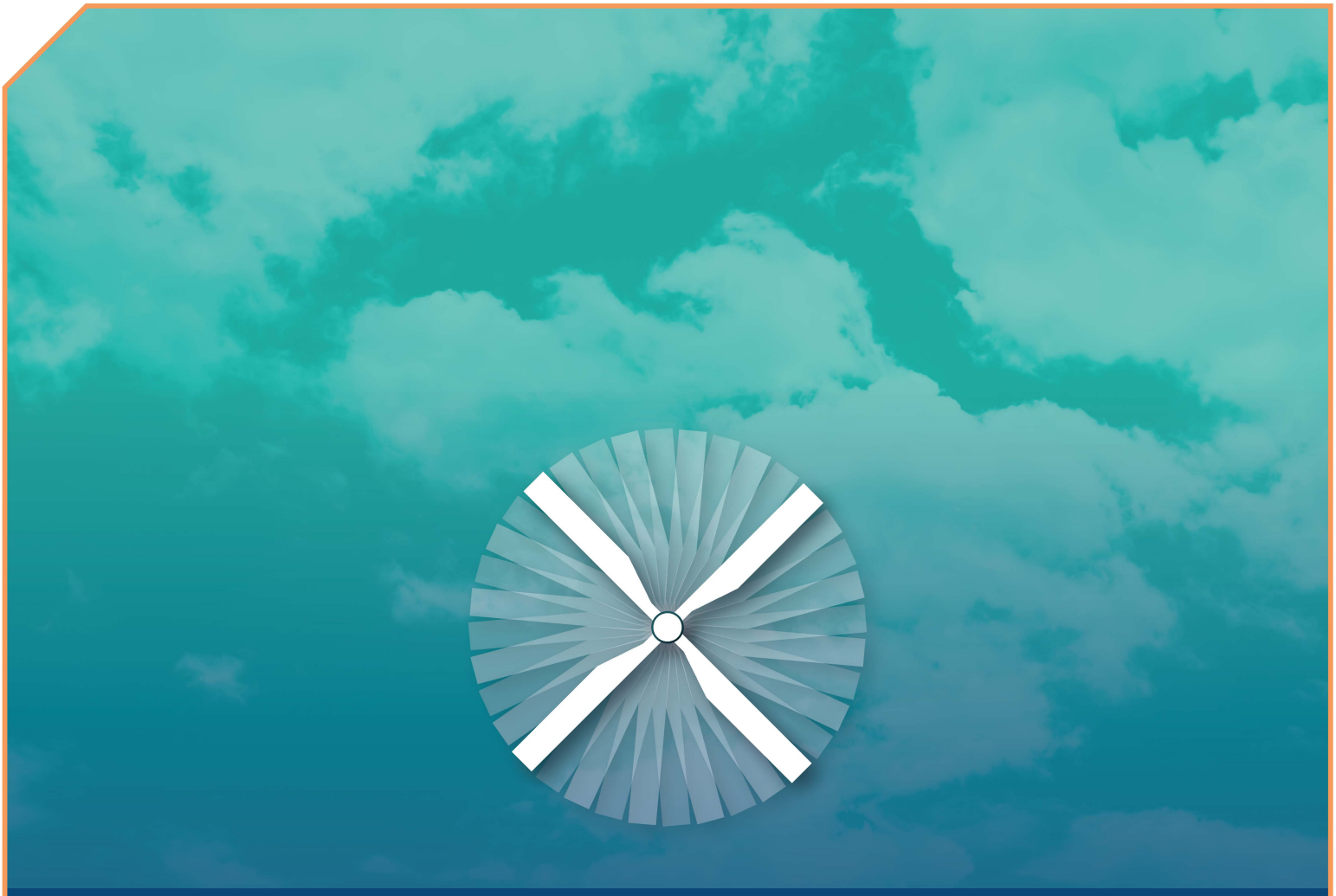

DELAWARE VALLEY

Helicopter Inventory

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

June 2019

03-42-0125-017-2016

The Delaware Valley Regional Planning Commission is the federally designated Metropolitan Planning Organization for a diverse nine-county region in two states: Bucks, Chester, Delaware, Montgomery, and Philadelphia in Pennsylvania; and Burlington, Camden, Gloucester, and Mercer in New Jersey.

DELAWARE VALLEY dvrpc REGIONAL PLANNING COMMISSION

DVRPC's vision for the Greater Philadelphia Region is a prosperous, innovative, equitable, resilient, and sustainable region that increases mobility choices by investing in a safe and modern transportation system; that protects and preserves our natural resources while creating healthy communities; and that fosters greater opportunities for all.

DVRPC's mission is to achieve this vision by convening the widest array of partners to inform and facilitate data-driven decision-making. We are engaged across the region, and strive to be leaders and innovators, exploring new ideas and creating best practices.

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CHAPTER 1:

Introduction

The Delaware Valley Regional Planning Commission (DVRPC) Aviation Planning Program covers 12 counties in Pennsylvania, New Jersey, Delaware, and Maryland, as illustrated in Figure 1. Guided by the DVRPC Regional Aviation Committee and in coordination with the Federal Aviation Administration (FAA) and the state departments of transportation, the technical work of the DVRPC Aviation Planning Program has a core focus on regional systems planning. To support this effort the DVRPC conducts an annual counting program of general aviation facilities. This counting program, along with much of the ongoing outreach in the region, is focused on public-use facilities with an emphasis on fixed-wing operations.

This focus on fixed-wing operations has created a robust understanding of the trends and patterns of aviation activity in the region. However, the lack of additional detail on helicopter operations and facilities in the region results in an incomplete understanding of the comprehensive aviation system. Beyond planning, and as new disruptive technologies such as unmanned aerial vehicles (drones) are introduced, it is even more critical to have a current inventory and understanding of the nature of helicopter operations in the region for operational and safety reasons. This information will provide better resources for understanding noise issues, operational patterns, and visibility/awareness of the role of helicopters in the region.

Helicopters offer tremendous flexibility in operations with an average range of 200–300 miles, and they provide connectivity to major metropolitan areas north to Boston and south to Washington DC. This proximity to major economic centers and the high concentration of specialized medical facilities, suggest there could be significant levels of activity occurring beyond public-use airports.

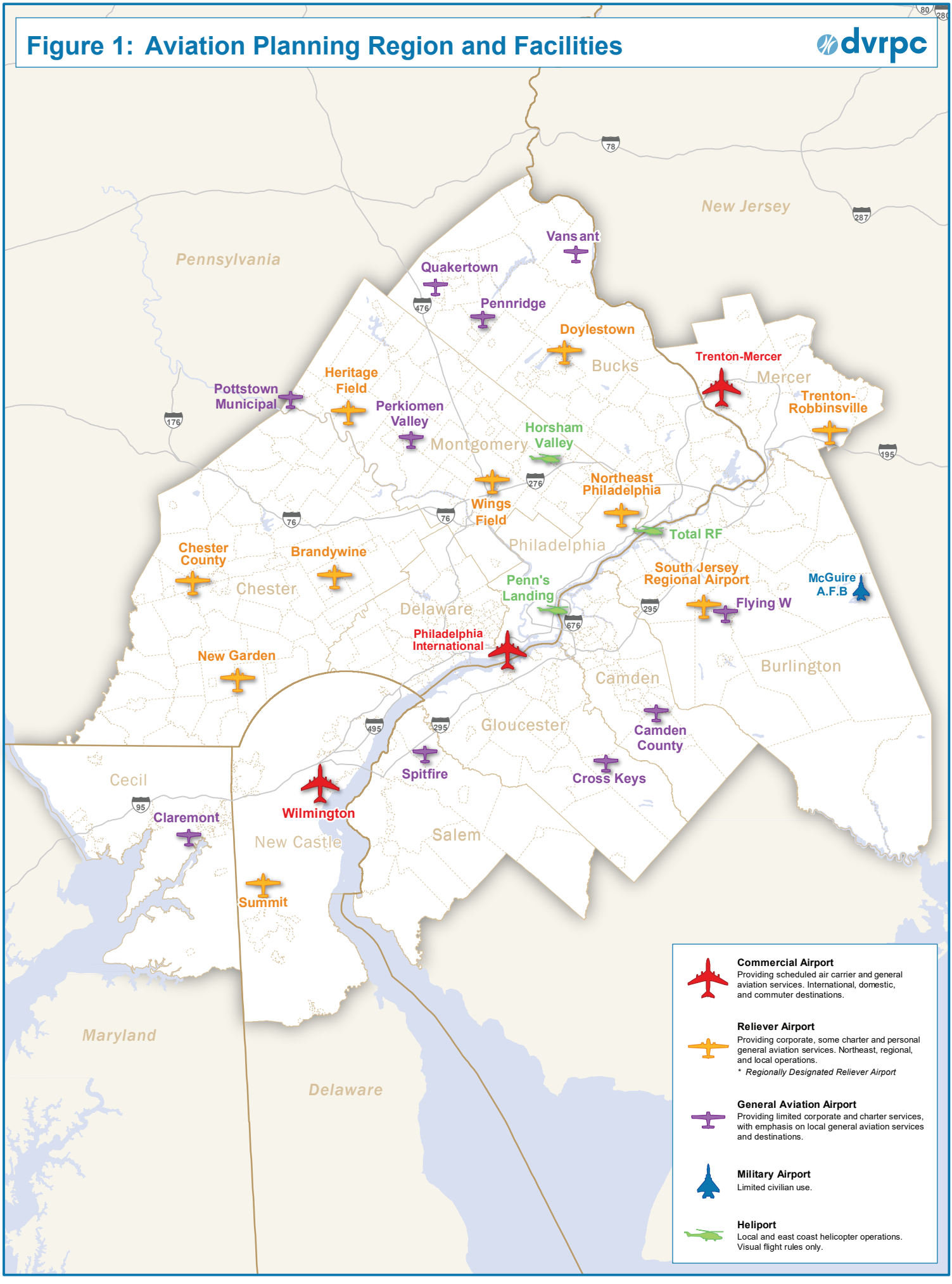
The nature of helicopter operations allows for very flexible deployment of these aircraft in a variety of locations and contexts. The ability to perform vertical take-offs and landings allows for helicopters to operate nearly anywhere in the region with enough horizontal clearance. In addition, these operational characteristics create challenges at public-use airports as the mixing of fixed-wing and helicopter operations can create potential safety challenges. This study was advanced to begin to explore the role of helicopter activity and facilities in the region.

Purpose

One of the primary goals of this report is to identify and inventory helicopter activity and resources in the DVRPC aviation planning region. The DVRPC Regional Aviation System Plan (RASP) facilities and region are illustrated in Figure 1. Helicopter activity is an essential component of the regional and national aviation system. These aircraft serve a variety of operations, including corporate/business, government, emergency medical service, charter, news/media, and utility. Helicopters have the capability to serve a wide range of facilities and locations in the region as helipads can be developed almost anywhere. In order to properly plan for the regional aviation system, there is a need to understand the full inventory of these facilities in the region. This report seeks to:

- provide regional context and history on helicopters in the Delaware Valley;
- inventory and classify helicopter-serving facilities;
- develop a preliminary inventory of based helicopters;
- understand the amenities and services of public-use facilities serving helicopters; and
- identify needs and next steps to enhance the planning for helicopters in the region.

Figure 1: Aviation Planning Region and Facilities



Types of Helicopter Facilities

Helicopters in the region use a combination of public and private airports and heliports. As a part of this study, DVRPC evaluated existing classification systems and defined a regional classification for helicopter facilities. This enhanced classification system provides a better understanding of the activity at the facilities and provides the foundation for classifying heliports not captured by FAA inventory systems.

Many of the region's helicopter facilities are required to submit data to the FAA through the FAA 5010 Master Record reporting system. FAA 5010 reports include airport and heliport information, including location ID, ownership, use, contact information, and facility conditions. The reports also contain information on the number of aircraft based at each airport or heliport, and information on the overall operations of the facility. The 2018 FAA 5010 Master Records were a primary source of information about helicopter activities and facilities in the region.

FAA Heliport Classifications

The FAA defines the following four types of landing facilities for helicopters:

- **Private-Use Heliports** – are owned by individuals, corporations, and government agencies that control their own heliport access.
- **Public-Use General Aviation Heliports** – are usually publicly owned, although they can also be privately-owned with controlled access.
- **Transport Heliports** – are developed to provide the community with a full range of vertical flight services, including scheduled service by commercial operators using helicopters.
- **Hospital Heliports** – are typically treated as “special cases” of private-use facilities by the FAA because they provide a unique public service.

These classifications provide one layer of data on the type of activity and operations for a single facility. However, a refined classification system was defined for regional facilities to provide further context and to capture those facilities not otherwise captured by the FAA classification and reporting system.

DVRPC Heliport Classifications

DVRPC utilized facility ownership information in the FAA 5010 Master Reports to further identify the primary use of the facility. The airports and heliports were classified by type as Private/Corporate, Government, Military, Medical, and Public. The facility classification provides a more robust understanding of helicopter facility function that is useful for regional aviation planning. The list below provides a description of each of the DVRPC helicopter facility types that include airports with helicopter activity.

- **Private/Corporate**: Facility that is limited to private citizens or corporations for business or recreational use.
- **Government**: Facility serves some government function, such as police or fire emergency service, public utility, or infrastructure maintenance.
- **Military**: Facility is limited to military helicopters only.
- **Medical**: Facility that serves hospitals or medical facilities as emergency medical transportation or ambulances.
- **Public**: Open for public use. Facility that typically provides a range of services from fuel to repairs, as well as landing sites for all types of helicopters.

CHAPTER 2:

Philadelphia: The Cradle of American Rotor Winged Flight

History

As the birthplace of American helicopters, Greater Philadelphia was an early incubator for rotor winged flight and has remained a center of rotor wing innovation ever since. During the 1920s in Montgomery County, a team of aviators led by Harold F. Pitcairn developed the first rotor wing vehicle to receive certification of airworthiness in the United States. Pitcairn's achievement spurred numerous helicopter innovators in the region over the next several decades and created a concentration of helicopter manufacturers.

To honor this legacy, the American Helicopter Museum and Education Center was founded in Chester County in 1996 by the Philadelphia Chapter of the American Helicopter Society. The museum keeps a record of the origins and development of rotary wing aircraft with an aim to educate and inspire future generations of aviators. It uses live demonstrations and interactive programming to provide historical and scientific education and expose regional youth to the excitement of vertical lift flight. Started with the donation of several vintage helicopters by Peter Wright, founder of Keystone Helicopter (acquired by Sikorsky in 2005) and a naval aviator with the Flying Tigers during World War II, the museum has grown over 20 years from a vacant hanger at the Brandywine Airport to a major tourist destination with over 35,000 annual visitors per year. Highlights include over 30 vintage aircraft on display, with several others currently being restored; an extensive research library; and programming designed for schoolchildren of all ages.

Regional Innovators and Manufacturers

Greater Philadelphia has been a major helicopter manufacturing center since at least the 1940s, and today is home to major manufacturing or repair facilities for many renowned names in helicopter production, including Boeing, Leonardo, and Sikorsky. These facilities serve the region, but are also broad in scope. They support, service, and manufacture an array of rotor winged aircraft and are pushing the limits of vertical lift flight across the nation and abroad.

In addition to the three major manufacturers, the region also features other helicopter-related companies, such as Carson, which is based in Perkasie, Pennsylvania, and operates a fleet of Sikorsky helicopters. Carson is renowned for their improvements and modifications to components of the Sikorsky S61 Helicopter. Carson's S61 Composite Main Rotor Blade is used worldwide and enables the S61 to carry more weight, fly faster, and travel farther than it would with other rotor blades on the market. With this density of cutting-edge manufacturing, Greater Philadelphia continues to be a powerhouse in rotor wing aircraft design, production, and distribution.

Boeing

Boeing's roots in the Philadelphia area extend back to the 1940s with the founding of the Piasecki Helicopter Corporation in Delaware County, which produced tandem rotor helicopters for the U.S. Navy. Piasecki was renamed Vertol Corporation in 1956 and then was acquired by Boeing in 1960, when it was again renamed Boeing Vertol.

