

800-RICR-10-00-3

TITLE 800 – AIRPORT CORPORATION

CHAPTER 10 – OPERATIONS

SUBCHAPTER 00 – N/A

PART 3 – Air Quality Monitoring Work Plan

3.1 Introduction

- A. The Rhode Island Airport Corporation (RIAC) operates and maintains a long-term air quality monitoring program in the vicinity of T.F. Green Airport in Warwick as required by R.I. Gen. Laws § 1-7-1 *et seq.*, The Permanent Air Quality Monitoring Act (“the Act”). In accordance with the Act, any amendments to the Final Work Plan may be proposed by RIAC in consultation with the Rhode Island Departments of Environmental Management (“RIDEM”) and Health (“RIDOH”) on or before March 30, 2009, and every March 30th thereafter. RIAC has instituted the amendments included in the Final Work Plan (2009). RIAC has developed the amendments included in this Proposed Amendments to the Air Quality Monitoring Work Plan for T.F. Green Airport in consultation with RIDEM and RIDOH. The purpose of the amendment to the previous plan is to adjust the monitoring program to address the suitability of the monitoring devices and adaptations indicated by the data collected since 2008. There have been no changes to state and/or federal regulations that warrant adjustments to the program and there are no new monitoring technologies, methodologies or criteria changes proposed in this work plan.
- B. The following components of the program are addressed:
1. Monitoring Parameters;
 2. Number, Type, and Location of the Monitors;
 3. Monitoring Criteria;
 4. Quality Assurance Procedures;
 5. Agency Coordination; and
 6. Funding

3.2 Monitoring Parameters

- A. The air quality monitoring program meets the requirements set forth in the Act. The program shall provide for the monitoring of Particulate Matter (PM), including

only “ultra-fine” PM of those less than 0.1 microns in diameter (PM_{0.1}) and black carbon (i.e. elemental) carbon.

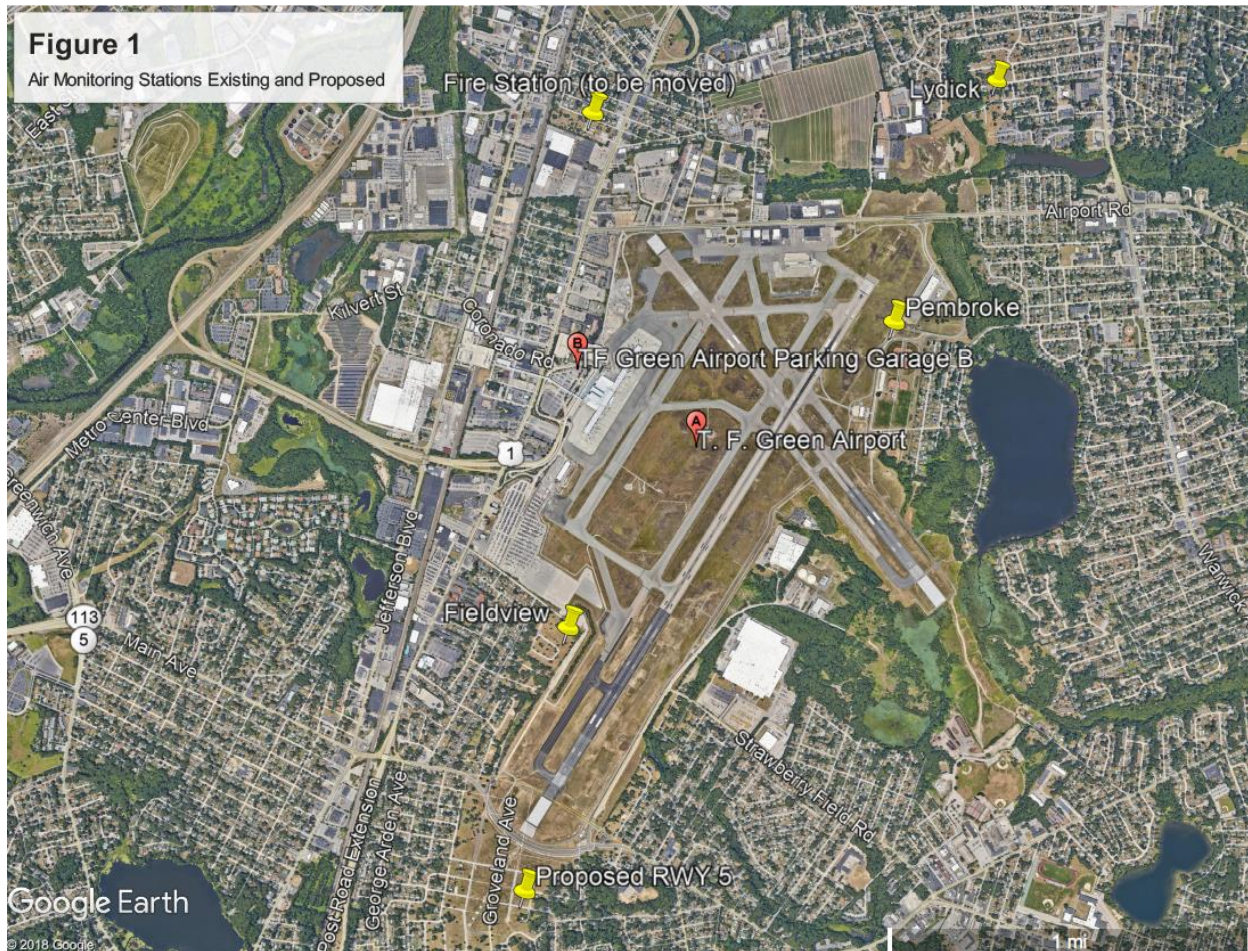
- B. Wind direction and wind speed and other meteorological parameters will also be acquired from the airport National Weather Service station and recorded by RIAC.

