



# **Rhode Island**

## Airport Corporation

### **Data Report for the Rhode Island T.F. Green International Airport Air Monitoring Program**

**Reporting Period: January 2023 – March 2023**

Rhode Island Airport Corporation

April 2023

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### Section 1: Introduction

Under Section 1-7-1 of the State of Rhode Island General Laws (The Permanent Air Quality Monitoring Act, or “the Act”), RIAC is required to “design, acquire, install, operate, and maintain a long-term air monitoring program in the vicinity of T.F. Green Airport”. This report summarizes the monitoring activities and results of the RIAC Air Monitoring Program for the First Quarter of 2023 (January 1, 2023 to March 31, 2023).

The RIAC Air Monitoring Program includes ambient air monitoring for black carbon and particulate matter (PM<sub>0.1</sub>) at four stations around Rhode Island T.F. Green International Airport. In addition, select meteorological parameters (wind speed and direction, ambient temperature, and relative humidity) measured at the airport are summarized in this report. Flight operations are also summarized in this report.

## Section 2: Sampling Program

### 2.1 Station Locations

The four Warwick, RI monitoring sites are described below:

1. Fieldview (former location of 138 Fieldview Drive) – Located south-southwest of the airfield approximately 500 feet from Taxiway M and 2,200 feet from the end of Runway 5. Adjoining land uses include single-family residential to the west and south, long-term parking for the airport and the Terminal Ramp to the north, and the taxiway/runway system to the east.
2. Lydick (western end of Lydick Avenue) – Located adjacent to the Spring Green neighborhood and the airport's northeastern property line, approximately 3,500 feet from the end of Runway 23. Adjoining land uses include the airport to the south, commercial properties to the west, and single-family residential to the north, east, and south.
3. Smith St. (Relocated Fire Station) – Located east of Greenlawn St on the south side of Smith St approximately 1,900 feet south and east of Runway 5. Adjoining land uses include the airport to the north, open space (FAA lighting system for RWY 5) to the west and single family residential to the south, east, and west.
4. Pembroke (adjacent to Winslow Park athletic facility) – Located due east of the airport approximately 2,150 feet from the intersection of Runways 5/23 and 16/34. Adjoining land uses are the airport to the west, and residential or recreational fields to the north, east, and south.

The locations of the monitoring sites are shown on Figure 2.1.



Figure 2.1. Monitoring Station Locations. Google Earth

## 2.2 Program Description

Table 2.1 presents the monitoring configurations of each of the RIAC monitoring stations.

**Table 2.1. Sampling Configuration of the Four Monitoring Stations in the RIAC Air Quality Monitoring Program.**

Parameters	Sampling and Analysis Equipment	Summary Description
Ultra-fine PM < 0.1 microns (PM <sub>0.1</sub> )	Water-based Condensation Particle Counter (EPC)	Real-time measurements based on light (infrared) scattering characteristics of airborne PM.
Black Carbon (BC)	Aethalometer monitors	Real-time measurements based on the light absorbing characteristics of soot.

## 2.3 Sampling Methods

Sampling of ambient air for the measurement of pollutant concentrations and atmospheric conditions was performed by appropriate monitoring methods. This assures that the air sampled was representative of the ambient air and that the measurements were representative of the actual pollutant concentrations.

### 2.3.1 Reference and Acceptable Methods

The instruments and systems used to collect ultrafine particulate and black carbon are acceptable real-time samplers for measurements but they are not EPA certified. Descriptions of each of these monitoring methods are presented below.

#### 2.3.1.1 Black carbon

Optically-absorbing black-carbon (BC) aerosol particles, which are a characteristic of diesel and jet exhaust, were continuously measured by a Magee Scientific Model AE-22 aethalometer. The aethalometer is equipped with a PM<sub>2.5</sub> inlet to ensure BC in the respirable size range is measured.

#### 2.3.1.2 Ultrafine particles

Total particle count was measured using real-time, water-based condensation particle counters (EPC). The particle counters are equipped with an inlet cyclone to screen out particles larger than 3 μm. The majority of particles counted have a diameter of 0.1 μm or less.

## 2.4 Environmental Control

To help insure proper performance, all analyzers and supporting equipment were installed and continue to operate in a temperature-controlled environment. An insulated enclosure with a thermostatically controlled heater was installed to house the analyzers, samplers, data acquisition system, materials, supplies, and storage of project documentation.

During the warmer months a built-in Environmental Condition Unit (ECU) maintains appropriate temperatures in the shelter. The shelter is maintained between 20 and 30 °C and is designed to minimize rapid fluctuations in temperature.



## Section 3: Summary of Monitoring Data

### 3.1 Overview

The Clean Air Act requires EPA to set National Ambient Air Quality Standards (NAAQS). There are no NAAQS for Black Carbon or Ultrafine Particulates (PM<sub>0.1</sub>).

Meteorological data obtained from the local National Weather Service Station at Rhode Island T.F. Green International Airport is summarized in Section 3.5. Runway usage data is summarized in Section 3.6.

### 3.2 Data Completeness

Fourth Quarter 2022 data capture is presented in the table below.

**Table 3.2. Data Recovery from Continuous Monitors.**

Site	Valid Hours	Total Hours	Recovery
<b>Fieldview</b>			
Aethalometer	2132	2160	98.70%
Ultrafine Particulate Matter	2130	2160	98.61%
<b>Lydick</b>			
Aethalometer	2124	2160	98.33%
Ultrafine Particulate Matter	2108	2160	97.59%
<b>Pembroke</b>			
Aethalometer	2124	2160	98.33%
Ultrafine Particulate Matter	2129	2160	98.56%
<b>Smith St</b>			
Aethalometer	2030	2160	93.98%
Ultrafine Particulate Matter	2082	2160	96.39%

### 3.3 Summary of Black Carbon Data

#### 3.3.1 Real-Time Black Carbon Data

The black carbon data is collected at one minute increments with an aethalometer at each monitoring site. Hourly data is calculated. Previous quarter data are presented by site in Tables 3.3.1-3.3.8. Current data are presented in Figures 3. 1- 3.8.

- **Fieldview:**

- The highest hourly value was 3,263 ng/m<sup>3</sup>. Previous quarter Maxima are displayed below.

**Table 3.3.1 Fieldview Previous Quarter Maxima values**

Fieldview	2022	2021	2020	2019	2018	2017	2016
Quarter 1	2,620	1,353	2,621	2,101	2,622	2513.4	1,735.5
Quarter 2	2,943	1,840	4,436	1,253	2,264	1755.9	1,700.8
Quarter 3	3,113	6,123	3,090	30,767	2,135	3,362	1,694.3
Quarter 4	6,611	3,086	2,837	2,933	2,965	2,808	2,384.9

- The average hourly value was 364 ng/m<sup>3</sup>. Previous quarter averages are displayed below.

**Table 3.3.2 Fieldview Previous Quarter Average values**

Fieldview	2022	2021	2020	2019	2018	2017	2016
Quarter 1	384	195	273	228	308	257.1	260.8
Quarter 2	247	215	207	196	281	343.2	380.7
Quarter 3	402	505	262	308	305	436.5	466.5
Quarter 4	431	442	296	315	251	312	336.6

- **Smith:**

- The highest hourly value was 2,055 ng/m<sup>3</sup>. Previous quarter averages are displayed below. Previous quarter maxima are displayed below.

**Table 3.3.3 Smith Previous Quarter Maxima values**

Smith	2022	2021	2020
Quarter 1	3,395	1,880	Not in service
Quarter 2	5,045	2,017	5,689
Quarter 3	2,616	5,031	4,187
Quarter 4	5,381	4,033	4,595



- The average hourly value was 211 ng/m<sup>3</sup>. Previous quarter averages are displayed below.

**Table 3.3.4 Smith Previous Quarter Average values**

Smith	2022	2021	2020
Quarter 1	412	218	Not in service
Quarter 2	282	216	230
Quarter 3	355	357	310
Quarter 4	402	419	347

- Lydick:

- The highest hourly value was 1,875 ng/m<sup>3</sup>. Previous quarter maxima are displayed below.

**Table 3.3.5 Lydick Previous Quarter Maxima values**

Lydick	2022	2021	2020	2019	2018	2017	2016
Quarter 1	3,265	1,673	2,685	2,113	3,523	5,057.6	3,489.7
Quarter 2	1,975	2,335	5,302	2,143	2,233	2150.8	13,378
Quarter 3	1,897	4,286	3,464	7,605	4,587	4,381	5,319.7
Quarter 4	2,731	2,305	4,704	3,240	4,478	4,849	4,283.7

- The average hourly value was 227 ng/m<sup>3</sup>. Previous quarter averages are displayed below.

**Table 3.3.6 Lydick Previous Quarter Average values**

Lydick	2022	2021	2020	2019	2018	2017	2016
Quarter 1	271	220	259	265	262	466.0	453.4
Quarter 2	199	213	197	197	266	440.1	542.5
Quarter 3	265	338	309	329	310	615.9	560.7
Quarter 4	288	328	340	318	276	450	554.2

- Pembroke:

- The highest hourly value was 2,082 ng/m<sup>3</sup>. Previous quarter maxima are listed below.

**Table 3.3.7 Pembroke Previous Quarter Maxima values**

Pembroke	2022	2021	2020	2019	2018	2017	2016
Quarter 1	3,877	6,512	3,151	12,062	4,568	5253.9	3,394.7
Quarter 2	6,930	2,386	3,742	1,975	16,521	2241.5	4,522.2
Quarter 3	1,650	5,005	7,225	3,989	6,531	8141.7	5,122.1
Quarter 4	2,941	2,460	5,481	3,631	7,839	17,452	5199.6

- The average hourly value was 298 ng/m<sup>3</sup>. Previous quarter averages are displayed below.

**Table 3.3.8 Pembroke Previous Quarter Average values**

<b>Pembroke</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Quarter 1	305	497	353	392	178	484.4	451.0
Quarter 2	545	221	241	238	437	417.8	440.6
Quarter 3	244	349	361	380	400	619.2	497.2
Quarter 4	252	362	428	420	434	409	604.2

Figure 3.1. Plot of Hourly Average Black Carbon Concentrations (ng/m3) at Fieldview,

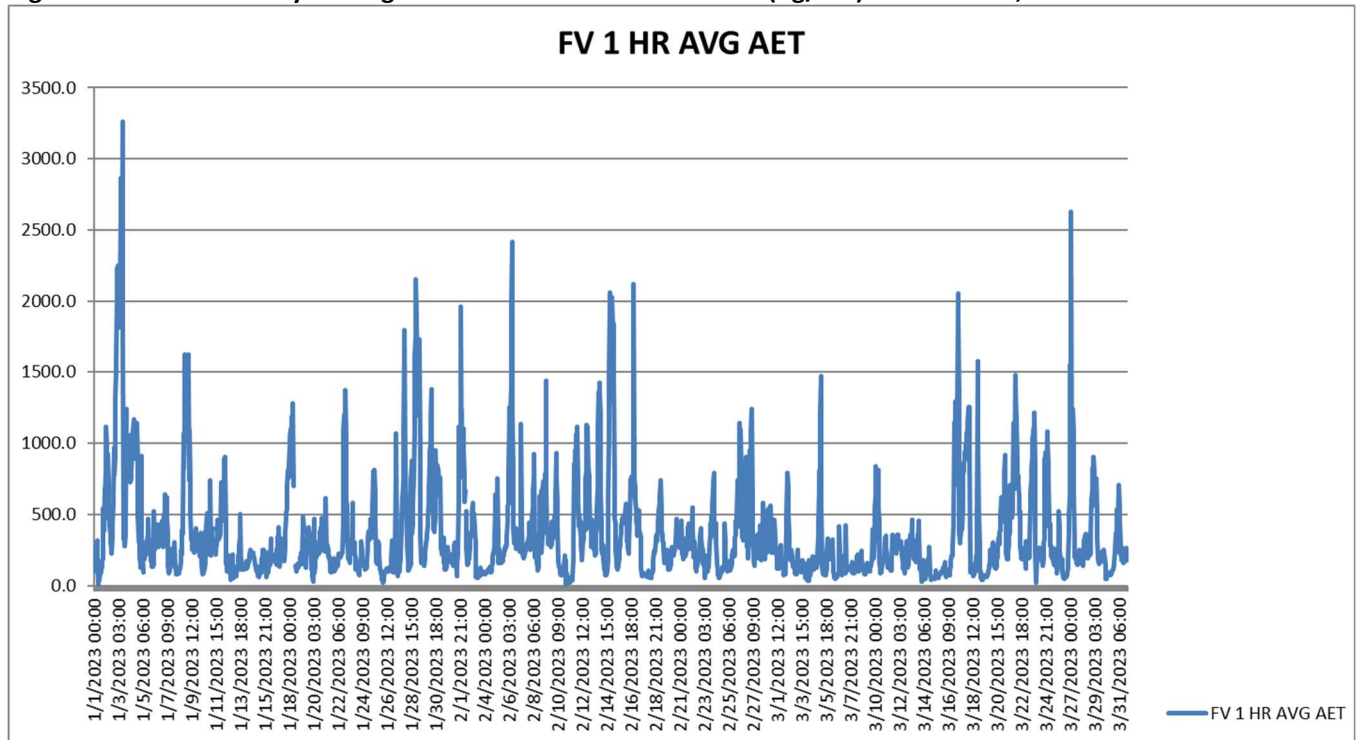


Figure 3.2. Plot of Hourly Maximum Black Carbon Concentrations (ng/m3) at Fieldview