Boeing's 355-acre Ridley Park facility on the bank of the Delaware River has been a major helicopter manufacturing center since the 1940s and currently employs over 4,000 people. Boeing's facility is a major supplier of dual-rotor Chinook helicopters for the U.S. Navy. Leonardo and Boeing are also pioneering new tilt rotor aircrafts, like the V-22 Osprey and the AW609, that blur the line between conventional airplanes and helicopters, resulting in innovative aircrafts that have the range and speed of airplanes and the versatility of

helicopters. Despite recent expansion plans and the awarding of a $4.2 billion contract for V-22 Ospreys for the U.S. Navy, Marine Corps, Air Force, and the government of Japan, Boeing's Ridley Park operation was recently impacted by the cancellation of U.S. Army orders for Chinook upgrades.

Leonardo

Leonardo, formerly AgustaWestland, is relatively new to the area, having opened offices in Philadelphia in 2005. Today, Leonardo runs a production and repair facility with 600 employees adjacent to the Northeast Philadelphia Airport, representing the Rome-headquartered company's primary U.S. manufacturing presence. The facility handles final assembly and servicing for a wide variety of helicopter models, both military and civilian.

In September 2018, Leonardo was awarded a joint $325 million contract with Boeing to replace the U.S. Air Force UH-1n (Huey) helicopters, which date from the 1960s. Leonardo will assemble the helicopters at its Northeast Philadelphia facility before handing them off to Boeing, which will equip the helicopters with weapons systems in its Ridley Park factory.

Sikorsky

Sikorsky's history in the Philadelphia region begins with the Keystone Helicopter Corporation, founded in 1953 and acquired by Sikorsky in 2005. In 2015 Sikorsky was acquired by, and now operates as a subsidiary of, Lockheed Martin. Sikorsky's area operations are based in Coatesville, Chester County. In 2014, Sikorsky was awarded a $1.24 billion contract for a new fleet of six Marine One helicopters for the President of the United States that will be built in Coatesville. The helicopters are variations of Sikorsky's S-92 medium-lift model, also built in Coatesville, and are expected to enter service in 2020. Recent declines in civil aircraft markets globally have placed the Coatesville operation at risk. In June 2019, Lockheed Martin announced plans to close the facility by the end of the calendar year.

CHAPTER 3:

Aviation Facilities and Helicopter Activity

A literature review of helicopter activity inventories from other regions show that studies of aircraft activity typically rely on the FAA 5010 Master Record database, the FAA Aircraft Registry, and Biannual FAA General Aviation and Part 135 Activity surveys. These data sources are supplemented by local facility surveys. Since data in these sources is self-reported, the Airport Cooperative Research Program (ACRP) recommends that sampling counts of aircraft activity be used to confirm activity, especially at non-towered facilities.

The FAA has a statutory requirement to collect, maintain, and disseminate airport data for the safety and effectiveness of moving goods and services through air travel. The FAA collects this information from airports and heliports using the FAA 5010 Master Record reports.

DVRPC utilized aerial photographs and supplemental research in an attempt to verify that heliports reported in the FAA Master Record database are currently active. This process was effective for confirming the presence and location of paved heliports but was problematic for grass fields and unpaved helipads. Unless there was good evidence that an unpaved or grass helipad was still in use, these type of facilities are treated separately in this inventory.

Regional Helicopter Facilities by Type

The 2018 FAA 5010 Master Record database was accessed to identify the number and ownership type of airport and heliport facilities in the region. Helicopters are active at both airports and heliports. The FAA 5010 reports indicate the type of facility based on public or private ownership and use. DVRPC further divided the types of facilities included in the Master Record database into Private/Corporate, Government, Military, Medical, and Public. The facilities were classified as one of the five facility types based on specific facility ownership and use data provided in the FAA database. Most, if not all, of the Government, Military, and Medical aviation facilities are private facilities.

Reported Helicopter Facilities

According to the 2018 5010 Master Record report, there are 227 combined facilities with helicopter activity, with 140 heliports and 87 airports (Table 1). There are 136 helicopters based at these 227 facilities. Table 2 identifies the number of facilities per county in the region and further identifies the number of each type of facility in each county.

Table 1: Reported Regional Aviation Facilities by Type

Facility	Private / Corporate	Government	Military	Medical	Public	Total
Heliport	93	7	1	36	3	140
Airport	59	1	2	0	25	87
Total	**152**	**8**	**3**	**36**	**28**	**227**

Source: DVRPC analysis of FAA 5010 database, 2018

Table 2: Reported Regional Aviation Facilities by County and Type

County	Private / Corporate	Government	Military	Medical	Public	Total Aviation Facilities
Bucks, PA	32	0	0	4	5	41
Chester, PA	19	0	0	5	3	27
Delaware, PA	8	0	0	2	0	10
Montgomery, PA	21	0	1	6	6	34
Philadelphia, PA	8	1	0	9	3	21
Burlington, NJ	17	4	2	2	2	27
Camden, NJ	10	0	0	3	1	14
Gloucester, NJ	7	0	0	0	2	9
Mercer, NJ	8	3	0	1	2	14
Salem, NJ	12	0	0	1	1	14
New Castle, DE	6	0	0	3	2	11
Cecil, MD	4	0	0	0	1	5
Total	**152**	**8**	**3**	**36**	**28**	**227**

Source: DVRPC analysis of FAA 5010 database, 2018

Adjusted Helicopter Facilities

Preliminary evaluation of the FAA 5010 database revealed discrepancies between what was reported and what was known within the region. The study team conducted a verification process to attempt to identify helicopter facilities that were still active. The verification of facilities was conducted through the regional airport survey, aerial photographs, and online facility research, resulting in a revised regional aviation facility count. The verified regional aviation facilities include the adjusted FAA 5010 database and additional facilities identified in the inventory verification process from state records and aerial imagery.

Table 3 and Table 4 include the verified regional aviation facilities by type, and facilities by type and county.

Several reported facilities were easily identified as inactive from research and aerial inventory. The former Strawbridge and Clothier helipad (9PA4) is seen at left with HVAC equipment occupying the pad. A former corporate facility helipad (2PS0) is shown on the right after redevelopment as a residential development.
Aerial image sources: City of Philadelphia, 2017; and Southeastern Pennsylvania Regional Task Force, 2017.

The first step in the verification process was to remove private grass and turf facilities. In most cases these facilities were not able to be verified through aerial photos or internet research. Removing these facilities does not mean they are not currently active but does result in a more conservative inventory of aviation facilities in the region that can be verified through methods aside from the FAA 5010 reports. This step in the verification process resulted in the removal of 65 heliports and 52 airports in the regional inventory.

Grass and turf governmental, institutional, and public facilities were investigated and included in the inventory if staff could find evidence of continued use. Evidence of confirmed continued use included the presence of a critical public service like forest fire suppression or an active facility website describing the use of the facility. This review of government and institutional turf facilities resulted in the removal of one military (facility closed), and three medical (facilities merged, closed, or site numbers were redundant) facilities.

Table 3: Verified Regional Aviation Facilities by Type

Facility	Private / Corporate	Government	Military	Medical	Public	Total Aviation Facilities
Heliport	38	8	1	41	3	91
Airport	5	1	2	0	25	33
Total	**43**	**9**	**3**	**41**	**28**	**124**

Source: DVRPC, 2018

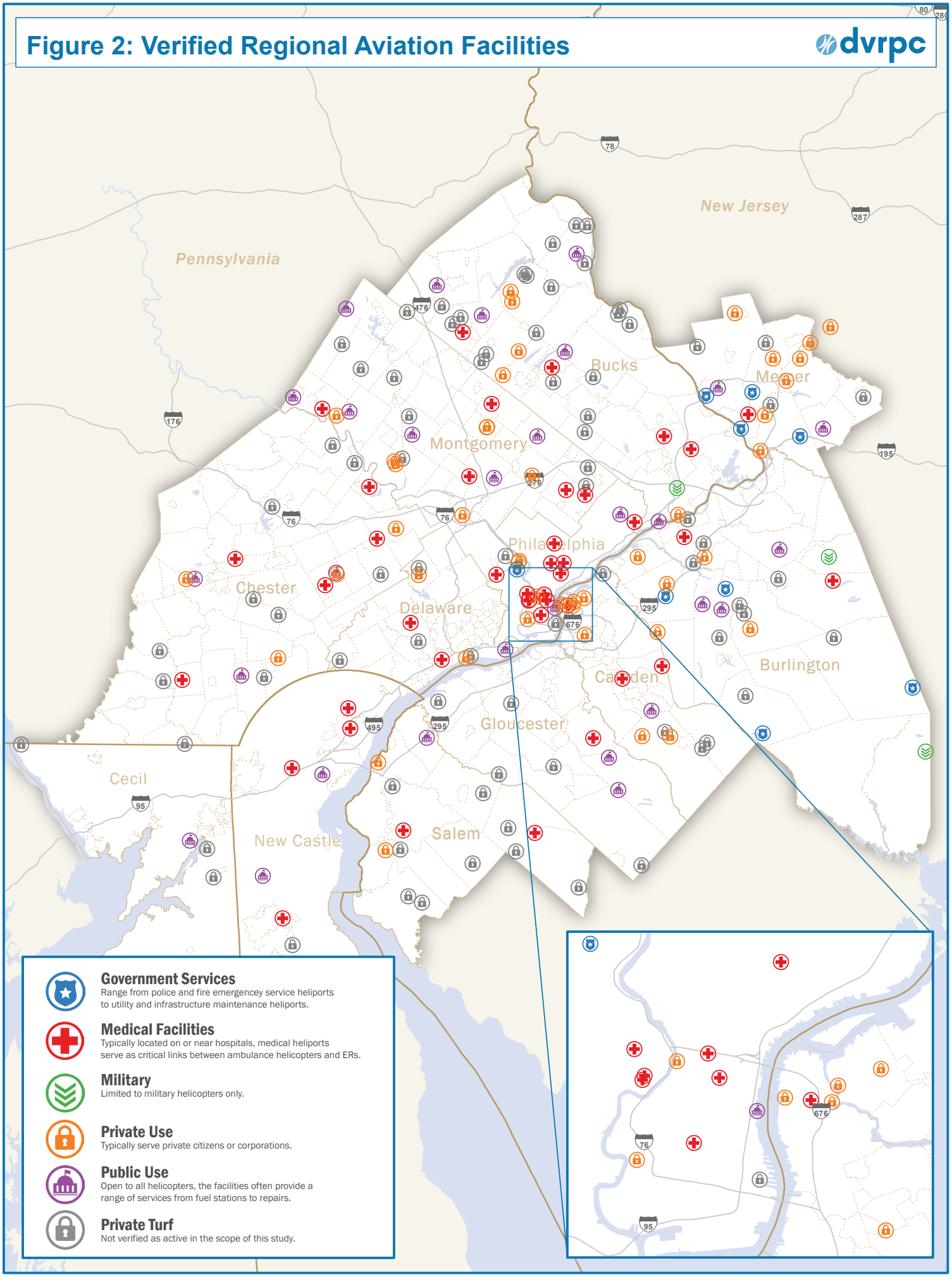
Table 4: Verified Regional Aviation Facilities by County and Type

County	Private / Corporate	Government	Military	Medical	Public	Total Aviation Facilities
Bucks, PA	5	0	1	4	5	15
Chester, PA	4	0	0	5	3	12
Delaware, PA	3	0	0	2	0	5
Montgomery, PA	8	0	0	6	6	20
Philadelphia, PA	2	1	0	11	3	17
Burlington, NJ	4	4	2	2	2	14
Camden, NJ	7	0	0	3	1	11
Gloucester, NJ	0	0	0	1	2	3
Mercer, NJ	8	4	0	1	2	15
Salem, NJ	2	0	0	2	1	5
New Castle, DE	0	0	0	4	2	6
Cecil, MD	0	0	0	0	1	1
Total	**43**	**9**	**3**	**41**	**28**	**124**

Source: DVRPC, 2018

Figure 2 shows the locations of the verified regional aviation facilities by type of facility, and the locations of the private grass and turf facilities. A full table of the reported and verified facilities is available in Appendix A.

Figure 2: Verified Regional Aviation Facilities



Based Helicopters

The FAA 5010 Master Record database includes information about the helicopters that are based in the counties in the DVRPC aviation planning region. The FAA defines a “based aircraft” as an aircraft that is operational and airworthy, which is based at a specific facility for a majority of the year.

The number of based aircraft in the region presents a picture of the aircraft that regularly take-off and land at airports and heliports in the region. The based aircraft number, however, only represents a portion of the total helicopter activity in the region because this number does not capture itinerant aircraft that frequent the region for business, recreation, or service, or do not spend a majority of the year based at regional facilities. In this report, based aircraft are assigned to the facility type and not necessarily the mission of the aircraft. For example, helicopters with government, military, or medical missions that are based at public aviation facilities are classified as “public” based helicopters.

As in the previous section, this report identifies the number of helicopters based at regional facilities solely on the FAA 5010 Master Record database in Table 5 and Table 6 and then reports the number of based helicopters at verified aviation facilities in the region in Table 7, Table 8, and illustrated in Figure 3.

Table 5: Reported Based Helicopter by Facility Type

Facility	Private / Corporate	Government	Military	Medical	Public	Total Based Helicopters
Heliport	55	1	N/A	9	2	67
Airport	6	4	N/A	0	59	69
Total	**61**	**5**	**–**	**9**	**60**	**136**

Source: DVRPC analysis of FAA 5010 database, 2018

Table 6: Reported Based Helicopters by County and Facility Type

County	Private / Corporate	Government	Military	Medical	Public	Total Based Helicopters
Bucks, PA	18	0	N/A	1	3	22
Chester, PA	22	0	N/A	0	11	33
Delaware, PA	2	0	N/A	0	0	2
Montgomery, PA	7	0	N/A	2	8	17
Philadelphia, PA	0	0	N/A	1	7	8
Burlington, NJ	2	5	N/A	0	5	12
Camden, NJ	5	0	N/A	3	0	8
Gloucester, NJ	2	0	N/A	0	2	4
Mercer, NJ	1	0	N/A	0	17	18
Salem, NJ	1	0	N/A	1	4	6
New Castle, DE	0	0	N/A	1	4	5
Cecil, MD	1	0	N/A	0	0	1
Total	**61**	**5**	**–**	**9**	**61**	**136**

Source: DVRPC analysis of FAA 5010 database, 2018

The FAA 5010 Master Record database indicates that the majority of the helicopters based in the region are based at public-use airports and private- or corporate-use heliports. When private turf and grass facilities

were removed from the inventory, the number of based helicopters at private facilities was reduced by over 50 percent.

Table 7: Verified Based Helicopters by Facility Type

Facility	Private / Corporate	Government	Military	Medical	Public	Total Based Helicopters
Heliport	30	1	N/A	9	2	42
Airport	2	4	N/A	0	59	65
Total	**32**	**5**	**–**	**9**	**61**	**107**

Source: DVRPC, 2018

After the verification process, the number of based helicopters at public use remained consistent. This result was expected due to the fact that public-use airports' continued use can be verified, and they generally have storage facilities and amenities to house, fuel, and even repair aircraft based at these facilities. An inventory of amenities at regional aviation facilities is presented in Chapter 4 of this report.

