



# DELAWARE STATEWIDE

## Operations Counting 2022 Program Update



**R.A. Wiedemann &  
Associates, Inc.**  
AVIATION CONSULTANTS

# ***Delaware Statewide Airport Operations Counting Program Update - 2022***

## **Final Technical Report**

*Prepared for:*

Delaware Department of Transportation  
Federal Aviation Administration

*Prepared by:*



P.O. Box 621 • Georgetown, KY 40324 (502) 535-6570 • FAX (502) 535-5314

# DELAWARE STATEWIDE AIRPORT OPERATIONS COUNTING PROGRAM UPDATE

## 1. INTRODUCTION

SINCE THE DELAWARE AIRCRAFT OPERATIONS COUNTING PROGRAM began in 2008, the data collected has been given to each airport to help in their planning efforts and has been used by DelDOT for system planning, FAA Form 5010 Airport Master Record data inputs, economic impact studies, annual reports, and funding considerations. The following airports were surveyed in 2022:

- Chandelle Estates
- Chorman
- Delaware Airpark (NPIAS)
- Delaware Coastal (NPIAS)
- Jenkins
- Laurel
- Smyrna



Runway Sign at Delaware Coastal Airport

The sampling plan for Delaware airports involved the placement of a Rion Sound Level Meter NL-42 sound meter acoustical counter (SMAC) at each airport for at least two weeks during each quarter of the year. The SMACs record noise events at each airport which are then processed with software provided by the manufacture. The software uses the maximum decibel level of the event to determine if it was an aircraft operation. The operations are then manually checked for errors and extrapolated into seasonal and annual operations.

### 1.1 NPIAS AIRPORTS

Specifics for National Plan of Integrated Airport Systems (NPIAS) airports in Delaware are described below.

- **New Castle Airport:** Is the only airport in the State that has an Air Traffic Control Tower. However, the tower is not staffed between 11 pm and 6:30 am. Thus, any night-time operations during this period go uncounted. To date, New Castle Airport has not been sampled for these night operations.
- **Summit Airport:** Currently, the Delaware Valley Regional Planning Commission (DVRPC) counts operations at Summit Airport every three to four years. Recent communications with DVRPC indicates the most recent year for survey counts is 2020. These counts, updated by FAA Terminal Area Forecast growth rates, are included in this study (see Table 1). Currently, DelDOT does not sample operations at Summit during the intermediate years



of DVRPC sampling. It should be noted that although Summit is a National Plan of Integrated Airport Systems (NPIAS) airport, it is privately owned and has not received any grants from FAA for more than 20 years. A recommendation of this and a previous report is to add Summit to the DelDOT counting program for those years not undertaken by DVRPC. Contact with Summit Airport management is the first step in this process.

- **Delaware Airpark:** Is home to Delaware State University's flight training program, which has recently expanded its fleet of aircraft. In addition to normal training of college student pilots, DSU hosts their Junior Reserve Officers' Training Corps (JROTC) Summer Flight Academy for eight weeks in the summer. In 2022, this occurred between Jun 12<sup>th</sup> and Aug 4<sup>th</sup>. The 4,200-foot instrument runway provides a good training base for the flight school. Although owned by the State, DRBA has a long-term lease for the airport, providing management and funding for improvements.



Entrance Sign at Delaware Airpark

- **Delaware Coastal Airport:** Is located in Georgetown, Delaware. The airport is owned and operated by the county government and serves general aviation, corporate aviation, the military, and the state police. There is a large Maintenance/Overhaul/Repair (MRO) facility on the airport (ALOFT), that performs aircraft modifications, paint, and interior completions. Delaware Coastal Airport has a non-intersecting crosswind runway, requiring that two counters be placed at the airport. One counter was placed on each runway to ensure that all operations are counted.

## 1.2 OTHER PUBLIC-USE AIRPORTS

DelDOT regularly samples operations at privately-owned, public-use airports in the State, using their own resources to perform these counts. Airports that have been sampled include:

- **Chandelle Estates:** Is located near Dover, north of Dover AFB. The airport serves private general aviation and an agricultural spray operator. The airport is under new management and has shown a significant uptick in operational activity in 2022.
- **Chorman:** Is located at the border of Kent and Sussex Counties in a rural area. The airport serves as a significant base for agricultural spray operations, aircraft maintenance, and storage. The airport has significantly increased its based aircraft population in recent years and aircraft operations counts are important to maintain to track activity. A new, eight-bay T-hangar facility is planned for the airport, which should serve to increase annual operations.

