Reading Regional Airport Authority

Reading Regional Airport

General Carl A. Spaatz (USAF) Field

Airport Layout Plan Narrative Report 2013

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1. BACKGROUND

1.1 Purpose and Need for the Update

The previous Airport Master Plan[1] was prepared in 2004 and numerous changes have occurred since then. The purpose of this study is to update information about the physical and operational characteristics of the Airport and to revise the airport layout plan accordingly. In addition, it was determined during project scoping that the Airport's drainage plan (2002) and obstruction survey (1999) were also outdated and should be updated as part of the project.

1.2 Study Design and Approach

The report was prepared in consultation with the Reading Regional Airport Authority (RRAA) and the FAA Harrisburg Airports District Office (HARADO). The three major components are:

- Airport Layout Plan
- Airport Drainage Plan
- Obstruction Survey/Airport Airspace Analysis

As shown in Figure 1 and described below, all three components are based on new (2011) aerial photography, survey and mapping. Aerial survey and remote sensing methods were used to identify, collect and analyze objects located on and surrounding the Airport. The survey work complies with FAA requirements provided in Advisory Circulars (AC) 150/5300-16A, -17B, and -18B, as amended. The digital information has been provided to the FAA Airports Survey/GIS Program office to support future airport planning and design activities including developing instrument flight procedures.[2]

- **Airport Layout Plan**

  A new ALP has been prepared and provided as a separate set of full size drawings. The ALP is a graphical representation of the proposed development identified in this *ALP Narrative Report* and listed on the *Airport Capital Improvement Program* (ACIP). The ALP was approved by FAA Harrisburg Airports District Office on October 2, 2013 (see Attachment A).

[1] Airport Master Plan, Reading Regional Airport, Reading, Pennsylvania. Prepared by TriState Planning & Engineering, P.C. (June 2004).

[2] Airport Surveying-GIS Program Project No. 113140

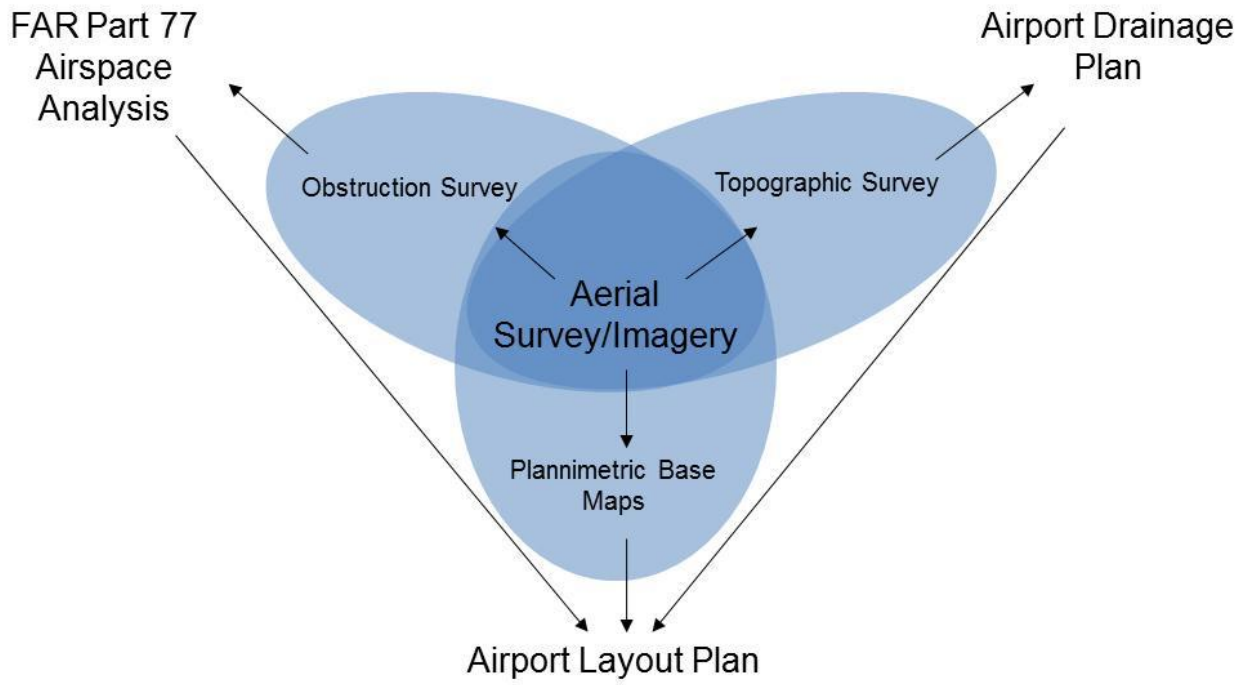
- **Airport Drainage Plan**

  A new airport storm water management plan has been prepared and provided as a separate set of reports and plans. Phase I takes inventory of the existing storm water conveyance system or drainage pipe network and evaluates its function with respect to capacity and current design criteria. Phase II studies the full build-out scenario and evaluates the overall effect on the existing drainage system along with potential means for mitigating storm water runoff increases in volume and rate resulting from future site development. The airport storm water management plan was approved by Bern Township engineer on May 4, 2012 (see Attachment A).

- **Obstruction Survey/Airport Airspace Analysis**

  A new obstruction survey/airport aeronautical analysis (OS/AAA) has been prepared in accordance with FAA guidelines and specifications for aeronautical surveys. The data provides the foundation for the ALP and can be used to develop runway approach procedures and obstruction charts. The OS/AAA was verified by FAA Airports GIS on April 30, 2012 (see Attachment A).

Figure 1: ALP Update Elements



2. CHANGES IN EXISTING CONDITIONS

2.1 Airport Role

Scheduled air service was discontinued in 2004 and has not been reinstated. Boscov's Travel continues to offer seasonal charter flights to Orlando using leased Southwest Airlines' jets; but annual passenger enplanements are below minimum FAA requirements to sustain commercial service status. Consequently, in 2008, the FAA changed the Airport's classification from nonprimary *commercial service* to *general aviation*.[3] Today, RDG is used mostly for business and personal flights, police and medical flight operations, and pilot training. A 2007 survey indicates that business jet aircraft account for approximately 5 percent of total aircraft activity at the Airport.[4]

2.2 Airport Reference Code (ARC)

The design airplane for Runway 13-31 is the Gulfstream V and the corresponding ARC is C-III (unchanged). However, due to existing physical and environmental constraints, the FAA determined that it is no longer practical to maintain Runway 18-36 to C-III standards. As a result, the design airplane for Runway 18-36 is the smaller Gulfstream III and the corresponding ARC is C-II.[5] For more information, see Section 4 in this Narrative Report.

2.3 Runway Safety Areas

The Runway Safety Area (RSA) Determination was updated in 2011 to reflect the recent completion of three RSA improvement projects.[6] According to the FAA's report:

- The Runway 31 departure RSA meets FAA standards. An existing local road (Van Reed Road) was relocated to make way for a standard graded RSA. A small detention basin was also constructed to comply with storm water management requirements. The location of the runway threshold did not change.

- The Runway 13 departure RSA has been improved to the degree practicable. A nonstandard Engineered Material Arresting System (EMAS) was installed between the runway threshold and Aviation Road. The location of the runway threshold did not change.

[3] 2009-2013 National Plan of Integrated Airport Systems (NPIAS) Report. See the FAA website page entitled Airport Categories for more information about airport classifications and corresponding definitions.

[4] An informal 18-week survey of jet aircraft operations was conducted by the airport, with assistance FAA ATCT personnel and AECOM. Survey period is April – November 2007.

[5] When the ARC for Runway 18-36 was reduced from C-III to C-II, the width of the RSA was reduced from 500 feet to 400 feet, respectively.

[6] Runway Safety Area Determination, Reading Regional Airport, Reading, Pennsylvania (Revised November 15, 2011).

- The Runway 36 departure RSA meets FAA standards. Property was acquired and an existing local road (Leiscz's Bridge Road) was relocated to make way for a standard graded RSA. A localizer antenna and equipment storage building were also relocated. The location of the runway threshold did not change.

- The Runway 18 departure RSA does not meet FAA standards. FAA reaffirmed their previous determination that it is not practicable to improve the RSA on this end of the runway.

As previously noted, when the ARC for Runway 18-36 was reduced from C-III to C-II, the width of the RSA was reduced from 500 feet to 400 feet, respectively. [7]

2.4 Buildings 501/502 (Demolition)

A World War II hangar (501) and associated outbuilding (502) were demolished in 2008. An EA/FONSI was prepared for the demolition only.[8] Future development of this site requires FAA environmental review and approval.

2.5 Building 159 (New Hangar)

A new 28,500 square foot maintenance/storage hangar was constructed on the north apron to accommodate corporate flight department operations (Quest Diagnostics).

2.6 Airport Surveillance Radar

FAA relocated the Airport Surveillance Radar (ASR) to a new location along SR 183 (Bernville Road). The new radar is an upgraded ASR-11.

2.7 Property Acquisition/Disposition

Several land acquisitions and releases have occurred since the 2004 Airport Master Plan.

- The Airport acquired three adjacent properties totaling 25.9 acres to improve the RSA (relocate Leiscz's Bridge Road) beyond the north end of Runway 18-36.

- The Airport released four parcels totaling 3.8 acres to PennDOT to accommodate SR 222/183 interchange improvements.

- The Airport released 154.9 acres of non-aviation land to the Berks County Industrial Development Authority (BCIDA) to facilitate development of a business/office park.

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[7] According to AC 150/5300-13, Table 3-3, Footnote 4, for Airport Reference Code C-I and C-II, a runway safety area width of 400 feet is permissible.

[8] Department of Transportation, FAA. Finding of No Significant Impact at Reading Regional Airport (RDG). January 24, 2007.

3. AVIATION ACTIVITY FORECASTS

After considering several existing published forecasts as well as independent forecasts, it was determined that the FAA's Terminal Area Forecast (TAF) offers the best available forecasts for aviation planning at the Airport and is recommended to be used as the basis for preparing the ALP Update. These forecasts are based on the assumption that RDG will continue to be classified as a general aviation airport for the foreseeable future. In the absence of regularly scheduled airline passenger service, which is not expected to return soon, the vast majority of the Airport's activity will continue to be corporate and business aviation, flight training, air ambulance, police aircraft, air charters, and recreational/private flying.

3.1 Review of 2000-2010

Aviation activity at RDG declined dramatically after the previous master plan forecasts were prepared in 2000. At that time, RDG was a commercial service airport with regional and commuter airlines operating from a newly expanded passenger terminal building, and the economy was robust. Then, the airline industry was hit hard by the 9/11 tragedy, the economy dipped, and airline demand fell sharply. Scheduled air service at RDG was discontinued in 2004 and has not been reinstated. Boscov's Travel continues to offer seasonal charter flights to Orlando using leased Southwest Airlines' jets, but the annual passenger enplanements are below minimum FAA requirements to sustain commercial service status. Consequently, in 2008, the FAA changed the Airport's classification from *nonprimary commercial service* to *general aviation*.[9]

Commercial operations aside, general aviation activity at RDG also declined over the past ten years, which corresponded with the decrease in general aviation activity nationwide.[10] According to the FAA, the economic downturn and its lingering effects triggered a weakening of the general aviation industry that is only beginning to stabilize.[11] Fortunately, aviation-related businesses at RDG appear to be stable and/or thriving. All three fixed base operators (FBOs) are still in service, one new FBO for helicopters opened in 2010[12], and there is a waiting list for hangar space at the Airport.

[9] 2009-2013 National Plan of Integrated Airport Systems (NPIAS) Report. See the FAA website page entitled Airport Categories for more information about airport classifications and corresponding definitions.