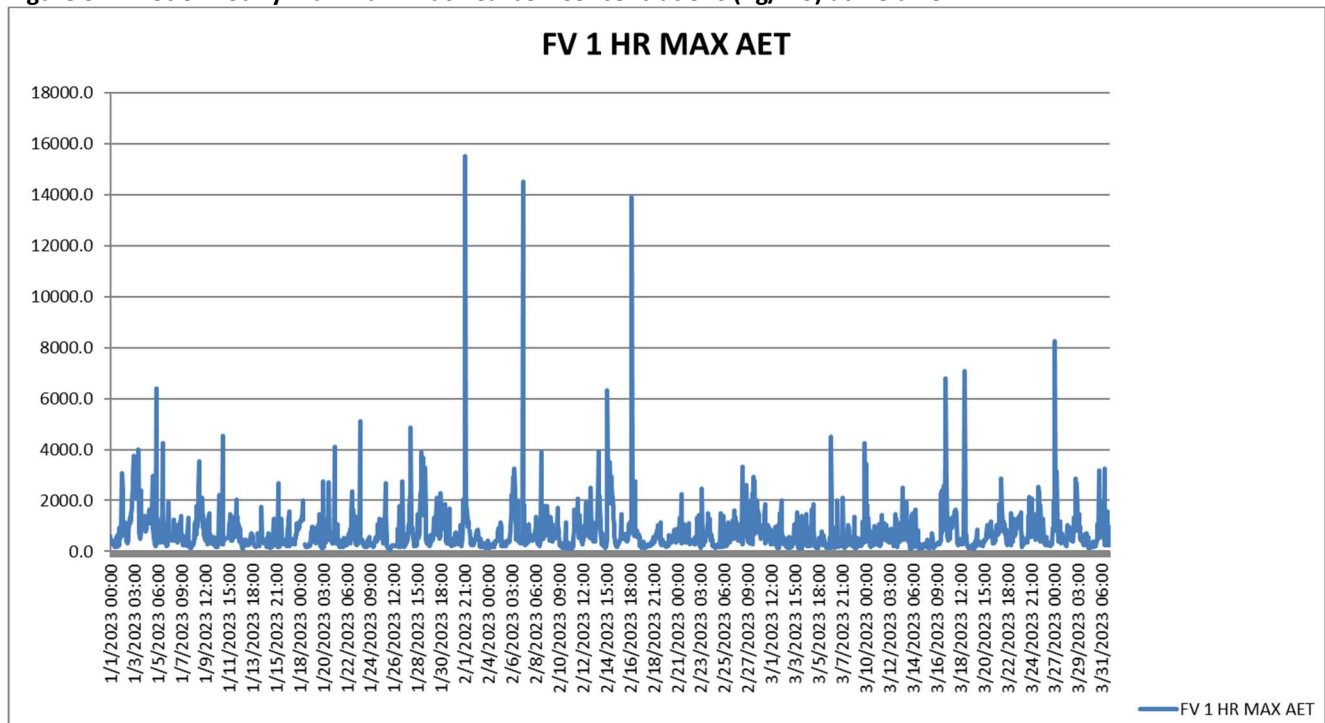


Figure 3.3. Plot of Hourly Average Black Carbon Concentrations (ng/m3) at Smith,

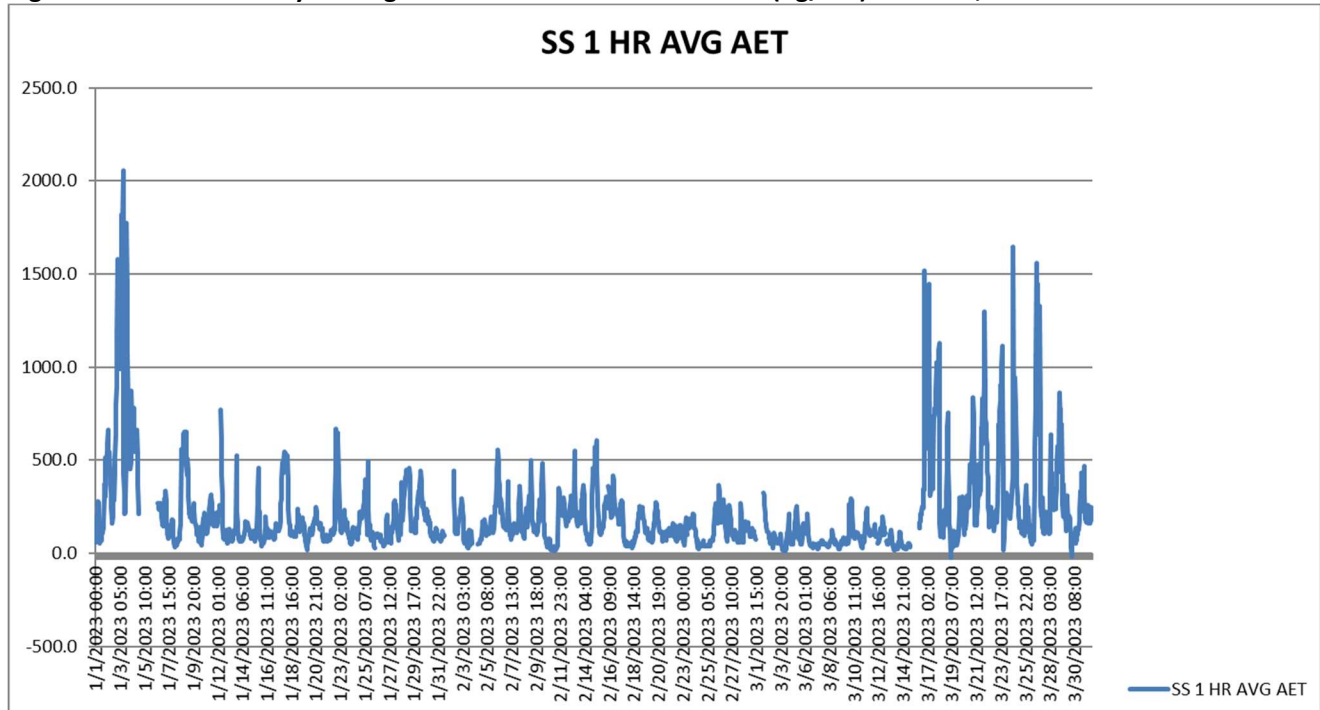
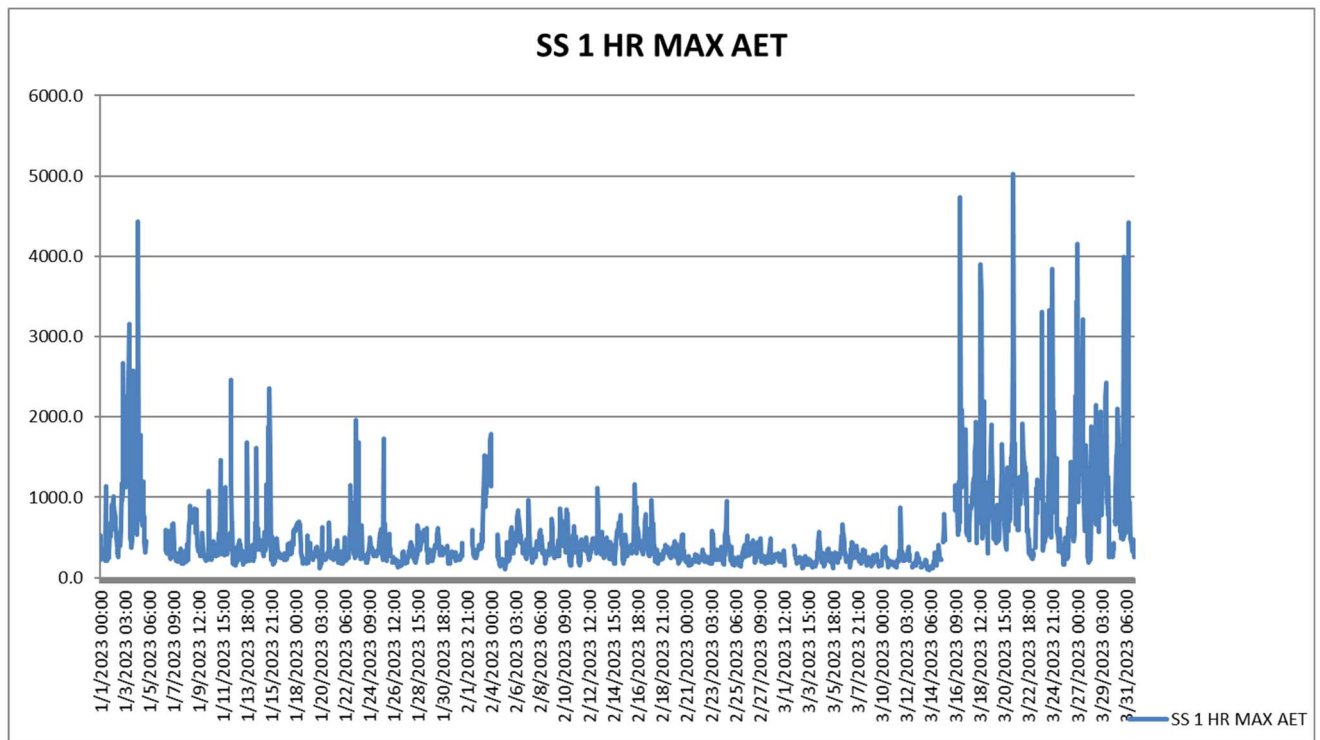