- **Jenkins:** In recent years, activity at Jenkins Airport has declined, due in part to the closure of the primary runway. The crosswind runway remains open, and placement of the noise counter has been examined to ensure the capture of noise events on that runway.
- **Laurel:** This airport has been leased for use by the owners of Chorman Airport, with the primary purpose of adding a southern location for the spray operation. Both refueling and chemical storage at Laurel Airport shorten the flight times for aircraft spray operations. The airport is busiest during the non-winter spraying seasons.
- **Smyrna:** Is located just east of the city of Smyrna near Route 1. The airport has served as a training strip, glider base, and as a home for private aviation aircraft.



Spray Facility at Laurel Airport

Of these airports, Chorman Airport, home to a spray operation is the busiest, followed by Laurel (also a Chorman spray operation location), and more distantly by the others.

### 1.3 AIRPORT OPERATIONS COUNTING PROGRAM CHALLENGES

In past years, there have been a number of challenges in collecting the data for each airport including:

- **Battery Life:** In 2022, issues related largely to battery life were overcome through the use of solar power. In this regard, each SMAC is equipped with a solar panel which continuously recharges the unit during daylight hours. Now, it is possible to record two continuous weeks or more of data during a sampling period. Other issues have arisen due to possible water seepage into the noise counter cases. Technical difficulties resulted in recorded data being lost. Reports from the field indicated that there appears to be water or a high amount of condensation getting into the case which causes the scanner to either short-circuit or turn off. These problems were fixed late in the year.
- **Recording Accurate Data:** Depending on weather conditions and location of the counter, some counters have picked up false positives (aircraft operations that did not actually



Noise Counter at Laurel Airport

occur), or they missed some aircraft takeoffs. Sometimes a thunderstorm will trigger false positives. These cannot always be detected. However, study of the data can reveal the time stamp of the event. If these occurred after dark, most of the privately owned public use airports would not be able to accommodate significant traffic at that time. The counts can be manually edited for these problems.

- **Labor Intensive Process:** Software in the counters records the maximum decibel level for every minute the counters are deployed. Depending on location, the noise threshold may be different. Thus, the review of these records is very labor intensive.
- **Software Limitations:** The software included with the equipment provides the user with the date and time of the event (i.e., takeoff) recorded and its Lmax (maximum sound pressure level). No individual aircraft characteristics are provided, which makes it difficult to determine whether or not false positives have been recorded.
- **Helicopter Operations:** Helicopter flight data is not counted by the acoustical counters. Thus, the operational count is not complete, particularly at airports such as Summit and Delaware Coastal Airport, which have based helicopters.



Noise Counter Device

These challenges to the data collection program present issues that ultimately must be overcome, in order to increase the accuracy of the results.

## 2. INDIVIDUAL AIRPORTS

THE COLLECTION OF TAKEOFF DATA IS A sampling of the annual fixed-wing takeoffs, using the acoustical counters. The timing of deployment schedules at survey airports varies due to a number of issues, including the number of active counters, the weather, and the availability of intern staff. Often there is a variation in the final sample size from one airport to the next. However, this sample serves as the basis for establishing both the average daily operations by season and the full estimated annual operations.

Due to seasonal variability in operations, the DelDOT aircraft operations counting program segregates observed data into four distinct seasonal silos for calculating average daily takeoffs. In the final reports and deliverables from the program, the confidence intervals for statistical reference are published so that a better understanding of the reliability of sampling process can be gauged. Large margins of error would indicate less confidence in the overall accuracy of the statistical sample.