Table 8: Verified Based Helicopters by County and Facility Type

County	Private / Corporate	Government	Military	Medical	Public	Total Based Helicopters
Bucks, PA	9	0	N/A	1	3	13
Chester, PA	16	0	N/A	0	11	27
Delaware, PA	1	0	N/A	0	0	1
Montgomery, PA	0	0	N/A	2	8	10
Philadelphia, PA	0	0	N/A	0	7	7
Burlington, NJ	1	5	N/A	0	5	11
Camden, NJ	3	0	N/A	4	0	7
Gloucester, NJ	0	0	N/A	0	2	2
Mercer, NJ	1	0	N/A	0	17	18
Salem, NJ	1	0	N/A	1	4	6
New Castle, DE	0	0	N/A	1	4	5
Cecil, MD	0	0	N/A	0	0	0
Total	**32**	**5**	**–**	**9**	**61**	**107**

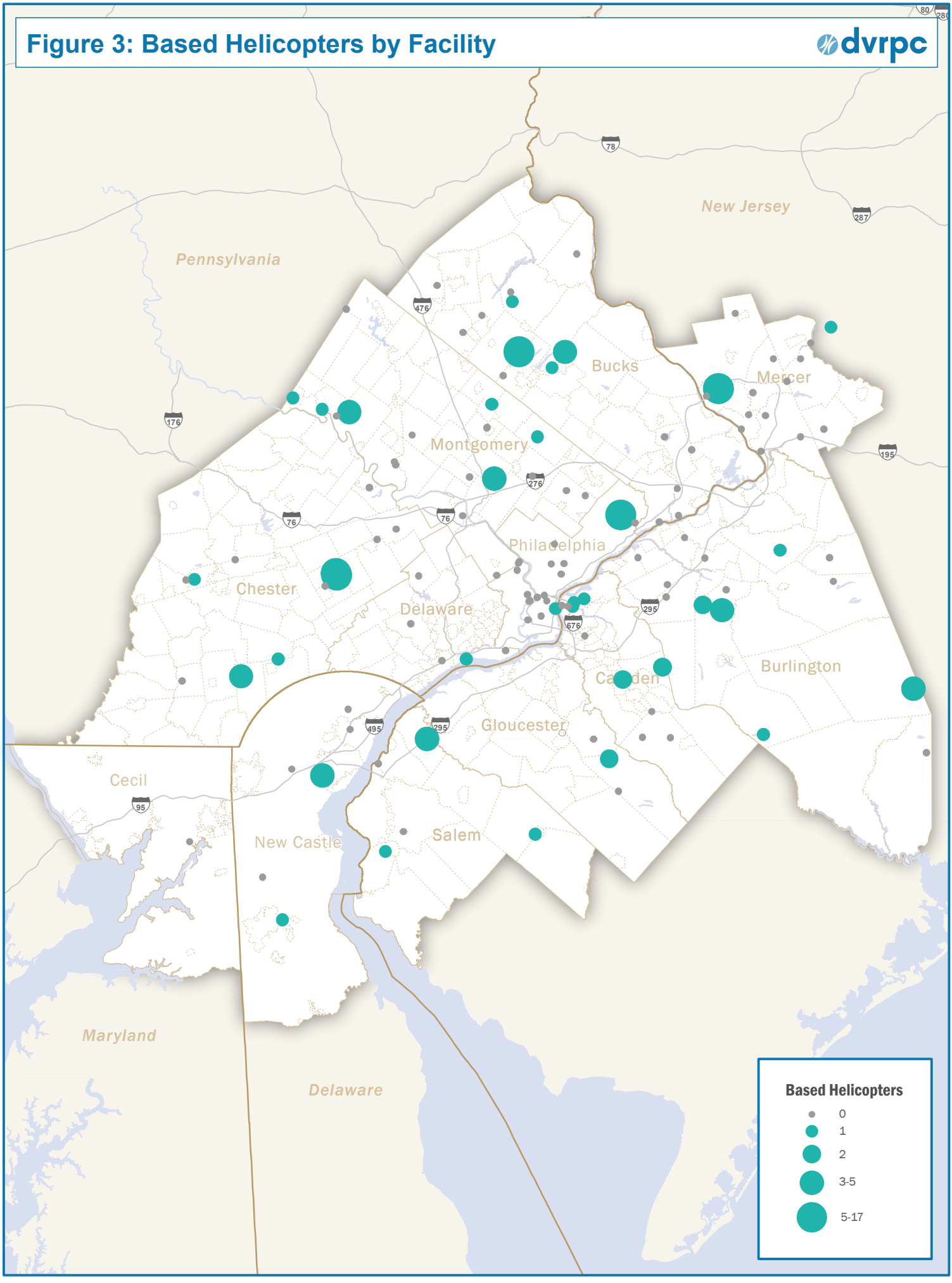
Source: DVRPC, 2018

Medical Use Helicopters

Medical helicopters serve healthcare facilities and transport patients to emergency care from accident scenes or in instances when terrain, geography, or condition of the patient warrants air evacuation. Medical helicopters also transfer patients between medical facilities. Personnel on medical helicopters are trained to care for patients during transit. Medical helicopters can serve as air ambulances during evacuation, rescue, and transfer missions.

There are 41 verified heliports in the region that have been identified as "medical" through data in the FAA 5010 reports by their association with a hospital or healthcare system and supplemental research of the regional health systems. Seven of these heliports have helicopters based at those facilities.

Figure 3: Based Helicopters by Facility



Most of the major hospitals in the region have helipads or the capability of using helicopters to transport patients. Helipads at medical facilities are generally well marked and easily verified through aerial photographs. In the City of Philadelphia, helipads are typically located on the roofs of buildings. One verified medical facility uses a grass or turf landing area to accommodate helicopter transport of patients; this is an uncommon situation in this region.

Table 9 includes the medical systems and hospitals with verified helipads serving the facility.

Table 9: Medical Heliports by County

County	Facility	County	Facility
Bucks, PA	Doylestown Hospital	**Philadelphia, PA**	Hahnemann University Hospital
Bucks, PA	Grandview Hospital	**Philadelphia, PA**	Hospital of the University of Pennsylvania
Bucks, PA	Jefferson Bucks Hospital	**Philadelphia, PA**	Jefferson Torresdale Hospital
Bucks, PA	St Mary Medical Center	**Philadelphia, PA**	St Christopher's Hospital for Children
Chester, PA	Brandywine Hospital	**Philadelphia, PA**	Penn Presbyterian Medical Center
Chester, PA	Paoli Memorial Hospital	**Philadelphia, PA**	Temple University Hospital
Chester, PA	Phoenixville Hospital	**Philadelphia, PA**	Thomas Jefferson University Hospital
Chester, PA	Chester County Hospital	**Burlington, NJ**	Deborah Heart & Lung Center
Chester, PA	Jennersville Regional Hospital	**Burlington, NJ**	Lourdes Medical Center of Burlington County
Delaware, PA	Crozer-Chester Medical Center	**Camden, NJ**	Cooper Kelemen Medical Center
Delaware, PA	Riddle Hospital	**Camden, NJ**	Jefferson Stratford Hospital
Montgomery, PA	Abington Hospital – Jefferson	**Camden, NJ**	Virtua-Voorhees Hospital
Montgomery, PA	Abington Lansdale Hospital – Jefferson	**Gloucester, NJ**	Jefferson Washington Township Hospital
Montgomery, PA	Holy Redeemer Hospital	**Mercer, NJ**	Capital Health Regional Medical Center
Montgomery, PA	Lankenau Hospital	**Salem, NJ**	Inspira Medical Center
Montgomery, PA	Pottstown Hospital Tower Health	**Salem, NJ**	Salem County Memorial Hospital
Montgomery, PA	Suburban Community Hospital	**New Castle, DE**	A I Dupont Children's Hospital
Philadelphia, PA	Albert Einstein Medical Center	**New Castle, DE**	Christiana Care Health Centers
Philadelphia, PA	Children's Hospital of Philadelphia	**New Castle, DE**	Christiana Hospital
Philadelphia, PA	Constitution Health Plaza	**New Castle, DE**	Wilmington Hospital
Philadelphia, PA	Episcopal Hospital		

Source: DVRPC, 2018

Approximately 16 percent of the hospitals in the region with helipads have helicopters based at their facility. Other medical helicopters are based at regional public and private aviation facilities. These helicopters are operated by various service providers, including JeffSTAT, Temple Transport Team, PennStar, and Cooper Health. In many cases these health systems rely on third-party contractors to provide the aviation service (pilot, aircraft, maintenance). Two well-known national aviation service operators in the region are Metro

Aviation and Air Methods. Medical heliports with helicopters based at the facility, the counties where they are located, and the number of based helicopters at those facilities are identified in Table 10.

Table 10: Medical Facilities with Based Helicopters

Facility	County	Based Helicopters
Doylestown Hospital	Bucks, PA	1
Abington Lansdale Hospital – Jefferson	Montgomery, PA	1
Pottstown Hospital Tower Health	Montgomery, PA	1
Virtua-Voorhees Hospital	Camden, NJ	2
Jefferson Washington Township Hospital	Gloucester, NJ	2
Inspira Medical Center	Salem NJ	1
Christina Care Health Centers	New Castle, DE	1
Total		**9**

Source: FAA, 2018

In addition to these medical facilities, public-use heliports and airports in the region also host either based or itinerant medical helicopters. Table 11 identifies the public aviation facilities that have based or itinerant medical helicopter usage. This data is based on responses from the public airport survey conducted as part of this inventory. Based on outreach with medical helicopter operators and facilities that have frequent itinerant operations, it was determined that the itinerant activity is mostly related to maintenance, fueling, or for storage during weather events.

Table 11: Public Facilities Used by Medical Helicopters

Facility	County	Based Medical Helicopters	Itinerant Medical Helicopter
Brandywine Airport	Chester, PA	–	Yes
Heritage Field	Montgomery, PA	Yes	–
Pottstown Airport	Montgomery, PA	–	Yes
Wings Field	Montgomery, PA	Yes	Yes
Penn's Landing Heliport	Philadelphia, PA	Yes	Yes
Northeast Philadelphia Airport	Philadelphia, PA	–	Yes
Philadelphia International Airport	Philadelphia, PA	–	Yes
Claremont Airport	Cecil, MD	–	Yes

Source: DVRPC, 2018

Public Service/Government Helicopters

Helicopters perform a public service role in the Greater Philadelphia region. Helicopters are used in the region for aerial support for police activity, rescue operations, and fighting forest fires. According to the data contained in the FAA 5010 reports there are seven aviation facilities that perform a state or local government function. There are five based helicopters at two of these facilities, both owned by the New Jersey Forest Fire Service in Burlington County, New Jersey. Additional police, rescue, and fire service helicopters based at public airports and heliports in the region were identified through the airport facility survey conducted by DVRPC in 2017 and internet research.

Philadelphia Police Department, Delaware State Police, and New Jersey State Police maintain helicopters at public airports in the Philadelphia region. Pennsylvania State Police, other state, and local public service helicopters periodically use public airfields in the region when serving the area. The range and jurisdiction of modern state police helicopters allow these vehicles to serve both the Philadelphia region and adjacent urbanized areas, and there is adequate capacity at regional public airports to accommodate these itinerant missions.

Table 12 identifies the aviation facilities in the region that are used by state or local government agencies.

Table 12: Aviation Facilities Used by Public Service or Government Helicopters

Facility	Facility Type	County	Agency Use	Based Helicopters	Itinerant Helicopter
Brandywine Airport	Airport	Chester, PA	Law Enforcement	–	–
Heritage Field	Airport	Montgomery, PA	PA State Police	–	Yes
Pottstown Municipal Airport	Airport	Montgomery, PA	N/A	No	Yes
Northeast Philadelphia Airport	Airport	Philadelphia, PA	Philadelphia Police Aviation Unit	Yes	–
PA State Police Area Six	Heliport	Philadelphia, PA	PA State Police	–	Yes
Atsion Helistop	Heliport	Burlington, NJ	NJ Forest Fire Service	–	Yes
Coyle Field	Airport	Burlington, NJ	NJ Forest Fire Service	Yes	–
Mount Holly	Heliport	Burlington, NJ	Burlington County Mosquito Commission	–	–
Hamilton Headquarters Troop C	Heliport	Trenton, NJ	NJ State Police	–	Yes
Trenton	Heliport	Trenton, NJ	NJ Department of the Treasury	–	Yes
Trenton Mercer Airport	Airport	Trenton, NJ	N/A	Yes	Yes
Summit Airfield	Airport	New Castle, DE	DE State Police	Yes	–

Source: DVRPC, 2018

News Helicopters

The Philadelphia Designated Market Area (DMA) is the fourth largest in the nation with regards to population and geographically covers all of the counties in the Philadelphia FAA planning area. The Philadelphia DMA is served by four major television news outlets, and three (CBS 3, NBC 10, and WPVI 6) of those outlets utilize helicopters for news and traffic reporting.

News helicopters are private aircraft that are outfitted with specialized radio and camera equipment. News helicopters differ from other private aircraft due to the high frequency of take-offs and landings to cover breaking news and traffic conditions.

According to the 2017 DVRPC aviation facilities survey, news helicopters are based at Penn's Landing Heliport and the Northeast Philadelphia Airport. These facilities are equipped to handle multiple daily take-offs and landings. The news helicopters also utilize public airports throughout the region to refuel and transport reporters.

Table 13 identifies the facilities with based and iterant news media helicopter traffic. Data in this table is based on the DVRPC aviation facilities survey and internet research.

Table 13: Aviation Facilities Utilized by News Media Helicopters

Facility Name	Facility Type	County	Based News Helicopters	Iterant News Helicopter Use
Pennridge Airport	Airport	Bucks, PA	–	Yes
New Garden Airport	Airport	Chester, PA	–	Yes
WCAU*	Helipad	Montgomery, PA	–	Yes
Northeast Philadelphia Airport	Airport	Philadelphia, PA	Yes	Yes
Philadelphia International Airport	Airport	Philadelphia, PA	–	Yes
Penn's Landing	Heliport	Philadelphia, PA	Yes	Yes
South Jersey Regional Airport	Airport	Burlington, NJ	–	Yes

Source: DVRPC, 2018

**NBC 10 relocated to the Comcast Tech Center in October 2018; the status of this helipad could not be confirmed.*

Military and National Guard Helicopters

Historically the Greater Philadelphia region has hosted a number of military air operations and aeronautical research facilities. In the 1990s the Federal Base Realignment and Closure (BRAC) Commission began the process of closing and realigning military bases in the region, including two active naval air bases, a jet engine research center, and two U.S. Army Reserve Centers that hosted aircraft activity. Table 14 identifies the military facilities in the region that were closed or realigned by the BRAC Commission, the year of closure, and aviation activity at the facilities.

Table 14: Military Air Bases Closed or Realigned by BRAC Since 1990

Facility	County	Action	Aviation Activity
Warminster Naval Air Warfare Center	Bucks, PA	Facility closed in 1997	Active aircraft use
W. Reese Army Reserve Center	Delaware, PA	Facility closed in 2011	Intermittent aviation activity
North Penn Army Reserve Center	Montgomery, PA	Facility closed in 2011	Intermittent aviation activity
Willow Grove Joint Naval Air Station Reserve Base	Montgomery, PA	Facility closed in 2011	Active aircraft use
Fort Dix Army Training Center	Burlington, NJ	Realigned to combine operations with McGuire Joint Air Force Base	Aviation activities still operational
Trenton Naval Air Warfare Center	Mercer, NJ	Facility closed in 1997	Research facility adjacent to Trenton-Mercer Airport

Source: BRAC Program Management Office, 2018

Table 15: Military and Public-Use Airports with Military Landing Rights

Facility	County	Service
Bristol Army Reserve Center	Bucks, PA	US Army
Doylestown Airport	Bucks, PA	Public Use with Military Landing Rights
Quakertown Airport	Bucks, PA	Public Use with Military Landing Rights
Brandywine Airport	Chester, PA	Public Use with Military Landing Rights
New Garden Airport	Chester, PA	Public Use with Military Landing Rights
GO Carlson Airport	Chester, PA	Public Use with Military Landing Rights
Pottstown Municipal Airport	Montgomery, PA	Public Use with Military Landing Rights
Northeast Philadelphia Airport	Philadelphia, PA	Public Use with Military Landing Rights
Philadelphia International Airport	Philadelphia, PA	Public Use with Military Landing Rights
Joint Base McGuire-Dix-Lakehurst	Burlington, NJ	U.S. Air Force, Army, and Navy
Warren Grove Range	Burlington, NJ	New Jersey Air National Guard
Camden County Airport	Camden, NJ	Public Use with Military Landing Rights
Trenton-Mercer Airport	Mercer, NJ	Public Use with Military Landing Rights
Spitfire Aerodrome	Salem, NJ	Private Use with Military Landing Rights
New Castle Airport	New Castle, DE	Delaware Air National Guard

Source: DVRPC, 2018

The FAA 5010 reports indicate that there are currently three military facilities in the region that have helicopter activity. Additionally, the FAA 5010 reports and the DVRPC Aviation Activity Survey indicate that there are 12 airports in the region that allow military landing rights. As with government helicopters, public-use airports and heliports are available for military helicopter use in the case of public safety or national security emergencies. Information on based military helicopters is not available for security reasons.

Table 15 lists the airports and heliports in the region that are either noted as military facilities or report some level of military flight activity.

Helicopter Registrations

All aircraft are required to register with the FAA before being operated in the United States. Registration information includes the make, model, serial number, and registration number of the aircraft, as well as proof of ownership and the registered address of the owner or corporation that owns the aircraft.