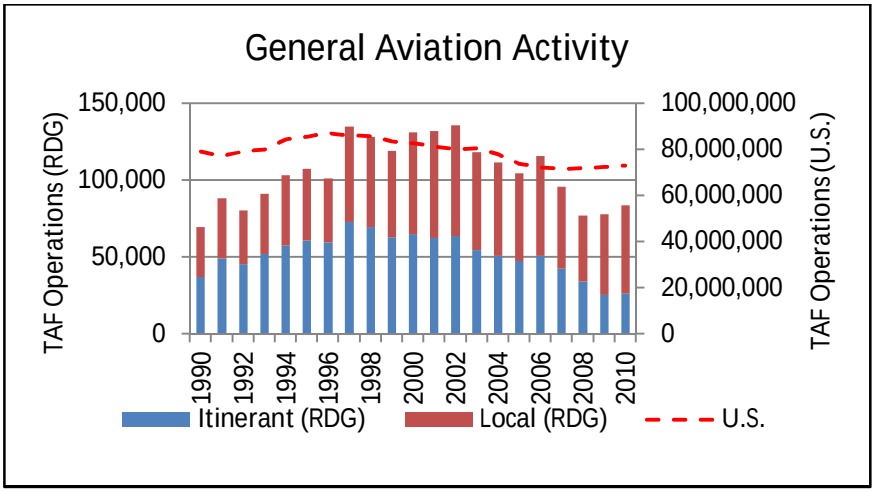
[10] FAA Terminal Area Forecast Database

[11] FAA Aerospace Forecasts, Fiscal Years 2011-2031

[12] Uniflight, LLC, is a Platinum-Level Bell Helicopter Customer Service Facility and an Approved American Eurocopter Customer Service Center, which also services Augusta and MD Helicopters.

RDG's resiliency can be attributed to the Airport's location within a large service area, strong business tenants and corporate clientele, and the continued presence of FAA facilities including an airport traffic control tower and precision instrument landing aids, which are attractive to flight departments, FBOs, and student pilots alike. Although recent activity levels at RDG have been slow when compared to the previous 10 years, as explained above, this same trend occurred throughout the general aviation industry and initial signs of recovery in 2009-2010 suggest that activity levels at RDG have likely bottomed out. Figure 2 compares aviation activity at RDG versus the US and shows how activity at RDG has followed US aviation activity trends.

Figure 2: Aviation Activity Trends



3.2 Revised Outlook for 2011-2030

Forecasts of aviation activity presented in this narrative are based on the assumption that RDG will continue to be classified as a general aviation airport for the foreseeable future. In the absence of regularly scheduled airline passenger service, which is not expected to return soon, the vast majority of the Airport's activity will continue to be corporate and business aviation, flight training, air ambulance, police aircraft, air charters, and recreational/private flying.

According to the FAA, after declining rapidly for most of the past decade, general aviation activity is expected to increase slowly as the economy recovers. Faster growth rates are expected in the business jet and helicopter segments, driven by higher corporate profits and continued concerns about safety, security and flight delays. Light aircraft used for personal and recreational flights are also predicted to increase but at a slower pace. These industry projections bode well for aircraft activity at RDG, which has a large service area and facilities that are ideally suited to accommodate all types of general aviation flying, in all weather conditions.

Detailed analysis of air service feasibility is beyond the scope of this study. However, it is worth noting, on a national level the FAA is forecasting air travel to more than double in the next 20 years. The FAA believes that air travel will surpass the one billion passengers-per-year mark by 2021, two years earlier than the previous forecast, which underscores the need for system capacity enhancements to accommodate future growth.[13] It is uncertain what effect, if any, this growth might have on the demand for air service at RDG, or at other outlying commercial airports in the region, such as Harrisburg, Lancaster, and Lehigh Valley, all of which are struggling to enhance or even sustain scheduled airline service. In the interim, the Airport Authority intends to maintain the Airport's commercial certification[14] in order to continue providing charter airline service and to facilitate discussions with the airlines about restoring scheduled airline service, should the market begin to change and the opportunity arise.

3.3 FAA's Terminal Area Forecast

Each year the FAA Office of Aviation Policy and Plans (APO) prepares and publishes a forecast of aviation activity at the nation's airports. This forecast, called the Terminal Area Forecast (TAF), is the official forecast of aviation activity at FAA facilities and is "prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public." Detailed forecasts are prepared for major users of the National Aviation System including:

- Large air carriers
- Air taxi/commuters
- General aviation
- Military

The TAF includes forecasts for activity for active airports in the National Plan of Integrated Airport System (NPIAS). The NPIAS identifies nearly 3,400 existing and proposed airports that are significant to national air transportation and thus eligible to receive Federal grants under the Airport Improvement Program (AIP). It also includes estimates of the amount of AIP money needed to fund infrastructure development projects that will bring these airports up to current design standards and add capacity to congested airports. The FAA is required to provide Congress with a 5-year estimate of AIP eligible development every 2 years.

[13] Press Release: FAA Forecast Predicts Air Travel to Double in Two Decades (February 15, 2011)

[14] As defined by FAR Part 139 Airport Certification

3.4 Aviation Activity Parameters

As previously mentioned, the TAF is being used as the basis for forecasting aviation activity at RDG. The TAF includes detailed forecasts for the following activity parameters:

- Passenger Enplanements
- Aircraft Operations, including Itinerant/Local Operations and TRACON[15] operations
- Based Aircraft

Using these higher level forecasts, additional forecast parameters include:

- Peak Hour Operations
- General Aviation Operations per Based Aircraft
- Based Aircraft Mix by Aircraft Type

3.5 Passenger Enplanements

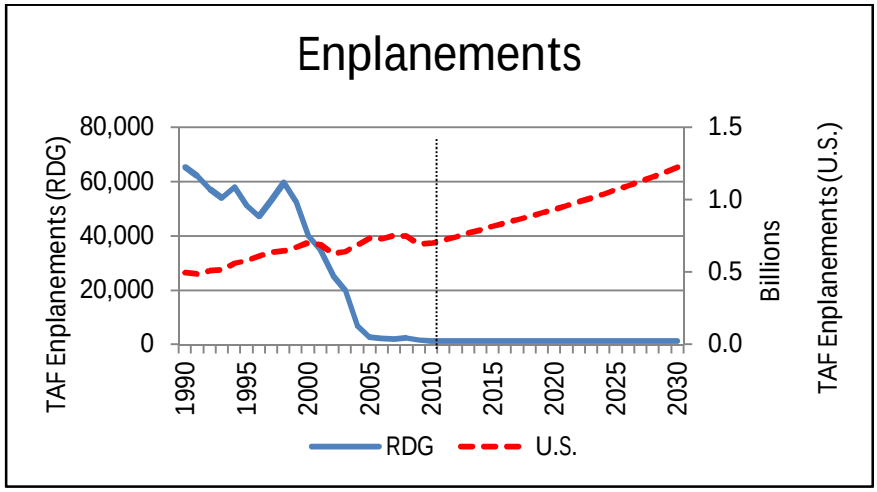
Airline passenger enplanements at RDG are associated with ongoing charter operations. There is no scheduled airline or commuter passenger service at this time and there is no foreseeable proposal to restore scheduled service in the near future. Figure 3 illustrates historical and forecast passenger enplanements at RDG and the US.

- Air carrier enplanements at RDG consist of seasonal flights to Florida using chartered Southwest Airlines' jets. There are no known plans to increase or decrease the number or type of seasonal charter flights; therefore, the current level of passenger activity is forecast to remain constant at 1,345 enplanements per year.

- Scheduled commuter passenger service ceased in 2004 and there are no plans to restore service. Forecast commuter enplanements are zero.

[15] A Terminal Radar Approach Control, or TRACON, is an air traffic control facility with its own radar system that allows air traffic controllers to track aircraft.

Figure 3: Historic and Forecast Enplanements



3.6 Aircraft Operations

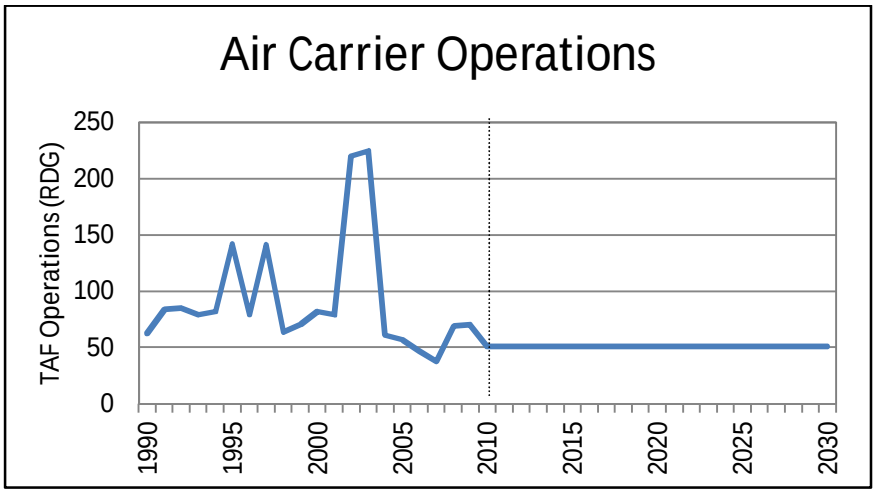
Aircraft operations (takeoffs and landings) are classified as follows: air carrier, air taxi/commuter, general aviation, or military.

3.6.1 Air Carrier Operations

Air carrier operations[16] at RDG currently consist of seasonal flights to Florida using chartered Southwest Airlines' jets. There is no foreseeable plan for scheduled airline service at this time, and there are no known plans to increase or decrease the number or type of seasonal charter flights. Therefore, air carrier aircraft activity is forecast to remain constant at 51 operations per year as shown in Figure 4.

[16] As defined by FAR Part 121 Operating Requirements: Domestic, Flag and Supplemental Operations

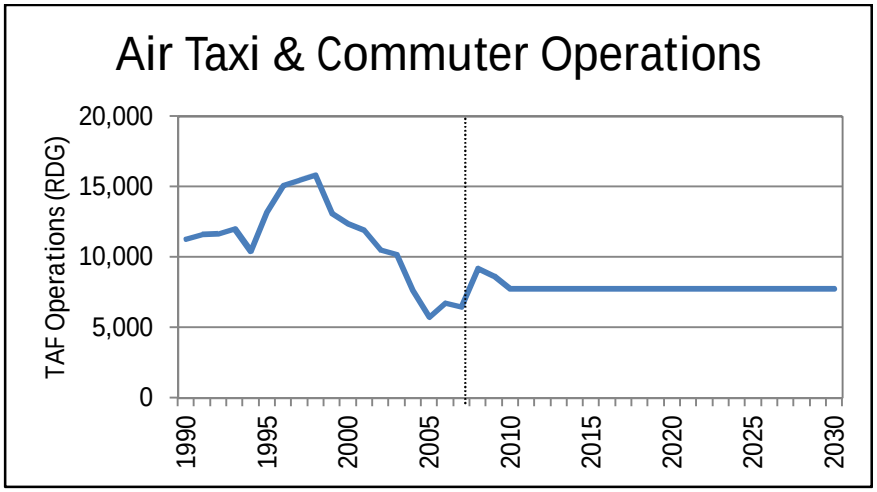
Figure 4: Historic and Forecast Air Carrier



3.6.2 Air Taxi and Commuter Operations

Air taxi and commuter operations[17] currently consist of on-demand flights provided by air taxi (charter) operators, only. There is no plan for scheduled commuter airline service at this time, and there are no foreseeable plans that would increase or decrease the number or type of air taxi/charter operations. Therefore, based on recent activity levels, air taxi activity (only) is forecast to remain constant at 7,734 operations per year as shown in Figure 5.

Figure 5: Historic and Forecast Air Taxi/Commuter Operations

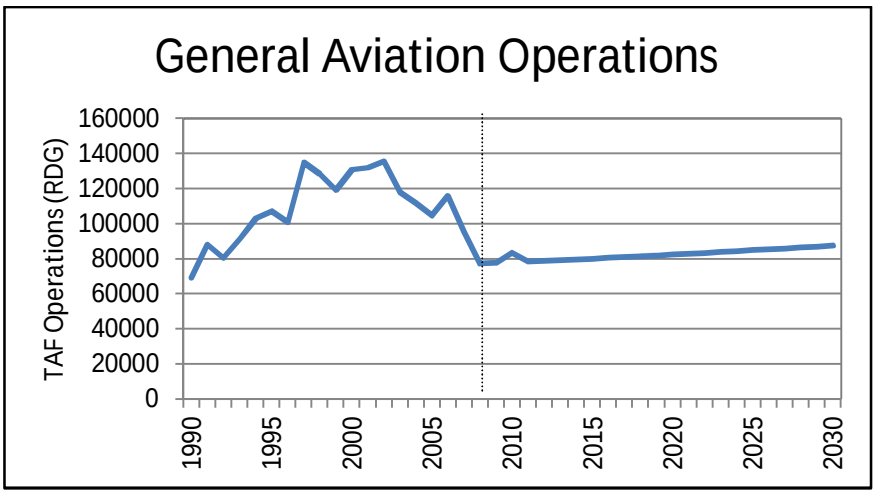


[17] As defined by FAR Part 135 Operating Requirements: Commuter and On Demand Operations

3.6.3 General Aviation Operations

General aviation consists of all aircraft operations that are not otherwise classified as commercial (air carrier, air taxi or commuter) or military. For example, corporate and business aviation, civilian pilot training, air ambulance, police aircraft, and recreational/private flying, are general aviation activities—all of which occur at RDG on a regular basis. According to the TAF, the FAA is predicting slow and steady growth for general aviation at RDG—0.6 percent a year for the next 20 years as shown in Figure 6.