The observed sample data includes only takeoff events. Estimated average daily operations, estimated seasonal operations, and estimated annual operations are calculated from the observed

takeoffs. The following tables show these metrics:

- Estimated Average Daily Operations: (Average Daily Takeoffs) x 2
- Estimated Seasonal Operations: (Estimated Average Daily Operations) x (Days in Season)
- Estimated Annual Operations = Winter + Spring + Summer + Fall Operations

On the following pages are sampling results of the acoustical counters for each sampled airport. In some cases, samples were not available for all four seasons. In those instances, a seasonal average was used to project total aircraft operations. It should also be noted that the Civil Air Terminal, New Castle Airport, and Summit Airport were not included in the sampling process. Operations from the Civil Air Terminal were provided by Delaware River and Bay Authority and were actual counts. New Castle Airport operations counts were taken from FAA control tower records. Summit Airport operations counts were taken from the TAF growth rate applied to the 2020 counts from DVRPC.



Chorman Airport Runway

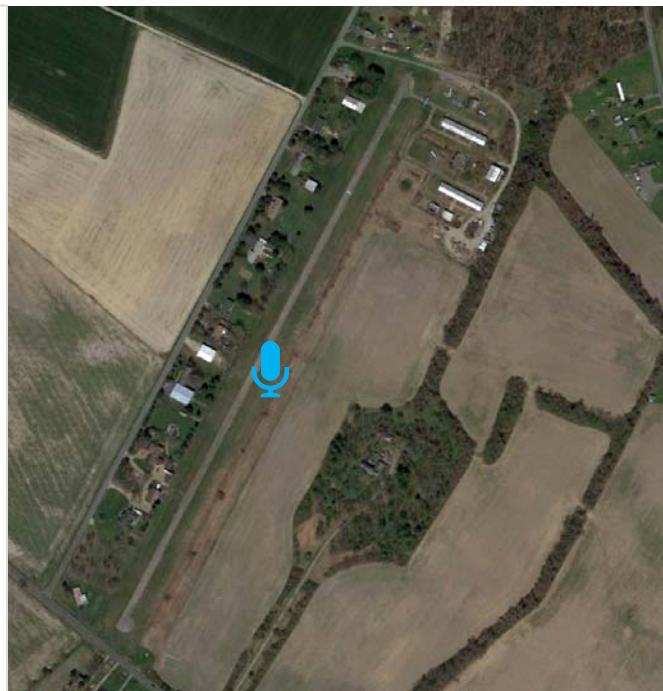
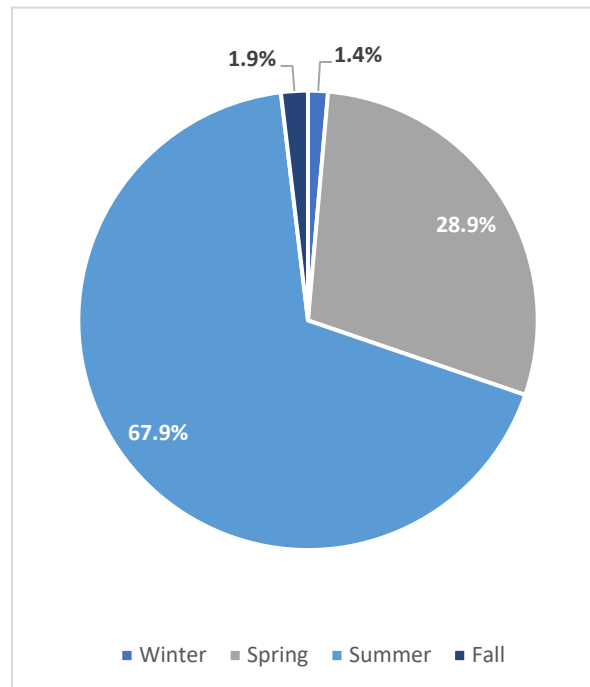


## CHANDELLE ESTATES

Chandelle Estates (0N4) Seasonally Adjusted Summary- 2022				
Season	Year	Average Daily Operations	Total Seasonal Operations	Percentage of Annual Operations
Winter	2022	0.4	36	2%
Spring	2022	8.34	760	36%
Summer	2022	19.62	1,785	58%
Fall	2022	0.5	49	4%
Annual Operations:			<b>2,630</b>	
Margin of Error:			720	27.4% at 95% Confidence

