SECTION 1
INVENTORY

1.0 INTRODUCTION

The first step in the airport master planning process involves collecting information about the airport and the community it serves. An accurate and complete inventory is essential to the success of the Master Plan, since the information provides a foundation for subsequent evaluations. The inventory of existing conditions at Carroll County Regional Airport (DMW) provides an overview of the Airport, including its role in the national aviation system, its facilities, and its relationship to development that has occurred within the surrounding community. The inventory contained in this Master Plan reflects conditions at DMW as of Spring 2005 and includes the following information:

- A general overview of the Airport setting, including functional role, location, transportation access, climate, and Airport history; and

- Physical inventories and descriptions of facilities and services currently provided at the Airport, including a description of the airside and landside features at the Airport, as well as a description of airspace and air traffic control.

The data were gathered from a variety of sources, including field reconnaissance, interviews with Airport management, Airport tenants, and County staff, as well as review of pertinent available documents and studies. Previous studies include:

- *Airport Master Plan*, January 1986;

- *Airport Layout Plan*, June 1993; and,

- *Environmental Assessment for 5-Year Capital Improvement Plan (CIP)*, March 2003.

1.1 AIRPORT PROFILE

1.1.1 LOCATION AND ENVIRONS

The Airport is located within Carroll County, Maryland, approximately three miles north of the City of Westminster (see **Exhibit 1.1-1).** The City of Westminster, the County seat of Carroll County, lies approximately 30 miles northwest of Baltimore City and 45 miles north of Washington, D.C. Carroll County is in the north central area of the State of Maryland, and is bordered to the north by Pennsylvania. The County is in the northwest quadrant of the Baltimore/Washington D.C. metropolitan area and is within the Baltimore Standard Metropolitan Statistical Area.

DMW, which is owned and operated by Carroll County, consists of approximately 475 acres. It is at an elevation of 789 feet above mean sea level (MSL). The area around DMW, as shown on **Exhibit 1.1-2**, is a mixture of scattered single-family residential, agricultural, industrial, commercial, and public uses. The density of development is greatest to the south of the Airport adjacent to the City of

Westminster. To the south and southwest, respectively, lie the Carroll County Association of Retarded Citizens (ARC) facility and the new Meadow Branch Industrial Park. To the east of the Airport is the Air Business Center. The Carroll County Department of Public Works facility also is located on the east side of the Airport along Old Meadow Branch Road. The adjacent properties to the north, northwest, and northeast consist of undeveloped and agricultural lands, as well as a few private residences. The Airport property shares its western boundary with the Meadow Branch Industrial Park. While this facility currently consists of only one business, the potential exists for development on the six remaining lots.

The Airport is accessible via Airport Road, which connects to Maryland Route 97. Additionally, Maryland Route 140 intersects Route 97 approximately 1 mile south of the Route 97 / Airport Road interchange. Route 140 is the primary route connecting Carroll County to points southeast including Baltimore, whereas Route 97 provides access to Washington, D.C. to the south and Pennsylvania to the north.

Carroll County exists in a moderate climate with rather warm summers and rigorous but not severe winters. The hottest month is July, with a mean maximum temperature of 89 °F. The average daily temperature in January, the coldest month, is 28 °F. Average annual rainfall is approximately 41 inches, with the most precipitation in July and August during the region's thunderstorm season. The average seasonal snowfall is approximately 21 inches.

DMW is surrounded by a number of public use airports that fill a variety of roles in the national aviation system, including air carrier, reliever, and general aviation. The surrounding airports are presented in **Table 1.1-1**.

TABLE 1.1-1
SURROUNDING AIRPORTS

Airport Name and Identifier	Distance (Nautical Miles) and Direction to DMW	Role
Baltimore/Washington International (BWI)	30.4 SE	Air Carrier
Hagerstown Regional (HGR)	33.9 W	Air Carrier
Harrisburg International (MDT)	36.9 N	Air Carrier
Frederick Municipal (FDK)	20.5 SW	Reliever
Montgomery County Airpark (GAI)	27.4 S	Reliever
Martin State (MTN)	32.3 SE	Reliever
Clearview Airpark (2W2)	8.5 S	General Aviation
Gettysburg Airport and Travel Center (W05)	18.6 NW	General Aviation
York (THV)	19.5 N	General Aviation

1.1.2 HISTORY

The original site on which DMW now sits was a turf facility consisting of two parallel runways near the present day Route 97 north. In 1968, a study conducted for the Carroll County Commissioners recommended improvements to the site, which by then was known as the Westminster Airport. The County acquired land adjacent to the Airport in 1969 and acquired the Airport in 1976. Three additional tracts of land were purchased in 1977 and the Carroll County Airport was constructed. The original facility was converted to a single paved asphalt runway, 3,220 feet long and 60 feet wide, and parallel taxiway along the current alignment. In 1978, the existing main hangar/administration building was added, and three new T-hangar buildings were constructed in 1979. By the mid-1980s, the Airport supported an aviation maintenance facility and a certified pilot training center. Three additional T-hangar buildings were constructed in 1989.

In 1995, the aforementioned paved runway was converted to a parallel taxiway for a new 5,100-foot long runway and associated connector taxiways. At that time, the Airport was renamed the Carroll County Regional Airport. Those facilities serve as the existing runway/taxiway system.

1.1.3 AIRPORT FUNCTIONAL ROLE

The National Plan of Integrated Airport Systems (NPIAS) represents a plan for the development of approximately 3,300 public-use airports in the country, including all commercial service and reliever airports, and selected general aviation airports. The airports included in the NPIAS are considered significant to national air transportation and thus are eligible to receive federal grants under the Airport Improvement Program (AIP). The Federal Aviation Administration (FAA) is required to provide the US Congress with a 5-year estimate of AIP-eligible development every two years. The Secretary of Transportation transmitted the 2005-2009 NPIAS to Congress on September 30, 2004.