Figure 6: Historic and Forecast GA Operations



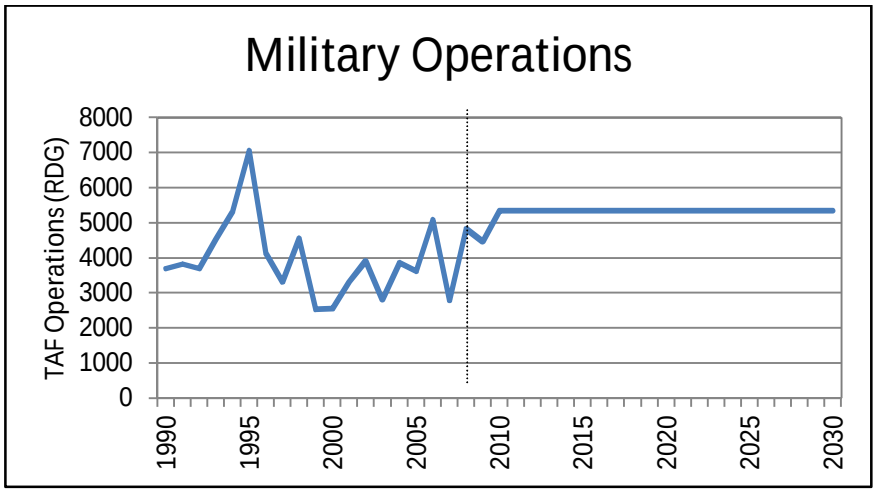
It should be noted that the TAF reflects a slower growth rate for general aviation operations at RDG than in Pennsylvania (PA), in the Eastern Region (AEA), and across the U.S. This raised the question whether the TAF might be underestimating future demand at RDG when compared to larger aggregate forecasts. For this reason, an independent forecast was prepared for general aviation operations at RDG. This trend analysis relied on 20 years of historical data to demonstrate that "general aviation activity at RDG has a remarkable tendency to fluctuate with the larger population(s)" and "if general aviation operations in Pennsylvania, and in the Eastern Region, and across the U.S., increase as projected in the TAF, then there is a strong possibility that general aviation operations at RDG will increase faster than projected in the TAF."[18]

[18] **Working Paper No. 1 (AECOM, 2011)**

3.6.4 Military Operations

Military operations consist of transient military pilots using RDG for practice takeoffs and landings; there are no military aircraft based at RDG. Fixed-wing aircraft and helicopters often visit from NAS Joint Reserve Base Willow Grove, McGuire AFB, PA National Guard facilities at Fort Indiantown Gap and Harrisburg International Airport, and Andrews AFB. The military does not publish forecasts for training operations at civilian airports. Therefore, the TAF includes an allowance for routine military operations based on the most recent activity levels. Military aircraft activity at RDG is forecast to remain constant at 5,345 operations per year as shown in Figure 7.

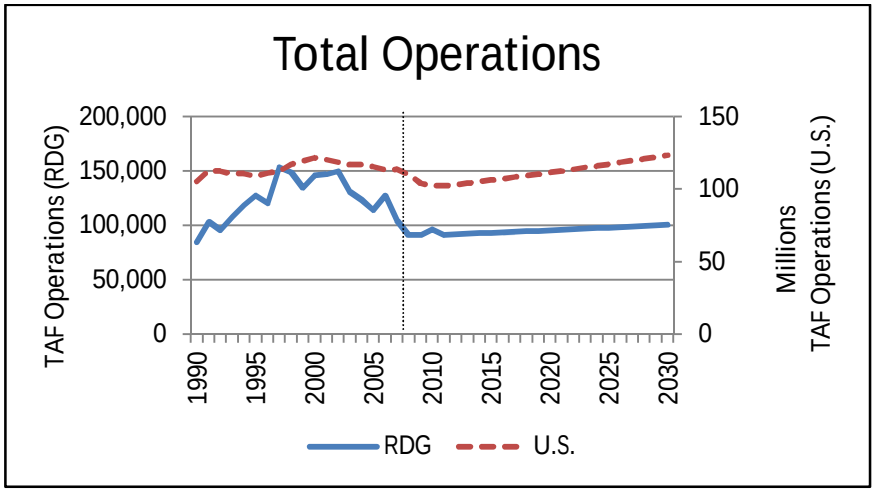
Figure 7: Historic and Forecast Military Operations



3.6.5 Summary of Forecasted Operations

In sum, aircraft activity at RDG is forecast to increase from 96,700 operations in 2010 to 101,000 operations in 2030—an average yearly increase of 0.2 percent for the next 20 years, which, by comparison, is a slower trend than total operations in the U.S as shown in Figure 8.

Figure 8: Historic and Forecast Military Operations



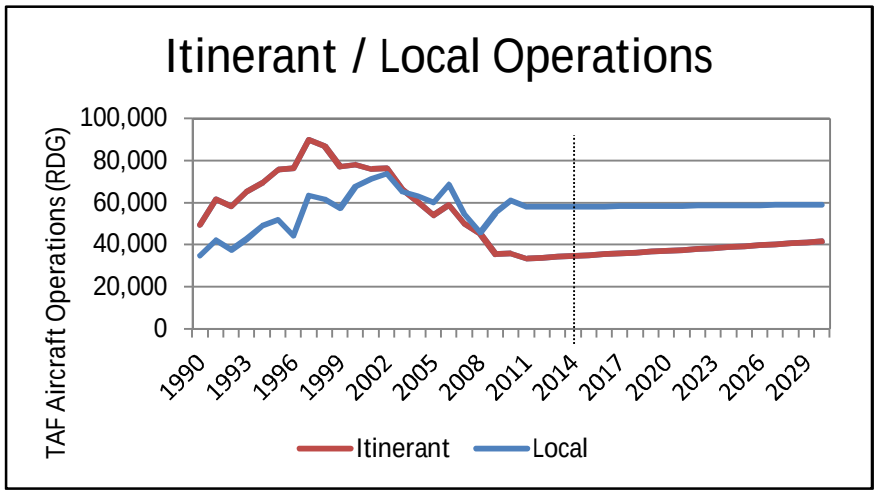
It should also be mentioned that, despite the fact that there were 96,000 operations in 2010, a noticeable increase over 2009, the TAF forecasted only 91,300 operations in 2011, and 0.2 percent growth after that. No explanation is given for the lower forecast but we can speculate, based on TAF operations for the U.S, that the FAA projected 2011 to be a very slow year for general aviation activity nationwide.

Again, based on the alternative forecast scenario presented at the end of this report, there is early evidence that general aviation activity at RDG could increase faster than projected in the current TAF. It is not being suggested here that the TAF should be modified based on one or two better than expected year-end reports; however, it is being suggested that general aviation activity at RDG should be monitored for the next year or two to see how actual activity levels compare to the TAF, and then revisit whether or not the TAF should be adjusted accordingly.

3.6.6 Itinerant and Local Operations

Aircraft operations are divided into two categories: itinerant and local. Itinerant operations include aircraft arriving from outside the airport traffic pattern or otherwise departing the airport traffic pattern. Local operations include aircraft remaining in the local traffic pattern or otherwise operating to and from a practice area within a 20-mile radius of the Airport. As illustrated in Figure 9 below, the past predominance of itinerant operations (characteristic of a commercial airport) has given way to the current predominance of local operations (characteristic of a general aviation airport). The current ratio of one-third itinerant operations and two-thirds local operations is not forecast to change significantly over time.

Figure 9: Historic and Forecast Itinerant/Local Operations

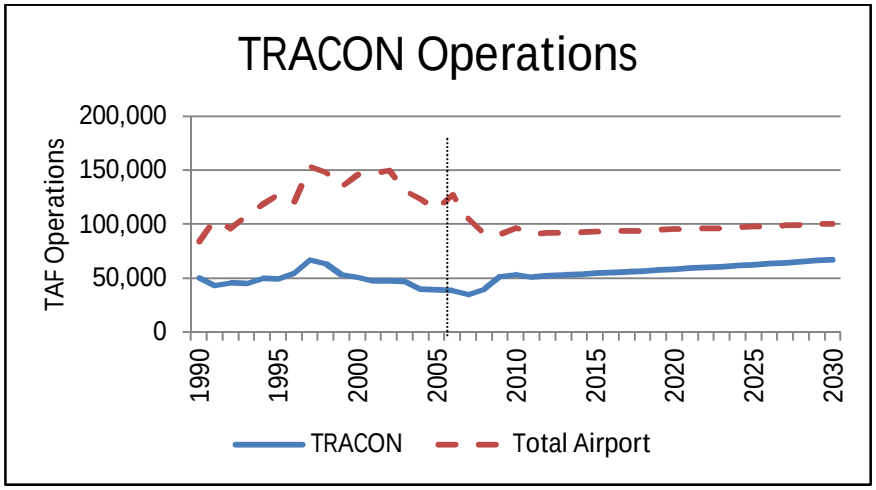


3.6.7 TRACON Operations

The TRACON is located in the airport traffic control tower and is staffed with controllers who use radar displays to guide aircraft approaching or departing the Airport, as well as aircraft that may be transitioning through the Airport's airspace. The TRACON operations count (TROC) is maintained by the TRACON. The counts are reported by the "type" of operation—Instrument Flight Rules (IFR) itinerant operations, Visual Flight Rules (VFR) itinerant operations, IFR over-flights, and VFR over-flights.

Historically, less than half of the Airport's total operations were handled by the TRACON; this is expected to change. According to the TAF, by the end of the forecast period more than 60 percent of total operations at the Airport will be handled by the TRACON.

Figure 10: Historic and Forecast TRACON Operations

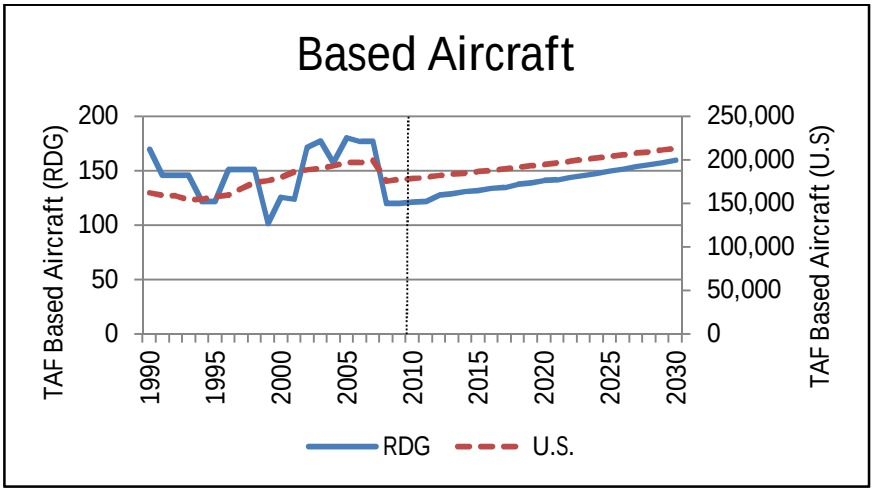


3.7 Based Aircraft

Records show that the number of based aircraft at RDG has fluctuated dramatically over the past 20 years, from as few as 100 aircraft in 2000 to as many as 181 aircraft in 2005. These aircraft counts are collected approximately once a year and the results may not be as precise as the aircraft operations counts maintained by the FAA tower. Nonetheless, the current count of 121 aircraft in 2010 was confirmed by the Airport[19] so the FAA's forecast is based on a reliable starting point. According to the TAF, the total number of based aircraft at RDG is projected to increase 31 percent over the next 20 years, growing at an average of 1.4 percent annually, from 122 aircraft in 2011 to 160 aircraft in 2030 as shown in Figure 11.