## SEASONAL PERCENTAGE

## COUNTER LOCATION



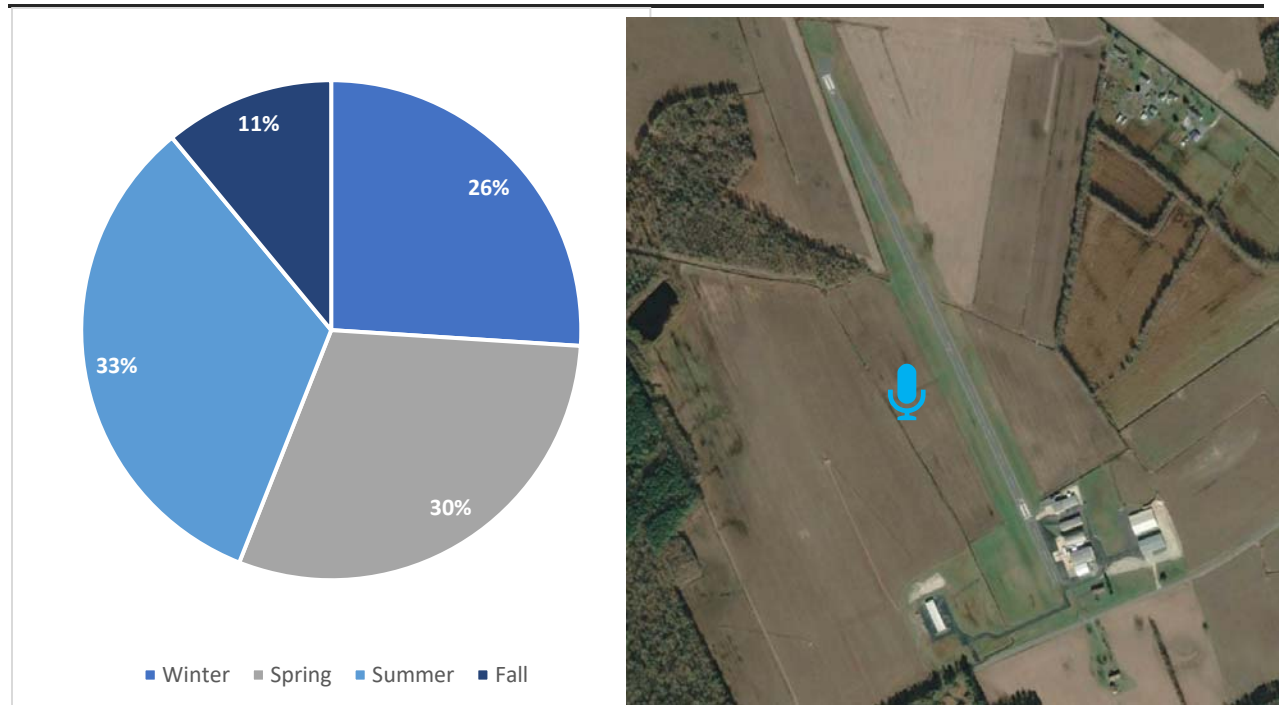


## CHORMAN AIRPORT

Chorman Airport (D74) Seasonally Adjusted Summary- 2022				
Season	Year	Average Daily Operations	Total Seasonal Operations	Percentage of Annual Operations
Winter	2022	28.8	2,621	26%
Spring	2022	32.4	2,948	30%
Summer	2022	36.0	3,276	33%
Fall	2022	12.0	1,092	11%
Annual Operations:			<b>9,937</b>	
Margin of Error:			2,053	20.7% at 95% Confidence