Because of the importance of DMW to the regional and national aviation system, the FAA includes the Airport in the NPIAS. DMW is classified in the NPIAS as a "reliever" airport, which is a general aviation facility designed to provide pilots with an alternate to using scheduled service airports. With this distinction, DMW accommodates general aviation aircraft activity that might otherwise be destined for Baltimore-Washington International Airport.

1.1.4 AIRPORT REFERENCE CODE

The FAA classifies all aircraft in terms of approach speed and airplane design group. The approach speeds of aircraft are divided into categories with a letter designation of A through E; with A being the slowest approach speed category and E being the highest. The Airplane Design Group is based on aircraft wingspan and is numerically categorized I through VI. These two factors together comprise the Airport Reference Code (ARC). The ARC is used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate at a particular airport. Presently, DMW is an Approach Category C, Airplane Design Group II, or an ARC of C-II. The critical aircraft for a particular runway is that which meets ARC requirements, with additional considerations given for weight, is based at the airport, or has at least 500 itinerant annual operations at the airport.

1.2 EXISTING AIRPORT FACILITIES

Airports can be principally divided into three types of facilities:

Airfield Facilities: Airfield facilities consist of the areas of the airport that accommodate the movement of aircraft (e.g. runways and taxiways), and facilities designed to assist aircraft operations, including navigation aids, lighting, and communications facilities;

Landside Facilities: Landside facilities are those which generally represent the transition point from air to ground transportation. These facilities encompass those designed for aircraft storage, parking, and maintenance, as well as other airport related structures. Areas designed for vehicle access and parking are also considered landside facilities; and

Support Facilities: Support facilities are related to the operation and maintenance of the airport and may include fuel storage facilities, airport management, snow removal, and maintenance facilities.

Each of the three types of facilities has a different role; however, the relationship of all three collectively is an important ingredient in maintaining the safe and efficient operation of an airport. The following sections provide descriptions of existing airfield, landside, and support facilities at DMW. These descriptions are based on field reconnaissance, interviews with the Airport Manager, and reviews of the Airport/Facility Directory, aerial photography, and historic planning and construction drawings.

1.2.1 AIRFIELD FACILITIES

The airfield facilities at DMW are depicted on **Exhibit 1.2-1** and the following provides a general description of these features.

1.2.1.1 Runways

Runway 16-34 is the only runway in operation at DMW. It is 5,100 feet long and 100 feet wide and is oriented generally in a north-south direction. A non-precision Area Navigation (RNAV) Global Positioning System (GPS) approach is provided for each runway end, and Runway 34 is the preferred runway for aircraft operations. The runway is constructed of bituminous concrete and the pavement is grooved. As referenced in the current edition of the Airport Facility Directory, the pavement strength of Runway 16-34 is rated at 22,000 pounds for single wheel gear load (SWL) aircraft.

1.2.1.2 Runway Protection Zones

The function of the Runway Protection Zone (RPZ) is to protect people and property on the ground by clearing the RPZ of incompatible objects and activities. The Airport Sponsor preferably exercises control of the RPZ through the acquisition of sufficient property interest. Residences, places of public assembly, and fuel storage facilities are prohibited from the RPZ. Other uses are permitted provided they are located outside the Runway Object Free Area, do not interfere with navigational aids, and are not a wildlife attractant. While an automobile parking facility may be considered a place of public assembly, it is permitted within the RPZ provided it meets the above conditions.

The RPZ is trapezoidal in shape, and its dimensions for a particular runway end are a function of the type of aircraft and approach visibility minimum associated with that runway end. Unless declared distances are used, the RPZ begins 200 feet beyond the end of the runway usable for takeoff and landing. Declared distances are not used for Runway 16-34 at DMW.

The existing RPZ for both Runway 16 and Runway 34 is based on an approach visibility minimum of not lower than one mile for approach categories C and D. It begins 200 feet from the Runway 16 threshold at a width of 500 feet, or 250 feet on each side of the extended centerline, and continues 1,700 feet outward, ending at a width of 1,010 feet, or 505 feet on each side of the centerline.

1.2.1.3 Runway Safety Areas

FAA Advisory Circular 150/5300-13, *Airport Design*, defines a Runway Safety Area (RSA) as "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway." Additionally, FAA Order 5200.8, *Runway Safety Area Program*, indicates that the required RSA for a particular runway is based on the approach speed and wingspan (i.e. the ARC) characteristics of the critical aircraft using that runway. Runway 16-34 is a C-II runway that requires a minimum RSA width of 400 feet, a

length of 1,000 feet beyond the runway end, and a length of 600 feet prior to the landing threshold. Presently, Runway 16-34 meets C-II RSA standards.

1.2.2 TAXIWAY SYSTEM AND HOLD APRONS

Taxiways are provided at airports to facilitate aircraft movement to and from the runway system(s) and to provide direct connections to landside development areas as necessary. The existing taxiway system at DMW is depicted on **Exhibit 1.2-1** and consists of the full parallel Taxiway A and connector taxiways B, C, D, and E. An additional description of each taxiway is presented in **Table 1.2-1.**

TABLE 1.2-1
EXISTING TAXIWAY SYSTEM

Taxiway	Width (feet)	Use/Location
A	35	Runway 16-34 Parallel Taxiway
B	40*	Connector taxiway, 990 feet from Runway 34 threshold. Provides through access to ramp area.
C	40*	Connector taxiway – 1,980 feet from Runway 34 threshold
D	40*	Connector taxiway – 2,090 feet from Runway 16 threshold
E	40*	Connector taxiway –1,055 feet from Runway 16 threshold

Source: Airport Layout Plan, June 1993.