Figure 3.4. Plot of Hourly Maximum Black Carbon Concentrations (ng/m3) at Smith,



Black Carbon Lydick Site

Figure 3.5. Plot of Hourly Average Black Carbon Concentrations (ng/m3) at Lydick

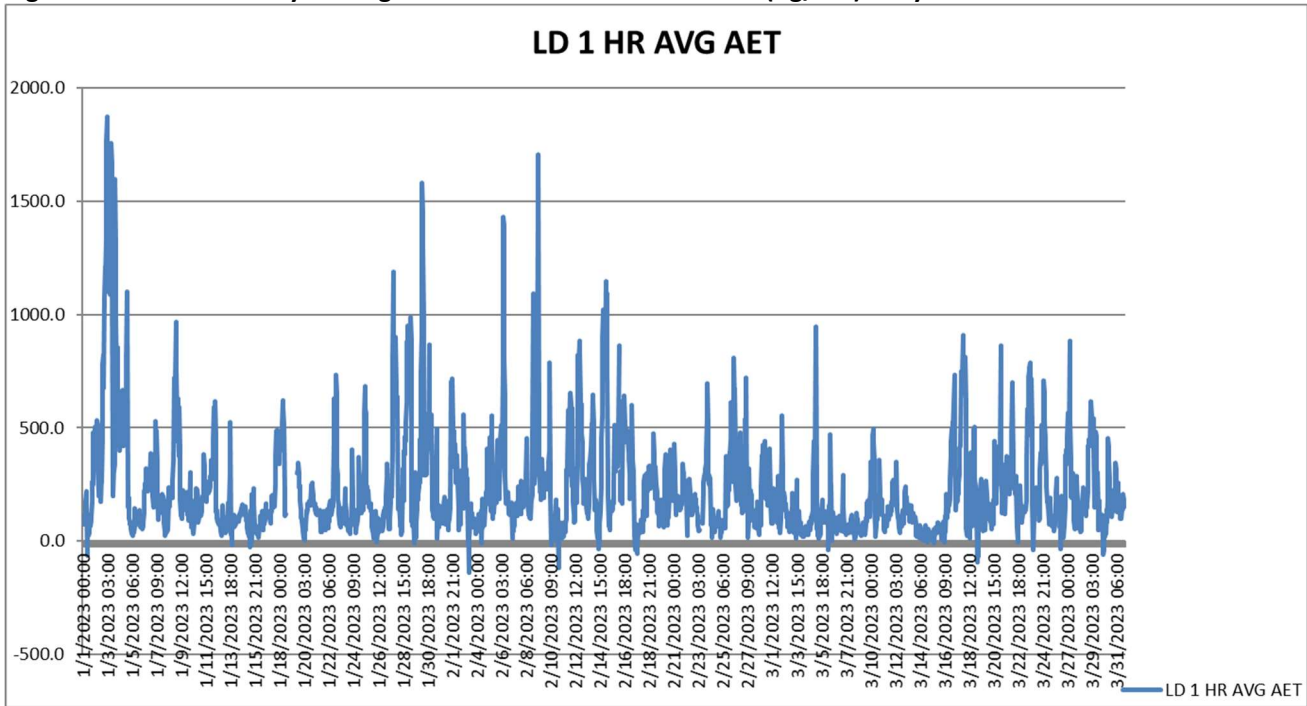
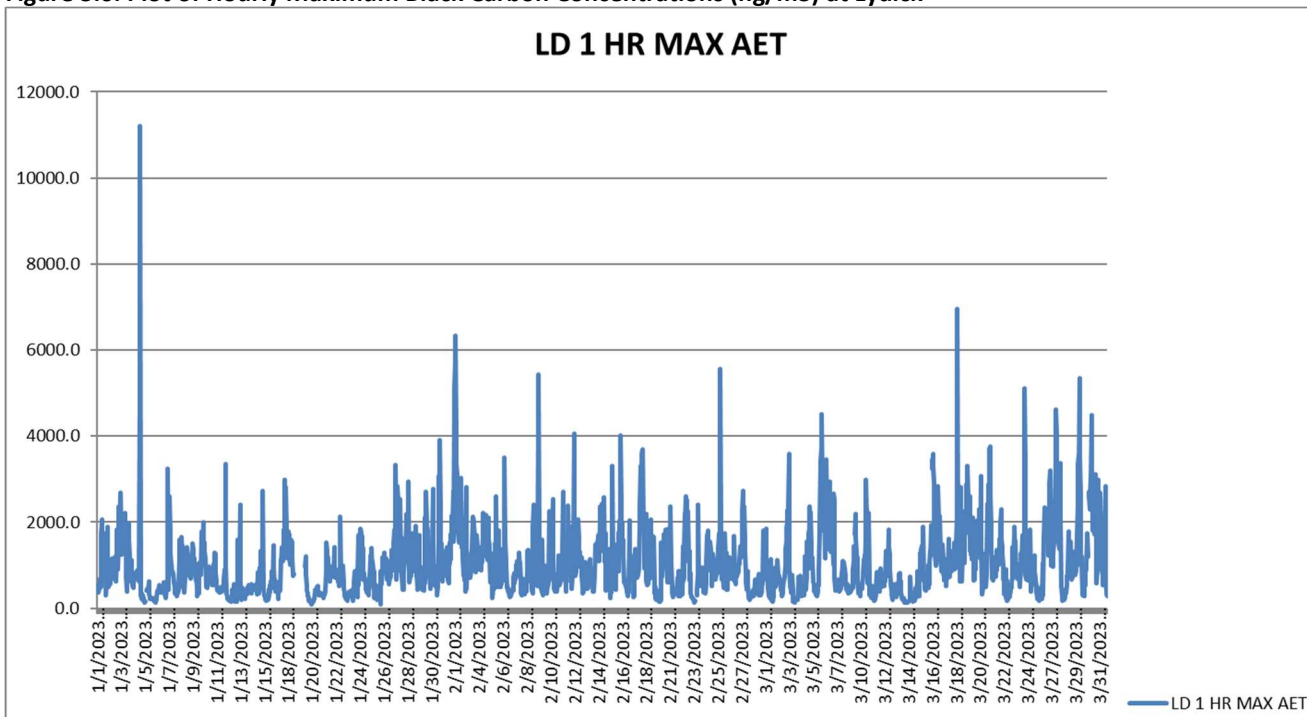


Figure 3.6. Plot of Hourly Maximum Black Carbon Concentrations (ng/m3) at Lydick



Black Carbon Pembroke Site

Figure 3.7. Plot of Hourly Average Black Carbon Concentrations (ng/m3) at Pembroke

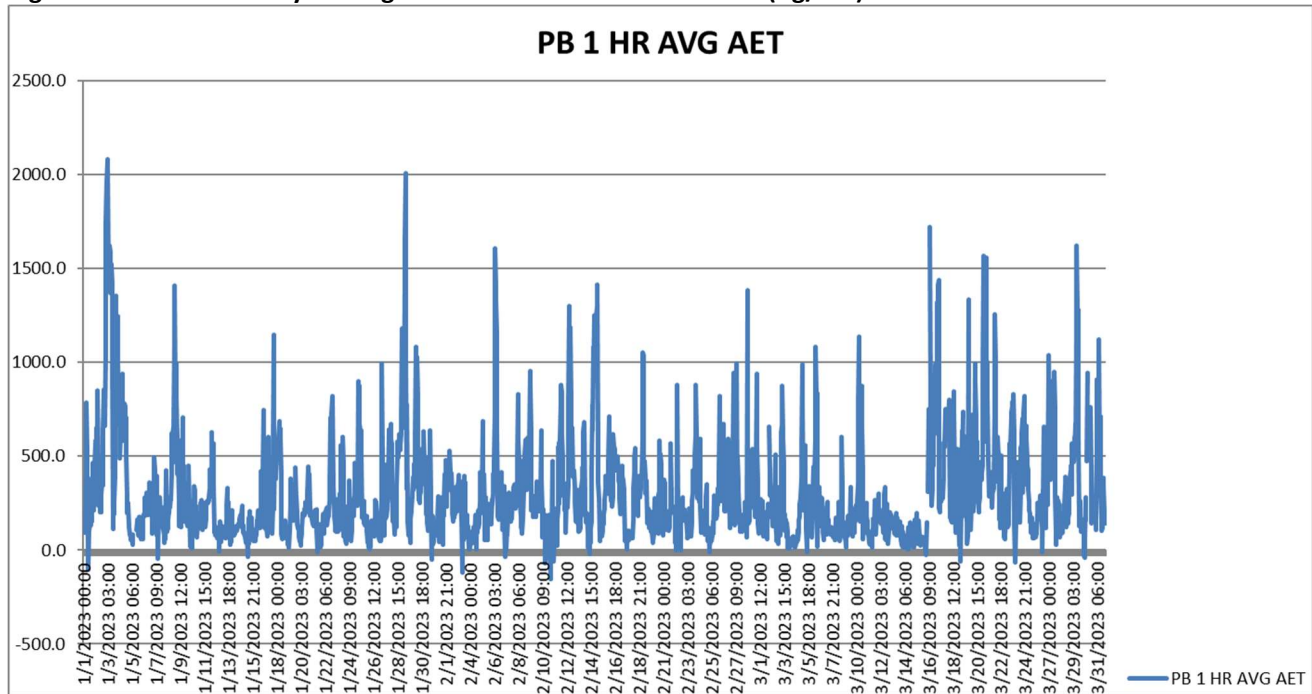
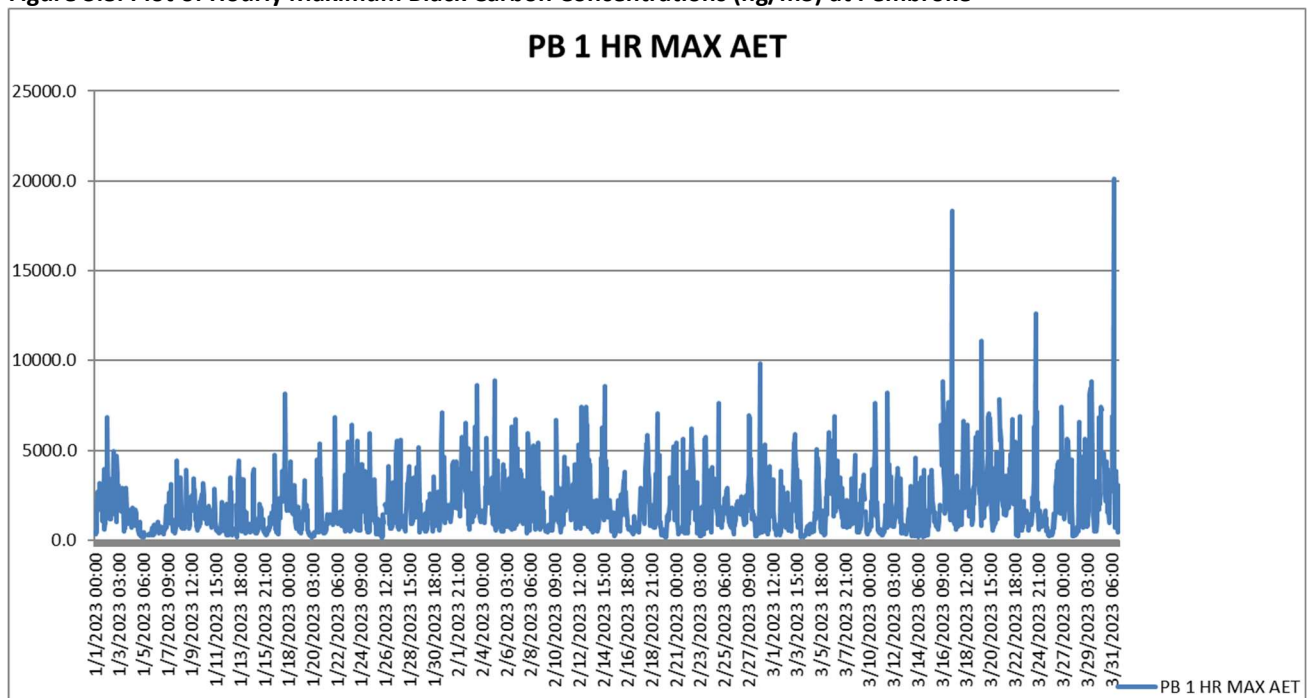


Figure 3.8. Plot of Hourly Maximum Black Carbon Concentrations (ng/m3) at Pembroke



## 3.4 Summary of Ultrafine Particulate Data

### 3.4.1 Real-Time Ultrafine Particulate Data

The ultrafine particulate data is collected in one minute increments with a particle counter equipped with an inlet cyclone to screen out particles larger than 3 mm. The majority of particles counted have a diameter of 0.1 mm or less. Hourly data is calculated. Previous quarter data is presented in Tables 3.4.1-3.4.8. Current quarter data is presented in Figures 3.9 – 3.16.

- Fieldview
  - The highest hourly value was 65,274 particles/cm<sup>3</sup>. Previous quarter maxima values are displayed below.