### SEASONAL PERCENTAGE

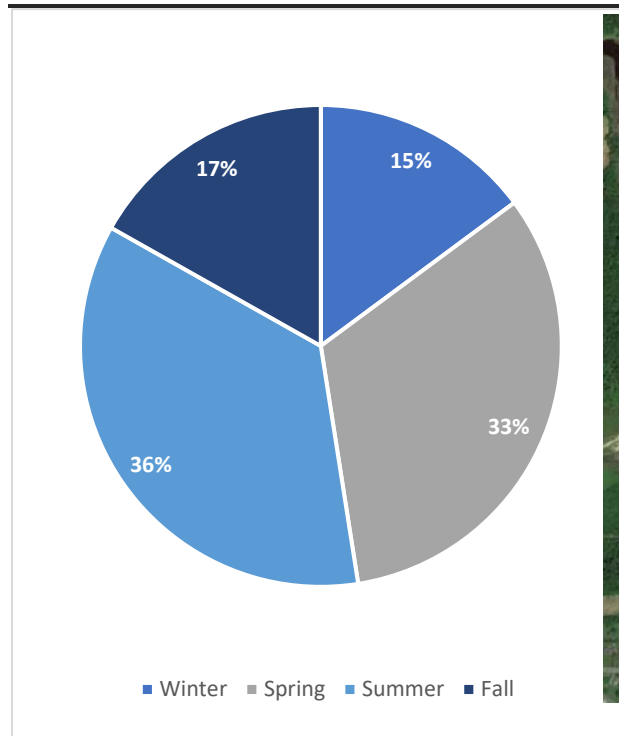
### COUNTER LOCATION



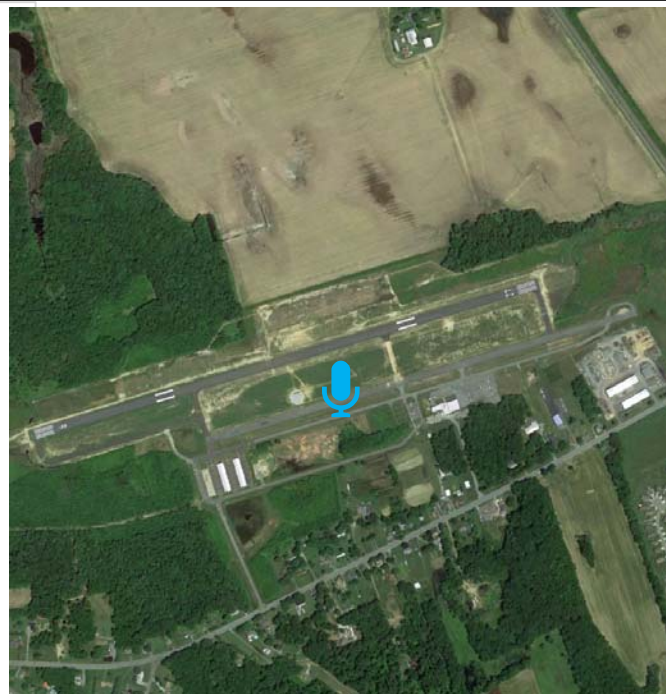
## DELAWARE AIRPARK

Delaware Airpark (33N) Seasonally Adjusted Summary- 2022				
Season	Year	Average Daily Operations	Total Seasonal Operations	Percentage of Annual Operations
Winter	2022	48.43	4,407	15%
Spring	2022	81.10	9,894	33%
Summer	2022	178.86	10,731	36%
Fall	2022	55.15	5,018	17%
Annual Operations:			<b>30,050</b>	
Margin of Error:			2,606	9% at 95% Confidence