[19] Email correspondence from Terry Sroka, Airport Manager, to Bryan Oscarson, AECOM, on January 18, 2011.

Figure 11: Historic and Forecast Based Aircraft



3.7.1 Based Aircraft Fleet Mix

Fleet mix information summarizes the number and type of aircraft operating at RDG. The based aircraft mix is derived from the based aircraft forecast and is used to determine the number and type of parking facilities to be planned and implemented. The current (2010) aircraft mix is based on survey information provided by the Airport[20]. In projecting the based aircraft fleet mix, the FAA's long-range growth rates for general aviation aircraft were approximated, which indicates that the more expensive and sophisticated turbine powered fleet (including helicopters) is projected to grow faster than the single and multi-engine fixed wing aircraft fleet.[21]

Table 1 presents the forecast based aircraft fleet mix by percentage and number of aircraft.

[20] Email correspondence from Terry Sroka, Airport Manager, to Bryan Oscarson, AECOM, on January 18, 2011.

[21] FAA Aerospace Forecast Fiscal Years 2011-2031

Table 1: Based Aircraft Fleet Mix Forecast

Year	Single Engine	Multi-Engine	Jet	Helicopter	Other	Total
2010*	68	32	11	6	4	121
2015	73	35	13	7	4	132
2020	77	36	15	8	5	141
2025	82	37	17	9	5	150
2030	87	38	19	10	5	160

*Actual

3.8 Additional Forecast Parameters

In the absence of detailed operations data from the FAA tower, peak hour operations are estimated using the following industry averages:

- 10 percent peak month
- 10 percent peak hour/ADPM

Using total aircraft operations from the TAF, the peak hour operations forecast is presented in Table 2, below.

Table 2: Forecast Parameters

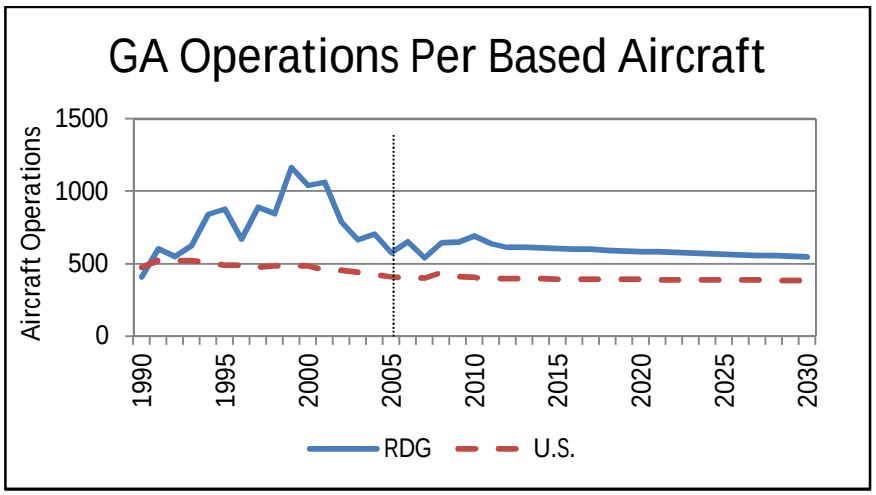
Year	Total Operations	10 Percent Peak Month	Average Day / Peak Month	10 Percent Peak Hour / ADPM
2010*	96,719	9,672	322	32
2015	93,110	9,311	310	31
2020	95,430	9,543	318	32
2025	97,913	9,791	326	33
2030	100,572	10,057	335	34

*Actual

The ratio of operations per based aircraft is an indicator of general aviation activity at the Airport on an annual basis. Given 20 years of historical TAF data, the ratio of operations per based aircraft at RDG has ranged from 408 to 1168; the average was 741. By comparison, the national average was 463 operations per based aircraft over the same time period.

Looking ahead in 2010, the ratio is expected to decrease from 691 to 547 in 2030, indicating that despite having more based aircraft, those aircraft are expected to be flown less often. By comparison, the national average is also forecast to decline in 2010, from 463 to 384 in 2030, which means RDG is forecast to be busier than the average general aviation airport. These trends are shown in Figure 12.

Figure 12: Historic and Forecast Based Aircraft



4. DESIGN AIRPLANE AND AIRPORT REFERENCE CODE

This section presents the rationale used to determine the appropriate Airport Reference Code (ARC) for the ALP Update[22].

4.1 About Airport Reference Codes

The Airport Reference Code (ARC) is a coding system developed by the FAA to relate airport design criteria to the operational and physical characteristics of the airplane types intended to operate at the Airport.

The ARC has two components relating to the airport design aircraft. The first component, depicted by a letter, is the aircraft approach category and relates to aircraft approach speed. The second component, depicted by a Roman numeral, is the airplane design group and relates to airplane wingspan.

Generally, aircraft approach speed applies to runways and runway length related features. Airplane wingspan primarily relates to separation criteria and width-related features.

Table 3: Airport Reference Code Coding System

Aircraft Approach Category		Airplane Design Group	
Category	Approach Speed (kts)	Group	Wingspan (feet)
A	Less than 90	I	Less than 48
B	91 – 120	II	49 – 78
C	121 – 140	III	79 – 117
D	141 – 165	IV	118 – 170
E	166 or more	V	171 – 213
		VI	214 – 262

Airports expected to accommodate single-engine airplanes normally fall into ARC A-I or B-I. Airports serving larger general aviation and commuter-type planes are usually ARC B-II or B-III. Small to medium-sized airports serving air carriers are usually ARC C-III, while larger air carrier airports are usually ARC D-VI or D-V.

[22] **Working Paper No. 2 (AECOM, 2011)** explains in greater detail the process used to determine the design airplane and corresponding ARC for each runway.

4.2 The Situation at RDG

- Previous Master Plan Recommendation. The 2004 Airport Master Plan [23] designated the design airplane as the Gulfstream V; the corresponding ARC is C-III. The Gulfstream V (newer variants include the Gulfstream G500 series) is a large cabin, ultra-long range business jet. There are no Gulfstream V's currently based at RDG but transient Gulfstream V's are often parked at a fix based operator (FBO) on the Airport.

- Occasional Use by Certificated Air Carrier Airlines. Scheduled airline operations were discontinued in 2004 but seasonal charter flights remain. Air carrier operations at RDG currently consist of charter flights to Florida using Southwest Airlines' B-737/700 jets. The B-737/700 is also designated as ARC C-III but it is considerably larger, heavier and therefore more demanding operationally than the Gulfstream V. So much so, the FAA increases its runway design standards for the B-737/700 and similarly sized airplanes.[24]

- ARC Reduction for Runway 18-36. In 2007, as part of the Runway 18 Safety Area Improvement Project, the FAA determined that there were insufficient C-III aircraft operations on Runway 18-36 to justify the added cost and environmental impacts associated with improving the runway safety area (RSA) to meet the C-III standard.[25] Consequently, the ARC for Runway 18-36 was reduced from C-III to C-II[26] and the width of the RSA was reduced from 500 feet to 400 feet.[27]

- To date, no other changes or modifications have been made to Runway 18-36 as a result of the reduction of the ARC from C-III to C-II, which means the existing runway and associated taxiway may accommodate occasional use by aircraft larger than C-II, if necessary. Furthermore, preliminary engineering studies indicate that it would be far too expensive to physically reduce the runway and taxiway widths, clearance standard dimensions and associated airfield geometry to conform to C-II standards then it would be to simply maintain the existing runway and parallel taxiway in the current configuration.

[23] Airport Master Plan, Reading Regional Airport. Prepared by TriState Planning & Engineering, P.C. (June 2004).

[24] For Airport Design Group III serving airplanes with maximum certificated takeoff weight greater than 150,000 pounds, the standard runway width is 150 feet, the shoulder width is 25 feet, and the runway blast pad width is 200 feet. *See* FAA AC 150/5300-13 CHG 12, Table 3-3 (January 2008).

[25] Email correspondence from Jim Fels (FAA HARADO) to Luke McHugh (AECOM) dated June 15, 2007.

[26] According to the FAA, for airports with two or more runways, such as RDG, it may be desirable to design all airport elements to meet the requirements of the most demanding ARC. However, it may be more practical to design some airport elements, e.g., a secondary runway and its associated taxiway, to standards associated with a lesser demanding ARC.

[27] According to AC 150/5300-13, Table 3-3, Footnote 4, for Airport Reference Code C-I and C-II, a runway safety area width of 400 feet is permissible.

- Survey of Design Aircraft Operations. In 2007, the Airport Authority requested the airport traffic control tower (ATCT) to conduct a survey of design aircraft operations at RDG. For 18 weeks, controllers monitored and recorded all large turboprop and jet aircraft operations by aircraft type and runway use. In sum, 31 different types of aircraft were observed, which accounted for 1,955 operations, and Runway 13-31 was used approximately 85 to 90 percent of the time.

- Using the 18-week sample survey, the survey operations were annualized to estimate that large turboprop and jet aircraft conducted 5,648 operations at RDG in 2007. It is noted that a very small percentage of the survey operations (less than 2 percent) were conducted by military aircraft, including the A10, DC9 and C130.

Table 4: Design Aircraft Operations Distribution of Design Aircraft by ARC

Approach Category	B		C				D
ARC	B-I	B-II	C-I	C-II	C-III	C-IV	D-I
Aircraft Identifier	C501 C525 PRM1 BE40 CL30	C550 C560 FA20 FA50 FA90 F2H G150 SBR1	HS25B LJ31 LJ45 LJ55 LJ60 WW24	C650 C750 CL60 ASTR GALX GLF3 A10	B737 DC9 GLF5	C130	LJ35
18 Week Survey Operations	109	814	447	310	78	18	179
	1,955						
Estimated Annual Operations	315	2,351	1,292	896	225	52	517
	5,648						

Source: Airport Authority, FAA ATCT, and AECOM. Survey period April–November 2007.

Note: These survey results do not include 200 operations per year by Dash 8 (A-III) airplanes or operrations by design group III aircraft maintained at the Mid Atlantic Air Museum.

Although the museum airplanes fly only a few times each year, they are airworthy and active. Therefore, the Design Group III airplanes based at the museum should also be considered when determining the appropriate design airplane for RDG.

Also, as listed in the aviation activity forecasts, transient military pilots use RDG for practice takeoffs and landings, and there are occasional cargo operations as well. Recently, military training activities include the A10, C130, DC9, and 757s (and helicopters which are not included in this analysis). Heavy cargo transport airplanes also use RDG a few times each year for logistical purposes. These cargo aircraft require special handling due to large wingspans that stretch into Airplane Design Group IV.

4.3 Analysis and Recommendations

It is estimated there are more than 2,000 aircraft operations a year by Approach Category C airplanes and more than 500 operations a year by Approach Category D airplanes; therefore, it is recommended that runway design standards for aircraft Approach Categories C & D be used for Runway 13-31 and Runway 18-36.

It is estimated there are more than 400 aircraft operations per year by Design Group III airplanes (there are approximately 50 operations per year by Design Group IV airplanes but these are military cargo airplanes and are not considered in this analysis). ARC C-III airplanes are expected to use Runway 13-31 almost exclusively; therefore, it is recommended to use Airplane Design Group III standards for Runway 13-31 and its associated taxiways and Airplane Design Group II standards for Runway 18-36 and its associated taxiways.

The design airplane for Runway 13-31 is the Gulfstream V which ensures that Runway 13-31 will be designed and maintained to accommodate 100 percent of the business jet aircraft fleet, without impacting occasional use of the runway by larger C-III aircraft such as the B-737/700.

Although it may be desirable to maintain Runway 18-36 to the same C-III standards as Runway 13-31, it is not practical to do so; therefore, the design airplane for Runway 18-36 is the Gulfstream III. This ensures that Runway 18-36 will be designed and maintained to accommodate most business jet aircraft under most operating conditions. C-III airplanes are not expected to use Runway 18-36 unless it is necessary and unless conditions permit. A-III airplanes (Dash 8s) can continue to use Runway 18-36 so long as the applicable runway separation standards are maintained.[28]

Finally, it is noted that Boscov's Travel is expected to continue providing seasonal charter flights to Florida using Southwest Airlines' B737/700 jets. Therefore, Runway 13-31 should be designed and maintained to accommodate the B-737/700 to the degree practicable.

