border in response to the Network Plan's solicitation for input on two monitoring stations in EJ populations. MassDEP should work to secure federal and/or state funding for new monitoring stations. MassDEP should also prioritize adding the capacity to test for all pollutants associated with nearby industrial emissions and tailpipe pollution, including PM_{10}, VOCs, O_3, NOx, CO, SO_2, black carbon, and UFPs, to all air quality monitoring stations in the network that are proximate to EJ populations.

Response: MassDEP is committed to expanding air quality monitoring in EJ populations. As noted in the Network Plan, MassDEP is continuing efforts to establish additional monitoring stations in communities with EJ populations and is supporting the use of sensors to supplement and broaden air monitoring coverage, especially in EJ populations. Of the two additional $PM_{2.5}$ monitoring stations MassDEP plans to establish, MassDEP plans to establish one in or near Saugus and one in the Framingham area. MassDEP expects to receive additional EPA air monitoring grant funding in 2024 and will consider additional pollutants and monitoring locations in future Network Plans.

15. **Comment** (CLF): We are pleased to see in the Network Plan that MassDEP applied for four UFP monitors funded through EPA. Four is a start, and we urge MassDEP to add UFP matter monitoring capabilities be added to all existing and planned monitoring stations—particularly near major roadways, including interstates, highways, and major intersections. We recommend that MassDEP

take the UFP monitor currently planned for Chelmsford and instead place the monitor in Lawrence. We have recommended Lawrence receive a PM2.5 monitor and believe that Lawrence is also in desperate need of UFP monitoring due to its proximity to Interstate 495. MassDEP should proceed to place a UFP monitor in Chelmsford in its next Network Plan.

Response: MassDEP has received EPA grant funding to add four UFP monitors at existing monitoring stations near high-traffic roadways. This includes the Chelmsford monitoring station because it is an EPA designated Near Road Monitoring Station sited specifically to measure pollution in the high traffic area along I-495 near the Lowell Connector and Route 3. This location is considered representative of worst-case traffic-related emissions in the area, and it also is close to multiple EJ populations in the Lowell area. Therefore, MassDEP is not planning to alter the Chelmsford UFP monitor location. MassDEP does not have the resources at this time to add UPF monitoring to additional sites but will consider expanding UFP monitoring in the future based on additional funding and the results from the four UFP monitors MassDEP will be deploying.

16. **Comment** (CLF)**:** While MassDEP collects ambient air quality data to provide information to the public, it only does so for criteria pollutants for which the EPA has designated National Ambient Air Quality Standards, including sulfur dioxide, ozone, carbon monoxide, nitrogen dioxide, lead, PM_{10}, and $PM_{2.5}$. This data misses other pollutants, such as metals from incinerator ash, that are emitted onto already burdened communities. MassDEP should deploy UFP monitoring and expand NOx and black carbon monitoring. The CAFEH research team confirmed that UFP presents a significant public health concern, especially for people living, working, and going to school within 500 feet of a congested roadway, many of which are environmental justice populations.

    Response: MassDEP primarily constructed the air monitoring network to meet EPA's network design requirements as stated in 40 CFR Part 58 Appendix D, which mandates criteria pollutant monitoring. MassDEP warns residents when criteria pollutants are approaching unhealthy levels based on EPA's Air Quality Index. MassDEP does not have the resources at this time to expand UFP, NOx and black carbon monitoring but will consider such monitoring in future Network Plans.

17. **Comment** (CLF): MassDEP should continue to prioritize providing Air Monitoring to Massachusetts EJ Communities. We encourage MassDEP to add additional monitors in the downtown Boston area and operate them such that they monitor for all pollutant parameters associated with transportation pollution. This includes $PM_{2.5}$, PM_{10}, VOCs, O3, NOx, CO, SO_2, black carbon, and UFPs. New Bedford, Amherst, Framingham, and Randolph are all communities with significant EJ populations. Equipping these EJ populations with the most accurate data of the tailpipe emissions they are subjected to is essential for bettering their public health and reducing emissions. MassDEP should place monitoring stations by modifying the current Network Plan, or at least adding them to the 2024 Network Plan. MassDEP should also place monitors communities like Dudley and Becket, both of which have EJ populations. Although these communities are rural, and thus do not face similar levels of certain transportation pollutants like downtown Boston, they are in a transportation corridor for travel to Connecticut and New York.