* Due to fillet geometry, the connector taxiways are 40 feet wide at their narrowest point.

Additionally, an aircraft hold apron is provided at each end of parallel Taxiway A adjacent to the runway end. The purpose of the hold aprons is to provide an area for aircraft to perform engine run-ups prior to departure, and to provide sufficient area for holding aircraft not ready for departure while allowing other aircraft to taxi to the runway.

1.2.3 PAVEMENT MARKING

Pavement markings on Runway 16-34 meet FAA standards for non-precision instrument markings on each runway end. The markings include threshold markings, runway numerals, aiming point markings, and runway side stripes.

All taxiways include a yellow centerline marking six inches wide. A 200-foot taxiway centerline radius extends onto the runway from each taxiway, and the intersections of the connecting taxiways with parallel Taxiway A are marked for judgmental over steering by the pilot, as centerline radii at these intersections are not provided. Centerline marking is also painted on the aircraft apron to indicate the taxilanes.

Holding position marking consists of two dashed yellow lines and two solid yellow lines, each line one foot wide and all lines spaced one foot apart. The solid lines are on the side where the aircraft is to

hold prior to entering the runway. Holding position markings are installed on Taxiway A and all connector taxiways at a distance of 250 feet from the runway centerline.

1.2.4 AIRFIELD LIGHTING

A variety of lighting aids are available at DMW to facilitate airport and airfield identification. These systems, categorized by function, are described below.

Identification Lighting: An airport rotating beacon universally indicates the location and presence of an airport. A rotating beacon is located on a tower approximately 300 feet east of the Airport administration/FBO building. The beacon uses alternating white and green beams to identify DMW as a civilian land airport.

Runway End Identifier Lights (REILs): REILs consist of a pair of synchronized flashing lights located laterally on each side of the runway threshold. They may be either omni-directional or unidirectional, although the omni-directional system is preferred. The REILs provide early and positive identification of the approach end of the runway. Omni-directional REILs are installed on both runway ends at DMW.

Runway Lighting: Runway 16-34 is equipped with Medium Intensity Runway Lighting (MIRL). The MIRL is a series of lights located on both sides of the runway, spaced a maximum of 200 feet apart for the entire runway length. The lights of the MIRL system are white all along the runway, except for the last 2,000 feet or one-half the runway length, whichever is less, where they are lighted to indicate the “caution zone”. In the caution zone, the runway edge lights emit yellow light in the direction facing the instrument approach threshold and white light in the opposite direction. Given that both ends of Runway 16-34 have published non-precision instrument approach procedures, the last 2,000 feet of each end of the runway is lighted accordingly to indicate the caution zone. Pilots on the ground or in the air can activate the MIRL by “clicking” their transmitter on the Airport’s common traffic advisory frequency (CTAF). Pilot controlled lighting (PCL) allows conservation of energy by reserving maximum lighting intensity for specific operational use.

Taxiway Lighting: All taxiways at DMW are equipped with Medium Intensity Taxiway Lighting (MITL). The lights of the MITL system are blue all along the taxiway, and they also can be activated by pilots on the ground or in the air by clicking their transmitter on the CTAF.

1.2.5 AIRFIELD SIGNAGE

An airfield signage system is a component for the surface movement of aircraft on the airfield necessary for the safe and efficient operation of the airport. A signage system should: provide the pilot with the ability to easily determine the designation or name of any taxiway on which the aircraft is located; readily identify routes toward a desired destination; indicate mandatory holding positions; and identify boundaries for approach areas, Instrument Landing System (ILS) critical areas, and runway

safety areas RSAs or obstacle free zones (OFZ). Additionally, Runway Distance Remaining (RDR) signs are used to provide distance remaining information to pilots on the runway during takeoff and landing operations. At DMW, there are three types of airfield guidance signs, including holding position signs, runway exist signs, and destination signs, as well as RDR signs. A description of each is found below.

1.2.5.1 Holding Position Signs

A holding position sign consists of a white inscription on a black background and denotes an entrance to a runway or critical area. At DMW, a holding position sign is installed on the left side of each taxiway that connects to the runway at a distance of 250 feet from the runway centerline.

1.2.5.2 Runway Exit Signs

A runway exit sign is typically located prior to a runway/taxiway intersection on the side of the runway where the aircraft is expected to exit. It consists of a black inscription on a yellow background, and the inscription consists of the particular taxiway designation and an arrow pointing in the direction of the exit. At DMW, two runway exit signs are installed on the east side of the runway for each connector taxiway to accommodate aircraft approaching the taxiway from either runway end. A single runway exit sign is installed along parallel Taxiway A at each end where it intersects the runway.

1.2.5.3 Destination Signs

All destination signs have black inscriptions on a yellow background and always contain an arrow. The “inbound” destination signs at DMW are installed along Taxiway A at the entrance to the aircraft parking area. The “outbound” destination signs are installed to provide pilots leaving the parking area and entering Taxiway A with directions to the runway ends.

1.2.5.4 Runway Distance Remaining Signs

Four RDR signs are installed on the west side of Runway 16-34. The signs are spaced evenly 1,000 feet apart, (i.e. three equal spaces at 1,000 feet each equal 3,000 feet), and the signs nearest each runway end is 1,050 feet from the runway threshold, thus providing RDR information for the entire 5,100-foot runway.

1.2.6 NAVIGATION AND APPROACH AIDS

Currently several non-precision electronic navigation aids are located near DMW that provide accurate air navigation to the Airport. Additionally, there are several economy approach aids that visually assist the pilot during final approach to the runway. A description of each type of facility is provided below.