3.3 Number, Type and Location of the Monitors

- A. This section provides a description of the number, type and locations of the air quality monitors selected for this program.
- B. The RIAC monitoring network consists of four (4) separate monitoring sites located north, south, west, and east of the airport. The locations of the sites are shown in § 3.3(D) of this Part and are described below:
 - 1. Fieldview - Located south-southwest of the airfield approximately 450 feet from Taxiway S and 900 feet from the end of Runway 5. Adjoining land uses include single-family residential to the west and south, long-term parking for airport patrons to the north and the taxiway/runway system to the east. This site is generally upwind of the airport in the summer.
 - 2. Lydick Avenue - Located adjacent to the Spring Green neighborhood and the airport's northeastern property line, approximately 3/4 mile (3,680 feet) from the end of Runway 23. Adjoining land uses include single-family residential to the north, east and south. To the west is the runway protection zone (RPZ). This site is generally downwind of the airport in the summer.
 - 3. Fire Station No. 8 – This site will be relocated and renamed (Smith St.). The proposed location is approximately 1,900 feet south and east of Runway 5. It will be located east of Greenlawn St on the south side of Smith St. This site is typically downwind of the airport most of the year.
 - 4. Pembroke Avenue - Located due east of the airport approximately 1/4 mile (1,425 feet) from the intersection of Runways 5/23 and 16/34. Adjoining land uses are the airport to the west and residential or vacant land to the north, east and south. This site is mostly downwind from the airport in the fall and winter.
- C. The Lydick, Fieldview, and Fire Station sites were originally part of the Warwick Air Monitoring Study completed in 2006 by RIDEM. The Pembroke site was established in 2008 and was not included in the RIDEM study. The Pembroke site was moved approximately 230 yards south of the initial location in September 2014 as a result of construction activity. The site was relocated to the eastern edge of the property adjacent to the end of Rowe Avenue in May

2015. This was determined subsequent to public input and consultation with RIDEM and RIDOH.

D. Air Monitoring Stations



E. The four sites also have the following important attributes:

1. the sites are located close to the airport but outside the FAA-restricted area;
2. the sites are accessible by public roads and have electricity and shelter;
3. when taken together, the sites serve as "up-wind" and "downwind" pairs under most meteorological conditions; and
4. the sites allow comparison to the data collected during the RIDEM study.