**Table 3.4.1 Fieldview Previous Quarter Maxima values**

Fieldview	2022	2021	2020	2019	2018	2017	2016
Quarter 1	85,360	69,795	126,532	86,797	185,489	86,331	132,221
Quarter 2	65,852	53,107	64,470	58,246	105,520	57,144	101,461
Quarter 3	113,223	86,484	50,773	122,349	39,388	55,171.5	91,208
Quarter 4	184,168	97,909	93,978	118,215	8,566,778	155,878	121,951

- The average hourly value was 9,253 particles/cm<sup>3</sup>. Previous quarter average values are displayed below.

**Table 3.4.2 Fieldview Previous Quarter Average values**

Fieldview	2022	2021	2020	2019	2018	2017	2016
Quarter 1	10,310	8,441	10,717	5,158	10,823	11,247	12,614
Quarter 2	9,273	8,167	6,240	3,603	9,171	7,064	10,775
Quarter 3	8,536	8,309	6,604	5,224	1,454	6,439.7	9,251.1
Quarter 4	10,584	10,537	8,988	13,919	29,702	7,914	12,092



- Smith
  - The highest hourly value was 65,742 particles/cm<sup>3</sup>. Previous quarter maxima values are displayed below.

**Table 3.4.3 Smith Previous Quarter Maxima values**

Smith	2022	2021	2020
Quarter 1	62,115	55,947	Not in service
Quarter 2	64,130	69,903	47,969
Quarter 3	70,358	75,983	15,573
Quarter 4	96,719	81,992	60,487

- The average hourly value was 7,580 particles/cm<sup>3</sup>. Previous quarter average values are displayed below.

**Table 3.4.4 Smith Previous Quarter Average values**

Smith	2022	2021	2020
Quarter 1	7,769	8,898	Not in service
Quarter 2	6,159	7,057	3,732
Quarter 3	5,759	6,044	1,119
Quarter 4	8,860	7,124	6,418

- Lydick
  - The highest hourly value was 143,065 particles/cm<sup>3</sup>. Previous quarter maxima values are displayed below.

**Table 3.4.5 Lydick Previous Quarter Maxima values**

<b>Lydick</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Quarter 1	155,344	103,110	144,057	8,973	130,013	178,827	133,646
Quarter 2	133,688	165,123	5,854,417	138,661	104,876	131,813	135,840
Quarter 3	111,723	184,635	115,319	109,521	2,507,171	134,418	159,838
Quarter 4	145,957	149,078	81,028	124,711	3,256,429	183,703	116,333

- The average hourly value was 10,624 particles/cm<sup>3</sup>. Previous quarter average values are displayed below.

**Table 3.4.6 Lydick Previous Quarter Average values**

<b>Lydick</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Quarter 1	12,811	9,279	11,848	80	12,563	14,418	15,411
Quarter 2	10,094	10,890	18,979	7,149	10,076	9,894	11,717
Quarter 3	11,367	11,374	8,336	11,281	11,217	10,936	11,675
Quarter 4	13,271	13,462	10,632	11,034	10,177	13,928	11,584

- Pembroke
  - The highest hourly value was 126,585 particles/cm<sup>3</sup>. Previous quarter maxima values are displayed below.

**Table 3.4.7 Pembroke Previous Quarter Maxima values**

<b>Pembroke</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Quarter 1	90,833	61,512	104,860	110,190	313,993	94,188	106,945
Quarter 2	47,352	56,828	46,331	71,270	60,853	106,170	93,125
Quarter 3	63,888	50,279	56,856	104,264	52,695	84,650	82,388
Quarter 4	110,990	75,917	89,007	109,981	100,504	134,074	122,080

- The average hourly value was 11,594 particles/cm<sup>3</sup>. Previous quarter average values are displayed below.

**Table 3.4.8 Pembroke Previous Quarter Average values**

<b>Pembroke</b>	<b>2022</b>	<b>2021</b>	<b>2020</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
Quarter 1	7,120	11,406	12,081	6,331	14,835	16,033	14,253
Quarter 2	5,450	7,624	5,680	5,425	8,319	9,866	10,576
Quarter 3	6,779	5,855	6,773	8,759	6,743	9,855	9,391
Quarter 4	11,867	8,271	10,797	12,726	13,404	16,647	16,036

Figure 3.9. Plot of Hourly Average Ultrafine Particles (PM0.1) at Fieldview

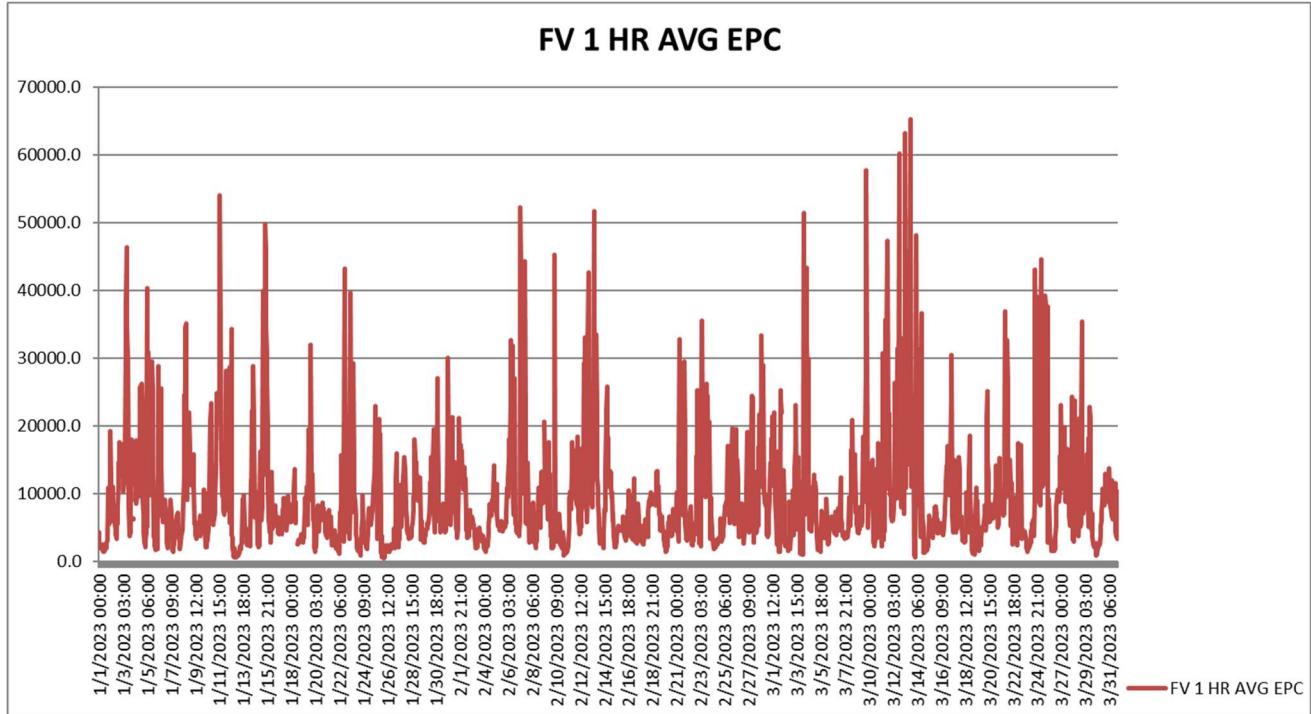
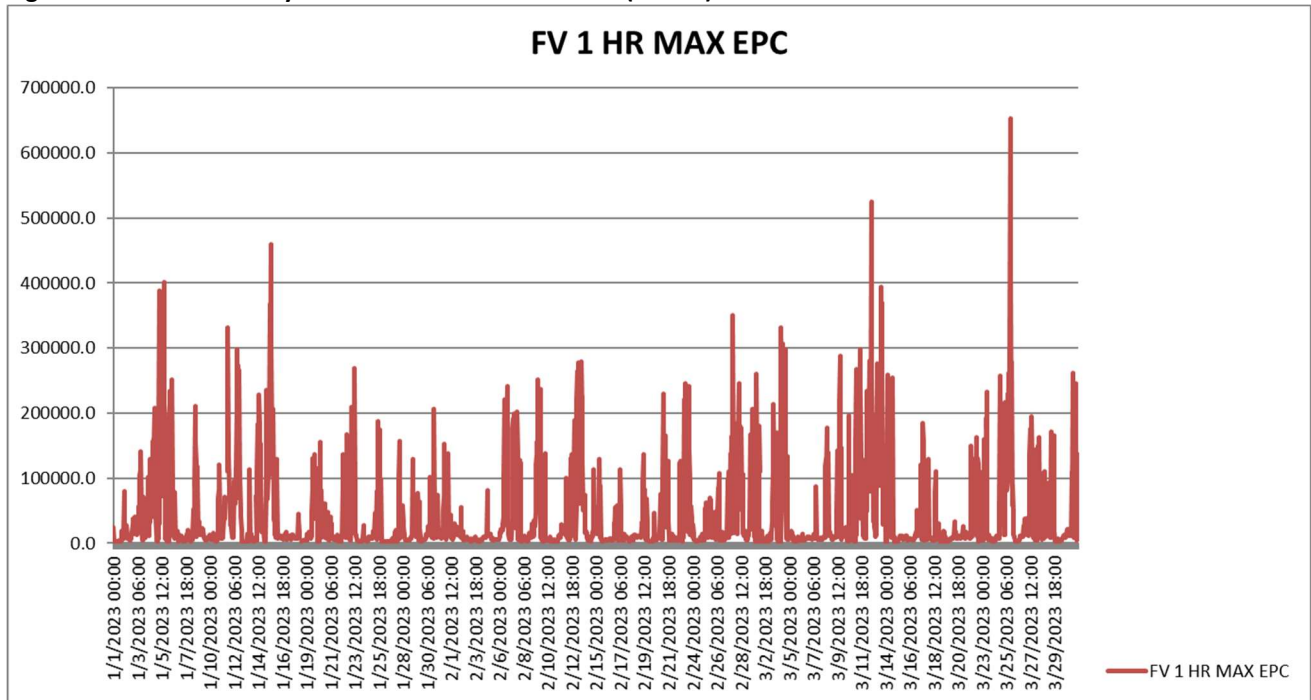