There are 607 helicopters registered in the 12-county FAA Philadelphia region. Registrations provide information about the helicopter ownership but not necessarily the location of where the helicopter operates. For example, there are 510 helicopters registered in New Castle County, Delaware. This is by far the most of any county in the study area. This high number of registrations is indicative of the number of corporate headquarters based in northern Delaware. These helicopters are not all based in New Castle County and, in fact, may rarely visit Delaware.

Table 16: Helicopter Registrations by County

County	Registered Helicopters	Based Helicopters (FAA 5010 Reports)
Bucks, PA	7	22
Chester, PA	14	33
Delaware, PA	3	2
Montgomery, PA	4	13
Philadelphia, PA	39	11
Burlington, NJ	1	12
Camden, NJ	1	8
Gloucester, NJ	27	5
Mercer, NJ	4	17
Salem, NJ	1	5
New Castle, DE	510	6
Cecil, MD	0	1
Total	**611**	**135**

Source: DVRPC, 2018

A brief survey of the tail numbers of medical and news helicopters based in the Greater Philadelphia region indicate that those helicopters, although working and operating in the Philadelphia region, are often registered to a different location or the headquarters of the organization providing the aviation services.

Table 16 identifies the number of registered helicopters in the region by the county where they are registered and the number of reported based helicopters in those counties.

The number of registered helicopters in the region is presented for informational purposes but is not a reliable source of information regarding helicopter activity in the region.

Summary

According to the FAA 5010 reports, Medical facilities account for one-third of all the helicopter facilities in the region and almost 10 percent of the based helicopters in the 12-county FAA Philadelphia region. Most of these facilities are associated with the healthcare networks in the City of Philadelphia that host rooftop helipads. Hospitals without based helicopters are often served by medical service helicopters that are based at public or private heliports or airports.

Helicopters based at Private/Corporate and Public facilities account for nearly two-thirds of the remaining aviation facilities and 90 percent of the remaining based helicopters. News, Government, and Military facilities and helicopters represent a very small percentage of the number of active helicopter facilities and based aircraft in the region; however, with multiple daily flights of news helicopters, as well as incident management and training protocols for government and military helicopters, these applications may represent a significant percentage of helicopter activity in the region.

Historic review of aviation facilities in the region indicates that the number of helicopter facilities has been declining. Typically helicopters require very little space for take-off and landing, and this region hosted a number of grass or turf landing pads for recreational and itinerant helicopter users. With the spread of suburban development, closing of National Guard and Reserve centers, and the consolidation of medical centers and government services, many of these less formal facilities have fallen into disuse. The remaining public airports provide a critical transportation service and form the backbone of the helicopter activity in the region.

The types of helicopter missions from public and private facilities encompass all types of helicopter missions, including recreational, commuter, corporate, government, medical, military, and news missions. The four counties with the highest number of publicly and privately based helicopters (Bucks, Montgomery, Chester in Pennsylvania, and Mercer in New Jersey) are counties with high employment and open spaces available to accommodate public airports and private heliport facilities. Public helicopter activity in Philadelphia is restricted to the Northeast Philadelphia and Philadelphia International airports, and Penn's Landing Heliport. Other helicopter activity in the city is largely restricted to rooftop helipads due to the lack of open spaces to accommodate on-ground facilities.

The DVRPC survey of public aviation facilities provides a limited view of the types and relative magnitude of missions of itinerant and based helicopters from these facilities, but a more rigorous survey will be required to obtain a more accurate picture of the mission activities being conducted from these facilities. The survey results are presented in Chapter 4 of this report.

CHAPTER 4:

Public Airport Helicopter Activity Survey

In 2017, DVRPC staff conducted an online survey of 27 public airports and heliports in the 12-county DVRPC aviation planning region. The purpose of the survey was to gather a more comprehensive picture of the helicopter activity and amenities available at public-use aviation facilities in the region than is available through reports and publicly available resources. The survey allowed each facility to provide depth and explanation as to their relationship with helicopter usage in the region, including take-offs and landings, pilot amenities, hangars and storage, and the missions and organizations using the facilities.

As with any survey, the results are only as good as the respondents' willingness to share information. This survey demonstrated a good general response rate (over 70 percent), but there were varying levels of information provided by each of the airports reporting about activity at their facilities. These differences can be attributed to both staff capacity at the facilities and the airports' desire to maintain data privacy.

Despite minor differences in the responses to the survey, each of the respondents provided valuable and usable data that helps DVRPC present a more complete picture of helicopter activity in the region.

Methodology

During the summer of 2017, online surveys were distributed to 27 regional airports in the 12-county FAA Philadelphia region. The survey asked 16 questions aimed at estimating the number of helicopter take-offs at the facilities, the characteristics of the helicopters using the facilities, the services provided by the airports, and needs and concerns of the airport operators. DVRPC received responses from 20 airports (74 percent response rate) reporting helicopter activity.

The 16-question survey was posted at surveymonkey.com. The survey instrument and delivery mechanism were vetted through the Helicopter Activity Steering Committee (see Appendix B) at the June 23, 2017, meeting of the committee. Twenty-seven regional airports were mailed and emailed invitations and the links to the survey, as well as background information as to the use and purpose of the survey. DVRPC staff followed up survey requests with phone calls. The full survey instrument is documented in Appendix C. Survey results were compiled, and analysis results are presented in this section of the report.

Results

Each of the responding airports included identifying information in their returned surveys. Identifying information is important in the context of the greater Helicopter Activity report but is not included in this survey results section in an effort to protect the data privacy of the airports and to encourage candid responses to the survey questions.

Helicopter Activity

Respondents reported an estimated 15,028 helicopter take-offs from 20 regional facilities in 2016. The majority of these reported take-offs were estimates developed by airport staff. Other inventory assessment methods included logbook entries, audio/visual counts, and estimates from fuel sales. These numbers are assumed to be underestimates for the region because two of the assumed most active airports for helicopter activity in the region either did not report any helicopter activity or did not distinguish between rotorcraft and fixed wing activity in their aircraft activity inventory survey responses, and were therefore not counted in the helicopter statistics.

Table 17 indicates the number of estimated helicopter take-offs in 2016, the estimation method used, number of based helicopters at each facility, and the number of helipads at each facility.

Table 17: Helicopter Use Statistics from Public Airport Survey

Respondent	2016 Take-offs	Estimation Method	Based Helicopters	Helipads	Notes
1	40	estimates	0	0	
2	1,755	estimates	2	3	
3	300	fuel sales, audio/visual counts, estimates	1	1	
4	2,307	tenant contacts	>10	0	
5	520	estimates	7	0	
6	12	fuel sales	0	0	
7	50	estimates	0	0	
8	150	log book, fuel sales	1	0	
9	750	estimates	2	0	
10	1,050	estimates	0	0	
11	520	estimates	3	0	
12	12	estimates	0	1	
13	120	audio/visual counts	>10	0	
14	720	fuel sales, ramp fees	0	0	
15	N/A	log book	>10	3	Declined to report take-offs
16	294	log book, fuel sales	1	0	
17	998	counts	0	0	
18	5,000	estimates	6	2	
19	N/A		>10	0	Zero public helipads. Doesn't distinguish between rotor wing and fixed wing take-offs in activity reports
20	430	fuel sales, audio/visual counts	3	6	
Total	15,028		–	16	

Source: DVRPC, 2018

Helicopter activity varies widely at public airports in the region, from a low of 12 take-offs in 2016 to a high of 5,000. The top five airports reporting helicopter activity represent 72 percent of the reported helicopter take-offs. It is important to note that two major known locations of helicopter activity in the region did not report helicopter activity.

The respondents reported at least 66 based helicopters at the 20 facilities. This is greater than the 58 reported based helicopters at public airports in the 5010 reports, indicating the difficulty of obtaining accurate data regarding based helicopters in the region.

Helicopter Applications

Survey responses indicate that a significant amount of helicopter activity is taking place at public facilities in the region. The surveys also indicate that these airports are critical to providing either permanent or itinerant bases of operations for medical, government, news, police, and military missions.

Of the 20 airports that responded to the survey, four reported having greater than 10 helicopters based at the facility. One of these four was the airport that did not share helicopter activity, and another one of the four did not distinguish between helicopter and fixed wing take-offs in their activity counting programs.

Five of the 20 (20 percent) facilities reported hosting flight schools or pilot training activities, and 15 (75 percent of respondents) indicated that specific entities or agencies, such as hospitals, state police, or news organizations, used their airports.

The airports were asked to report the top three applications of based and itinerant helicopters using their facilities. Fifteen respondents answered the question regarding based helicopters, and all 20 answered the question regarding itinerant helicopters. This difference is largely because not all of the airports host based helicopters. The application options given in the question were medical, police/fire/rescue, executive/corporate, news, charter/tourism, industry/heavy lift, agriculture, military, recreation/private use, commercial/freight, and other. Respondents listed activities such as pilot training, test flights, helicopter production, and maintenance as examples of activities in the "other" category.

Based Helicopter Applications

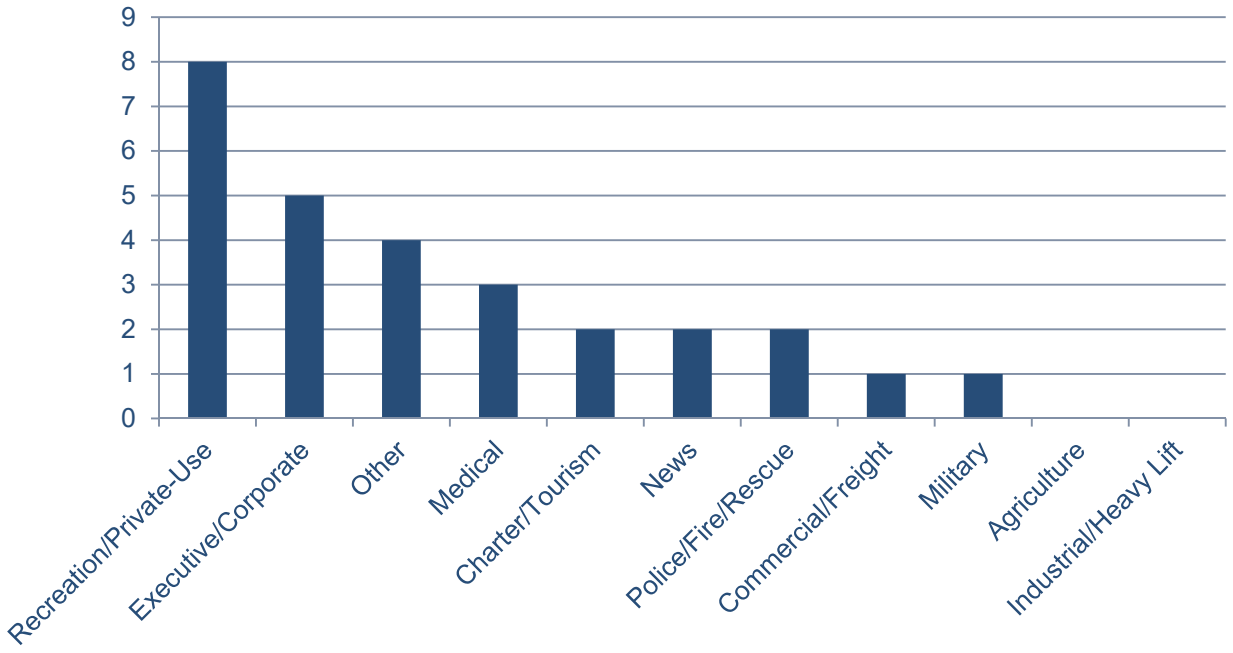
The survey asked respondents to identify the top three applications for helicopters based at the facility. Fifteen respondents answered the question and provided 35 applications (out of a possible 60, if each airport reported three top applications) for helicopters that utilize their facility. Eight of the 15 respondents indicated that recreational use was a top three application at their airport, followed by five respondents listing executive or corporate use. The "other" category was listed by four airports as a top three application. The other category included helicopters based at the airport for training and flight school purposes.

The survey results confirm that government, public safety, medical, military, and news helicopters are based at public heliports and airports throughout the region. The survey also confirms that public facilities are a significant base of operations for private and corporate helicopters that may not have access to dedicated private facilities. Public airports provide critical capacity, refueling, and maintenance functions for helicopters operating within and across the region.

Figure 4 shows the number of airports (out of 15 that answered the question) that included a particular application in the airports' top three based helicopter applications. If an airport reported an application more than once, the activity was only counted as one response.

The survey asked for the top three applications of based helicopters. Absence of a positive response does not indicate that these types of helicopters are not based at these facilities, just that they are not a top three application.

Figure 4: Helicopter Application Reported as a Top Three Activity for Based Helicopters



Source: DVRPC, 2017

Itinerant Helicopter Applications

Similar to the previous question, the survey asked for the top three applications for itinerant helicopters. The FAA defines itinerant helicopters as those that arrive or depart from/to beyond the airport area. These helicopters can be considered as just visiting, either for fuel, mechanical work, or to deliver people or goods.

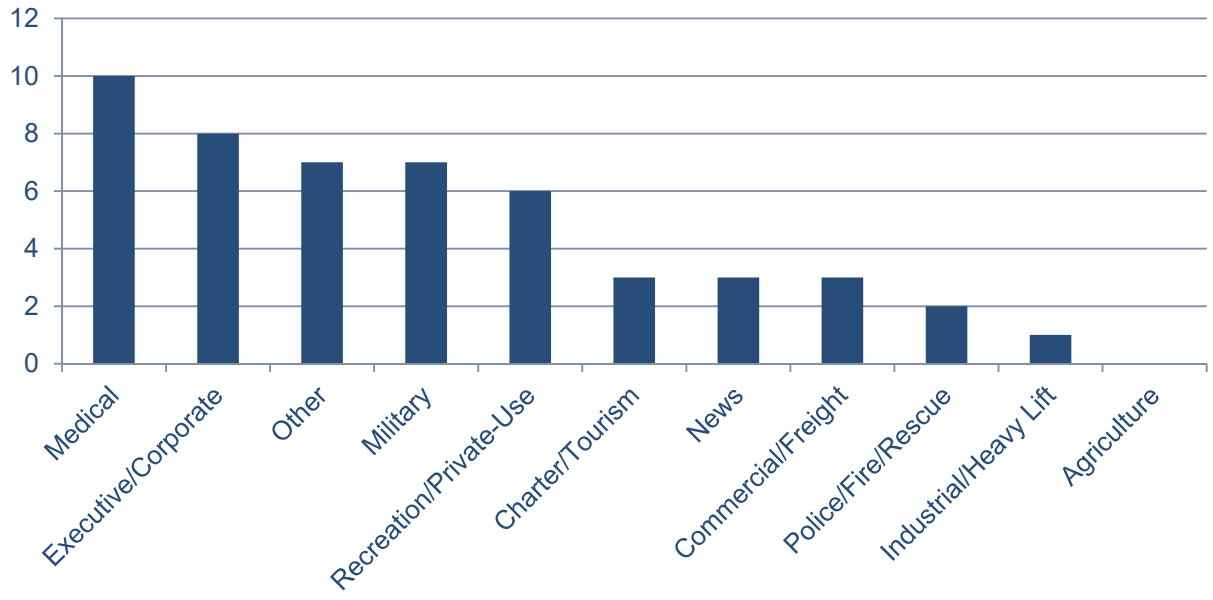
Ten of the respondents reported that medical helicopters were a top three itinerant helicopter use at their airport, followed by eight for executive and corporate, and seven respondents reporting military and other (training, repair, and flight school purposes).

The survey results indicate that medical, military, and executive helicopters are using regional public airports on an as-needed basis to support operational and transportation needs.

Figure 5 shows the number of airports (out of 20 that answered the question) that included a particular application in the airports' top three itinerant helicopter applications. If an airport reported an application more than once, the activity was only counted as one response.

The survey asked for the top three applications of itinerant helicopters. Absence of a positive response does not indicate that these types of helicopters are not utilizing these facilities, just that they are not a top three application.

Figure 5: Helicopter Application Reported as a Top Three Activity for Itinerant Helicopters



Source: DVRPC, 2017

Services and Amenities

Each of the surveyed airports indicated that they provide a number of services and amenities ranging from fueling to car and limousine service for customers. Table 18 summarizes the amenities available for helicopters at regional airports and the number of facilities offering those amenities.