[28] *See* FAA AC 150/5300-13 CHG 13, Table 2-1 (June 2008).

Tables 5 and 6 indicate the applicable design standards for each runway and the existing dimensions.

Table 5: Runway 13-31 Design Standards

Design Criteria	C-III (3/4 mile vis)	Runway 13	C-III (visual)	Runway 31
Runway Width	100’	150’	100’	150’
Runway Object Free Area Length (Beyond) Width	 1,000’ 800’	 1,000’ 800’	 1,000’ 800’	 291’ (EMAS) 800’
Runway Safety Area Length (Beyond) Width	 1,000’ 500’	 1,000’ 500’	 1,000’ 500’	 291’ (EMAS) 500’
Runway Protection Zone Inner Width Outer Width Length	 1,000’ 1,510’ 1,700’	 1,000’ 1,510’ 1,700’	 500’ 1,010’ 1,700’	 500’ 1,010’ 1,700’
FAR Part 77 Approach Slope	50:1	50:1	20:1	20:1
Runway Centerline to Taxiway Centerline Aircraft Parking Area	 400’ 500’	 400’ 493’ & 594’	 400’ 500’	 400’ 493’ & 594’
Taxiway Width	50’	49’ – 70’	50’	49’ – 70’
Taxiway Safety Area	118’	118’	118’	118’
Taxiway Object Free Area	186’	186’	186’	186’
Source: FAA AC 150/5300-13 & AECOM				

Table 6: Runway 18-36 Design Standards

Design Criteria	C-II	Runway 18	Runway 36
Runway Width	100’	150’	150’
Runway Object Free Area Length (Beyond) Width	 1,000’ 800’	 1,000’ 800’	 312’ 800’
Runway Safety Area Length (Beyond) Width	 1,000’ 500’	 1,000’ 400’	 312’ 400’
Runway Protection Zone Inner Width Outer Width Length	 500’ 1,010’ 1,700’	 500’ 1,010’ 1,700’	 500’ 1,010’ 1,700’
FAR Part 77 Approach Slope	34:1 / 50:1	34:1	50:1
Runway Centerline to Taxiway Centerline Aircraft Parking Area	 300’ 400’	 498’ 544’	 498’ 544’
Taxiway Width	35’	49’ – 70’	49’ – 70’
Taxiway Safety Area	79’	79’	79’
Taxiway Object Free Area	131’	131’	131’

Source: FAA AC 150/5300-13 & AECOM

5. PROPOSED DEVELOPMENT PLAN

Proposed development was prepared for the Airport based on the approved forecasts. The development focuses more on landside elements, such as aircraft parking and storage, and less on airside elements relating to the runways and taxiways. Development was also proposed for aviation related businesses to provide the Airport with additional revenue-producing elements.

5.1 Airside

- **Taxiway C Extension** – The proposed extension of Taxiway C will connect the existing Taxiway C with the Runway 13 threshold. Taxiway C will extend to the west approximately 1,600 feet and connect to the existing runway via an entrance taxiway. The appropriate Taxiway Safety Area (TSA) grading and relocation of appropriate NAVAIDS will be included in the taxiway extension.

- **Taxiway C Connection** – The proposed Taxiway C connection will join the existing Taxiway C with Taxiway E. This connection allows for an improvement in airport operational flow due to Runway 13-31 obtaining a full length parallel taxiway on the north side of the runway. Taxiway G will be demolished as part of the project.

- **Taxiway H Extension** – The proposed Taxiway H extension will extend existing Taxiway H to Runway 13-31. This 1,550-foot extension will improve the flow of airport operations by partially completing the parallel taxiway for Runway 18-36.

- **Taxiway A Extension** – The proposed taxiway extension for Taxiway A will extend existing Taxiway A to Runway 13-31. This approximately 530-foot extension will improve the flow of airport operations by completing the parallel taxiway for Runway 18-36.

5.2 North Side

- **North Apron T-Hangars** – Three 10 unit T-Hangars are proposed to be located adjacent to the existing T-Hangar unit (building number 240). The construction of new apron pavement will also be part of the project.

- **North Apron Hangar (West)** – Proposed 28,500 SF hangar to be located adjacent to building 159 within the existing apron limits.

- **North Apron Hangar (East)** – Proposed 15,000 SF hangar to be located adjacent to building 203 within the existing apron limits.

- **Arnold Road (East Development)** – This development area is located to the west of the Runway 18 end and includes three new landside buildings with associated driveways and parking lot.

- **Arnold Road (West Development) –** This development area is located north of building 203 and includes two new buildings with associated driveways and parking lot.

5.3 South Side

- **MacArthur Road Development** – This development area is located to the west of Building 455 and includes new apron and taxilane pavement, paved driveway and parking lot, and two potential Fixed Base Operators (FBO)/General Aviation Maintenance Hangars.

- **West Apron Development** – To further expand and develop the west apron, three new FBO/ General Aviation Maintenance hangars are proposed with additional apron, a taxilane connection to Taxiway B, and appropriate parking.

- **ATCT Area** – The development within this area will provide additional paved apron, reconstruct apron and taxilane pavement, provide a taxilane connection to Taxiway B, and three new FBO/ General Aviation Maintenance hangars.

- **East Apron Expansion** – The East Apron expansion will provide additional paved apron to the north of the existing East Apron. The expansion of the East Apron will allow aircraft that currently park on the turf surface in that area to be located on the paved apron.

- **Maintenance Building (Annex)** – The proposed additional maintenance building will be located adjacent to the current maintenance facility and will include a driveway and a parking lot.

6. ENVIRONMENTAL OVERVIEW

This section identifies the existing environmental conditions on the Airport and the potential impacts associated with the long-range development of the projects depicted on the ALP. The purpose of this inventory is to present preliminary information concerning environmental resources and potential effects that may need to be addressed prior to the implementation of airport improvements and changes.

The environmental resources addressed in this section include those typically considered under FAA requirements for implementing the National Environmental Policy Act of 1969 (NEPA) pursuant to FAA Order 5050.4B, National Environmental Policy Act Implementing Instructions for Airport Actions (April 2006, as amended) and FAA Order 1050.1E, Environmental Impacts: Policies and Procedures (March 2006, as amended). This section is not a NEPA document; instead, it is intended to help scope and prepare a NEPA document if/when a proposed project or action is ready for FAA decision-making.

6.1 Air Quality

Mobile sources (aircraft, ground service equipment, and on- and off-road vehicles including construction equipment) will generate air emissions that are of little or no concern. Point source emissions from new stationary/industrial facilities must be permitted by PADEP.

The current and projected levels of general aviation airport operations are well below established thresholds that require assessment under National Ambient Air Quality Standards (NAAQS). However, the Airport is located within an EPA-designated nonattainment area, which means, according to the Clean Air Act, the General Conformity rules apply.

According to the EPA's Green Book for Nonattainment Areas for Criteria Pollutants, Berks County, PA, is listed as nonattainment for fine particulate matter (PM2.5).[29] The General Conformity regulations specify that the *de minimus* threshold for a nonattainment area is 100 tons per year (tpy) for fine particulate matter or its precursors (oxides of nitrogen, sulfur dioxide or ammonia). Experience suggests that among these regulated pollutants, for a construction-dominated project, emissions of oxides of nitrogen ($_{NOX}$) will be much greater than the other regulated pollutants. Therefore, for evaluation to the *de minimus* threshold, if $_{NOX}$ emissions do not exceed the *de minimus* threshold, other pollutants are extremely unlikely to exceed the d*e minimus* threshold.

[29] Portions of Berks County, not including RDG, are also listed as nonattainment for lead.

It is unlikely that the projects depicted on the ALP would cause or contribute to a significant adverse effect on air quality. Nevertheless, the FAA is responsible for determining whether a proposed project or action has the potential to cause a significant impact. This evaluation is undertaken on a project-by-project basis and may involve consulting with the PADEP Bureau of Air Quality. Early project planning and coordination with the FAA is encouraged especially for any construction project requiring substantial earthmoving or any building project that might require an air quality permit, certification or approval. For example, an aircraft maintenance/repair/overhaul (MRO) facility with industrial equipment would require special permitting for an aircraft paint facility. Chapter 1 of the FAA's Environmental Desk Reference for Airport Actions discusses requirements to conduct air quality analysis for airport development projects under NEPA and the Clean Air Act.

6.2 Compatible Land Use

Airports affect, and can be affected by, incompatible land uses located in neighboring areas. The Airport should continue to work with Bern Township and surrounding communities to proactively address existing incompatible land uses and prevent new incompatible land uses from occurring in the future.

6.2.1 Aircraft Noise

Aircraft noise exposure contours were prepared for this ALP Update and the contours are depicted on Sheet 12 of the ALP set of drawings. According to the noise analysis, aircraft over-flights and noise are not expected to change appreciably over time. But for a few residential areas east and west of the Airport, land uses surrounding the Airport are generally compatible with existing and future noise levels. According to Berks County land use maps, there are no churches, schools, hospitals, or places of public assembly, located within the existing or future DNL 65 dB noise contour.

East of the Airport, beyond the departure end of Runway 13, there is a residential area along the north side of River Road with an estimated 25 to 50 homes located within the DNL 65 dB noise contour. West of the Airport, beyond the departure end of Runway 31, there is a residential area between Leiscz's Bridge Road and Bernville Road with an estimated 10-15 homes located within the DNL 65 dB noise contour. There are residential areas north and south of the Airport, beyond the ends of Runway 18/36; save for one home, these residential areas appear to be well-outside the DNL 65 dB noise contour.

6.2.2 Consistency with Local Land Use Planning

In accordance with Pennsylvania's Airport Zoning Act, Bern Township has adopted an airport hazard zoning ordinance to limit the development of obstructions within the FAR Part 77 surfaces around the Airport.[30] In addition, according to the Bern Township Zoning Map (2004), the Airport is located within an Airport Special Use zoning district that is bordered to a greater extent by land zoned for commercial and light industrial uses and to a lesser extent by land zoned for (rural) residential use.

The previous Airport Master Plan was adopted by reference as an element of the Berks County Comprehensive Plan (Berks Vision 2020) and, as such, the projects shown on the previous plan were consistent with the Comprehensive Plan.[31] The Authority should coordinate with the Berks County Planning Commission to ensure that the previous Airport Master Plan, as amended by this ALP Update, is still consistent with the Comprehensive Plan.

6.2.3 Wildlife Attractants Near Airports

FAA AC 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports,* describes potential wildlife attractants near airports, which includes waste disposal operations, water management facilities, wetlands, dredge spoil containment areas, agricultural activities, golf courses, landscaping, and other land-use considerations. Since RDG serves turbine-powered aircraft, the FAA recommends 10,000 feet of separation distance between the Airport and any hazardous wildlife attractants. Furthermore, it is stated that *"the FAA recommends a distance of 5 statute miles between the farthest edge of the airport's AOA [air operations area] and the hazardous wildlife attractant."*

There is a wastewater treatment facility located to the northeast, immediately adjacent to airport property. If wildlife hazards are arising from this facility, it is recommended that a wildlife hazard management plan be developed and that the wastewater treatment facility works with the Airport to mitigate any potential dangers to the Airport.

The only wetlands located in the vicinity of the Airport are those associated with the Schuylkill River corridor. No planned airport development will affect wetlands, but potential wildlife hazards arising from area wetlands should be monitored.

While not located on airport property, there are agricultural operations in the vicinity associated with the farmland located west of airport property that could potentially attract wildlife.

[30] Correspondence from Terry Sroka, Airport Manager, Reading Regional Airport, to Ed Gabsewics, Environmental Protection Specialist, FAA Harrisburg Airports District Office (April 23, 2008).

[31] Correspondence from Douglas Paul Rauch, Vice-Chairman, Berks County Planning Commission, to Terry Sroka, Airport Manager, Reading Regional Airport (April 9, 2008).

6.3 Section 4(f)

There are no publically-owned parks, recreation areas, wildlife or waterfowl refuges, historic districts or sites of national or local importance, in the vicinity of the Airport. There is one historic property on the Airport—the City Hangar/Terminal (Building 520)—that is eligible for listing on the National Register of Historic Places. Based on the projects depicted on the ALP, there are no foreseeable airport development impacts on Section 4(f) resources.