Figure 3.10. Plot of Hourly Maximum Ultrafine Particles (PM0.1) at Fieldview



Ultrafine PM Smith Site

Figure 3.11. Plot of Hourly Average Ultrafine Particles (PM0.1) at Smith

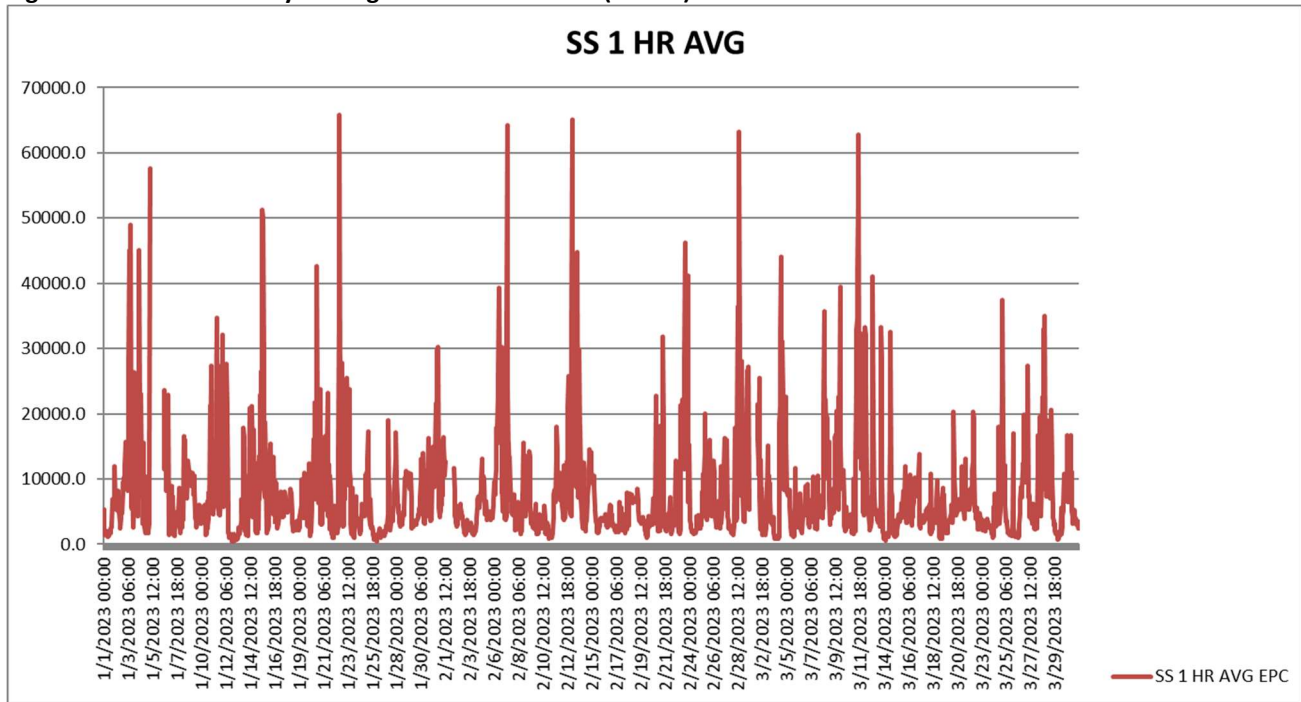


Figure 3.12. Plot of Hourly Maximum Ultrafine Particles (PM0.1) at Smith

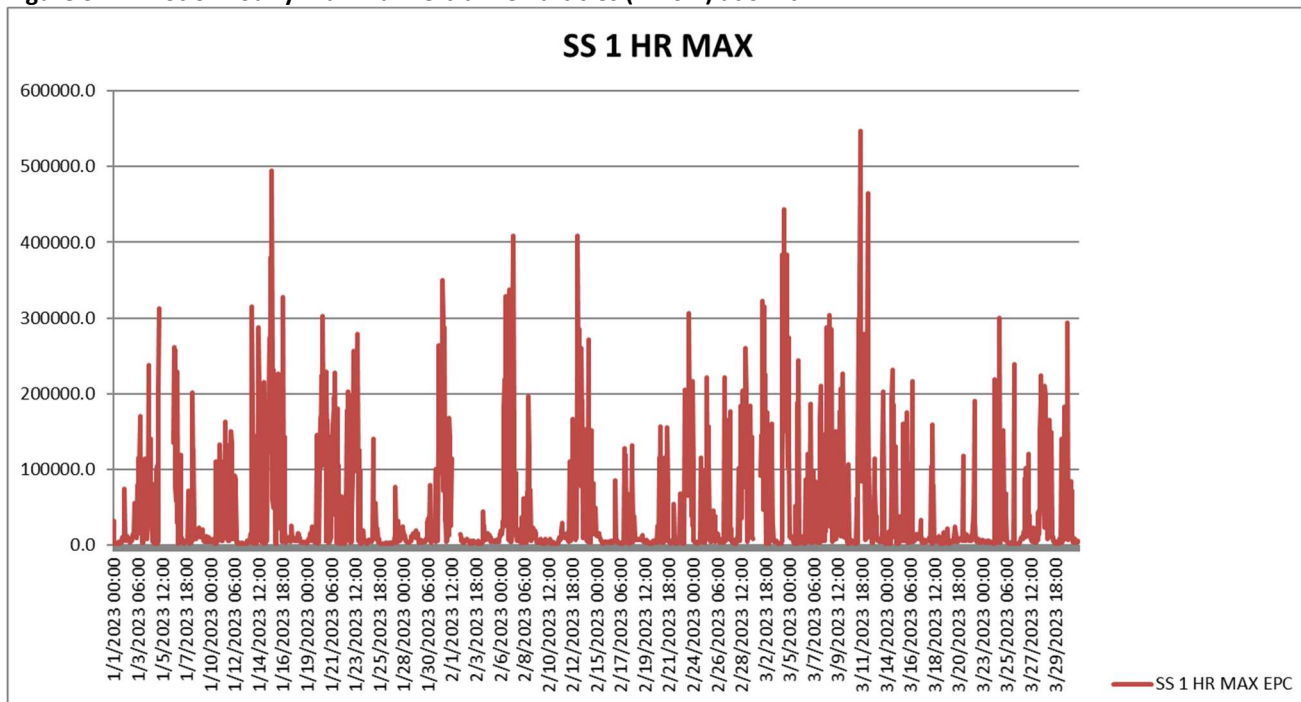


Figure 3.13. Plot of Hourly Average Ultrafine Particles (PM0.1) at Lydick

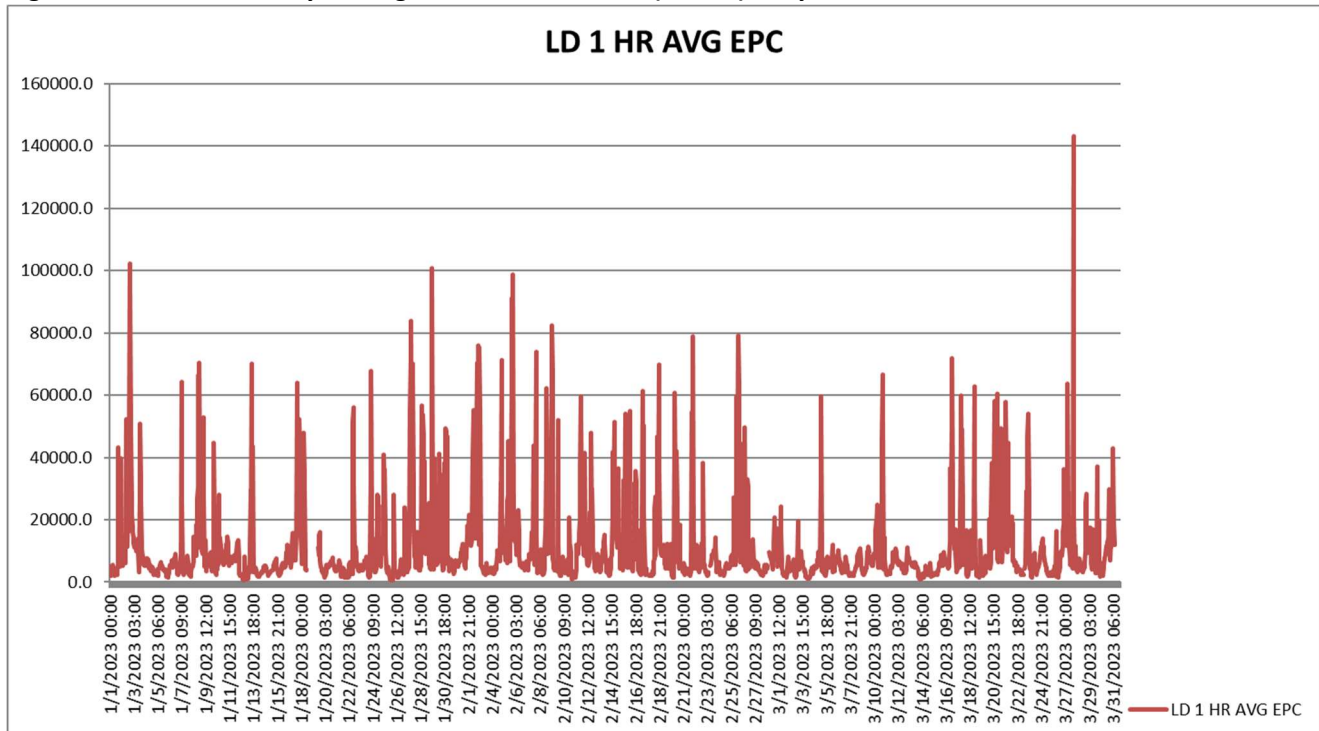
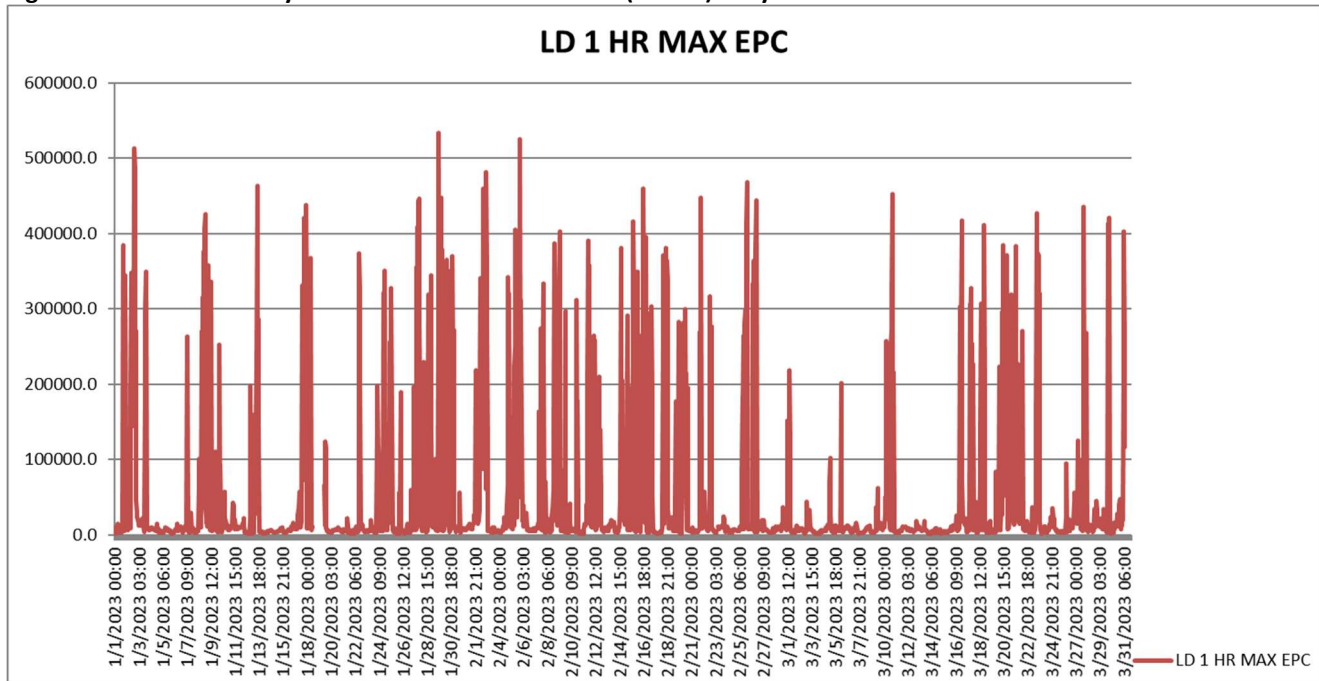


Figure 3.14. Plot of Hourly Maximum Ultrafine Particles (PM0.1) at Lydick



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Ultrafine PM Pembroke Site

Figure 3.15. Plot of Hourly Average Ultrafine Particles (PM<sub>0.1</sub>) at Pembroke