Table 18: Services and Amenities Available at Regional Airports

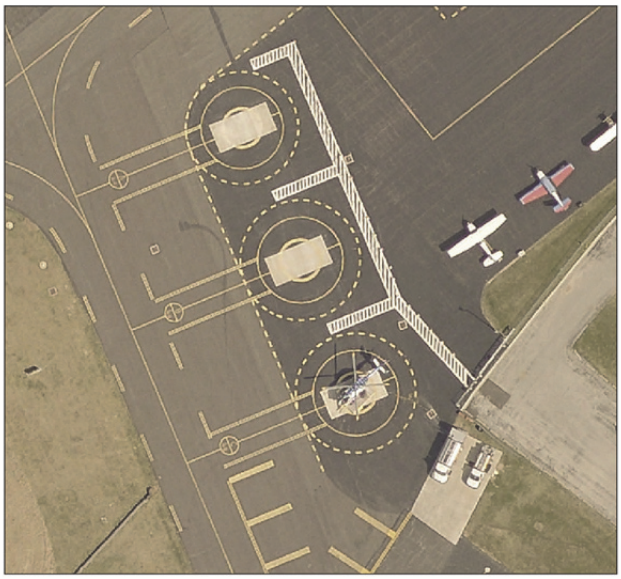
Services and Amenities	Number of Facilities Offering Service	Percentage of Facilities Offering Service
Fuel	16	80%
Helicopter storage (hangar space/tie-downs)	13	65%
Car rental	13	65%
Car/limousine service	7	35%
Mechanical repair	6	30%
Marked helipads	5	25%
Helicopter pilot training	5	25%
Other *	4	20%
Total Responses	20	100%

Source: DVRPC, 2017

**Other services include catering, aircraft painting, and pilot lounge.*

Services such as mechanical repair and helicopter maintenance (30 percent) and pilot training and flight school (25 percent) account for a portion of the itinerant helicopter activity at these facilities. Similarly, three of the 20 airports host helicopter manufacturing or modification facilities. A portion of the take-offs at these facilities is associated with the delivery of these new and modified helicopters.

Only six of the airports that responded to the survey indicated that they have marked helipads. The survey identified 16 marked helipads at regional airports, with one airport hosting six marked helipads, two airports reporting three helipads, one reporting two helipads, and two airports reporting one helipad each. Four of the 20 respondents reported having separate approaches for fixed wing aircraft and rotorcraft. Only one of those four airports with separate approaches also hosted a helipad.



Marked helipads at Wings Field.
Aerial image source: Southeastern Pennsylvania Regional Task Force, 2017.

Thirteen of the 20 responding airports reported providing hangar space, tie-downs, or both for helicopter storage. Eleven airports reported tie-downs, and 13 airports reported providing hangar space for helicopters, even if the space was shared or general hangar space. Not all of the airports with helicopter storage space reported having helicopters based at the airport. Five airports reported having helicopter storage but no based helicopters at the airport. Two airports reported having based helicopters but no tie-downs or hangar space. Table 19 identifies the survey responses with the number of based helicopters, tie-down, and hangar facilities.

Table 19: Helicopter Storage at Regional Airports

Respondent	Based Helicopters	Tie-downs	Hangars
1	0	>10 (~20)	23,000 sf
2	2	0	1
3	1	2	0
4	>10	>10	General hangar space available for helicopters
5	7	0	2
6	0	0	0
7	0	0	0
8	1	4	4
9	2	0	0
10	0	6	2
11	3	0	1
12	0	0	0
13	>10	0	0
14	0	5	2
15	>10	10	4
16	1	3	1
17	0	0	2
18	6	2	0
19	>10	common spaces	5
20	3	6	6

Source: DVRPC, 2017

CHAPTER 5:

Next Steps

This study serves as a strong starting point for better incorporating helicopter facilities and activity into DVRPC's regional aviation planning. The study identified a complex and robust network of helicopter facilities serving a variety of corporate, medical, government, and air taxi missions. These facilities help to connect critical services and the region to other major economic centers.

In order to provide the necessary data to support the planning for these activities, the study team identified several efforts that can be undertaken to improve the quality of the data and fill gaps that were identified in this study. The key gaps that were identified were the accuracy of facility data and ability to capture the levels and nature of helicopter activity across the region.

The next steps identified below can be undertaken to enhance the quality of aviation data available both regionally and for state and federal agencies undertaking aviation planning. DVRPC will incorporate these efforts into the ongoing RASP tasks it performs. The upcoming RASP and Aviation Data Improvement projects will allow for additional exploration of these data enhancements and provide for an opportunity to incorporate this new data into the regional aviation planning process.

Enhancing Helicopter Facility Data

This study highlighted the need for additional verification of helicopter facilities in the region. It is of critical importance for both aviation system planning and safety that a database of active facilities be maintained at the state and federal levels. The often referenced 5010 Master Record database was found to have extensive errors due to facilities being inactive and/or geo-located incorrectly. This can create downstream issues for aircraft operators, navigation system providers, and drone pilots that rely on these critical databases for location information.

While beyond the scope of this study, it is recommended that additional steps be taken to refine the validation of private heliport and helipads in the region. This would include several key steps:

- outreach to listed owners/operators of paved heliport facilities that were listed as inactive in this effort to confirm status;
- development of a verification process for private turf facilities utilizing aerial imagery, field visits, and/or outreach to listed owners/operators;
- updating of the regional database to include any known licensed facilities not currently part of the facility inventory; and
- updating of latitude/longitude location for all private heliports for improved geographical accuracy.

This process will build on the data developed in this study and engage the respective state departments of transportation to ensure consistency of status being reported for all facilities. These updates will be recorded in local and state data systems; however, a process for integration with the FAA 5010 database will need to be determined in close coordination with the FAA. These facility location and status improvements will greatly enhance the safety of the regional aviation system, as well as provide a more complete understanding of the regional helicopter system.

Enhancing Helicopter Activity Counts

DVRPC has a long history of conducting aircraft operation counts at regional airports. The existing methodology captures fixed-wing take-offs utilizing acoustical equipment. Due to the nature of helicopter activity at these facilities, helicopter operation counts are reported by airport operators. This presents several challenges to capturing helicopter activity counts for the region. The first is that these counts are often estimated or calculated based on other methodologies and can be difficult to verify. The second is that it fails to capture the activity of helicopters at non-public-use facilities. To address these issues the study team recommends a combination of enhanced activity surveys and the development of an activity analysis framework utilizing aircraft probe data.

Enhance Regional Activity Surveys

The existing aircraft counting program utilizes surveys of airport operators to ascertain the estimated helicopter operations at these facilities on a three-year cycle. The three-year cycle ensures capture of operation estimates at National Plan of Integrated Airport Systems (NPIAS) airports. To enhance the quality and comprehensiveness of these operation estimates, annual helicopter activity surveys should be conducted at all public-use airports and heliports in the region. These surveys should also be distributed to private-use facilities.

Although this survey has the potential to enhance the understanding of helicopter operations in the region, it is likely that most of the respondents would be the public-use facilities that are already engaged in the regional aviation planning process. Substantial challenges exist in conducting a complete survey of Private/Corporate and Medical facilities. Lack of response from these entities could be supplemented by outreach with medical aviation service providers (Metro Aviation, Air Methods) for operation estimates.

Aircraft Probe Data Activity Analysis Framework

The limited coverage of surveys and reliance on estimates by most respondents create significant gaps in the utility of this data collection methodology for an ongoing, comprehensive operation counting program. The study team through the course of this project explored various data sources that currently exist for aircraft monitoring. The most promising new technology for a regional activity data program is historic Automatic Dependent Surveillance–Broadcast (ADS-B) data.

ADS-B is a technology that is shifting aircraft traffic control and separation from ground-based radar to satellite-derived positions. Aircraft with ADS-B Out equipment broadcast their Wide Area Augmented System-enhanced Global Positioning System (GPS) position. This is then consumed by Air Traffic Control (ATC) and other ADS-B receivers positioned on the ground or in other aircraft. Aircraft with ADS-B In equipment can display this data for better situational awareness. There is a federal requirement for ADS-B Out equipage for aircraft operating in certain airspace by January 1, 2020. The latest FAA data from January 2019 report over 70,000 equipped aircraft. In the DVRPC aviation planning region it is expected that the percentage of aircraft equipped with this technology will be substantially higher than areas with less restricted and congested airspace. As a result, there should be sufficient sample size of aircraft to utilize historic ADS-B data for system planning and analysis.

This data can be acquired in several ways. Multiple global data sources exist from paid services, such as FlightRadar24 and ADS-B Exchange; as well as research data providers, such as OpenSky Network. In addition to these data providers, data can be collected utilizing a locally deployed ADS-B receiver. This type of device is capable of capturing activity within a 200-nautical-mile diameter area. In both scenarios, acquisition from a data provider or local collection, the collected data will require powerful computing

capabilities and data storage capacity. Table 20 shows the available data fields provided through ADS-B records.

Table 20: ADS-B Data Field Availability

Field	Description
time	Date/time of data point (unix timestamp)
icao24	24-bit transponder ID (fixed during registration period of aircraft)
lat	Last known latitude of aircraft
lon	Last known longitude of aircraft
velocity	Speed over ground of aircraft (meters/second)
heading	Direction of movement
vertrate	Vertical speed of aircraft (meters/second)
callsign	Callsign being broadcast by aircraft
onground	Flag of surface or airborne position
alert	Special indicators for ATC
squawk	4-digit octal number used for emergencies
baroaltitude	Altitude measured by barometer
geoaltitude	Altitude measured using Global Navigation Satellite System (GPS) sensor
lastposupdate	Date/time of last position update (unix timestamp)
lastcontact	Date/time of last contact with aircraft (unix timestamp)

Source: OpenSky Network, 2019

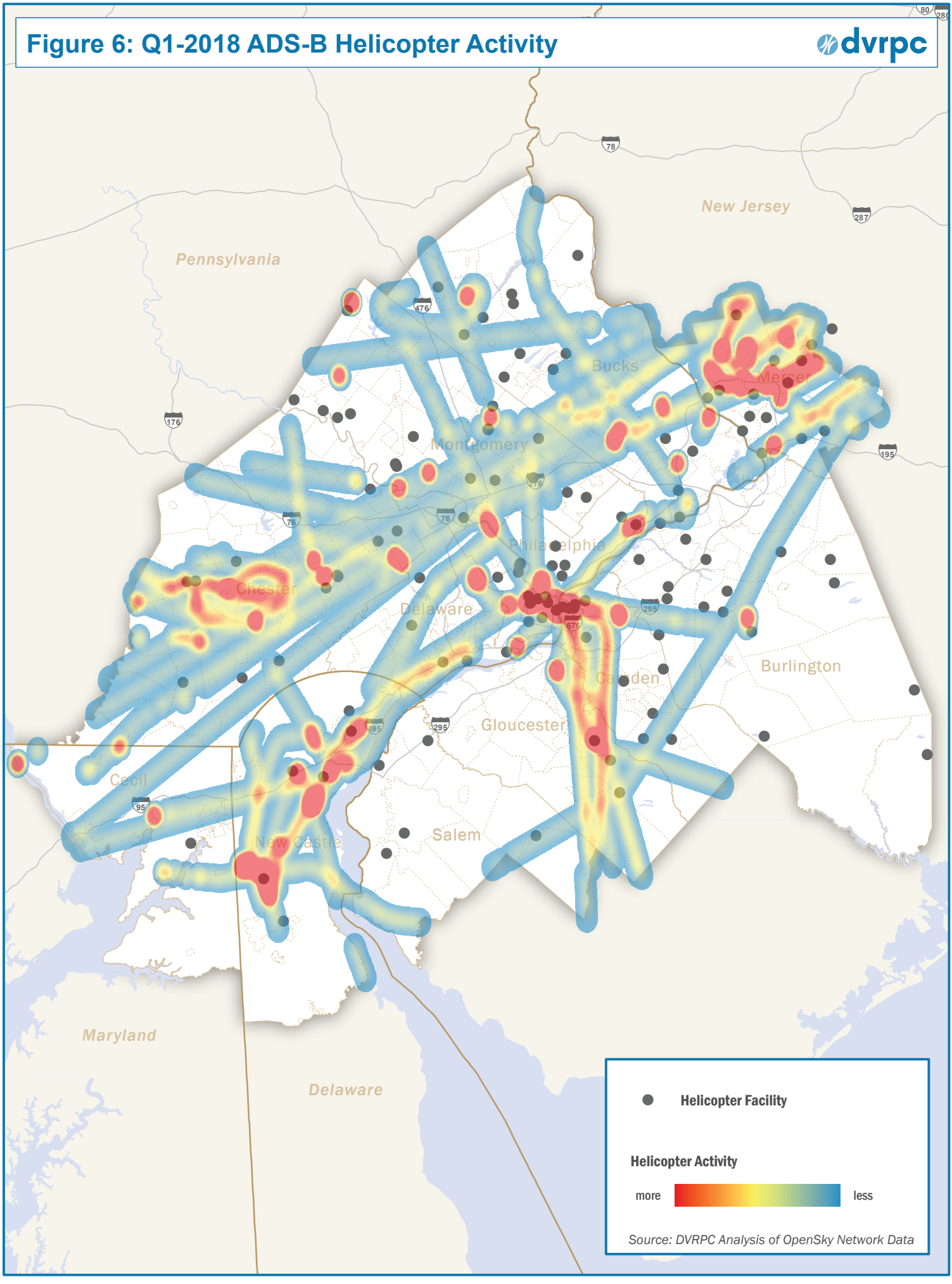
The study team was limited by the scope of this study but did conduct an initial evaluation of an ADS-B data sample from OpenSky Network to determine the viability of this methodology. This evaluation explored data covering the first quarter of 2018. The sample represented all ADS-B-equipped aircraft operations that occurred in the skies over the DVRPC aviation planning region during this period. Utilizing public records of aircraft registrations, the data sample was matched to aircraft type and filtered for only helicopters. The filtered data showed that approximately 38 helicopters equipped with ADS-B operated in the region during this period. Figure 6 shows the flight paths of these aircraft.

Utilizing this available historic data for helicopters, an analysis could be conducted to determine the

- types of helicopters operating in the region;
- origin/destination of helicopter operations;
- paths and locations of these operations; and
- activity at heliport/airport locations.

This analysis framework could be developed for the region to track activity trends and fill gaps or validate existing helicopter activity surveys. Given the nature of the data, some obstacles have been identified. The data has a “floor” of about 200–300 feet and the sample size of helicopters equipped with ADS-B Out is still unknown. These gaps would require additional research to estimate equipage rates in the region, as well as advanced geo-processing to estimate the origin/destination of aircraft based on last known position. DVRPC will continue to develop this analysis framework to further test the viability for regional planning efforts.

Figure 6: Q1-2018 ADS-B Helicopter Activity



Glossary

Air Traffic Control (ATC): A service operated by appropriate authorities to promote the safe, orderly, and expeditious flow of air traffic.

Autogyro: An aircraft that derives lift from a rotor that rotates without engine power but solely by the aerodynamic forces induced by the rotor's motion along its flight path.

Autorotation: The act of rotor rotation without engine power but solely by the aerodynamic forces induced by the rotor's motion along its flight path.

Based Aircraft: An aircraft that is operational and airworthy, which is based at a specific facility for a majority of the year.

Class B Airspace: Generally, the airspace from the surface to 10,000 feet mean sea level surrounding the nation's busiest airports in terms of instrument flight rules (IFR) operations or passenger enplanements. The configuration of each Class B airspace is individually tailored. An ATC clearance is required for all aircraft to operate in the area, and all aircraft so cleared receive separation services within the airspace.

Class C Airspace: Generally, the airspace from the surface to 4,000 feet above the airport elevation surrounding those airports having an operational control tower, are serviced by radar approach control, and that have a certain number of IFR operations or passenger enplanements. The configuration of each Class C airspace is individually tailored.

Class D Airspace: Generally, the airspace from the surface to 2,500 feet above the airport elevation surrounding those airports that have an operational control tower. The configuration of each Class D airspace is individually configured.

Elevated Heliport: A heliport elevated above the surrounding terrain or above the surrounding roof.

Emergency Helicopter Landing Facility: A clear area on the roof of a tall building that is designed to accommodate helicopters engaged in firefighting and/or emergency evacuation operations related to building safety but is not intended to function as a heliport for other reasons.

Federal Aviation Administration (FAA): A division of the U.S. Department of Transportation that regulates and promotes aviation in the United States. The FAA publishes the Heliport Design Advisory Circular and Federal Aviation Regulations.