6.4 Farmland

The central portion of the Airport's property consists of soils with no agricultural value. However, there is active farmland on airport property west of US 222 and some of that farmland is needed to install an approach lighting system for Runway 13; further evaluation will be necessary.

The vast majority of airport property consists of made land associated with clearing for and construction of the original airport in the 1930's as well as numerous expansion and improvements projects implemented since then. These areas include the airfield runways, taxiways and safety areas; terminal building and parking areas; hangars and surrounding aprons; aviation-related support facilities; and the non-aviation industrial parks.

Airport property west of U.S. 222 consists of state-listed prime farmland that is leased to a tenant farmer for agricultural use. The only project shown on the ALP that affects this farmland is the installation of a medium intensity approach lighting system (MALSR). This MALSR project was evaluated in 2008 and it was determined that the farmland impacts were less than significant. Although the MALSR was designed and equipment was procured, the installation was underfunded. Consequently, the MALSR project was not completed, the FAA's environmental approval expired in 2011 and the project remains on the ALP.

Chapter 11 of the FAA's Environmental Desk Reference for Airport Actions discusses requirements to conduct farmland assessments for airport development projects under NEPA and the Farmland Protection Policy Act. Except for the MALSR project, there are no foreseeable airport development impacts to farmland. If the MALSR project is re-programmed and funding is secured, the previous environmental finding must be re-evaluated.

6.5 Fish, Wildlife, and Plants

The airport property consists mostly of uplands—approximately half of which are covered with buildings and pavement. The dominant vegetative cover types are mowed turf grass, cultivated fields, succession field, and remnant woodland. These areas support a wide array of local indigenous species but none of these areas are classified as significant habitat resources due to their degree of disturbance and fragmented nature.

There are no lakes, rivers, streams or other bodies of water located on airport property. The nearest body of water is the Schuylkill River, portions of which establish the Airport's boundary to the north and to the east. Forested wetlands have been identified along the Schuylkill River floodplain. Wetlands and water bodies are not to be disturbed without permits and approval from the jurisdictional agencies involved.

According to the Pennsylvania Natural Diversity Index (PNDI) database and other agency records, the state-listed endangered and federally-listed threatened bog turtle (*Glyptemys muhlenbergii*) and the state-listed threatened red-bellied turtle (*Pseudemys rubriventris*) are known to occur in wetland and/or water bodies in the vicinity of the Airport. There is no record of either species occurring on the Airport.

Chapter 2 of the FAA's Environmental Desk Reference for Airport Actions discusses requirements to conduct impact analysis for airport development projects under NEPA and the Fish and Wildlife Coordination Act; there are no foreseeable airport development impacts to state-listed species of concern.

Except for occasional transient species, there are no Federally-listed endangered or threatened species known to occur at the Airport. The federally-listed threatened bog turtle (*Glyptemys muhlenbergii*) is known to occur in wetland complexes in the vicinity of the Airport[32] but this species has not been recorded at the Airport despite one or more bog turtle habitat surveys. Based on the projects shown on the ALP, there are no foreseeable airport development impacts on federally-listed species.

6.6 Floodplains

The nearest body of water is the Schuylkill River, portions of which establish the Airport's boundary to the north and to the east. A low-lying area between Runway 18/36 and the sewer treatment plant is within or otherwise adjacent to a FEMA designated 100-year flood hazard zone. Based on the projects shown on the ALP, there are no foreseeable airport development impacts on floodplains.

[32] Pennsylvania Natural Diversity Index (PNDI) #20080215128739; USFWS Project # 2008-0864.

6.7 Historical & Cultural Resources

The airport property has been surveyed and evaluated for historical and cultural resources of significance.[33] The vast majority of the airport property consists of made land; no further consideration of archeological resources within areas of made land are recommended.

Prior to the Runway 18/36 Safety Area Improvements project, undisturbed landscape north of Runway 18/36 was investigated. One prehistoric site was discovered. Shovel test units and surface survey yielded numerous artifacts and the site was appropriately documented. No further consideration of archeological resources is warranted or recommended for this area.

Prior to the Runway 13/31 Safety Area Improvements project, cultivated fields and remnant woodlands west of Runway 13-31 (across U.S. 222) were also investigated.[34] Shovel test units and surface survey yielded no archeological artifacts or sites. No further consideration of archeological resources is warranted or recommended for this area.

An airport-wide historic architectural evaluation was also performed in 2003 in association with the improvements to the safety area for Runway 18/36. Three structures were recommended eligible for the National Register of Historic Places (NRHP). Buildings 501 and 502 have since been documented, recorded and demolished—only Building 520 (City Hangar/Terminal) remains. The recommended NRHP-boundary is a rectangle drawn to encompass the footprint of the building. Building 520 should not be altered without FAA environmental review and approval in consultation with the State Historic Preservation Office (SHPO).

Chapter 14 of the FAA's Environmental Desk Reference for Airport Actions discusses requirements to conduct impact analysis for airport development projects under NEPA and the National Historic Preservation Act. Based on the projects shown on the ALP, there are no foreseeable airport development impacts to historic or cultural resources.

[33] Phase 1A Archeological Survey and Historic Architectural Evaluation of the Extension of Reconstruction of Runway 18-36 with Parallel Taxiway, Reading Regional Airport, Berks County, PA. Prepared by John Milner Associates (2003).

[34] Phase 1A and 1B Surveys, RDG RW 13-31 RSA Improvements, Reading Regional Airport, Bern Township, Berks County, PA (ER#85-1523-011). Prepared by John Milner Associates (2008).

6.8 Noise

The size and shape of the airport noise contours are not expected to change appreciably over time. Aircraft over-flights and noise will not be introduced to any previously unaffected area, and any noise increase is expected to be less than significant.

Airport noise contours were prepared using the FAA's Integrated Noise Model (INM Ver. 7.0b) and are depicted on Sheet 12 of the ALP set of drawings. The INM evaluates potential noise impacts in the vicinity of airports. The FAA requires the use of the INM for airport development/approval actions requiring detailed noise analysis.

6.8.1 Airfield Utilization

There are no proposed changes to the runways, thresholds, engine run-up areas, or other aspects of the airfield and that would affect the noise contours. This information affects the "shape" of the noise contours close-in to the airfield.

6.8.2 Flight Tracks

Flight-tracks depict the direction of flight for arrivals, departures, and touch-and-go operations; this information affects the "shape" of the noise contour away from the airfield. Generalized flight tracks for the existing (2010) scenario were developed at a meeting with the Airport and the FAA. There have been no major changes to the runways, airfield standard operating procedures, or approach/departure procedures, since the last master plan was prepared.

There are no proposed changes to the runways, airfield standard operating procedures, or approach/departure procedures. On this basis, flight tracks are not expected to change and so the same flight tracks were used for the existing (2010) and future (2030) scenarios.

6.8.3 Aircraft Operations and Fleet Mix

Aircraft operations include all takeoffs and landings that occur at the Airport in a given year; this information affects the "size" of the noise contour. According to the FAA's Terminal Area Forecast (TAF), aircraft operations are projected to increase from 96,719 in 2010 to 100,572 in 2030.

The aircraft fleet mix percentage is a best-estimate that is used to distribute existing (2010) and future (2030) aircraft operations across five (5) different aircraft categories as follows: single-engine, multi-engine, turbo-prop, jet, and helicopter. Aircraft operations within each category are then further distributed by different aircraft manufactures/models that typically use the Airport.

Because most of the airport-related noise is attributable to business jet aircraft, the fleet mix used for this (INM) analysis is based in large part on an 18-week sample survey of jet aircraft operations in 2007 and a survey of based aircraft in 2010. The fleet mix is expected to shift marginally towards more use of business aircraft (in accordance with FAA's long-range projections for the general aviation fleet nationwide).

6.8.4 Day/Night Split

By design, the INM applies a 10 percent "noise penalty" to nighttime operations, which means that changing the day/night split can have an exponential effect on the size of the noise contour. The (estimated) day/night split is 95 percent daytime and 5 percent nighttime, which is not expected to change.

6.8.5 Noise Analysis and Results

Given there are no proposed changes to the runways, flight tracks, or day/night use percentages, and assuming slow growth in aircraft operations with only a marginal shift towards larger business-type aircraft, the aircraft noise exposure contours are predicted to be slightly larger but not appreciably different in 2030 than they were in 2010, according to the INM. As shown on Sheet 12 of the ALP and as listed in the tables below:

- The DNL 75 dB noise exposure contour increases by 19.8 acres but is located entirely within existing airport property
- The DNL 70 dB noise exposure contour increases by 10.1 acres but is also located entirely within existing airport property (and PennDOT right-of-way)
- The DNL 65 dB noise exposure contour increases by 27.4 acres and extends off airport property to the east, south and west

Table 7: Noise Impact Areas

Noise Exposure/Year	Impact Area (acres)		
	2010	2030	+/-
DNL 75 +	72.3	92.1	+19.8
DNL 65 - 75	109.9	120.0	+10.1
DNL 60 - 65	279.1	306.5	+27.4
Source: AECOM, 2012			

It is important to note that even though the DNL 65 dB contour increases by 27.4 acres overall, only a portion of that noise increase occurs off-airport property; and, as shown in the table below, only a portion of the off-airport noise exposure affects residential land uses. There are no churches, schools, hospitals, or places of public assembly within the existing or future DNL 65 contour.

Table 8: Residential Impact Areas

Noise Exposure/Year	Residential Land Use Affected (acres)		
	2010	2030	+/-
DNL 75 +	0.0	0.0	0.0
DNL 65 - 75	0.0	0.0	0.0
DNL 60 - 65	15.6	19.1	+3.7
Source: AECOM, 2012			

East of the Airport, beyond the departure end of Runway 13, there is a residential area along the north side of River Road with an estimated 25 to 50 homes located within the DNL 65 dB noise contour. The predicted noise increase over time (2010 to 2030) is less than 0.5 dB.

West of the Airport, beyond the departure end of Runway 31, there is a residential area between Leiscz's Bridge Road and Bernville Road with an estimated 10-15 homes located within the DNL 65 dB noise contour. The predicted noise increase over time (2010 to 2030) is approximately 0.5 dB.

There are residential areas north and south of the Airport, beyond the ends of Runway 18/36; save for one home, these residential areas appear to be well-outside the DNL 65 dB noise contour. The one home that is affected is located at the corner of Bernville Road and Aviation Road. At this location, the predicted noise increase over time (2010 to 2030) is less than DNL 0.5 dB.

6.9 Light Emissions

Light emissions have the potential to impact sensitive areas in the vicinity of the Airport. Any projects pertaining to lighting systems would have to be considered; however, it is not anticipated that any significant light emissions impacts would occur from any of the proposed projects in the ALP.

6.10 Water Quality

Surface water features collect and convey storm runoff towards downstream receiving waters that empty into the Schuylkill River. Stormwater that does not runoff percolates through the soil to recharge the groundwater table below. Runoff from airport activities could have harmful effects on these water resources unless managed correctly. Federal, state and local laws and regulations apply to any project or activity that has potential to affect the quality or quantity of water resources, either surface or subsurface.

There are no lakes, rivers, streams or other bodies of water located on airport property. The nearest body of water is the Schuylkill River, portions of which establish the Airport's boundary to the north and to the east. The Airport obtains its drinking water from the Reading Regional Water Authority; there are no drinking water wells on the Airport. Sanitary sewer is collected and transferred to a municipal wastewater treatment facility; there are no septic systems on the Airport.

The Airport has an extensive storm water conveyance system, which is in good condition overall considering its age. However, older parts of the network do not comply with current capacity requirements for carrying runoff for a 5-year storm. There are also several basins on the Airport and these are in good working order as well. Similarly, some elements of the older basins do not meet current design standards.

The Airport does not have a system in place to capture spent deicing fluids and is not required to do so, although these rules could change. Stormwater discharges are monitored and permitted in accordance with effluent guidelines established by the EPA and enforced by PADEP requirements (MS4) and watershed regulations.

A comprehensive Stormwater Drainage Master Plan was prepared in conjunction with this ALP Update. Assuming water quality best management practices are designed and implemented in coordination with the Berks County Soil Conservation Service, the Airport should be able to support the projects depicted on the ALP.

6.11 Wetlands

Wetland areas are located along the Schuylkill River corridor but there is no proposed development within or encroachment on wetlands.