F. Background air monitoring will be obtained from RIDEM stations located elsewhere in the state (i.e. Providence, E. Providence, Pawtucket and/or Providence National Air Toxics Trends Site (NATTS) as necessary.

3.4 Monitoring Methods

- A. The equipment and monitoring methods used to collect and analyze air samples are summarized in § 3.3(F) of this Part. The methods and equipment are considered to be the most appropriate for the parameters established in the Act, listed in § 3.1 of this Part, based on the following:
1. the suitability of the air monitoring devices, sample collection methods and/or analytical techniques for the individual compounds;
 2. the expected pollutant levels and the method's detection limits; and
 3. the overall reliability and cost-effectiveness of the equipment or method.
- B. If the United States Environmental Protection Agency (USEPA) "Reference Methods" (USEPA, 1999) are established, they are utilized. Where such designations do not exist, the methods are broadly accepted by the USEPA, RIDEM as appropriate for the application.
- C. Real-time measurements are based on samples taken over short time periods (from several minutes to an hour), in this case a minimum of one minute increments, and the results are representative of the instantaneous or "at-the-moment" conditions.

D. Air Quality Monitoring Equipment and Methods

Parameters and Target Compounds	Sampling and Analysis Equipment/Methods	Summary Description
Particulate Matter		
Ultra-fine PM (PM _{0.1}) < 0.1 microns	Water-based Condensation Particle Counter	Real-time measurements based on light (infrared) scattering characteristics of airborne PM
Black Carbon	Aethalometer monitors	Real-time measurements based on the light absorbing characteristics of soot

- E. Ultra-fine PM (PM_{0.1}) will continue to be measured using the water-based condensation particle counter. This instrumentation is the best available equipment for real-time measurements of particulate matter.

- F. Black carbon will continue to be measured using the aethalometers which collect PM in real time on a quartz filter tape and use infrared light to determine the amount of optically-absorbing material in a unit volume of sampled air. Since elemental (or black) carbon is the dominant optically-absorbing material in the sample, this measurement is interpreted as mass of black carbon according to the comparisons with other chemical analysis techniques. Presently, there is no designated EPA Reference Method for this pollutant (either real-time or time integrated), but aethalometers are commonly used to measure black carbon.
- G. Wind direction, wind speed, temperature, relative humidity and precipitation data will be collected at the meteorological station located at the airport and operated by the National Weather Service.
- H. Because the black carbon (aethalometers) monitors and Ultra-fine particulate instruments are fully automated, these “real-time” measurements will be taken and recorded continuously 24-hours daily, 7 days a week.

3.5 Monitoring Criteria

For the purpose of this Work Plan the term “monitoring criteria” means the standards or “benchmarks” against which the monitoring data can be compared. There are no NAAQS for Ultra-fine particulates and black carbon.

3.6 Quality Assurance Criteria

- A. As discussed previously in § 3.4 of this Part (Monitoring Methods), sampling and measurements will be accomplished using methods and equipment that are specifically designed for each type of pollutant, the expected range of ambient concentrations and the applicable time periods.
- B. The real-time measurements comprise the PM_{0.1} (water-based particle counters) and black carbon (aethalometers).
- C. Quality assurance will be achieved in the field by visiting each monitoring station on an average of once a month to check on the operation of the continuous instruments, and the shelters in which they are housed. Site visits will be documented.
- D. Other conditions related to Quality Assurance Procedures include the statistical methods for determining the precision and accuracy of the collected data. RIAC intends to work with RIDOH and RIDEM to revise and refine the Quality Assurance Project Plan (QAPP) developed specifically for this monitoring program.

3.7 Agency Coordination

In accordance with the Act, RIDEM and RIDOH have reviewed and commented on this Amendment to the Air Quality Monitoring Work Plan for T.F. Green Airport. As part of this consultation process, it is expected that these agencies will continually provide RIAC with peer consultation review, scientific knowledge and specialized expertise as necessary and relevant to this air quality monitoring program. It is also RIAC's intent to coordinate with RIDEM/RIDOH on a regular (but unscheduled) basis in furtherance of the air monitoring program and whenever the need arises.

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