1.2.6.1 VOR Facilities

A Very High Frequency Omni-directional Radio Range (VOR) facility is a ground-based navigation aid that transmits very high frequency (VHF) navigation signals 360 degrees in radials from the facility, thereby providing pilots with an electronic signal enabling them to identify a radial and fly to or from the VOR. There are three VOR facilities in the vicinity of DMW.

The first is the Westminster VORTAC, which is located approximately 7 nautical miles south of DMW. The VOR is combined with Tactical Air Navigation (TACAN) that enables it to provide "slant range" distance measurement from the facility. The TACAN also provides azimuth (radial) information for military aircraft. The Westminster VORTAC is classified as a high-altitude facility (H-VORTAC) and is used as part of the VOR approach to Runway 34.

The second is the Frederick VOR, located approximately 21 nautical miles northwest of DMW. This facility is classified as a terminal altitude VOR (T-VOR) and serves as the initial approach fix (IAF) to DMW for the VOR-A approach procedure.

The third is the Baltimore VOR, located approximately 31 nautical miles southeast of DMW. It is classified as a low-altitude facility (L-VORTAC) and is the IAF for the VOR-A approach to DMW for aircraft approaching from the southeast.

1.2.6.2 Economy Approach Navigation Aids

At DMW, omni-directional REILs are installed on each runway end. As stated previously, REILs consist of a pair of synchronized flashing lights located laterally on each side of the runway threshold. They provide early and positive identification of the approach end of the runway.

A pilot must make the final portion of an approach to a runway visually. A visual economy approach aid may be installed to aid the pilot in determining the correct glide slope for descent to the runway. At DMW, a Precision Approach Path Indicator (PAPI) is located on each runway end. The PAPI system consists of a series of two or four boxes that emit light signals that can be seen by the pilot and used for visual approach slope guidance. A 2-box PAPI is installed on each end of Runway 16-34.

1.2.7 AIRPORT APPROACH PROCEDURES

There are several instrument-assisted approach procedures published for DMW. While these approach procedures assist pilots in making landings during below Visual Flight Rules (VFR) weather conditions, they are often used during VFR conditions. Instrument approaches are classified as precision and non-precision. While both provide horizontal guidance to the runway, a precision approach also provides vertical guidance for descent to the runway. There are currently no published precision instrument approach procedures to DMW.

Three non-precision approaches are published at DMW: a RNAV(GPS) approach to each end of the runway, and a VOR approach to Runway 34. The GPS approaches provide course guidance to properly equipped aircraft. Additionally, the VOR and VOR-A approaches to DMW guide aircraft to the VOR seven nautical miles south of the Airport, from which the pilot must fly the remaining distance visually.

1.2.8 VISUAL WIND DIRECTION INDICATORS

In addition to the airfield lighting and NAVAIDS, a lighted wind cone is located approximately 2,000 feet south and 500 feet east of the Runway 16 threshold. The purpose of the wind cone is to provide pilots with visual confirmation of the general direction of the prevailing winds. A segmented circle circumscribes the wind cone and includes markings depicting the orientation of traffic patterns for each end of the runway. Runway 16 uses a standard left-hand traffic pattern, while Runway 34 maintains a right-hand traffic pattern.

1.2.9 *AUTOMATED WEATHER OBSERVATION SYSTEM*

An Automated Weather Observation System (AWOS-III) is available on the Airport. It is located on a tower at the northeast corner of the airport administration/FBO building, and consists of an antenna with weather monitoring instruments. The AWOS-III translates weather sensor readings into a voice transmission that can provide pilots with current weather conditions at the Airport. Provided on a frequency of 121.25 or via telephone, pilots can obtain a voice transmission of current sky conditions (ceiling and visibility), temperature, dew point, wind direction and speed, altimeter setting, and special conditions, such as the presence of thunderstorms, wind shifts, and precipitation intensity. The availability of the AWOS-III allows pilots to gather important local weather information without using the airport communication (Unicom) frequency.

1.3 LANDSIDE FACILITIES

The landside facilities at DMW are depicted on **Exhibit 1.3-1**, and the following provides a general description of these features.

1.3.1 AIRPORT ADMINISTRATION / FBO BUILDING

The Airport Administration / Fixed Base Operators (FBO) building is a 1,600 square foot facility constructed in 1978 at the western terminus of what is now Airport Road. Offices for the airport operations coordinator and the airport manager are located in the building. The responsibilities of the airport administration personnel are discussed later in this report. A description of the services provided by the FBO is found below.

Presently, two FBOs are found at DMW. An FBO is typically defined as a business operating from a fixed location at an airport that offers services including maintenance of public aircraft and vendor

services, flight training, fuel sales, aircraft sales and maintenance, and charter services. Both FBO locations are depicted on **Exhibit 1.3-1**. A brief description of each, including the services they offer, is provided below**.**

Westair Inc.: This facility is located within the 1,600 square foot airport administration/FBO building. The building includes offices for FBO staff, a pilot lounge, conference room, and a flight planning room. The FBO provides full serve and self serve 100 low lead fuel, and full serve Jet A fuel. Aircraft rentals are also available. Engine and airframe repairs are provided in the adjoining 10,000 square foot aircraft maintenance facility. Car rental is not provided, although a courtesy car service is available when the FBO is open. The FBO employs approximately eight people on a full time basis.

Aeroservices Jet Center: This facility is located in Hangars 3 and 4 of the corporate hangar complex, leasing a total area of 23,000 square feet. Services provided by this FBO include: full service Jet A fuel; flight school and flight training; aircraft rental; avionics sales and service; major airframe and power plant aircraft maintenance; aircraft cleaning and detailing; pilot lounge; and, courtesy transportation.