The only wetlands known to occur on or adjacent to the Airport are those associated with the Schuylkill River floodplain. Wetlands are federally-regulated by the Clean Water Act (Sec. 404) and the Pennsylvania DEP (Chap. 105). *Executive Order 11990, Protection of Wetlands*, sets the standard for a Federal agency action involving a wetland and *Order DOT 5660.1 Preservation of Wetlands*, sets forth DOT policy for all transportation projects including projects at airports. Wetlands shall be avoided unless there is no practicable alternative. If it is not possible to avoid impacting a wetland then an EA or EIS must be prepared and Federal/state permits must be obtained.

The projects depicted on the ALP avoid wetland areas; there are no foreseeable airport development impacts on wetlands.

6.12 Wild and Scenic Rivers

The segment of the Schuylkill River nearest the Airport is a state-listed scenic river but there is no proposed development within or encroachment on the designated corridor.

As previously mentioned, the nearest body of water is the Schuylkill River, portions of which establish the Airport's boundary to the north and to the east. According to the Pennsylvania Scenic Rivers Program, this segment of the Schuylkill River and Designated Corridor is a state-listed Pennsylvania Scenic River designated for modified recreational activities.

There are no federally-listed river segments in the vicinity of the Airport. According to the National Park Service, the nearest federally-listed wild or scenic river is an 18-mile long segment of the French Creek in Berks County from Hares Hill Road to the headwaters within Hopewell Village and is associated with National Register Historic Sites and a Historic District.

The projects depicted on the ALP avoid the Schuylkill River corridor; there are no foreseeable airport development impacts to federal- or state-listed wild or scenic rivers.

7. AIRPORT CAPITAL IMPROVEMENT PLAN

The airport capital improvement plan (ACIP) reflects the proposed development described in Section 5 along with other airport improvements. The cost estimates that were developed for each project were based on several assumptions and general criteria as defined below.

6.1 ACIP Cost Estimates

The construction cost estimates were prepared using preliminary engineering assumptions and general guidelines to provide the potential cost of each associated project. For each proposed development project that was depicted on the ALP, the following criteria were applied unless otherwise noted in the sections below:

- Costs did not include drainage design or overall airport stormwater management improvements
- Costs did include preliminary engineering design, final engineering design, procurement fees, construction management and inspection fees
- Site and buildings/facilities construction were included in the cost estimates

6.1.1 Airside Improvements

The assumptions and guidelines that were utilized for the airside improvements were uniform for all upgrades. The cost estimates for the airside improvements to the taxiway system were based on project quantities (taxiway pavement, excavation, grading, etc.)

6.1.2 MacArthur Road Development

The conceptual layout for this area provides for the flexibility of future development at the site. The development was broken out into two alternatives; airside and landside. The general assumptions that were applied are:

- The costs did include site development construction
- The costs did include airside and landside site development to incorporate the full use of the available land
- The costs did not include the buildings

The ACIP worksheet summaries for the proposed projects at RDG, including the proposed phasing, are shown on the two following pages.

Table 9: Airport Capital Improvement Plan (ACIP) Worksheet for Proposed Projects (1of 2)

Airport Name: Reading Regional Airport						Airport ID: RDG
Yr.	Project Description	Project Total Cost	Block Grant Funds or AIP Funds Federal Share	Aviation Development Funds State Share	Local Sponsor Funds Local Share	Capital Budget or Private Funds Other Share
	State Fiscal Years: 2011- 2015					
11	Acquire ARFF Vehicle and Communication Equipment	$ 1,000,000	$ 900,000	$ 50,000	$ 50,000	$0
12	Rehabilitate South Taxilane and Apron (Microsurfacing)	$ 200,000	$ 180,000	$ 10,000	$ 10,000	$0
13	Rehabilitate South Taxilane - Phase I, Design	$ 157,895	$ 142,106	$ 7,895	$ 7,895	$0
14	Rehabilitate South Taxilane - Phase II, Construction	$ 1,350,000	$ 1,215,000	$ 67,500	$ 67,500	$0
14	Restore Hgr 501 Site (Act 83/06/164/2)	$ 1,000,000	$0	$0	$0	$ 1,000,000
15	Upgrade Runway 13-31 Visual Guidance System REILs and Surface Sensors	$ 193,000	$ 173,700	$ 9,650	$ 9,650	$0
15	Taxiway G Demolition & Construct Taxiway C Extension - Phase I, Design	$ 215,000	$ 193,500	$ 10,750	$ 10,750	$0
15	Acquire Airfield Maintenance Equipment	$ 25,000	$0	$ 18,750	$ 6,250	$0
15	RehabilitateTerminal Parking Lot	$ 737,000	$0	$ 552,750	$ 184,250	$0
15	Construct T-Hangars (Act 83/06/163/29)	$ 600,000	$0	$0	$ 300,000	$ 300,000
	Total	$ 5,477,895	$ 2,804,306	$ 727,295	$ 646,295	$ 1,300,000
	State Fiscal Years: 2016 - 2019					
16	RehabilitateTerminal Apron - Phase 1, Design	$ 182,394	$ 164,155	$ 9,120	$ 9,120	$0
16	Taxiway G Demolition & Construct Taxiway C Extension - Phase II, Design	$ 1,173,000	$ 1,055,700	$ 58,650	$ 58,650	$0
16	Construct Airfield Maintenance Building - Phase I, Design	$ 180,000	$0	$ 135,000	$ 45,000	$0
16	Construct T-Hangars (Phase 2)	$ 400,000	$0	$ 200,000	$ 200,000	$0
17	Construct Airport Security Fence - Phase I, Design	$ 85,000	$ 76,500	$ 4,250	$ 4,250	$0
17	RehabilitateTerminal Apron - Phase II, Construction	$ 938,000	$ 844,200	$ 46,900	$ 46,900	$0
17	Construct Airfield Maintenance Building - Phase II, Construction	$ 760,000	$0	$ 570,000	$ 190,000	$0
17	Taxiway J Demolition & Taxiway A Extension	$ 1,000,000	$ 900,000	$ 50,000	$ 50,000	$0
18	Construct Airport Security Fence - Phase II, Construction	$ 1,014,000	$ 912,600	$ 50,700	$ 50,700	$0
18	Rehabilitate West/North Aprons - Phase I, Design	$ 85,000	$ 76,500	$ 4,250	$ 4,250	$0
18	Construct T-Hangar Taxiways - Phase I, Design	$ 166,667	$ 150,000	$ 8,333	$ 8,333	$0
18	Crack Repair & Sealing Pavement	$ 50,000	$ 45,000	$ 2,500	$ 2,500	$0
18	Airfield Lighting Upgrades	$ 5,000,000	$ 4,500,000	$ 250,000	$ 250,000	$0
18	Mark & Stripe Airport Pavements	$ 70,000	$ 63,000	$ 3,500	$ 3,500	$0
19	Rehabilitate West/North Aprons - Phase II, Construction	$ 759,000	$ 683,100	$ 37,950	$ 37,950	$0
19	Prepare Airport Safety Management System (SMS)	$ 200,000	$ 180,000	$ 10,000	$ 10,000	$0
19	Construct T-Hangar Taxiways - Phase II, Construction	$ 1,310,000	$ 1,179,000	$ 65,500	$ 65,500	$0
19	Construct T-Hangars (Capital Budget)	$ 600,000	$0	$ 300,000	$ 300,000	$0
	Total	$ 13,973,061	$ 10,829,755	$ 1,806,653	$ 1,336,653	$0

Table 9: Airport Capital Improvement Plan (ACIP) Worksheet for Proposed Projects (2of 2)

Airport Name: Reading Regional Airport						Airport ID: RDG
Yr.	Project Description	Project Total Cost	Block Grant Funds or AIP Funds Federal Share	Aviation Development Funds State Share	Local Sponsor Funds Local Share	Capital Budget or Private Funds Other Share
	State Fiscal Years: 2020 - 2030					
	Crack Repair & Sealing (Airport)	$ 30,000	$0	$0	$ 15,000	$ 15,000
	East Apron Extension	$ 600,000	$ 540,000	$ 30,000	$ 30,000	$0
	Taxiway H Extension	$ 2,000,000	$ 1,800,000	$ 100,000	$ 100,000	$0
	South Area Development - West Apron	$ 6,500,000	$ 5,850,000	$ 325,000	$ 325,000	$0
	South Area Development - ATCT Area	$ 10,000,000	$ 9,000,000	$ 500,000	$ 500,000	$0
	Landside MacArthur Road Development (Site Only)	$ 2,200,000	$0	$ 1,650,000	$550,000	$0
	Airside MacArthur Road Development (Site Only)	$ 3,600,000	$ 3,240,000	$ 180,000	$ 180,000	$0
	Arnold Road - East Development	$ 2,100,000	$0	$0	$0	$ 2,100,000
	Arnold Road - West Development	$ 1,500,000	$0	$0	$0	$ 1,500,000
	North Apron Hangar - West	$ 4,000,000	$0	$ 2,000,000	$ 2,000,000	$0
	North Apron Hangar - East	$ 2,000,000	$0	$ 1,000,000	$ 1,000,000	$0
	Maintenance Building - Annex	$ 2,100,000	$0	$ 1,575,000	$ 525,000	$0
	Resurface Terminal Entrance Road	$ 400,000	$0	$ 300,000	$ 100,000	$0
	RW 13/31 Rehabilitation (Eng)	$ 250,000	$ 225,000	$ 12,500	$ 12,500	$0
	Crack Repair & Sealing	$ 30,000	$0	$0	$ 15,000	$ 15,000
	Mark & Stripe Airport	$ 70,000	$ 63,000	$ 3,500	$ 3,500	$0
	Crack Repair & Sealing (Airport Rds)	$ 20,000	$0	$ 15,000	$ 5,000	$0
	Mark & Stripe (Airport Rds)	$ 10,000	$0	$ 7,500	$ 2,500	$0
	T-Hangars (10)	$ 500,000	$0	$ 375,000	$0	$ 125,000
	RW 13/31 Rehabilitation	$ 5,300,000	$ 4,770,000	$ 265,000	$ 265,000	$0
	Total	$ 43,210,000	$ 25,488,000	$8,338,500	$5,628,500	$ 3,755,000

8. AIRPORT LAYOUT PLAN DRAWING SET

The airport layout plan (ALP) serves as a public document that provides guidelines to ensure that any future development maintains FAA airport design standards and safety requirements and is consistent with airport and community land use plans. The ALP is also the only document in the Master Planning process that requires formal, written approval from the FAA. An ALP creates a blueprint for airport development by depicting proposed facility improvements. The ALP components are scaled drawings of existing and proposed land and facilities development considered necessary for effective and efficient future operation of the Airport. The ALP for Reading Regional Airport consists of 13 sheets that are reproduced on drawing sheets that are 30 inches by 42 inches. Each drawing is scaled to show the greatest amount of detail and information within specific parameters. The ALP sheets are listed in Table 10 below. The following sections give descriptions of selected drawings. The ALP and an electronic version of the ALP have been submitted to the FAA for review and approval.

Table 10: ALP Sheet List

Sheet	Sheet Description
1	Cover Sheet
2	Facilities Area Plan
3	Airport Layout Plan
4	Terminal Area Plan South
5	Terminal Area Plan North
6	Airport Airspace
7	Runway 13-31 Approach Surfaces
8	Runway 18-36 Approach Surfaces
9	Runway 13-31 Departure Surfaces
10	Runway 18-36 Departure Surfaces
11	On Airport Land Use
12	Off Airport Land Use
13	Airport Property Map

8.1 Facilities Area Plan

The Facilities Area Plan depicts the existing airport facilities, pavements, and airport boundary. The drawing also shows pavement dimensions, runway safety areas, and runway protection zones. The drawing includes a table of existing buildings with building numbers that correspond to those on the drawing.

8.2 Airport Layout Plan – ALP

The ALP depicts existing and proposed development at RDG. The drawing shows existing facilities and topography as digitized from aerial mapping performed in 2010. The ALP contains both existing and proposed development. Existing and proposed features include elements of airside, landside, and terminal development. The following airside features are depicted on the ALP:

- Runways, runway shoulders, blast pads, runway marking, runway elevations
- Taxiways, taxiway shoulders, aprons
- Navigational Aids
- Boundaries and dimensions associated with Object Free Areas (OFAs), Runway Safety Areas (RSAs), Runway Protection Zones (RPZs), Building Restriction Lines (BRLs), Glide Slope and Localizer Critical Areas.