### SEASONAL PERCENTAGE



### COUNTER LOCATION

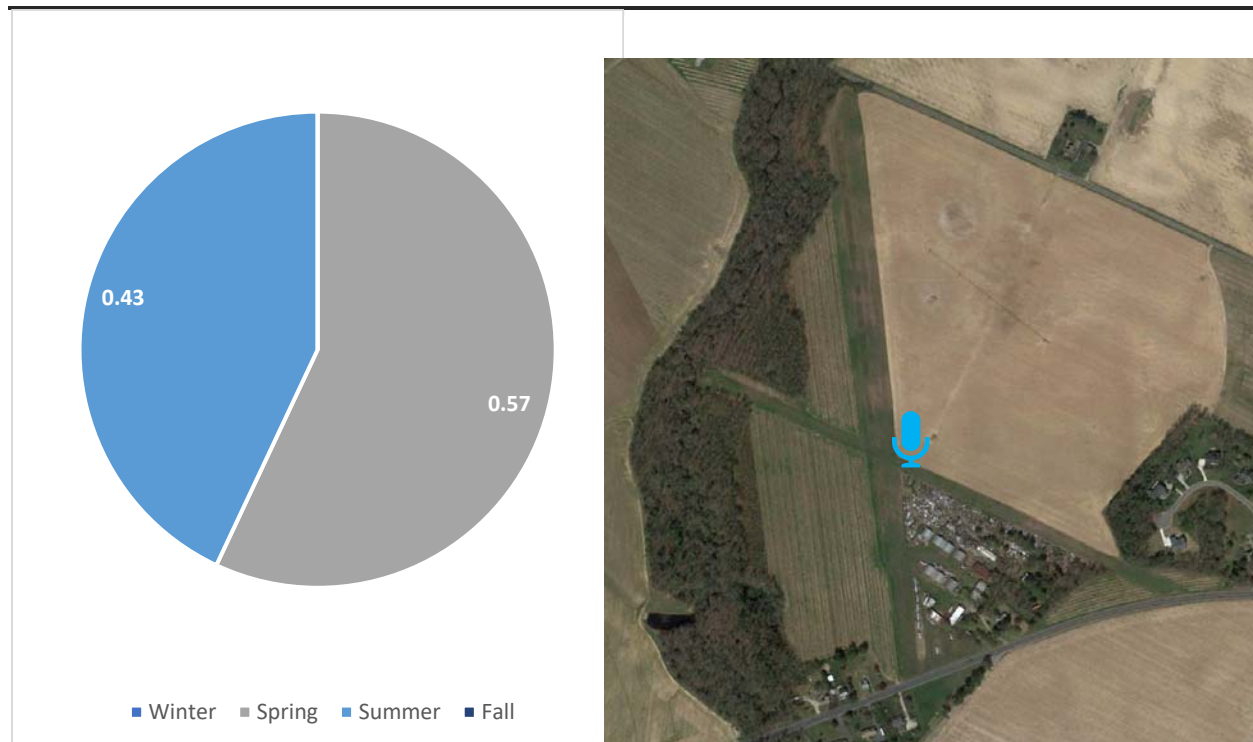


## JENKINS AIRPORT

Jenkins Airport (15N) Seasonally Adjusted Summary- 2022				
Season	Year	Average Daily Operations	Total Seasonal Operations	Percentage of Annual Operations
Winter	2022	N/A	0	0%
Spring	2022	0.4	37	57%
Summer	2022	0.3	27	43%
Fall	2022	N/A	0	0%
Annual Operations:			<b>64</b>	
Margin of Error:			41	64% at 95% Confidence