1.3.2 AIRCRAFT PARKING

As shown on **Exhibit 1.3-1**, a large apron that is reserved for aircraft parking is located east of parallel Taxiway A and north of the existing corporate hangars. The size of the apron is approximately 37,500 square yards and accommodates 56 Group I general aviation aircraft. Tiedown anchors are in place for each tiedown space on the apron, and based aircraft owners lease approximately one-third of these spaces from the FBO. Additionally, there are four larger aircraft tiedown spaces on the south end of the apron that are primarily used to accommodate larger transient aircraft, including corporate jets. The existing apron is not equipped with flood lighting or edge lighting.

1.3.3 T-HANGARS

North of the existing Airport administration/FBO building and east of the general aviation aircraft tie-downs are two groups of three aircraft T-hangars comprising a total of six buildings. The grouping nearest to the Airport administration/FBO building was completed in 1979, and the second grouping was completed in 1989. A total of 82 T-hangar units within the 6-building complex are used by based tenants to store their aircraft; and 2 additional units are used by the County to store maintenance equipment and mowers. Access from the T-hangar complex to the tie-down apron and the parallel taxiway is provided via paved taxilanes.

1.3.4 VEHICLE PARKING, ACCESS, AND CIRCULATION

A pair of paved parking lots is provided east and south of the Airport administration/FBO building. The lots are a combined 1,600 square yards in area and can accommodate approximately 40 vehicles. As

shown on **Exhibit 1.3-1** and as indicated above, the lots provide immediate access to the Airport administration/FBO building. Vehicle access is also provided to the existing fuel farm, located north of the T-hangars, and to the corporate hangar complex.

1.3.5 OTHER AIRPORT USERS

Other Airport users occupy the corporate hangars shown on **Exhibit 1.3-1**.

1.4 SUPPORT FACILITIES

1.4.1 FUEL

Aircraft fuel is available for purchase from two FBOs at DMW. Westair provides both 100 Low Lead (LL) and Jet A dispensed from 3,000-gallon and 5,000-gallon mobile fuel trucks, respectively. The trucks are periodically refilled at the fuel farm located north of the T-hangar complex (see **Exhibit 1.3-1**). The fuel farm contains two 12,000-gallon tanks, one each for 100 LL and Jet A. A self-service pump for 100 LL also is located adjacent to the fuel farm, although it presently is not working. Plans are in place for expansion of the fuel farm facility by adding two 12,000-gallong Jet A tanks by September 2005.

Aeroservices Jet Center, the second FBO, provides Jet A fuel from a 3,000-gallon mobile fuel truck.

Although not an FBO, IFG Aviation provides Jet A fuel to its aircraft in Hangars 1 and 2 through the use of a 5,000-gallon mobile fuel truck.

1.4.2 MANAGEMENT

DMW has its day-to-day operations overseen by an airport operations coordinator and an Airport manager. Both are County employees with offices in the Airport administration/FBO building. Duties of the airport manager include coordinating with the County, FAA, and MAA personnel, monitoring the operation of all airside and landside facilities, coordinating airport issues with airport tenants and the general public, and overseeing landside lease arrangements.

1.4.3 AIRPORT MAINTENANCE

County staff perform airport maintenance, including mowing and minor pavement repairs such as spot patching. Mowing equipment is stored in a unit in the existing T-hangar complex.

The County also has a maintenance contract with Leister Electric, Inc. to perform airfield electrical repairs, including repairing edge lighting circuitry, replacing edge light bulbs and lenses, and replacing guidance sign bulbs and panels.

1.4.4 SNOW REMOVAL

Snow removal is performed by County staff using the following equipment: one International dump truck with 12-foot box blade and snow blower; one omni-directional tractor with plow and shovel; and one pickup truck with plow, salt hopper, and skid loader. Some equipment is stored outside in the area northeast of the Airport administration/FBO building.

1.4.5 AIRPORT EMERGENCY RESPONSE PLAN

An Airport Emergency Response plan is in draft form and has not been accepted formally by the County at the time of this writing. Currently, emergencies at the Airport are handled by the local Westminster Volunteer Fire Department.

1.5 AIRSPACE AND AIR TRAFFIC CONTROL

The Federal Aviation Act of 1958 established the FAA as the responsible agency for the control and use of navigable airspace within the US. Together, it is the responsibility of the FAA, through its rules and regulations, and each pilot to ensure that procedures are followed to maintain proper separation between aircraft. The surrounding airspace, airspace structure, airspace operational limitations, and air traffic control procedures in the vicinity of DMW are described below.

1.5.1 AIRSPACE

Since the inception of aviation, territorial boundaries have been established to regulate the use of airspace. On September 16, 1993, all airspace within the US was re-classified to be consistent with international standards. Class A, B, C, D, E, and G is now used to describe the various airspace areas found within the US. However, the basic premise of the use of airspace has remained the same, and airspace is still classified as either “controlled” or “uncontrolled”. The airspace classifications are presented in **Exhibit 1.5-1**.

1.5.1.1 Controlled Airspace

Due to the volume of air traffic within the U.S., most airspace around metropolitan areas and adjacent communities is controlled airspace. Once within controlled airspace, the degree of control varies with the amount of air traffic found in that area. The higher the level of air traffic, the greater the degree of control exercised on pilot qualifications, aircraft communication and separation, and flight rules.