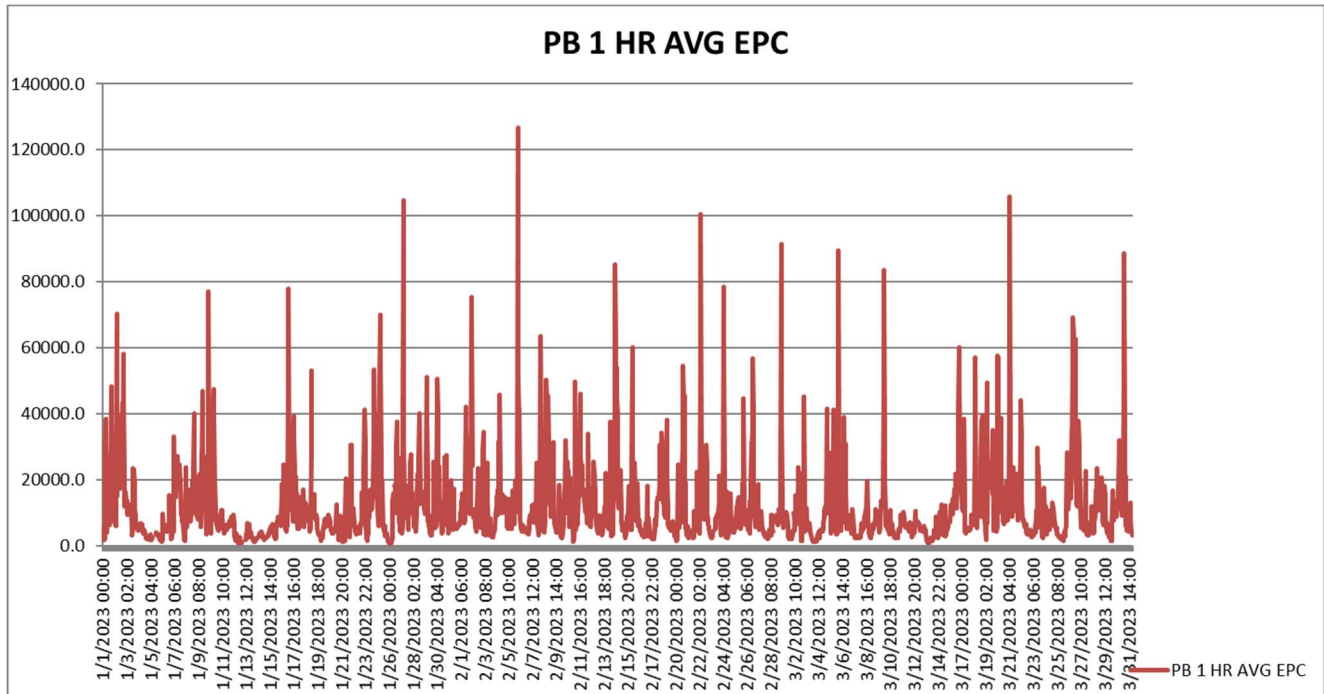
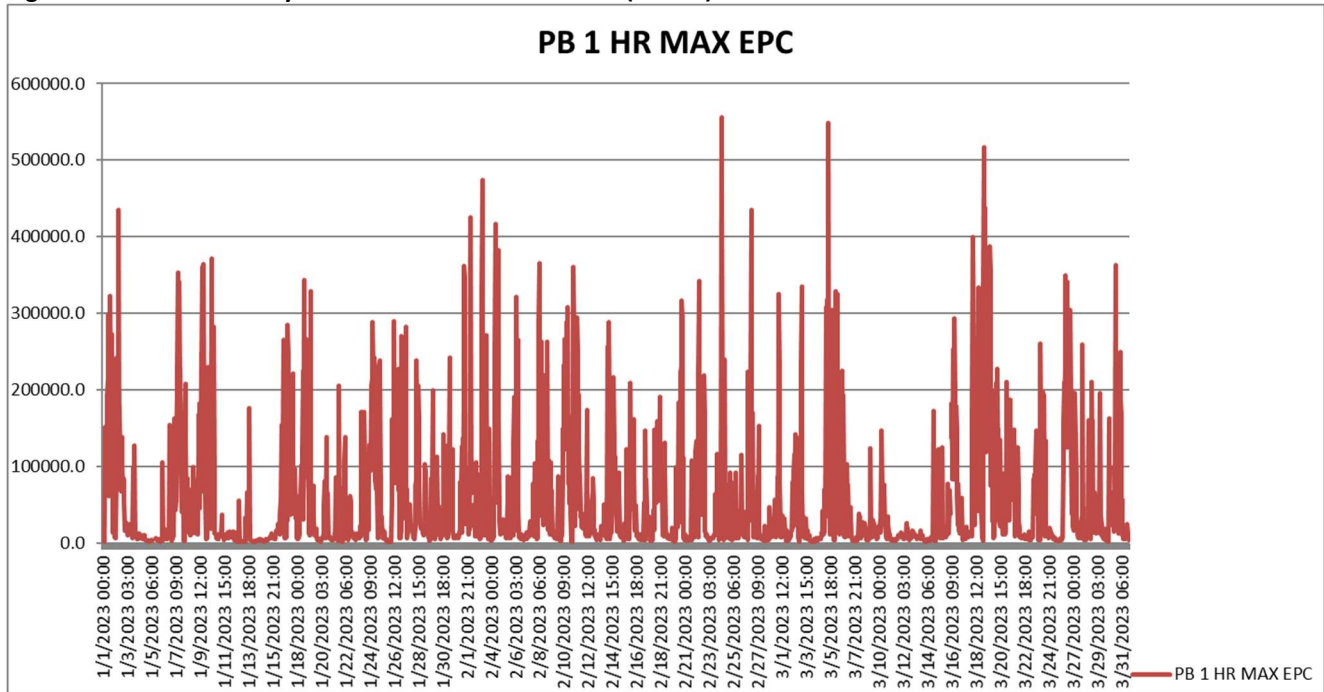


Figure 3.16. Plot of Hourly Maximum Ultrafine Particles (PM<sub>0.1</sub>) at Pembroke





### 3.5 Summary of Meteorological Data

#### 3.5.1 Hourly Average Meteorological Data

Meteorological data was acquired from the National Weather Service station at Rhode Island T. F. Green International Airport. The parameters summarized below include: wind direction, wind speed, temperature, and relative humidity.

#### 3.5.2 Wind Rose Summary

Wind roses for each month of the period as well as for the quarter are presented in Figures 3.17 through 3.20, respectively. Windroses are derived from the Midwestern Regional Climate Center (<https://mrcc.purdue.edu/CLIMATE/Hourly/WindRose2.jsp>).

Figure 3.17. Wind Rose for January 2023.

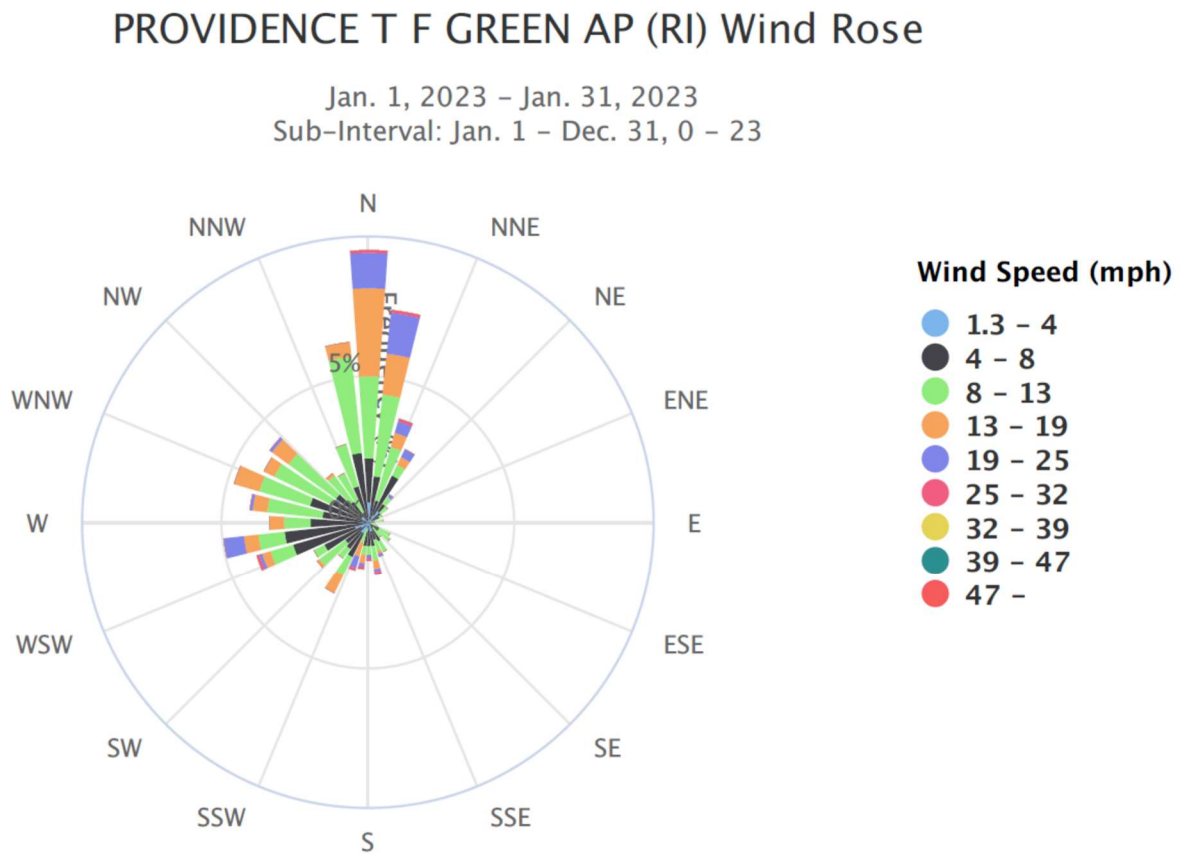




Figure 3.18. Wind Rose for February 2023

### PROVIDENCE T F GREEN AP (RI) Wind Rose

Feb. 1, 2023 – Feb. 28, 2023  
Sub-Interval: Jan. 1 – Dec. 31, 0 – 23

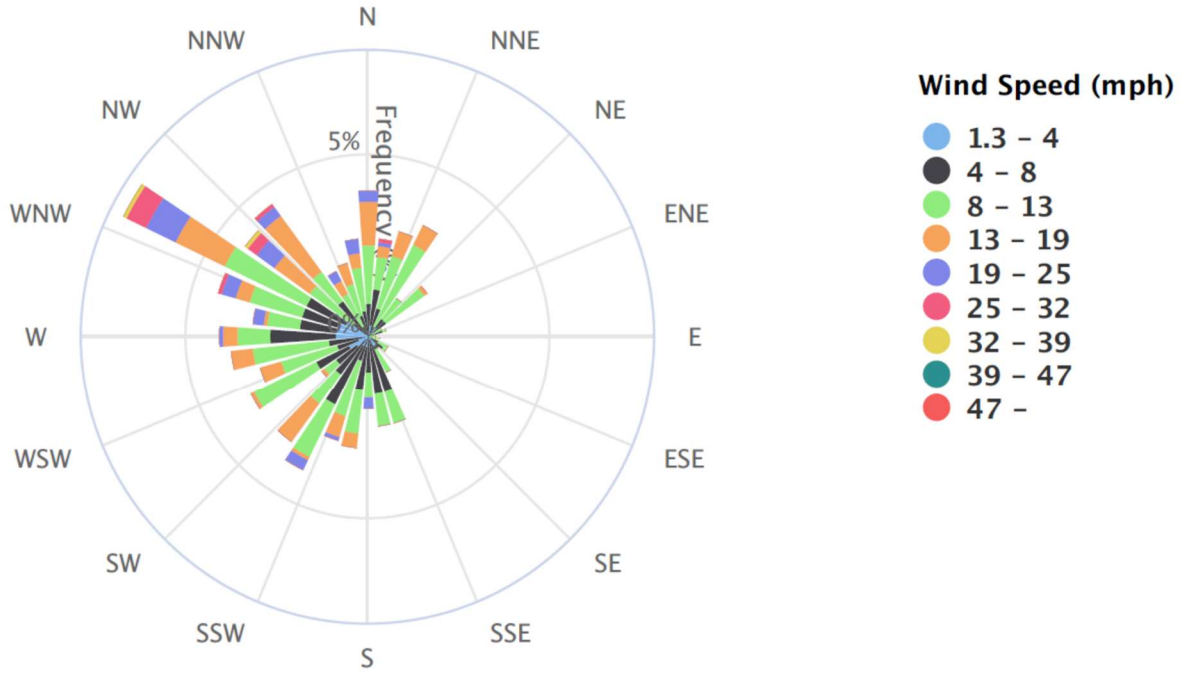


Figure 3.19. Wind Rose for March 2023.