Final Approach and Take-Off Area (FATO): A defined area over which the final phase of the approach to a hover or a landing is completed and from which the take-off is initiated.

Fuselage: The main structure, or central section, of an aircraft, which normally contains the crew, passengers, cargo, etc.

Hangar: A building intended to be used for storage, maintenance, etc. of aircraft.

Helicopter: A type of rotorcraft normally supported in the air by airfoils (rotors) mechanically rotated about an approximately vertical axis.

Helideck: A Touchdown and Liftoff Area (TLOF) elevated above surrounding roof or terrain.

Helipad: A helicopter landing and/or parking area at an airport. Also, a commonly used generic term for any helicopter landing area.

Heliport: An area of land, water, or structure used or intended to be used for the landing and take-off of helicopters with appurtenant buildings and facilities.

Helistop: A minimal heliport for boarding and discharging passengers and/or cargo. For hospitals, this equates to patients and/or organs. A helistop does not normally include refueling, maintenance, or helicopter storage facilities although, at some sites, one helicopter may be stored on the landing pad. The heliport/helistop relationship has been described as similar to a bus terminal/bus stop relationship with respect to the extent of services provided or expected.

Hospital Heliport/Helistop: A heliport/helistop limited to serving helicopters engaged in air ambulance or other hospital-related functions.

Itinerant Aircraft: Helicopters that arrive or depart airport areas from outside the airport area. These helicopters can be considered as just visiting either for fuel, mechanical work, or to deliver people or goods.

Private-Use Heliport: A heliport intended for the exclusive use of its owner and persons authorized by its owner.

Public-Use Heliport: A heliport available for use by the public without prior approval by the owner or operator.

Rotorcraft: A power-driven aircraft, heavier than air, which is supported in flight by one or more rotors.

Skid: The (normally) tubular metal landing gear members that support some types of helicopters on the ground. Skids are normally connected to the fuselage by four cross members.

Tiltrotor: A type of powered-lift aircraft with characteristics of both rotary wing and fixed wing aircraft. Tiltrotors have proprotors at each wingtip. The proprotors can be positioned to allow the aircraft to take off or land vertically, similar to a helicopter, or horizontally, similar to a fixed-wing aircraft. Once airborne, proprotors can be tilted forward for horizontal flight. The U.S. Marine Corps operates the VS-22 Osprey Tiltrotor. Bell and Agusta are partners in developing and certifying the BA-609 civil tiltrotor.

Touchdown and Liftoff Area (TLOF): A load-bearing area, normally centered in the FATO, on which the helicopter lands or takes off. The TLOF is frequently called a helipad or helideck. (Note: Older FAA publications referred to this area as the FATO, which now has a different meaning. See above for the current FATO definition.)

Appendix A

Appendix A: Helicopter Facility Verification Tables

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
DE.H-DE39	Wilmington Hospital	Medical	added - verified	Marked TLOF, rooftop	New Castle	DE	Heliport	
02999.02*H	Bracebridge III		remove		New Castle	DE	Heliport	
02999.23*H	Rollins Bldg		remove		New Castle	DE	Heliport	
02963.*A	Full Throttle Farm		turf - not verified		New Castle	DE	Airport	1
02997.*A	Duffy's		turf - not verified		New Castle	DE	Airport	
02997.01*A	Spirit Airpark		turf - not verified		New Castle	DE	Airport	
02997.02*A	Townsend A		turf - not verified		New Castle	DE	Airport	
02981.13*H	Christina Care Health System	Medical	verified	Marked TLOF	New Castle	DE	Heliport	1
02987.*H	Christiana Hospital	Medical	verified	Unmarked TLOF x2	New Castle	DE	Heliport	0
02999.12*H	A I Dupont Children's Hospital	Medical	verified	Marked TLOF	New Castle	DE	Heliport	0
02981.1*A	Summit	Public	verified		New Castle	DE	Airport	0
02999.*A	New Castle	Public	verified		New Castle	DE	Airport	4
08486.*A	Hexton Farms		turf - not verified		Cecil	MD	Airport	
08488.*H	Chesapeake City		turf - not verified		Cecil	MD	Heliport	
08504.31*A	Pembroke Farm		turf - not verified		Cecil	MD	Airport	
08536.04*A	Knollwood Farm		turf - not verified		Cecil	MD	Airport	
08536.02*A	Claremont	Public	verified		Cecil	MD	Airport	
NJ.H-28	Lockheed Martin RMS	Private/Corporate	added - verified	Marked TLOF, turf	Burlington	NJ	Heliport	
13556.*H	Newbold Island		remove	Outside region	Burlington	NJ	Heliport	
13707.13*H	Michaels Organization	Private/Corporate	remove	Unmarked TLOF, inactive facility	Burlington	NJ	Heliport	
13573.21*H	Burlington Generating Station		turf - not verified		Burlington	NJ	Heliport	
13980.*H	Indian Mills		turf - not verified		Burlington	NJ	Heliport	
13980.01*H	My Girls Helistop		turf - not verified		Burlington	NJ	Heliport	
14037.15*H	Blue Jay		turf - not verified		Burlington	NJ	Heliport	1
14059.*H	LZ 1 NLDC		turf - not verified		Burlington	NJ	Heliport	
14163.*A	Pemberton		turf - not verified		Burlington	NJ	Airport	
14384.01*H	Warren Hopely		turf - not verified		Burlington	NJ	Heliport	1

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
14384.02*A	Allen Airstrip		turf - not verified		Burlington	NJ	Airport	
14463.26*H	Colgate Palmolive		turf - not verified		Burlington	NJ	Heliport	
13611.*A	Coyle Field	Government	verified	Unmarked	Burlington	NJ	Airport	4
14037.131*H	Mount Holly	Government	verified	Marked TLOF, faded	Burlington	NJ	Heliport	
14039.*H	NJ Turnpike Authority	Government	verified	Marked TLOF	Burlington	NJ	Heliport	
14365.3*H	Atsion Helistop	Government	verified	Marked TLOF	Burlington	NJ	Heliport	1
13571.4*H	Deborah Heart & Lung Center	Medical	verified	Marked TLOF	Burlington	NJ	Heliport	
14463.25*H	Lourdes Medical Center Of Burlington Cty	Medical	verified	Unmarked, w/lights	Burlington	NJ	Heliport	
14395.4*A	Warren Grove Range	Military	verified	Marked TLOF	Burlington	NJ	Airport	
14484.*A	Mc Guire Fld (Joint Base Mc Guire Dix Lake)	Military	verified	Military Base	Burlington	NJ	Airport	
13614.*H	Jet Line South	Private/Corporate	verified	Marked TLOF	Burlington	NJ	Heliport	
13707.05*H	Cs Lake Center	Private/Corporate	verified	Marked TLOF	Burlington	NJ	Heliport	
14226.*A	Inductotherm	Private/Corporate	verified	Paved runway	Burlington	NJ	Airport	
14384.*A	Red Lion	Private/Corporate	verified		Burlington	NJ	Airport	
13864.*A	Redwing	Public	verified	Turf airfield	Burlington	NJ	Airport	1
13925.*A	Flying W	Public	verified		Burlington	NJ	Airport	3
14037.1*A	South Jersey Rgnl	Public	verified		Burlington	NJ	Airport	2
14338.11*H	Kennedy Memorial Hospital	Medical	added - verified	Marked TLOF, faded	Camden	NJ	Heliport	2
14463.69*H	Binder Winslow	Private/Corporate	added - verified	Marked TLOF, faded	Camden	NJ	Heliport	
NJ.H-534	76ers Camden	Private/Corporate	added - verified	Marked TLOF, rooftop	Camden	NJ	Heliport	
NJ.H-9	PSE&G - Audubon Helistop	Private/Corporate	added - verified	Marked TLOF	Camden	NJ	Heliport	
13763.*H	West Jersey Hospital		remove		Camden	NJ	Heliport	1
13994.1*H	C And T Helistop		remove		Camden	NJ	Heliport	
13485.5*H	AT&T Cedarbrook		turf - not verified		Camden	NJ	Heliport	
14165.*H	Daiagi		turf - not verified		Camden	NJ	Heliport	
14398.*H	Breezy Acres Farm		turf - not verified		Camden	NJ	Heliport	1
14398.01*H	Heli-Ray		turf - not verified		Camden	NJ	Heliport	1

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
13581.15*H	Hargrove	Private/Corporate	verified	Marked TLOF	Camden	NJ	Heliport	1
13581.17*H	Campbell Soup	Private/Corporate	verified	Marked TLOF	Camden	NJ	Heliport	1
14463.7*H	New Freedom Switching Station	Private/Corporate	verified	Marked TLOF	Camden	NJ	Heliport	
13536.*A	Camden County	Public	verified		Camden	NJ	Airport	
14396.11*H	Kennedy Health System	Medical	added - verified	Marked TLOF	Gloucester	NJ	Heliport	
14188.01*H	Sony Music	Private/Corporate	remove	Circular paved, unmarked, facility sold	Gloucester	NJ	Heliport	
14248.*H	Kraemer		remove		Gloucester	NJ	Heliport	1
13564.1*A	Bridgeport-Cahill Field		turf - not verified		Gloucester	NJ	Airport	
13620.*A	Peaslees Airstrip		turf - not verified		Gloucester	NJ	Airport	
13761.13*A	Thomas Browne Airpark		turf - not verified		Gloucester	NJ	Airport	
13806.8*A	Stallone		turf - not verified		Gloucester	NJ	Airport	
14387.*A	Vineland-Downstown		turf - not verified		Gloucester	NJ	Airport	
13640.1*A	Cross Keys	Public	verified		Gloucester	NJ	Airport	2
14462.91*A	Southern Cross	Public	verified		Gloucester	NJ	Airport	
NJ.H-1	NJSP - Headquarters Helistop	Government	added - verified	Marked TLOF	Mercer	NJ	Heliport	
NJ.H-203	NG Helistops - Dept of Military &	Government	added - verified	Marked TLOF	Mercer	NJ	Heliport	
NJ.H-266	Capital Health Regional Medical	Medical	added - verified	Marked TLOF, rooftop	Mercer	NJ	Heliport	
NJ.H-152	PSE&G - Mercer Helistop	Private/Corporate	added - verified	Marked TLOF	Mercer	NJ	Heliport	
NJ.H-249	Bristol-Myers Squibb - Lawrence	Private/Corporate	added - verified	Unmarked TLOF	Mercer	NJ	Heliport	
NJ.H-496	Johnson Atelier Helistop (Grounds for Sculpture)	Private/Corporate	added - verified	Marked TLOF	Mercer	NJ	Heliport	
14365.33*H	St Francis M C Helistop		remove	Redeveloped (park)	Mercer	NJ	Heliport	
13817.*H	Peddie School		turf - not verified		Mercer	NJ	Heliport	
14164.01*A	Weidel/Pvt/		turf - not verified		Mercer	NJ	Airport	
14214.12*H	Educational Testing		turf - not verified		Mercer	NJ	Heliport	
14365.31*H	Congoleum Helistop		turf - not verified		Mercer	NJ	Heliport	
14365.2*H	Trenton	Government	verified	Circular TLOF, unmarked	Mercer	NJ	Heliport	
14365.34*H	Hamilton Headquarter Troop C	Government	verified	Marked TLOF	Mercer	NJ	Heliport	0
13836.7*H	Hillside Farm	Private/Corporate	verified	Marked TLOF	Mercer	NJ	Heliport	

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
13896.01*H	PSE & G Trenton Distribution Helistop	Private/Corporate	verified	Marked TLOF	Mercer	NJ	Heliport	
14214.13*H	Dow Jones & Co Inc	Private/Corporate	verified	Unmarked TLOF	Mercer	NJ	Heliport	1
14214.15*H	Carnegie Center	Private/Corporate	verified	Unmarked, paved center TLOF	Mercer	NJ	Heliport	
14214.2*H	Sarnoff Princeton	Private/Corporate	verified	Marked TLOF	Mercer	NJ	Heliport	
14261.*A	Trenton-Robbinsville	Public	verified		Mercer	NJ	Airport	0
14366.*A	Trenton Mercer	Public	verified		Mercer	NJ	Airport	17
NJ.H-103	Salem County Memorial Hospital	Medical	added - verified	Marked TLOF	Salem	NJ	Heliport	
NJ.H-140	PSE&G - Salem Island Helistop	Private/Corporate	not verified		Salem	NJ	Heliport	
13474.5*A	Alloway Airfield		turf - not verified		Salem	NJ	Airport	
13582.7*A	Stoe Creek Farm		turf - not verified		Salem	NJ	Airport	
13686.*A	Coombs		turf - not verified		Salem	NJ	Airport	
13686.01*A	Emmanuel		turf - not verified		Salem	NJ	Airport	
14188.8*A	Alliance		turf - not verified		Salem	NJ	Airport	
14280.*A	Salem Airfield		turf - not verified		Salem	NJ	Airport	
14280.02*A	Rainbow's End		turf - not verified		Salem	NJ	Airport	
14280.3*A	Taildragger Acres		turf - not verified		Salem	NJ	Airport	
14478.*A	Var-Sky		turf - not verified		Salem	NJ	Airport	
13686.02*H	Inspira Medical Center, Inc / Elmer Hosp	Medical	verified	Marked TLOF	Salem	NJ	Heliport	1
13646.02*H	Deepwater	Private/Corporate	verified	Marked TLOF	Salem	NJ	Heliport	
14280.11*H	Southern Training Center	Private/Corporate	verified	Marked TLOF	Salem	NJ	Heliport	1
14162.*A	Spitfire Aerodrome	Public	verified		Salem	NJ	Airport	4
PA.H-001	Grandview Hospital	Medical	added - verified	Marked TLOF	Bucks	PA	Heliport	
20689.7*H	Sons II		inactive	Circular paved, obstructed	Bucks	PA	Heliport	2
21308.04*H	Robbins Nest		inactive	Circular paved, obstructed	Bucks	PA	Heliport	1
20134.7*H	Helicopter Services		remove	Outside region	Bucks	PA	Heliport	8
21287.*A	Monesmith		remove		Bucks	PA	Airport	

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
19810.*A	Stefanik		turf - not verified		Bucks	PA	Airport	
20231.12*H	Campbell's		turf - not verified		Bucks	PA	Heliport	1
20237.*A	Graystrip		turf - not verified		Bucks	PA	Airport	
20356.512*H	Tinicum Farms		turf - not verified		Bucks	PA	Heliport	
20356.53*H	Brigham		turf - not verified		Bucks	PA	Heliport	
20400.*A	Slack		turf - not verified		Bucks	PA	Airport	
20605.*A	Jarrett		turf - not verified		Bucks	PA	Airport	
20664.*A	Ridgeview		turf - not verified		Bucks	PA	Airport	
21195.01*A	Old Plains		turf - not verified		Bucks	PA	Airport	
21201.4*A	Gunden		turf - not verified		Bucks	PA	Airport	
21244.*A	Russo Airstrip		turf - not verified		Bucks	PA	Airport	
21337.5*A	Cedar Acres Private Group		turf - not verified		Bucks	PA	Airport	
21439.1*A	Gold Mine Field		turf - not verified		Bucks	PA	Airport	
21495.*A	Aerequus		turf - not verified		Bucks	PA	Airport	
21495.01*H	Sugan Pond		turf - not verified		Bucks	PA	Heliport	
21495.1*A	Ransome		turf - not verified		Bucks	PA	Airport	
21501.*A	Gehris		turf - not verified		Bucks	PA	Airport	
21592.*A	Hoge Farm		turf - not verified		Bucks	PA	Airport	
21630.*A	Wicker & Wings Aerodrome		turf - not verified		Bucks	PA	Airport	
21670.02*H	Control Dynamics		turf - not verified		Bucks	PA	Heliport	1
21748.*A	Tate		turf - not verified		Bucks	PA	Airport	
20231.11*H	Doylestown	Medical	verified	Marked TLOF	Bucks	PA	Heliport	1
20370.*H	Aria Health Bucks County Campus	Medical	verified	Marked TLOF	Bucks	PA	Heliport	
20703.12*H	St Mary Medical Center	Medical	verified	Marked TLOF	Bucks	PA	Heliport	
19925.02*H	Bristol Usar Center	Military	verified	Turf, active USAR	Bucks	PA	Heliport	
20180.*H	Sterling	Private/Corporate	verified	Marked TLOF	Bucks	PA	Heliport	
20777.*A	Moyer	Private/Corporate	verified	Paved runway	Bucks	PA	Airport	
21201.*A	A G A Farms	Private/Corporate	verified	Paved runway, worn	Bucks	PA	Airport	
21201.1*H	Carson	Private/Corporate	verified	Unmarked, FAA approved repair facility	Bucks	PA	Heliport	8