DMW is located within an area of controlled airspace categorized as Class E. The Class E airspace around DMW extends outward from the Airport to contain areas needed for approach and departure procedures. The Class E controlled airspace at DMW is within a 6 nautical mile radius of the Airport, has a floor of 700 feet AGL, and a ceiling of 18,000 feet above MSL. Other requirements associated with Class E airspace are:

- Airspace Entry Prerequisites – Clearance and radio contact for IFR, none for VFR;

- VFR Minimum Visibility Below 10,000 feet MSL – 3 statute miles;

- VFR Minimum Visibility at 10,000 feet MSL and Above – 5 statute miles;

- VFR Minimum Distance from clouds Below 10,000 Feet MSL – 500 feet below the clouds, 1,000 feet above the clouds, 2,000 feet horizontal; and,

- VFR Minimum Distance from Clouds at 10,000 Feet MSL and Above – 1,000 feet above and below the clouds, 1 statute mile horizontal.

DMW lies just northwest of the Washington, D.C. Metropolitan Area Air Defense Identification Zone (ADIZ). The ADIZ is an area of airspace where the ready identification, location, and control of aircraft are required in the interests of National Security. Specifically, the ADIZ is that airspace, from the surface up to 18,000 feet MSL within the outer boundary of the Washington D.C. Tri-Area Class B airspace. The airspace within the vicinity of DMW, including the ADIZ, is shown on **Exhibit 1.5-2**.

1.5.1.2 Uncontrolled Airspace

Class G airspace is uncontrolled airspace. Pilots operating in Class G airspace have the responsibility to see and avoid other aircraft. No air traffic control services are available in this airspace. Class G airspace exists within a 6 nautical mile radius of DMW from ground level up to 700 feet AGL.

1.5.1.3 Special Use Airspace

According to the Airman's Information Manual, Special Use Airspace consists of that airspace wherein activities must be confined because of their nature, or wherein limitations are imposed upon aircraft operations that are not a part of those activities, or both. Special Use Airspace consists of Prohibited and Restricted Areas, Warning Areas, Military Operations Areas, Alert Areas, and Controlled Firing Areas. Special Use Airspace in the vicinity of DMW is discussed below.

Prohibited Areas: Prohibited areas are established for security reasons or for national welfare and are identified on aviation sectional charts by a defined area marked with the letter "P". Prohibited Area 40 (P-40) is located approximately 21 nautical miles west northwest of DMW. This airspace is 5 nautical miles in diameter and is centered on and surrounds the Presidential retreat at Camp David.

Restricted Areas: Restricted areas are not entirely prohibited to flight activity. However, flight into these areas must be authorized. Restricted Area 4009 (R-4009) overlies P-40 identified above.

Temporary Flight Restrictions (TFR) Areas: A Temporary Flight Restrictions (TFR) Area is authorized by a Notice to Airmen (NOTAM) and may be imposed to preclude any aircraft from entering an area unless authorized by an appropriate official. When a NOTAM authorizing a TFR for Camp David is issued, the diameter of P-40 and R-4009 expands to 10 nautical miles radius surrounding Camp David. Aircraft flight operations are prohibited within 10 nautical miles radius below 18,000 feet MSL except as follows:

- All aircraft operations within 5 nautical miles radius below 12,500 feet MSL are prohibited except military, law enforcement, emergency medical aircraft, and certain Washington Dulles International Airport arrivals provided that those arrival aircraft adhere to the following:
    - Maintain two-way radio communications with Air Traffic Control (ATC) and display assigned beacon code at all times;
    - Avoid P-40 unless authorization is received from the United States Secret Service; and,
    - Washington Metro Area scheduled air carrier departures are authorized above 12,500 feet MSL provided aircraft are in two-way communications with ATC and display an assigned beacon code.

- Within the area between 5 and 10 nautical miles radius, aircraft shall:
    - Be on an active IFR or VFR flight plan with a discrete beacon code assigned by ATC;
    - Remain in two-way communications with ATC;
    - Flights within this area are only for ingress, egress, and transit;
    - Flight training, practice instrument approaches, aerobatic flight, glider operations, parachute operations, ultralight, hang gliding, balloon operations, agriculture/crop dusting, and animal population control flight operations are not authorized;
    - Commercial cargo carrier operations that fail to meet or exceed the TSA domestic security inspection program standards are not authorized;
    - All aircraft departing from private airports/airfields must be on a heading away from the center of the P-40 airspace; and,
    - All aircraft operators cleared by the US Secret Service shall notify the US Secret Service prior to their departure.

1.5.2 FAR PART 77 AND AIRSPACE OBSTRUCTIONS

Part 77 of the Federal Aviation Regulations (FAR) establishes standards for determining obstructions to air navigation, and does so by defining a series of imaginary surfaces that extend outward and upward from the runways at an airport. These surfaces define a volume of airspace that should be kept clear of existing and proposed manmade objects, objects of natural growth, and terrain. Objects that penetrate these surfaces are obstructions and may be hazards to air navigation.

The geometry of each imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach existing or planned for that runway end. **Exhibit 1.5-3** depicts the general layout of the imaginary surfaces as described in Part 77, and a description of these surfaces is provided as follows:

Horizontal Surface: A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by tangents.

Conical Surface: A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.

Primary Surface: A surface that is longitudinally centered on the runway, extending 200 feet beyond the threshold in each direction. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

Approach Surface: A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based on the type of approach available or planned for that runway end.

Transitional Surface: A surface that extends outward and upward at right angles to the runway centerline at a slope of 7:1 from the sides of the primary and approach surfaces. The transitional surface terminates at the point where it intersects the horizontal surface or any other surface where more critical restrictions are intercepted.

Table 1.5-1 defines the FAR Part 77 surfaces as they apply to DMW.