Response: MassDEP is committed to expanding air quality monitoring in EJ populations. As noted in the Network Plan, MassDEP is continuing efforts to establish additional monitoring stations in communities with EJ populations and is supporting the use of sensors to supplement and broaden air monitoring coverage, especially in EJ populations. MassDEP does not have the resources to establish new monitoring stations in New Bedford, Amherst, Framingham, Randolph, Dudley, and Becket at this time. However, MassDEP expects to receive additional EPA grant funding in 2024 and will consider additional monitoring instruments and locations in future Network Plans.

18. **Comment** (CLF): MassDEP should install at least thirty Mobile PM Air Quality Monitors across the Commonwealth. We encourage MassDEP to dramatically expand its air quality monitoring capacity by adding at least thirty mobile PM air quality monitors to its network.

    Response: MassDEP is planning a second Air Sensor Grant Program in 2024 that has the potential to add up to 300 PM sensors to the existing sensor network. Based on experience from the 2021 sensor grant program, the program enables meaningful community engagement around air quality and is a practical means of deploying a large number of sensors throughout the Commonwealth.

19. **Comment** (CLF): MassDEP should correct any inoperable monitors and sensors. MassDEP should devise an annual schedule for performing quality assessment checks on all operating monitors. MassDEP should publish the results of these checks in its Annual Air Quality Reports. This report should include any plans for addressing substandard monitor performance. It is imperative that residents be able to rely on testing data, and that MassDEP provide the best, clearest information to residents that is possible. This includes ensuring monitoring devices are working properly.

    Response: MassDEP is continuing to work with communities that have received PM sensors from MassDEP. Because these sensors are relatively low cost they are not as robust and durable as regulatory monitors and are more prone to experience a sensor malfunction. In cases where sensors have malfunctioned, MassDEP has been able to work with communities to replace the failing sensor with a new one. For its regulatory monitors MassDEP implements a rigorous program of regular maintenance by trained staff as well as a quality assurance program according to EPA requirements, including regular equipment audits in accordance with EPA and manufacturer specifications.

20. **Comment** (CLF): We urge MassDEP to coordinate with stakeholders in communities that currently have monitoring stations or will soon. These communities deserve MassDEP's continued communication and clarity with the processes that are designed protect their air. The process of submitting formal commentary is an important aspect of ongoing agency work. However, MassDEP should frequently engage directly with these communities to remove the barrier of the formal commentary process many people cannot engage with due to lack of awareness, lack of technical resources, or language differences. Additionally, the Network Plan states that MassDEP is "continuing to implement its air sensor grant program that has provided hundreds of air sensors to municipalities." However, this grant's front page and its embedded hyperlinks for applying online give messages that

the 2021 application cycle has ended. We recommend updating this webpage to provide municipalities an easier process for attaining air sensors, as well as updating the amount of funds remaining as up-to-date as possible.

Response: MassDEP air monitoring staff have spent considerable time working with communities to provide information on air quality and to assist communities that received air sensors through the MassDEP grant program to install and use the sensors. Communities can continue to direct questions about air sensors and monitoring data to Allison Langone at allison.m.langone@mass.gov. Although the 2021 Air Sensor Grant Program application cycle has ended, MassDEP is planning a second air sensor grant program in 2024.

21. **Comment** (CLF)**:** We recommend that MassDEP engage with the Environmental Justice Advisory Council established pursuant to An Act Creating a Next-Generation Roadmap for Massachusetts Climate Policy and Executive Order 552 to determine appropriate monitoring locations other than our recommendations. This includes mobile and stationary monitors that are located disproportionately burdened by transportation infrastructure. We urge MassDEP to convene an air quality technical advisory committee comprised of air monitoring experts and environmental justice community experts to determine additional air monitoring locations for UFP. We recommend that the 2024 air monitoring plan include baseline air quality conditions and suggestions for reducing air pollution in pollution corridors and hotspots by 2030.

    Response: MassDEP will continue to work with the MassDEP Director of Environmental Justice to seek input from EJ advocates and the Environmental Justice Advisory Council on its air quality monitoring plans.