### PROVIDENCE T F GREEN AP (RI) Wind Rose

Mar. 1, 2023 – Mar. 31, 2023  
Sub-Interval: Jan. 1 – Dec. 31, 0 – 23

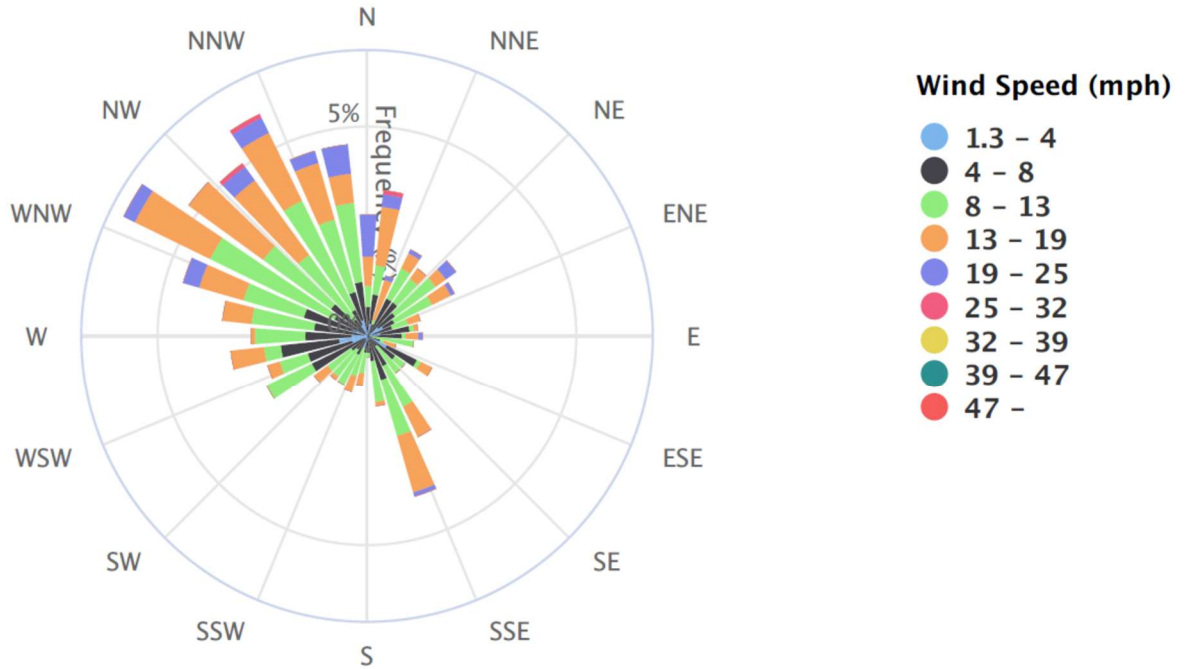
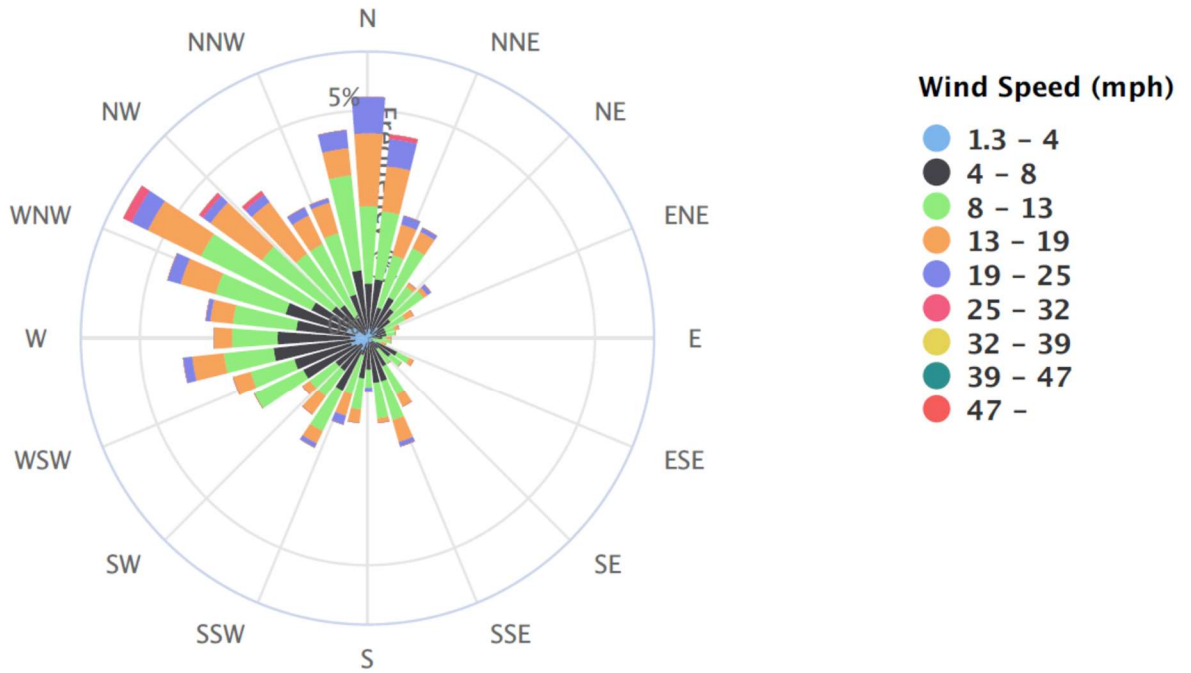


Figure 3.20. Wind Rose for 1st Quarter 2023

### PROVIDENCE T F GREEN AP (RI) Wind Rose

Jan. 1, 2023 - Mar. 31, 2023  
Sub-Interval: Jan. 1 - Dec. 31, 0 - 23



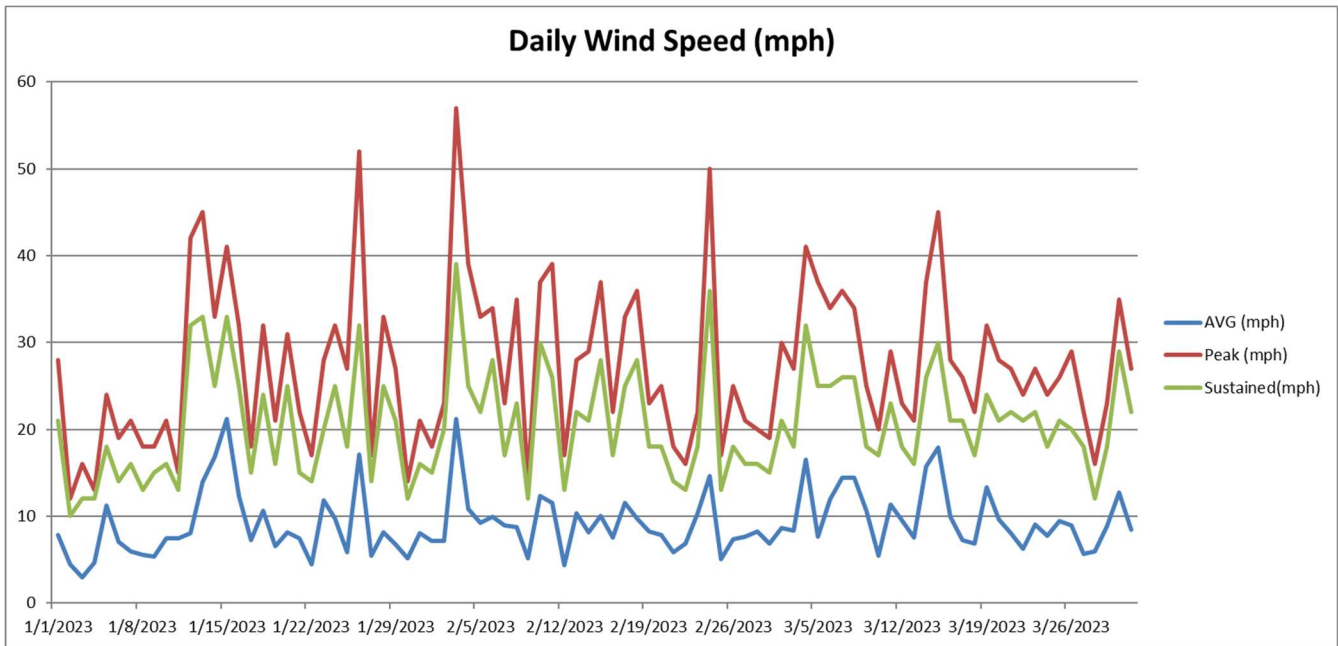
### 3.5.1 Wind Speed

The 10-meter wind speed summary is presented below and in Figure 3.21.

**Table 3.5.3. Daily Average, Peak and Sustained Wind Speed (mph)**

Date	AVG	Peak	Sustained	Date	AVG	Peak	Sustained	Date	AVG	Peak	Sustained
1/1	7.9	28	21	2/1	7.2	18	15	3/1	6.9	19	15
1/2	4.5	12	10	2/2	7.2	23	20	3/2	8.7	30	21
1/3	3	16	12	2/3	21.2	57	39	3/3	8.4	27	18
1/4	4.7	13	12	2/4	10.8	39	25	3/4	16.5	41	32
1/5	11.2	24	18	2/5	9.2	33	22	3/5	7.7	37	25
1/6	7.1	19	14	2/6	9.9	34	28	3/6	11.9	34	25
1/7	6	21	16	2/7	9	23	17	3/7	14.4	36	26
1/8	5.6	18	13	2/8	8.8	35	23	3/8	14.4	34	26
1/9	5.4	18	15	2/9	5.2	14	12	3/9	10.6	25	18
1/10	7.5	21	16	2/10	12.3	37	30	3/10	5.5	20	17
1/11	7.5	15	13	2/11	11.5	39	26	3/11	11.3	29	23
1/12	8.1	42	32	2/12	4.4	17	13	3/12	9.5	23	18
1/13	13.9	45	33	2/13	10.3	28	22	3/13	7.6	21	16
1/14	16.8	33	25	2/14	8.2	29	21	3/14	15.7	37	26
1/15	21.2	41	33	2/15	10	37	28	3/15	17.9	45	30
1/16	12.3	32	25	2/16	7.6	22	17	3/16	9.9	28	21
1/17	7.3	18	15	2/17	11.5	33	25	3/17	7.3	26	21
1/18	10.6	32	24	2/18	9.7	36	28	3/18	6.9	22	17
1/19	6.6	21	16	2/19	8.3	23	18	3/19	13.3	32	24
1/20	8.2	31	25	2/20	7.9	25	18	3/20	9.6	28	21
1/21	7.5	22	15	2/21	5.9	18	14	3/21	8.1	27	22
1/22	4.5	17	14	2/22	6.9	16	13	3/22	6.3	24	21
1/23	11.8	28	20	2/23	10.3	22	18	3/23	9.1	27	22
1/24	9.7	32	25	2/24	14.6	50	36	3/24	7.8	24	18
1/25	5.9	27	18	2/25	5.1	17	13	3/25	9.4	26	21
1/26	17.1	52	32	2/26	7.4	25	18	3/26	9	29	20
1/27	5.5	17	14	2/27	7.7	21	16	3/27	5.7	22	18
1/28	8.2	33	25	2/28	8.3	20	16	3/28	6	16	12
1/29	6.8	27	21					3/29	8.9	23	18
1/30	5.2	14	12					3/30	12.7	35	29
1/31	8	21	16					3/31	9	27	22

Figure 3.21. Plot of Daily Average, Peak, and Sustained Wind Speed (mph).