TABLE 1.5-1
FAR PART 77 SURFACES

Surface	Runway 16	Runway 34
Width of primary surface and approach surface width at inner end	500 feet	500 feet
Radius of horizontal surface	10,000 feet	10,000 feet
Approach surface width at end	3,500 feet	3,500 feet
Approach surface length	10,000 feet	10,000 feet
Approach surface slope	34:1	34:1

Source: Airport Layout Plan, June 1993.

Objects that penetrate these surfaces will be assessed in subsequent sections of this report. Recommendations will be provided for the removal of any obstructions that adversely impact the approaches to Runway 16-34.

1.6 NOISE ABATEMENT PROCEDURES

There are no published noise abatement procedures in place at this time at DMW. As stated previously, Runway 16 maintains the standard left traffic pattern. Runway 34 maintains a right traffic pattern to avoid over flight of the residential areas in the vicinity of the airport.

1.7 METEOROLOGICAL DATA

Weather conditions play an important role in determining an airport's capacity and facility requirements. Items of interest are temperature and precipitation, ceiling and visibility, as well as local wind conditions. Temperature information is used to determine runway length requirements, while precipitation, ceiling, and visibility data are used to determine the capacity of the existing airfield. Wind data is used to determine the need for any additional runways.

Temperature and precipitation conditions at DMW were analyzed by the National Climatic Data Center for a 30-year period from 1961 to 1990. Wind and ceiling/visibility conditions at DMW were analyzed using hourly observations collected by the National Climatic Data Center Station at Baltimore, Maryland. Weather information obtained from this location covered 79,165 weather observations for the 10-year period, January 1995 to December 2004, and was used to approximate conditions at DMW.

1.7.1 TEMPERATURE AND PRECIPITATION

Temperature extremes do occur at DMW. The normal mean maximum temperatures range from a low of 37.4 degrees °F in January to 85.1 degrees °F in July, the hottest month of the year. In comparison, the normal mean minimum temperature ranges from 21.6°F to 63.9°F for the months of January and July, respectively.

Precipitation varies throughout the year at DMW. February is the driest month with a normal rainfall of 2.6 inches, while May is the wettest month with a normal rainfall of 4.3 inches. The normal annual average precipitation at DMW is 41.3 inches.

1.7.2 CEILING AND VISIBILITY

The FAA has defined certain limits of ceiling height and visibility limits as visual meteorological conditions (VMC) and instrument meteorological conditions (IMC). These limits affect flight operations by establishing certain rules and procedures for pilots, aircraft and air traffic control. During VMC and IMC, pilots must adhere to VFR and IFR, respectively. VFR and IFR weather conditions are defined as follows:

VFR Weather: The weather where the cloud base is equal to or greater than 1,000 feet AGL and visibility is equal to or greater than 3 statute miles.

IFR Weather: The weather where the cloud base is less than 1,000 feet but more than 200 feet AGL and visibility is less than 3 statute miles but more than ½ mile.

Below IFR Weather: Whenever the cloud ceiling or visibility is less than IFR weather, an airport is usually closed. A few larger airports have instrumentation allowing specially equipped aircraft to land in low ceiling/visibility conditions.

The weather data obtained from the National Climatic Data Center was analyzed for both ceiling/visibility and wind direction. The analysis of the ceiling/visibility data revealed that VFR weather occurs in the DMW area 91.4 percent of the time, IFR weather occurs 7.7 percent of the time, and 0.9 percent of the time the weather is below Category 1 IFR operating minimums.

Current minimums at DMW are published at a cloud base of 400 feet AGL and a visibility of 1-mile. When weather conditions fall below these minimums the Airport is closed. Weather conditions are below operating conditions at DMW 2.5 percent of the time.

1.7.3 WIND ANALYSIS

Table 1.7-1 presents an analysis of the wind coverage at DMW. Wind coverage indicates the percentage of time that crosswind components are within an acceptable velocity. The primary runway at an airport should be oriented as closely as practical with the direction of the prevailing winds, providing the largest wind coverage for a given maximum crosswind component. For the purpose of runway wind analysis, a crosswind component can be defined as the wind that occurs at a right angle to the runway centerline. Crosswind components of 10.5, 13, and 16 knots were used for analyzing the runway system at DMW. These components were used because they are the velocities specified for runways having ARC of: A-I and B-I; A-II and B-II; and A-III, B-III, and C-I through D-III, respectively.

Winds in the vicinity of DMW are predominantly from the west and west-northwest. The wind roses in **Exhibit 1.7-1** illustrate the percentage of observations, by direction, during all weather, VFR, IFR and below IFR conditions.

FAA guidelines recommend that an airport's runway system provide wind coverage of 95 percent. The all-weather wind rose indicates that with the appropriate 16-knot crosswind component, based on DMW having an ARC C-II runway, wind coverage of 99.26 percent is provided.

TABLE 1.7-1
WIND COVERAGE

Weather Condition	Wind Component		
	10.5 Knots	13 Knots	16 Knots
Runway 16-34			
All Weather	93.32	96.68	99.26
VFR	93.64	96.94	99.34
IFR[1]	89.22	93.52	98.38
IFR[2]	93.33	96.30	99.30
IFR[3]	96.42	98.05	99.52

Sources: NOAA National Climatic Data Center (2005) and URS Corporation (2005).

Notes**:** Station: Baltimore, Maryland (*closest station to DMW*)
Period: 1995-2004
Total Number of Observations: 79,165

[1]Includes weather observations during times when the ceiling height is greater than or equal to 200 feet but less than 1,000 feet, and/or horizontal visibility is greater than or equal to 0.5 miles but less than 3 miles.

[2]Includes weather observations during times when the ceiling height is greater than or equal to 200 feet but less than 400 feet, and/or horizontal visibility is greater than or equal to 0.5 miles but less than 1 miles.