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
21201.2*A	Elephant Path	Private/Corporate	verified	Paved runway	Bucks	PA	Airport	1
19827.*H	Total RF	Public	verified	Marked TLOF	Bucks	PA	Heliport	0
20232.*A	Doylestown	Public	verified		Bucks	PA	Airport	3
20356.52*A	Vansant	Public	verified		Bucks	PA	Airport	
21201.3*A	Pennridge	Public	verified		Bucks	PA	Airport	0
21308.*A	Quakertown	Public	verified		Bucks	PA	Airport	0
20703.11*H	St Mary Hospital	Medical	verified - duplicate	Marked TLOF, possible dupe	Bucks	PA	Heliport	
20096.03*H	Coatesville		remove	No visible TLOF	Chester	PA	Heliport	0
20301.*H	US Army Reserve Center		remove	BRAC Closure	Chester	PA	Heliport	
20367.4*H	Strawbridge & Clothier Exton		remove	Redeveloped/Closed	Chester	PA	Heliport	
20367.41*H	Ransome		remove	No visible TLOF	Chester	PA	Heliport	
20781.*H	Haig-K		remove	No visible TLOF	Chester	PA	Heliport	
20096.02*H	R J D		turf - not verified		Chester	PA	Heliport	1
20097.5*H	Mike's		turf - not verified		Chester	PA	Heliport	
20229.1*A	Fetters Construction		turf - not verified		Chester	PA	Airport	
20669.1*A	Whittle		turf - not verified		Chester	PA	Airport	
20762.*H	Siple		turf - not verified		Chester	PA	Heliport	1
20776.8*A	Harris		turf - not verified		Chester	PA	Airport	
21178.1*A	Lance		turf - not verified		Chester	PA	Airport	
21505.1*A	Kolb		turf - not verified		Chester	PA	Airport	
21645.72*H	Indian Sleep Farm		turf - not verified		Chester	PA	Heliport	1
21793.*H	Braehead		turf - not verified		Chester	PA	Heliport	
20096.01*H	Brandywine Hospital	Medical	verified	Marked TLOF, rooftop	Chester	PA	Heliport	0
21177.71*H	Paoli Memorial Hospital	Medical	verified	Marked TLOF	Chester	PA	Heliport	
21233.6*H	Phoenixville	Medical	verified	Marked TLOF	Chester	PA	Heliport	
21730.02*H	Chester County Hospital	Medical	verified	Marked TLOF	Chester	PA	Heliport	
21738.*H	Jennersville Rgnl Hospital	Medical	verified	Marked TLOF	Chester	PA	Heliport	
19837.6*H	Peco Berwyn	Private/Corporate	verified	Marked TLOF	Chester	PA	Heliport	

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20096.04*H	Keystone Heliplex	Private/Corporate	verified	Marked TLOF, manufacturer	Chester	PA	Heliport	
20669.11*H	Marlboro Corporate Park	Private/Corporate	verified	Marked TLOF	Chester	PA	Heliport	1
21730.01*H	MBB	Private/Corporate	verified	Part of existing airport (Brandywine)	Chester	PA	Heliport	15
20096.*A	Chester County G O Carlson	Public	verified		Chester	PA	Airport	1
21607.*A	New Garden	Public	verified		Chester	PA	Airport	3
21730.*A	Brandywine	Public	verified		Chester	PA	Airport	7
PA.H-003	Monroe Energy	Private/Corporate	not verified	Marked TLOF, occupied by vehicles	Delaware	PA	Heliport	
21312.*H	Sun Company-Radnor		remove		Delaware	PA	Heliport	
20026.*A	Mountain Top		turf - not verified		Delaware	PA	Airport	
20366.01*H	Piac		turf - not verified		Delaware	PA	Heliport	
20898.*A	Linvill		turf - not verified		Delaware	PA	Airport	
21061.08*H	Foxcatcher Farm		turf - not verified		Delaware	PA	Heliport	1
20046.*H	Crozer-Chester	Medical	verified	Marked TLOF	Delaware	PA	Heliport	
20898.1*H	Riddle Hospital	Medical	verified	Marked TLOF	Delaware	PA	Heliport	
21061.75*H	SAP America	Private/Corporate	verified	Marked TLOF	Delaware	PA	Heliport	
21212.47*H	WCAU	Private/Corporate	verified	Marked TLOF	Delaware	PA	Heliport	0
21343.01*H	Boeing Helicopters Center 3 South	Private/Corporate	verified	Marked TLOF, 3 identified	Delaware	PA	Heliport	1
20589.52*H	Philmont		remove		Montgomery	PA	Heliport	
20669.7*H	Stouffers		remove		Montgomery	PA	Heliport	
21075.012*H	Phoenix Technologies		remove		Montgomery	PA	Heliport	1
21746.*H	Rotelle		remove	Redeveloped	Montgomery	PA	Heliport	2
21817.3*H	North Penn USARC		remove	BRAC Closure	Montgomery	PA	Heliport	
19757.*H	T N Ward		turf - not verified		Montgomery	PA	Heliport	
19945.*H	Pitcairn		turf - not verified		Montgomery	PA	Heliport	1
20104.1*A	Kunda		turf - not verified		Montgomery	PA	Airport	
20422.*A	Drewniany-Springmeadow		turf - not verified		Montgomery	PA	Airport	
20471.19*H	SCI Graterford		turf - not verified		Montgomery	PA	Heliport	

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
20520.*H	Mahon		turf - not verified		Montgomery	PA	Heliport	1
21408.51*A	Crosswinds Airfield		turf - not verified		Montgomery	PA	Airport	
21848.*A	Shontz		turf - not verified		Montgomery	PA	Airport	
19660.*H	Abington Memorial Hospital	Medical	verified	Marked TLOF, rooftop	Montgomery	PA	Heliport	
20705.13*H	Lansdale Hospital	Medical	verified	Marked TLOF	Montgomery	PA	Heliport	1
21075.013*H	Suburban Community Hospital	Medical	verified	Marked TLOF	Montgomery	PA	Heliport	
21212.39*H	Lankenau Hospital	Medical	verified	Marked TLOF	Montgomery	PA	Heliport	
21212.51*H	Holy Redeemer Hospital	Medical	verified	Marked TLOF	Montgomery	PA	Heliport	
21292.11*H	PMMC	Medical	verified	Marked TLOF	Montgomery	PA	Heliport	1
20104.02*H	Collegeville	Private/Corporate	verified	Marked TLOF	Montgomery	PA	Heliport	
20104.04*H	Pfizer-Collegeville	Private/Corporate	verified	Marked TLOF	Montgomery	PA	Heliport	
20413.6*H	Rorer Group	Private/Corporate	verified	Marked in parking lot	Montgomery	PA	Heliport	
21080.01*H	Merck/Upper Gwynedd	Private/Corporate	verified	Marked TLOF	Montgomery	PA	Heliport	
21080.011*H	Leeds & Northrup Co	Private/Corporate	verified	Marked TLOF	Montgomery	PA	Heliport	
21211.09*H	401 City Avenue	Private/Corporate	verified	Marked TLOF	Montgomery	PA	Heliport	
21397.*H	Limerick Generating Station	Private/Corporate	verified	Marked TLOF	Montgomery	PA	Heliport	
21572.*H	Glaxosmithkline LLC	Private/Corporate	verified	Marked TLOF, faded	Montgomery	PA	Heliport	
19760.2*A	Butter Valley Golf Port	Public	verified		Montgomery	PA	Airport	
20104.*A	Perkiomen Valley	Public	verified		Montgomery	PA	Airport	
20565.13*H	Horsham Valley Airways Inc	Public	verified	Marked TLOF	Montgomery	PA	Heliport	1
21211.*A	Wings Field	Public	verified		Montgomery	PA	Airport	3
21292.*A	Pottstown Muni	Public	verified		Montgomery	PA	Airport	1
21293.*A	Heritage Field	Public	verified		Montgomery	PA	Airport	3
PA.H-002	Constitution Health Plaza	Medical	added - verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
PA.H-PA39	Penn Presbyterian Medical Center - North	Medical	added - verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
PA.H-PA78	Sports Complex N Lot Heliport	Private/Corporate	not verified	Unmarked parking lot	Philadelphia	PA	Heliport	
21212.31*H	S & C 8th & Market Helistop		remove		Philadelphia	PA	Heliport	
21212.45*H	Core States - 1St Pa		remove		Philadelphia	PA	Heliport	
21212.48*H	One Meridian Plaza		remove	Redeveloped/Closed	Philadelphia	PA	Heliport	

Facility ID	Facility Name	Classification	Status	Note	County	State	Type	Based Helicopters
21212.52*H	Penn Dda Inc		remove		Philadelphia	PA	Heliport	
21217.2*H	S & C Distribution Center		remove		Philadelphia	PA	Heliport	
21212.55*H	Peco Oregon Shop		turf - not verified		Philadelphia	PA	Heliport	
21212.34*H	State Police Area Six	Government	verified	Included b/c Gov't agency, not marked	Philadelphia	PA	Heliport	
21211.01*H	Hahnemann	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	0
21211.02*H	Aria Health-Torresdale Division	Medical	verified	Marked TLOF	Philadelphia	PA	Heliport	
21211.04*H	Albert Einstein Medical Center	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	0
21211.06*H	Episcopal Hospital	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
21211.07*H	Hospital Of Univ Of Pa	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	0
21211.08*H	St Christopher'S Hospital For Children	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
21212.36*H	Thomas Jefferson University Hospital	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
21212.46*H	Childrens Hospital Of Philadelphia	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
21212.56*H	Temple University	Medical	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
21212.37*H	Atlantic Refining & Marketing Corp	Private/Corporate	verified	Marked TLOF	Philadelphia	PA	Heliport	
21217.3*H	Philadelphia Market Street	Private/Corporate	verified	Marked TLOF, rooftop	Philadelphia	PA	Heliport	
21212.53*H	Penn's Landing	Public	verified	Marked TLOF	Philadelphia	PA	Heliport	1
21217.*A	Philadelphia Intl	Public	verified		Philadelphia	PA	Airport	
21221.*A	Northeast Philadelphia	Public	verified		Philadelphia	PA	Airport	6

Appendix B

Appendix B: Helicopter Activity Steering Committee

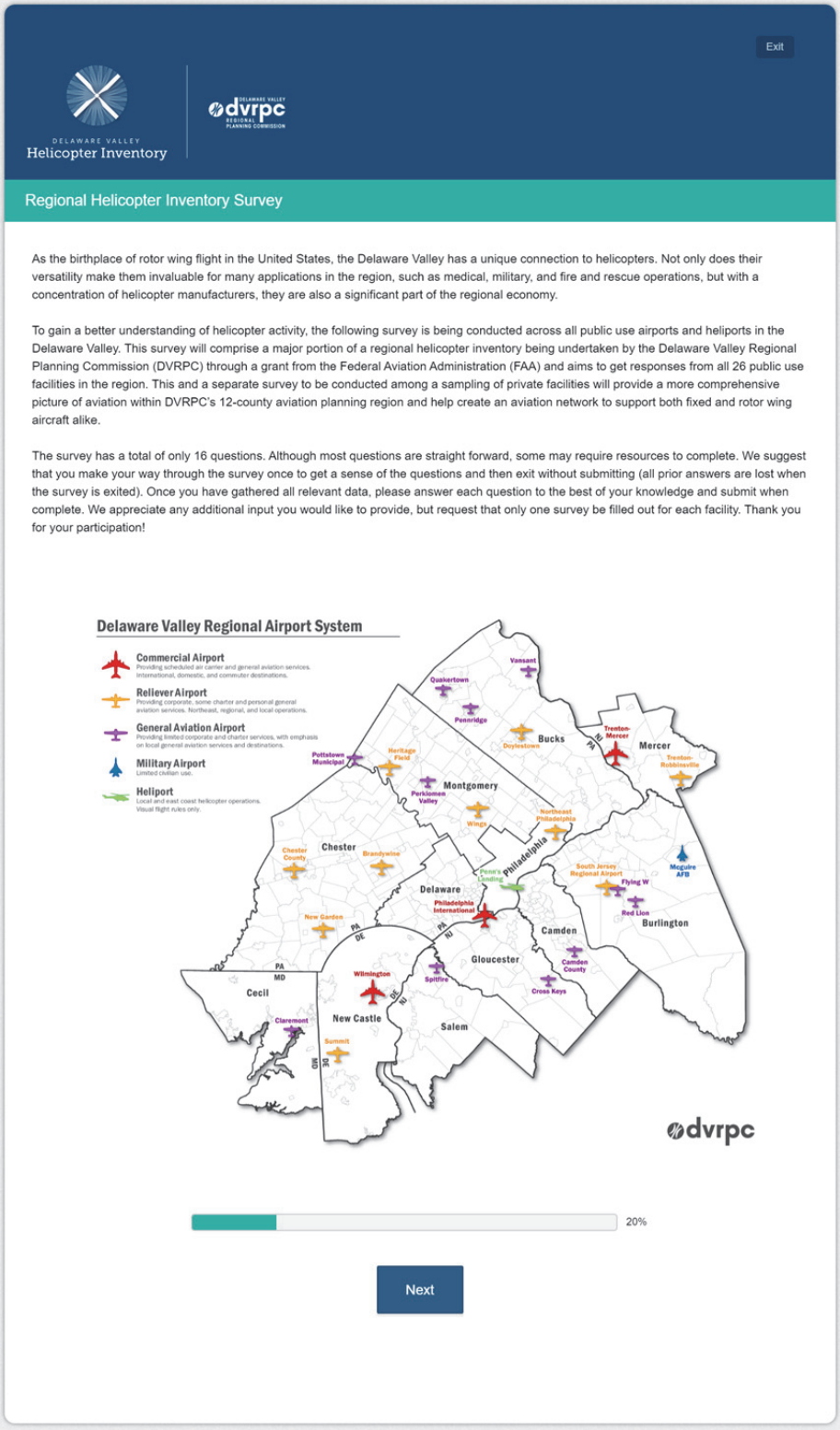
Representatives of:

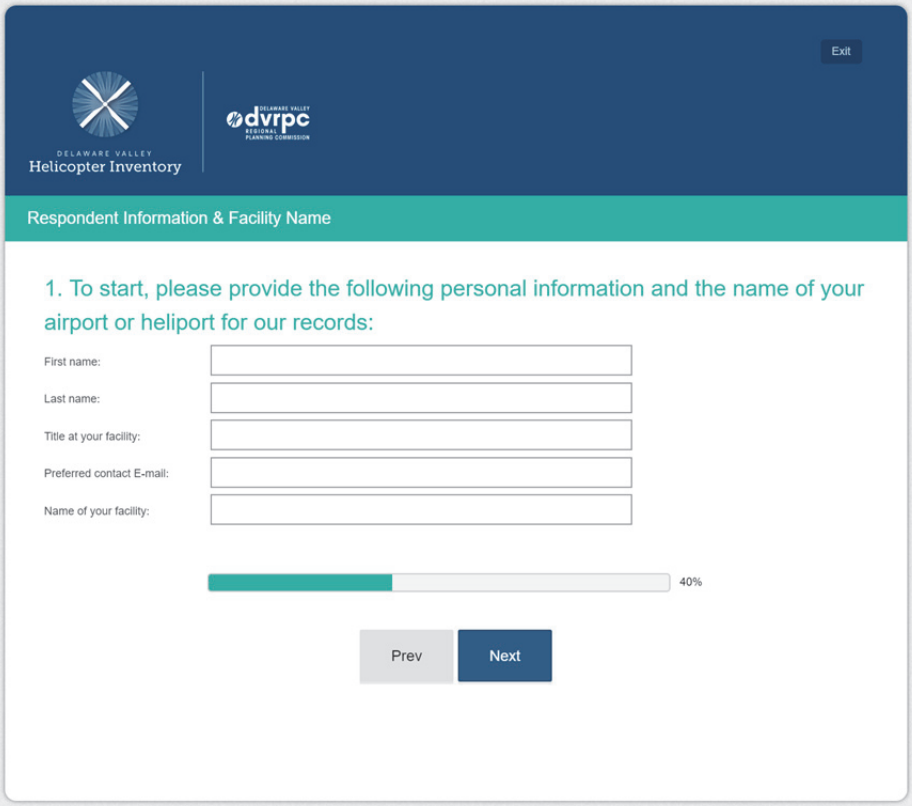
- FAA
- Sterling Helicopter
- Pennsylvania Department of Transportation
- Delaware Department of Transportation
- New Jersey Department of Transportation
- Philadelphia International Airport
- Wings Field
- Trenton-Mercer Airport
- DVRPC