22. **Comment**: MassDEP received several comments from residents and advocacy organizations expressing concerns about the WIN Waste facility (formerly Wheelabrator) in Saugus, including a joint letter from Conservation Law Foundation, Just Zero, Clean Water Action, and Slingshot with support from several elected representatives and additional advocacy organizations. The comments express concern that the WIN Waste facility and the associated ash landfill are adversely impacting air quality in environmental justice communities in Saugus, Lynn and Revere and request that MassDEP establish at least one permanent monitoring station in Saugus to assist with evaluating the health and safety of nearby residents. Comments included:

    a) **Residents are concerned about the accuracy of air sensors**: At a May 2023 webinar with MassDEP, environmental organizations and concerned residents on air quality monitoring, when residents raised concerns about high air monitoring readings MassDEP stated that it was probable that the local air sensors were not working correctly. It is imperative that residents be able to rely on testing data, and that MassDEP provide the best, clearest information to residents that is possible. This includes ensuring monitoring devices are working properly.

b) **MassDEP must add more air quality monitors and replace broken/malfunctioning sensors:** Having high quality monitors in vulnerable communities that measure not only PM and other criteria pollutants, but also potential hazardous air pollutants emitted from the facilities, will be essential for communities that already experience some of the highest air pollution levels in the state. MassDEP has expressed an intent to use American Rescue Plan Act (ARPA) federal grant funding awarded in 2022 to add two additional PM2.5 monitoring stations in environmental justice (EJ) populations. MassDEP should consult with residents to determine the location of the new monitoring stations and place one in Saugus.

c) **MassDEP should prioritize the State's efforts to obtain federal funding for expanded air quality monitoring:** Massachusetts is spending $750,000 to obtain $4,000,000 in federal funding for expanded air quality. MassDEP should prioritize adding additional monitoring stations for vulnerable EJ populations like those in Saugus, Revere, and Lynn.

d) **MassDEP should expand its air quality monitoring to include additional pollutants:** While MassDEP collects ambient air quality data to provide information to the public, it only does so for criteria pollutants for which EPA has designated National Ambient Air Quality Standards, including sulfur dioxide, ozone, carbon monoxide, nitrogen dioxide, lead, particulate matter 10, and particulate matter 2.5. This data misses all the other pollutants Wheelabrator/WIN is emitting in Saugus.

e) **MassDEP must review air quality issues within a cumulative impacts perspective:** MassDEP should continue its air quality modeling that estimates the impacts of Wheelabrator/WIN's facilities in combination with other nearby sources and existing background levels to reflect a cumulative impact analysis.

f) **MassDEP must communicate in good faith with the community:** MassDEP should continue to speak directly to residents about its data program but must ensure that the information given is accurate and reliable. MassDEP can meet with residents on a quarterly basis to communicate their air quality monitoring findings and assess whether the monitors are accurately measuring for pollutants.

g) **There is a need to provide a clear process for residents to file complaints about air quality:** MassDEP should provide a clear process for the community to contact the agency about complaints pertaining to the air quality and monitor data, including information on how the facilities are responding to such complaints.

h) **MassDEP should distribute air quality data in a digestible manner:** Air quality data is often difficult for residents to access and understand. MassDEP should ensure that information is understandable and not dismiss air quality sensors as misleading.

Response: MassDEP is committed to expanding air quality monitoring in EJ populations. As noted in the Network Plan, MassDEP is continuing efforts to establish additional monitoring stations in communities with EJ populations and is supporting the use of sensors to supplement and broaden air monitoring coverage, especially in EJ populations. Of the two additional PM2.5 monitoring stations MassDEP plans to establish, MassDEP plans to establish one in or near Saugus and will work with local leaders and residents to identify a location that also meets EPA siting criteria. The malfunctioning sensor noted in this comment was granted to the Town of Saugus under a 2021 MassDEP Air Sensor

Grant Program. At the request of the Town, MassDEP replaced the sensor in October 2023 and expects the problem to be resolved.

MassDEP Northeast Regional Office and air monitoring staff have worked directly with residents living near the Win Waste facility regarding concerns about the facility and air quality and will continue to engage with the community. Questions or complaints about the Win Waste facility should continue to be directed to the Northeast Regional Office Service Center at 978-694-3200. Questions about air monitoring should be directed to Allison Langone at allison.m.langone@mass.gov.