[3]Includes weather observations during times when the ceiling height less than 200 feet and/or horizontal visibility is less than 0.5 miles.

1.8 UTILITY SYSTEMS

DMW uses five primary utilities: gas; electric; water/sewer; and telephone. These utilities and the main system components are described below.

Gas Service: Baltimore Gas and Electric (BGE) provides gas service at DMW.

Electrical Service: BGE also provides electrical service at DMW. Power is provided from a 480-volt line that runs along Route 97 and branches into the Airport. A pair of 3-phase transformers step the power down to the Airport administration / FBO building, the T-hangars, and the corporate hangars.

Water/Sewer Service: The City of Westminster municipal water/sewer system provides service to DMW via a 12-inch water main.

Telephone Service: Telephone service is provided by Verizon Communications.

1.9 REGULATORY FRAMEWORK

Federal, State, and local laws and regulations control many aspects of the operation of airports. In order to understand how DMW is integrated into the regulatory framework of the community, a

description of some of the key roles and responsibilities of governmental agencies and the general public is included in the following paragraphs.

1.9.1 FEDERAL GOVERNMENT

The Federal government has played a role in the development and improvement of the nation's airports since the earliest days of flight. With the enactment of the Federal Aviation Act of 1958, Congress assigned administrative authority to the FAA for the overall coordination and regulation of the nation's aviation system. Specific responsibilities of the FAA are as follows:

- Regulating air commerce in order to promote its development, safety, and fulfill the requirements of national defense;

- Promoting, encouraging, and developing civil aeronautics;

- Controlling the use of navigable airspace, and regulating both civil and military aircraft operations to promote the safety and efficiency of both; and,

- Developing and operating a common system of air traffic control and navigation for both military and civil aircraft.

To implement the federal commitment to interstate commerce, the FAA is responsible for administering a legislated program of federal grants-in-aid for developing airport master plans, acquiring land, and for planning, design, and construction of eligible airport improvements. These grants have been made possible from the collection of aviation fuel and airline ticket taxes, which are deposited into the Airport and Airway Trust Fund (AATF). A total of $3.5 billion was allotted in the Federal Fiscal Year 2005 budget for grants-in-aid for airports. According to the FAA's *Budget in Brief* for Fiscal Year 2006, published in February 2005 and available on the FAA website at www.faa.gov, a total of $3.0 billion has been requested by the President for the Grants-in-Aid for Airports account. This includes grants to eligible airports to enhance capacity, emphasize safety and security needs, and mitigate noise.

The FAA is also responsible for the control of navigable airspace and the operation of air traffic control systems at the nation's airports. The FAA regulates the licensing requirements for pilots and sets forth flight rules for the safe navigation of aircraft through the national airspace. Airport owners have no direct control over pilot licensing requirements, airspace management or air traffic control, although they can propose changes in local flight procedures.

The FAA reviews proposed changes to flight procedures on the basis of flight safety, and the safe and efficient use of navigable airspace. It also considers the management and control of airspace and traffic control systems, effects on security and national defense, and compliance with applicable laws and regulations.

1.9.2 STATE AND LOCAL GOVERNMENTS

Control of land use in areas around airports is a key tool in limiting the potential impacts of aircraft operations on the surrounding community. The FAA encourages land use compatibility in the vicinity of airports; however, the Federal government has not taken legal authority to directly regulate land use in the airport vicinity. The responsibility for local land use planning rests exclusively with the state and local governments. Using powers assigned to local governments within the Annotated Code of Maryland, compatible land use development within the airport area can be achieved. Within the vicinity of DMW, the jurisdictions that have responsibility for land use regulation include the City of Westminster and Carroll County.

Additional regulations enacted by the State of Maryland are intended to exercise some control of aviation activities. The statutes within Title 11 of the Annotated Code of Maryland provide authority for control of airport and aircraft operations within the state. Requirements for aircraft registration as well as requirements for the use of public airports within Maryland also are identified within the statutes.

Title 11 also identifies the responsibilities of airport owners and managers. The duties of the airport manager include providing FAA and/or Maryland Aviation Administration (MAA) notification as to potential hazards to air safety caused by changed airport conditions. New construction or obstructions, and/or zoning changes which may have an effect on aircraft safety.

The Airport falls under the purview of the County's Office of Performance Auditing and Special Projects. General duties of the County include the responsibility to plan, improve, and operate the airport. In addition, The County has the authority to acquire property for the purposes of eliminating and preventing airport hazards, and for the purpose of enhancing land use compatibility in areas most affected by aircraft operations.

The County has limited power to control what types of civil aircraft use DMW and to impose use restrictions. The County may propose limits on runway use or flight paths, but only the FAA can implement these. Airport owners are prohibited from taking actions that would impose undue burdens on interstate commerce, unjustly discriminate between different categories of airport users, or constitute unilateral action in matters preempted by the federal government.

1.9.3 LOCAL COMMUNITY

While regulatory responsibility for aviation activities rests with governmental agencies, the general public can also have an important role in achieving compatibility. In many instances, as urban growth occurs, new residents may be unaware of the airport's existence until after they occupy the property. Many who are aware of an airport's location may also have difficulty visualizing the extent of aircraft flight patterns, which may affect property some distance from the airport boundary.

Although the area surrounding DMW was largely undeveloped when it was operated as a turf strip in the 1950s, urbanization in the County is being made more attractive by the relatively easy commute to the Baltimore and Washington, D.C. metropolitan areas. As development pressures in the Airport vicinity are expected to continue, the potential for incompatible land use development exists. In addition to reliance on municipal and County land use compatibility planning, prospective residents should be encouraged to become aware of the potential Airport impacts prior to residing within its vicinity.