### SEASONAL PERCENTAGE

### COUNTER LOCATION

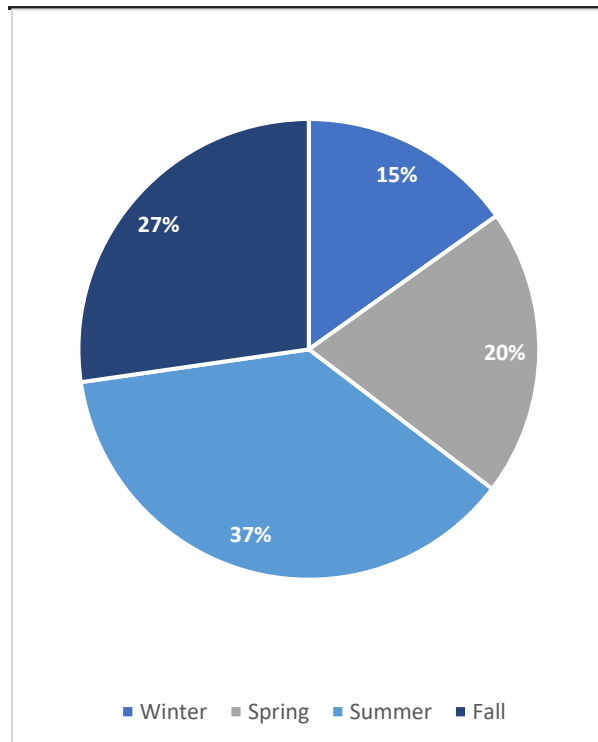




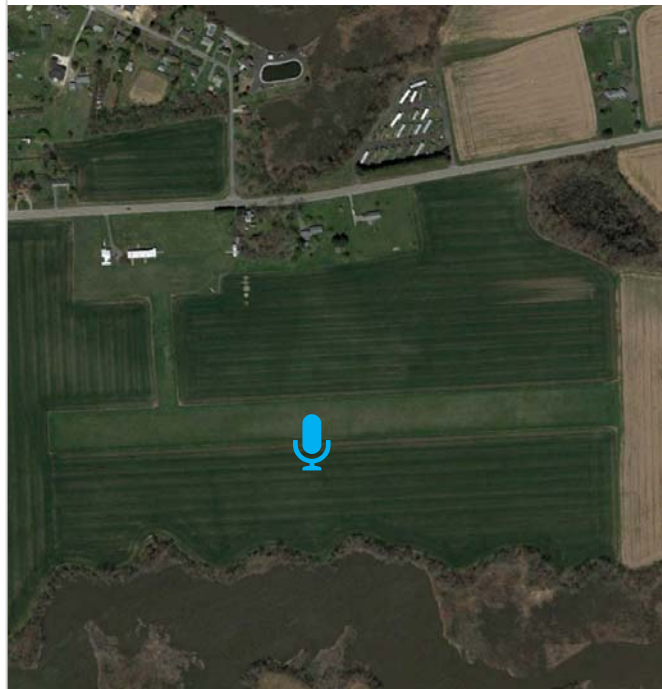
## SMYRNA AIRPORT

Smyrna Airport (38N) Seasonally Adjusted Summary- 2022				
Season	Year	Average Daily Operations	Total Seasonal Operations	Percentage of Annual Operations
Winter	2022	5	455	15%
Spring	2022	7	631	20%
Summer	2022	13	1,152	37%
Fall	2022	9	842	27%
Annual Operations:			<b>3,080</b>	
Margin of Error:			858	28% at 95% Confidence

### SEASONAL PERCENTAGE



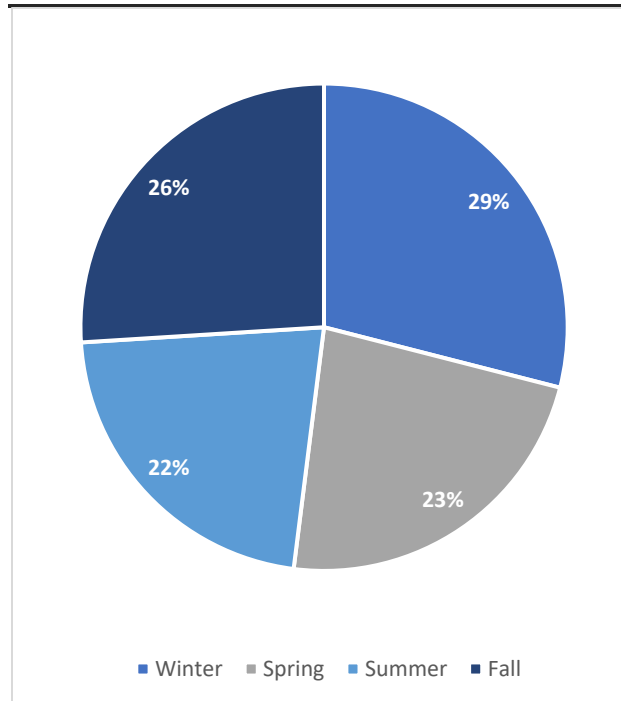
### COUNTER LOCATION



## DELAWARE COASTAL AIRPORT

Delaware Coastal Airport (GED) Seasonally Adjusted Summary- All Runways - 2022				
Season	Year	Average Daily Operations	Total Seasonal Operations	Percentage of Annual Operations
Winter	2022	105	9,569	21%
Spring	2022	85	7,716	41%
Summer	2022	79	7,204	22%
Fall	2022	92	8,411	16%
Annual Operations:			<b>32,900</b>	
Margin of Error:			4,369	13% at 95% Confidence