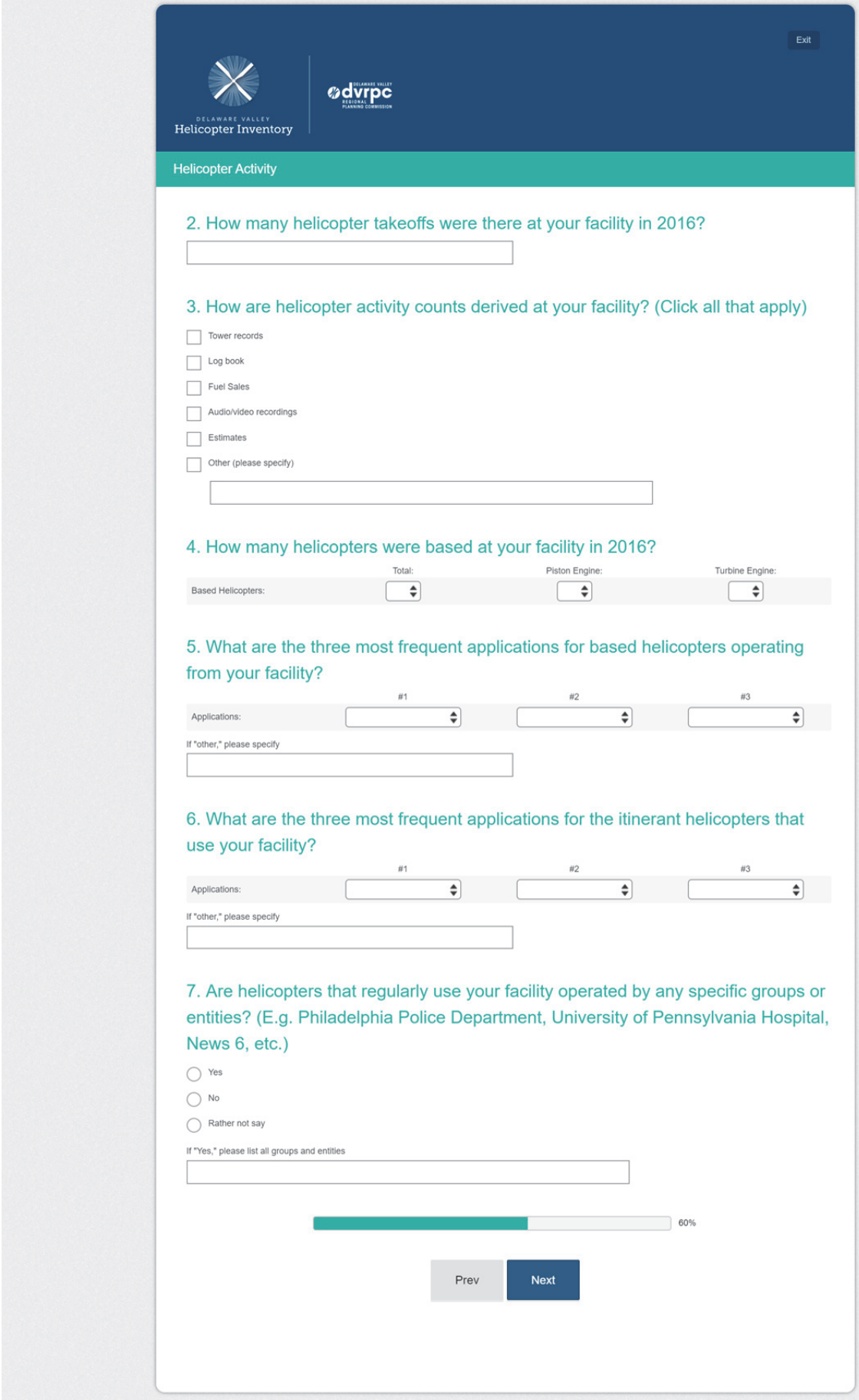
Appendix C

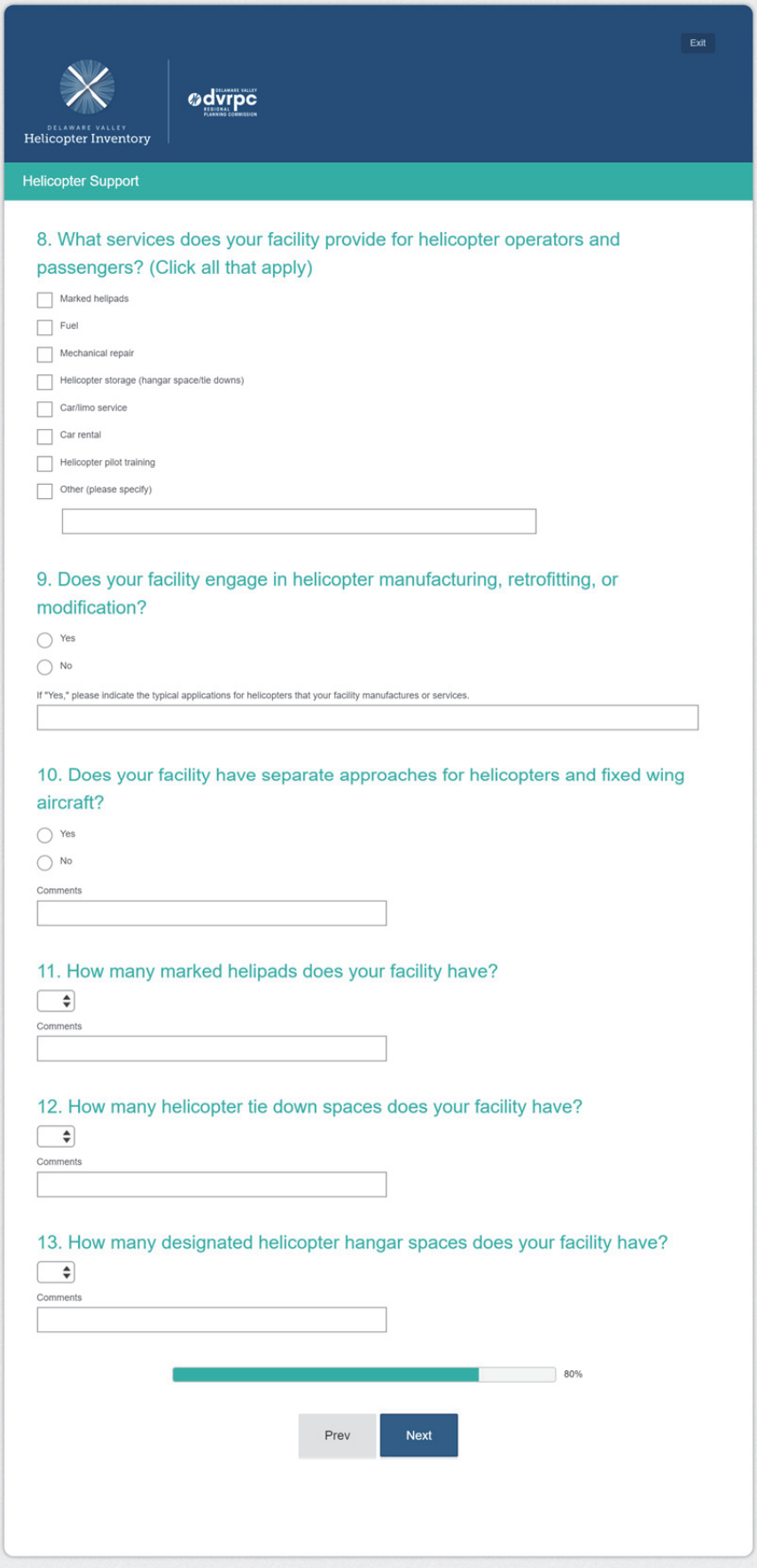
Appendix C: Helicopter Activity Survey Instrument

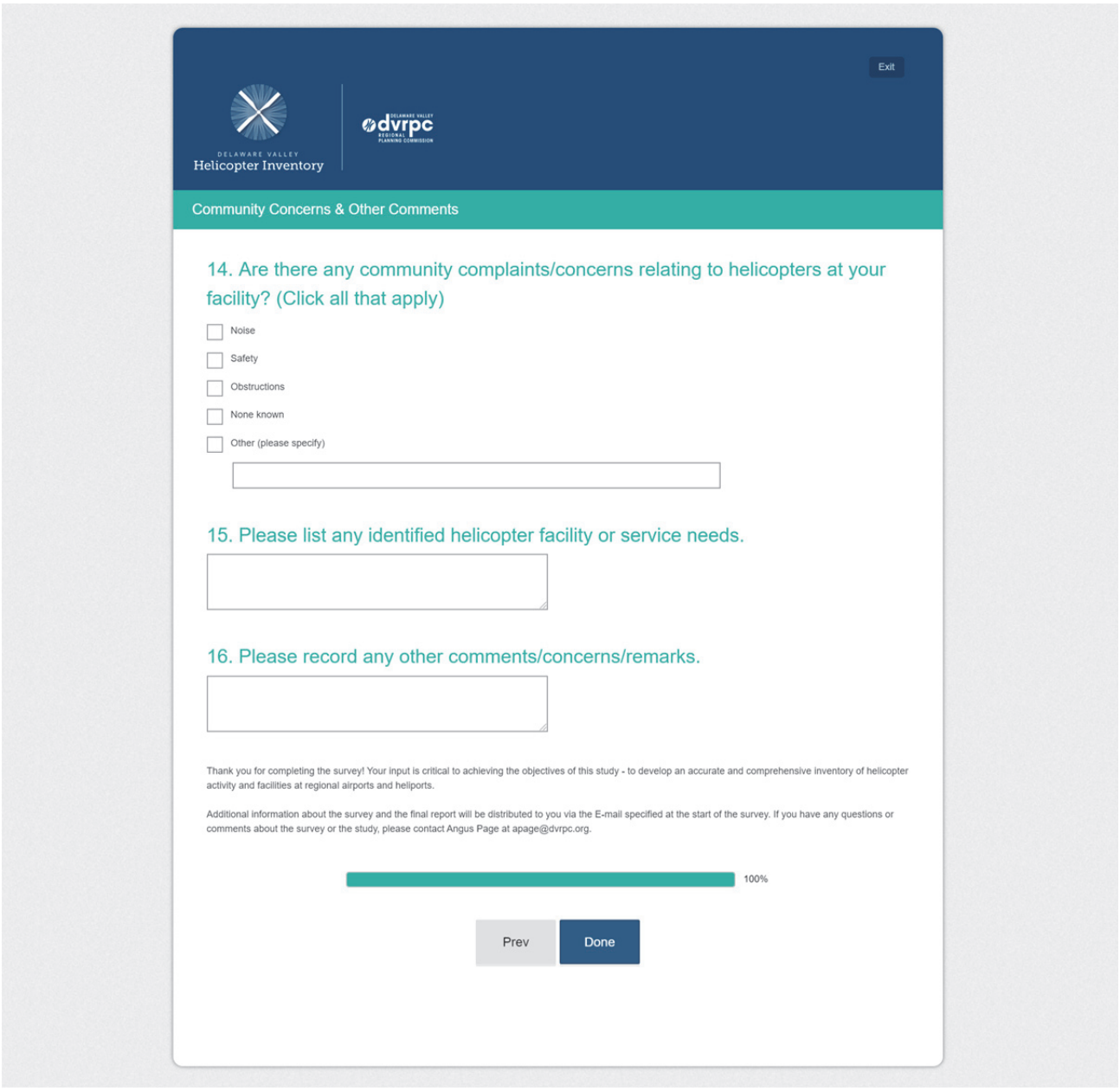
Figure C-1: Survey pages




Exit
DELAWARE VALLEY
Helicopter Inventory
dvrpc
Respondent Information & Facility Name
1. To start, please provide the following personal information and the name of your airport or heliport for our records:
First name:
Last name:
Title at your facility:
Preferred contact E-mail:
Name of your facility:
40%
Prev
Next


Exit
DELAWARE VALLEY
Helicopter Inventory
dvrpc
Helicopter Activity
2. How many helicopter takeoffs were there at your facility in 2016?
3. How are helicopter activity counts derived at your facility? (Click all that apply)
Tower records
Log book
Fuel Sales
Audio/video recordings
Estimates
Other (please specify)
4. How many helicopters were based at your facility in 2016?
Total:
Piston Engine:
Turbine Engine:
Based Helicopters:
5. What are the three most frequent applications for based helicopters operating from your facility?
#1
#2
#3
Applications:
If "other," please specify
6. What are the three most frequent applications for the itinerant helicopters that use your facility?
#1
#2
#3
Applications:
If "other," please specify
7. Are helicopters that regularly use your facility operated by any specific groups or entities? (E.g. Philadelphia Police Department, University of Pennsylvania Hospital, News 6, etc.)
Yes
No
Rather not say
If "Yes," please list all groups and entities
60%
Prev
Next


Exit
DELAWARE VALLEY
Helicopter Inventory
dvrpc
Helicopter Support
8. What services does your facility provide for helicopter operators and passengers? (Click all that apply)
Marked helipads
Fuel
Mechanical repair
Helicopter storage (hangar space/tie downs)
Car/limo service
Car rental
Helicopter pilot training
Other (please specify)
9. Does your facility engage in helicopter manufacturing, retrofitting, or modification?
Yes
No
If "Yes," please indicate the typical applications for helicopters that your facility manufactures or services.
10. Does your facility have separate approaches for helicopters and fixed wing aircraft?
Yes
No
Comments
11. How many marked helipads does your facility have?
Comments
12. How many helicopter tie down spaces does your facility have?
Comments
13. How many designated helicopter hangar spaces does your facility have?
Comments
80%
Prev
Next


Exit
DELAWARE VALLEY
Helicopter Inventory
dvrpc
Community Concerns & Other Comments
14. Are there any community complaints/concerns relating to helicopters at your facility? (Click all that apply)
Noise
Safety
Obstructions
None known
Other (please specify)
15. Please list any identified helicopter facility or service needs.
16. Please record any other comments/concerns/remarks.
Thank you for completing the survey! Your input is critical to achieving the objectives of this study - to develop an accurate and comprehensive inventory of helicopter activity and facilities at regional airports and heliports.
Additional information about the survey and the final report will be distributed to you via the E-mail specified at the start of the survey. If you have any questions or comments about the survey or the study, please contact Angus Page at apage@dvrpc.org.
100%
Prev
Done

Delaware Valley Helicopter Inventory

Publication Number: 18030

Date Published: June 2019

Geographic Area Covered:

New Castle County in Delaware; Cecil County in Maryland; Burlington, Camden, Gloucester, Mercer, and Salem counties in New Jersey; Bucks, Chester, Delaware, Montgomery, and Philadelphia counties in Pennsylvania.

Key Words:

Aviation, Airports, Heliports, Based Aircraft, Aircraft Operations, Helicopters, Aviation Data.

Abstract:

This report documents an inventory of helicopter operations and facilities in the twelve-county DVRPC Aviation Planning Region. The study created a classification system for airports and heliports that serve helicopters, verified existing data sources of facilities, and quantified based aircraft at these active facilities. The study also conducted a survey to understand helicopter operations, amenities, and services at airports and heliports, and identified opportunities to enhance the quality of aviation data for planning and operations in the region.

Staff Contact:

Michael Ruane
Manager, Freight and Aviation Programs
(215) 238-2888
mruane@dvrpc.org

190 N. Independence Mall West, 8th Floor
Philadelphia, PA 19106-1520
Phone: (215) 592-1800
Fax: (215) 592-9125
www.dvrpc.org

DELAWARE VALLEY
dvrpc
REGIONAL
PLANNING COMMISSION

190 N Independence Mall West
8th Floor
Philadelphia, PA 19106-1520
215.592.1800 | fax: 215.592.9125
www.dvrpc.org

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