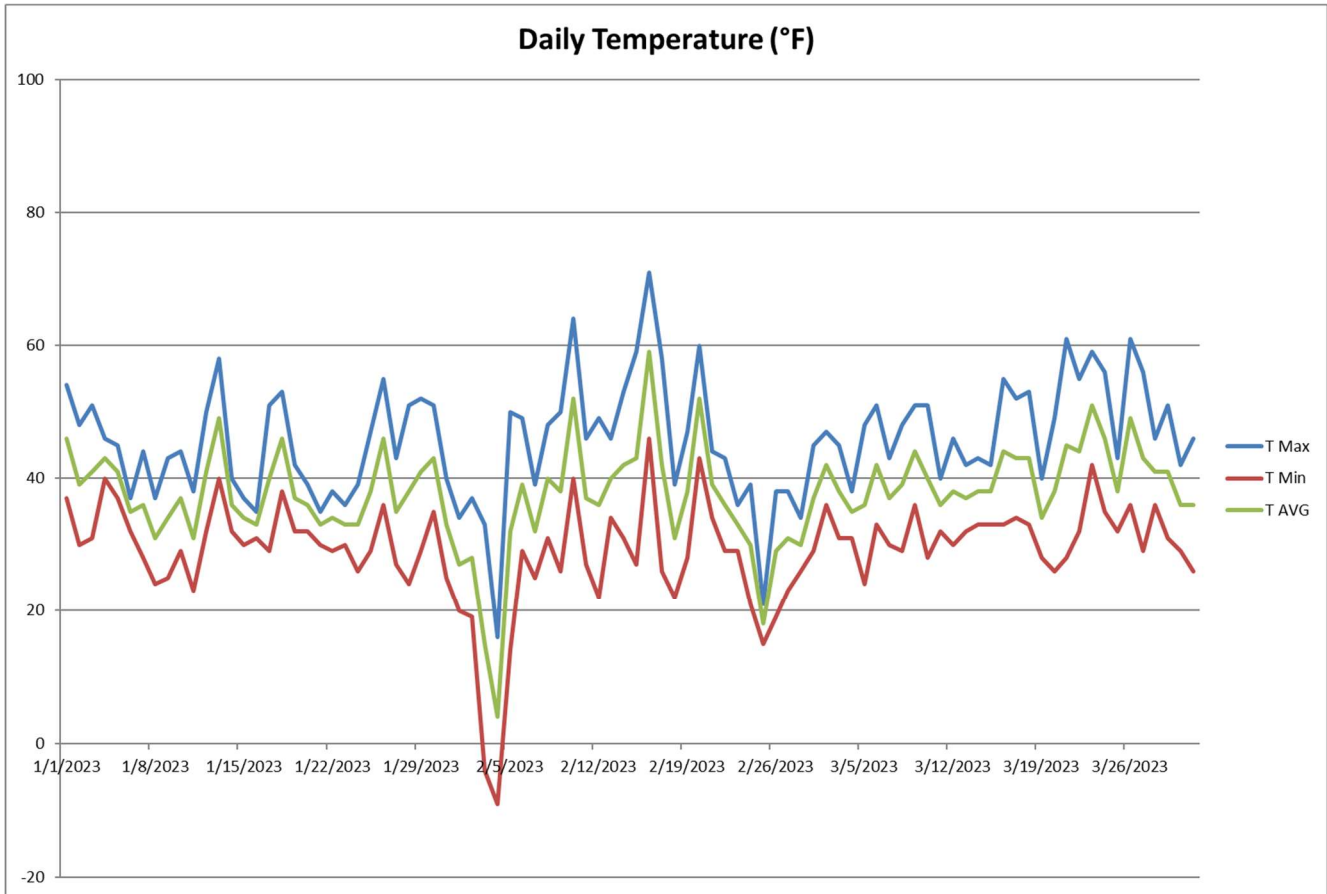
### 3.5.2 Temperature Summary

The daily temperature data is presented below and Figure 3.22.

**Table 3.5.4. Daily Average, Maximum, and Minimum Temperatures (°F)**

Date	Tmax	Tmin	Tavg	Date	Tmax	Tmin	Tavg	Date	Tmax	Tmin	Tavg
1/1	54	37	46	2/1	34	20	27	3/1	45	29	37
1/2	48	30	39	2/2	37	19	28	3/2	47	36	42
1/3	51	31	41	2/3	33	-4	15	3/3	45	31	38
1/4	46	40	43	2/4	16	-9	4	3/4	38	31	35
1/5	45	37	41	2/5	50	14	32	3/5	48	24	36
1/6	37	32	35	2/6	49	29	39	3/6	51	33	42
1/7	44	28	36	2/7	39	25	32	3/7	43	30	37
1/8	37	24	31	2/8	48	31	40	3/8	48	29	39
1/9	43	25	34	2/9	50	26	38	3/9	51	36	44
1/10	44	29	37	2/10	64	40	52	3/10	51	28	40
1/11	38	23	31	2/11	46	27	37	3/11	40	32	36
1/12	50	32	41	2/12	49	22	36	3/12	46	30	38
1/13	58	40	49	2/13	46	34	40	3/13	42	32	37
1/14	40	32	36	2/14	53	31	42	3/14	43	33	38
1/15	37	30	34	2/15	59	27	43	3/15	42	33	38
1/16	35	31	33	2/16	71	46	59	3/16	55	33	44
1/17	51	29	40	2/17	58	26	42	3/17	52	34	43
1/18	53	38	46	2/18	39	22	31	3/18	53	33	43
1/19	42	32	37	2/19	47	28	38	3/19	40	28	34
1/20	39	32	36	2/20	60	43	52	3/20	49	26	38
1/21	35	30	33	2/21	44	34	39	3/21	61	28	45
1/22	38	29	34	2/22	43	29	36	3/22	55	32	44
1/23	36	30	33	2/23	36	29	33	3/23	59	42	51
1/24	39	26	33	2/24	39	21	30	3/24	56	35	46
1/25	47	29	38	2/25	21	15	18	3/25	43	32	38
1/26	55	36	46	2/26	38	19	29	3/26	61	36	49
1/27	43	27	35	2/27	38	23	31	3/27	56	29	43
1/28	51	24	38	2/28	34	26	30	3/28	46	36	41
1/29	52	29	41					3/29	51	31	41
1/30	51	35	43					3/30	42	29	36
1/31	40	25	33					3/31	46	26	36

Figure 3.22. Plot of Daily Average, Maximum, and Minimum Temperatures (°F).





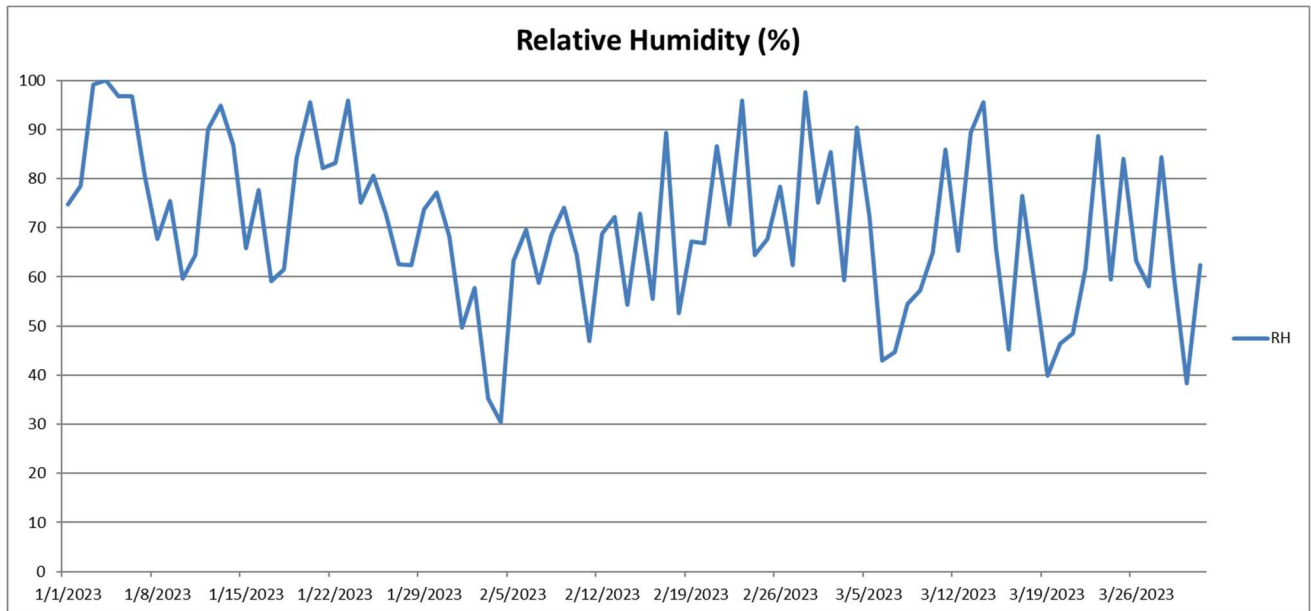
### 3.5.3 Relative Humidity Data

The average daily relative humidity data is presented below and Figure 3.23. Daily averages were calculated using NCDC hourly reported values.

**Table 3.5.3 Daily Relative Humidity (%)**

Date	RH (%)	Date	RH (%)	Date	RH (%)
1/1	75	2/1	50	3/1	75
1/2	79	2/2	58	3/2	85
1/3	99	2/3	35	3/3	59
1/4	100	2/4	30	3/4	90
1/5	97	2/5	63	3/5	72
1/6	97	2/6	70	3/6	43
1/7	81	2/7	59	3/7	45
1/8	68	2/8	69	3/8	55
1/9	75	2/9	74	3/9	57
1/10	60	2/10	64	3/10	65
1/11	65	2/11	47	3/11	86
1/12	90	2/12	69	3/12	65
1/13	95	2/13	72	3/13	89
1/14	87	2/14	54	3/14	96
1/15	66	2/15	73	3/15	66
1/16	78	2/16	56	3/16	45
1/17	59	2/17	89	3/17	77
1/18	61	2/18	53	3/18	58
1/19	84	2/19	67	3/19	40
1/20	96	2/20	67	3/20	46
1/21	82	2/21	87	3/21	48
1/22	83	2/22	71	3/22	62
1/23	96	2/23	96	3/23	89
1/24	75	2/24	65	3/24	59
1/25	81	2/25	68	3/25	84
1/26	73	2/26	78	3/26	63
1/27	63	2/27	62	3/27	58
1/28	62	2/28	98	3/28	84
1/29	74			3/29	60
1/30	77			3/30	38
1/31	68			3/31	62

**Figure 3.23. Plot of Daily Average Relative Humidity (RH %)**



### 3.6 Summary of Runway Usage Data

#### 3.6.1 Runway Usage Data

There were 13,600 aircraft operations during 1st Quarter 2023. Table 3.6.1 presents previous quarter’s aircraft operations. Table 3.6.2 summarizes arrivals and departures for each runway for each month of the quarter as well as the cumulative total.

**Table 3.6.1. Quarterly Aircraft Operations.**

	2022	2021	2020	2019	2018	2017	2016
Quarter 1	13,294	9,022	15,917	13,663	15,499	12,316	12,864
Quarter 2	15,974	13,651	7,854	16,473	18,257	15,537	15,070
Quarter 3	17,327	15,291	11,435	18,334	17,312	16,898	16,520
Quarter 4	15,364	14,470	9,543	15,917	15,057	16,891	14,375

**Table 3.6.2. Summary of Runway Usage.**

Runway	Operation	JAN		FEB		MAR		Total	
		Flights	Percent	Flights	Percent	Flights	Percent	Flights	Percent
5	Arrivals	801	18.9%	678	15.6%	913	18.2%	2392	17.6%
5	Departures	714	16.9%	675	15.5%	958	19.1%	2347	17.3%
16	Arrivals	11	0.3%	14	0.3%	35	0.7%	60	0.4%
16	Departures	13	0.3%	16	0.4%	44	0.9%	73	0.5%
23	Arrivals	1100	26.0%	1143	26.3%	1046	20.8%	3289	24.2%
23	Departures	1237	29.3%	1222	28.1%	1079	21.5%	3538	26.0%
34	Arrivals	202	4.8%	331	7.6%	513	10.2%	1046	7.7%
34	Departures	137	3.2%	244	5.6%	402	8.0%	783	5.8%
HELO	Arrivals	7	0.2%	15	0.3%	12	0.2%	34	0.3%
HELO	Departures	6	0.1%	16	0.4%	16	0.3%	38	0.3%
	<b>Totals</b>	4228		4354		5018		13600	

## Section 4: Quality Control

### 4.1 Quality Control Activities

Quality controls (QC) are implemented to ensure high quality of all collected data. QC activities include weekly site checks. Site checks include performance checks on the operational, real-time samplers. RIAC continues to work with RIDEM/RIDOH to revise and improve quality controls.