### SEASONAL PERCENTAGE



### COUNTER LOCATIONS

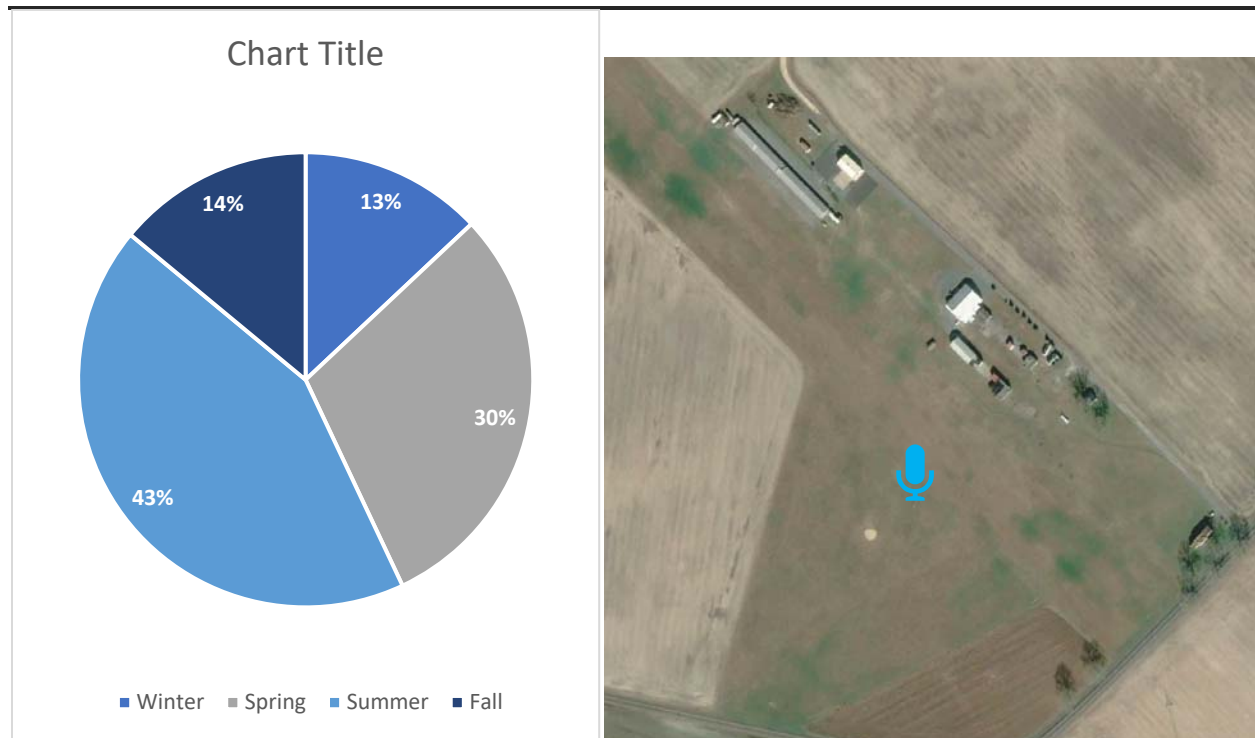


# LAUREL AIRPORT

Laurel Airport (N06) Seasonally Adjusted Summary - 2022				
Season	Year	Average Daily Operations	Total Seasonal Operations	Percentage of Annual Operations
Winter	2022	6	546	13%
Spring	2022	13	1,199	30%
Summer	2022	19	1,755	43%
Fall	2022	6	557	14%
Annual Operations:			<b>4,057</b>	
Margin of Error:			780	19% at 95% Confidence

## SEASONAL PERCENTAGE

## COUNTER LOCATION





### 3. SUMMARY RESULTS

TABLE 1 PRESENTS A SUMMARY OF THE 2022 operation counts and compares them to 2021 levels. Airports with significant gains in operations counts included Chandelle Estates, Chorman Airport, Delaware Airpark, and New Castle Airport. Overall, there was a statewide increase of 11.5 percent in aircraft operations (15,965 additional operations). It should be noted that 2021 was a down year due to the lingering effects of Covid on transportation and commerce. Thus, a continued rebound of sorts was expected in 2022.

**Table 1 – Summary of Aircraft Operations Counts: 2021-2022**

Airport	2021	2022	Change	% Change
Chandelle Estates Airport	1,400	2,630	1,230	88%
Chorman Airport	8,643	9,937	1,294	15%
Civil Air Terminal, Dover AFB	457	236	-221	-48%
Delaware Airpark	21,430	30,050	8,620	40%
Delaware Coastal Airport	31,998	32,900	902	3%
Jenkins Airport	103	64	-39	-38%
Laurel Airport	5,000	4,057	-943	-19%
New Castle Airport	41,453	46,057	4,604	11%
Smyrna Airport	2,911	3,080	169	6%
Summit Airport	25,138	25,487	349	1%
<b>Total</b>	<b>138,533</b>	<b>154,498</b>	<b>15,965</b>	<b>11.5%</b>