The following landside features are depicted on the ALP:

- Major buildings with building identification numbers
- Parking areas, fencing
- On-airport access roads, adjacent off-airport roadways
- Other physical features including topographic contours and stream lines

The following data tables, which give information on existing and future conditions, are included on the ALP. Future information is based on the assumption that development described in Section 5 will be implemented.

- Runway Data Table
- Airport Data Table
- Building Data Table
- Modifications to Design Standards

Two wind roses show wind coverage for existing and future conditions.

8.3 Terminal Area Plans

The Terminal Area Plans depict the existing and proposed development on the North and South Terminal Areas. The North Terminal Area includes the North Apron, while the South Terminal Area includes the East, Terminal, and West aprons. The development is shown in phases through color coding of the proposed facilities.

8.4 Airspace Drawing

The Airport Airspace Drawing depicts the 14 CFR Part 77 Subpart C surfaces based on ultimate runway lengths. It also includes an obstruction data table for those obstructions that lie outside the inner approach surfaces. This drawing uses the USGS 7½ minute quadrangle map from 2010 as a base map.

8.5 Approach & Departure Surface Drawings

Approach and departure surface drawings depict runway ends and FAA approach and departure surfaces and slopes. Approach, departure, and runway protection zone plans are prepared for each active runway, depicting each runway approach and departure at the Airport. Existing and potential obstructions to air navigation derived from existing data are described graphically and in tabular fashion, together with representations of all approach and departure surfaces.

8.6 Land Use Drawings

The Land Use Drawings are designed to show categorically all on-airport and off-airport land use, both developed and undeveloped. Like the Airport Layout Plan drawing, they correspond to the 20 year development plan. On-Airport, the eight land use categories depicted are commercial, general aviation, terminal area/parking, agriculture, open space, FAA facilities, support facilities, and wastewater treatment facilities.

The off-airport land use drawing depicts the airport boundary and current (2010) and future (2030) noise contours at 65, 70, and 75 DNL. The off-airport land uses include commercial, industrial, public/non-profit, commercial recreational, residential, agriculture and woodlands, and rural. Also shown are hospitals, schools, churches, police and fire stations, parks, museums, recreation centers, and libraries.

8.7 Airport Property Map

The property map identifies the tracts of land within the airport boundaries. The accompanying data tables depict the numbering system for parcels, previous owner, acreage, date of acquisition, Federal aid grant number, Berks County parcel ID, and the purpose of acquisition or type of easement. There are separate tables for property already released and property proposed to be released. These tables include parcel reference number and tax number, acreage, date of prior or proposed release, and the purpose of the release.

ATTACHMENT A: APPROVAL LETTERS

FEDERAL AVIATION
ADMINISTRATION

HARRISBURG AIRPORTS DISTRICT OFFICE
3905 Hartzdale Drive, Suite 508
Camp Hill, Pennsylvania 17011
(717) 730-2830

October 2, 2013

Terry Sroka
Reading Regional Airport Authority
2501 Bernville Road
Reading, PA 19605

RE: Conditional Airport Layout Plan Approval
Reading Regional Airport
Update Airport Master Plan Study
AIP#3-42-0088-020-2010
Airspace Case #2013-AEA-605-NRA

Dear Mr. Sroka:

The Airport Layout Plan (ALP) consisting of Sheet 3 of 14, for Reading Regional Airport, dated September 2013, is hereby approved.

The contents of the ALP do not necessarily reflect the official views or policies of the FAA. Approval of the ALP by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein.

The approval indicated by my signature is given subject to the following conditions:

1. FAA's approval of this ALP represents acceptance of the general location of future facilities depicted. During the preliminary design phase, the airport sponsor is required to resubmit for approval final locations, heights and exterior finish of structures. FAA's concerns are obstructions, impact on electronic aids, or adverse effect on controller view of aircraft approaches and ground movement areas, which could adversely affect the safety, efficiency, or utility of the airport. When airport construction, alteration, or deactivation is undertaken, such action requires FAA notification and review in accordance with the provisions of Part 77 and Part 157 of the Federal Aviation Regulations.

2. All proposed airport development identified on the ALP requires environmental processing and shall not be undertaken with or without Federal funds prior to written environmental approval by the FAA.

3. The sponsor has a continuing responsibility to keep the ALP current at all times. All revisions must be submitted to this office for prior approval. The sponsor must also maintain an up-to-date Exhibit "A" Property Map for the airport at all times.

4. The approval of this ALP does not in any way constitute an approval of a release, modification, reformation or amendment to the Airport Property.

5. The sponsor is responsible for insuring compatible use of land adjacent to or in the vicinity of the airport and agrees to maintain positive control over existing and future runway protections zones.

6. The sponsor must take appropriate action to assure that such terminal airspace, as is required to protect instrument and visual opeations to the airport, will be adequately cleared and protected by removing, lowering, relocating, marking or lighting existing obstructions and/or airport hazards. Any proposals for mitigation should be reviewed and approved by Flight Standards.

7. The sponsor must coordinate with FAA Technical Operations, and ATO Service Area Planning and Requirements (P&R) Offices prior to any proposed visaids projects.

8. The Runway Data Table on your ALP shows that Runway 18/36 currently exceeds FAA design standards for runway width. At the time of any future associated pavement rehabilitation or runway lighting project, the runway width should be adjusted to meet FAA standards, or the sponsor will be responsible for maintaining any pavement beyond the standard.

9. The Modifications of Design Standards in your ALP Table identified five existing substandard conditions on the airport. Two have been previously approved, and three show as proposed action to obtain approval for the conditions. The approval of this ALP does not in any way constitute an approval of the substandard conditions. The Airport Sponsor must take appropriate action by March 31, 2014, either to eliminate the substandard conditions; bring them up to a level where acceptable modification can be approved; or obtain a Modification of Design Standard approval for each of the substandard conditions.

10. Airport development not depicted on the approved ALP should not be initiated until a revision to the drawing is approved by the FAA. This office should be contacted to discuss the appropriate process for revising the ALP.

Forwarded with this letter are four copies of the approved ALP for your files. Two copies have been retained by this office and one has been sent to the FAA Eastern Region Airports Division Office for their records. We have also forwarded copies to the Pennsylvania Department of Transportation, FAA Technical Operations Office and FAA Flight Procedures Office.

If you have any questions or require additional information, please contact me or Lori Ledebohm, ADO Planner, at (717)730-2835.

Sincerely,

Lori K. Pagnanelli
Manager

Enclosure

cc: Sarah Gulick, PADOT W/Encl.
Eleanor Scorcia, AEA-610, W/Encl.
Barry Streisfeld, Tech Ops, W/Encl.
Gerard Lebar, FPO, W/Encl.
David Dull, AEA-530, W/o Encl.
AEA-620, W/o Encl.
Oe/AAA Case File W/o Encl.

SSM GROUP, INC. | Engineering and Environmental Services
1047 N. PARK ROAD › P.O. BOX 6307 › READING, PA 19610-0307
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SSM

April 5, 2012

Mrs. Diane DeJesus, Secretary
Bern Township
1069 Old Bernville Road
Reading PA 19605

RE: Stormwater Drainage Master Plan – Phase 1
Reading Regional Airport Authority
SSM File 107990.0098

Dear Diane:

We have reviewed the Stormwater Drainage Master Plan – Phase 1, dated September 2011, revised January 2012, prepared by AECOM for the Reading Regional Airport Authority (RRAA). The Phase 1 report is intended to document the existing stormwater drainage conditions on the Reading Regional Airport property. It is our understanding that Phase 2 will address projected development in the next 10 years on the RRA property. Phase 2 cannot be properly completed without an accurately completed Phase 1 Plan.

In general, we find the Phase 1 report to be clear and concise. We reviewed the information with attention to the engineering parameters required by the Bern Township Stormwater Management Ordinance No. 149. As discussed with the applicant, our review does not include a detailed review of whether or not the calculations have been performed correctly, but rather, whether the design engineer applied the Ordinance requirements properly. The size of the report (three 3-ring binders, each 4" thick) would require a detailed technical review which would be quite time consuming. Thus, we have relied upon the design engineer to properly summarize the results in the narrative, which we have reviewed in detail.

Our comments noted in our review of October 19, 2011 have been addressed to our satisfaction and therefore we recommend that the RRAA move forward to Phase 2.

If you have any questions, please feel free to contact me.

Sincerely,
SSM Group, Inc.

Kent D. Morey, P.E.
Senior Engineer
kent.morey@ssmgroup.com

cc: Brian Potts, Township Manager
Keith Mooney, Esq.
Kyle Oszeyczik, P.E. (AECOM)
Luke McHugh, P.E. (AECOM)
Terry Sroka

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SSM

May 4, 2012

Mrs. Diane DeJesus, Secretary
Bern Township
1069 Old Bernville Road
Reading PA 19605

RE: Stormwater Drainage Master Plan – Phase II
Reading Regional Airport Authority
SSM File 107990.0098

Dear Diane:

We have reviewed the Stormwater Drainage Master Plan – Phase II, dated January 2012, prepared by AECOM for the Reading Regional Airport Authority (RRAA). The Phase 1 report documented the existing stormwater drainage conditions on the Reading Regional Airport property. The Phase II report investigates the impacts of proposed improvements noted on the Airport Layout Plan (ALP) and considers what improvements may be appropriate for the total build out of the ALP.

In general, we find the Phase 2 report to be well done and presented in a clear and concise manner. As noted in our review of Phase I, we did not perform a detailed review of whether or not the calculations have been performed correctly, but rather, whether the design engineer applied the Ordinance requirements properly. As noted in the report, there are numerous means by which runoff volume and quality may be addressed; however, before any of those can be considered, a detailed geological and soils evaluation will need to be performed and the time when these should be performed is immediately prior to planning the proposed development. Therefore, it would be premature to say that one stormwater Best Management Practice (BMP) would be more appropriate than another.

The report does, however, make recommendations of BMPs that possibly can be employed at the site in order to meet Local, State and Federal requirements, none of which do we take exception to at this time. We do have the following comments that RRAA should consider as they move forward with implementing their Master Plan.

1. The report notes that some BMPs already exist on the site and implies that it may be possible that these be given some future credit. Although we do not disagree with this approach, the report notes their effectiveness by pointing out how well they have collected trash and debris. RRAA should document maintenance (including litter removal) as part of their maintenance program. BMPs for which credit is given should be made part of a maintenance agreement with the Township and the maintenance records should be made available to the Township for their records.

2. The Schuylkill River is assigned a stormwater TMDL (Total Maximum Daily Load) for PCBs. PCBs are attached to sediment and not found in stormwater itself. Thus, reviewing historical records of a site's previous land use plays a key role in tracking down and identifying a plan to remove PCBs. The review of historical site use relative to PCBs should be high on RRAA's list of BMP's in order to meet newly implemented stormwater regulations.

If you have any questions, please feel free to contact me.

Sincerely,
SSM Group, Inc.

Kent D. Morey, P.E.
Senior Engineer
kent.morey@ssmgroup.com

cc: Brian Potts, Township Manager
Keith Mooney, Esq.
Kyle Oszeyczik, P.E. (AECOM)
Luke McHugh, P.E. (AECOM)
Terry Sroka

Federal Aviation Administration

« Airports GIS

RDG-113140 : Survey Verification

Project Summary | **SOW / Concurrence** | **Plans** | **Geodetic Control Data** | **Imagery Data** | **Survey** | **Verification**

There are no pending actions for you, Elliott.

Action: Verify Survey File [Roger Strouse on 04/30/2012]

Comments: NGS performed a validation review of the safety critical data as specified in AC150/5300-18B. A comprehensive review of the data was not performed. Review findings are documented in the posted Quality Review Report (QRR). The survey data is available in UDDF format on the FAA TPSS web site. For inquiries concerning the NGS Quality Review Report, contact Jeff Steele

Date	Added By	Category	File Name	Description
04/30/2012 08:09 AM	Roger Strouse	NGS Verification	RDG_QRR_113140_2.pdf (1.0MB)	RDG Quality Review Report
01/25/2012 01:00 PM	Mark Howard	NGS Verification	RDG_QRR_113140_1_FINAL.pdf (1.0MB)	RDG Quality Review Report

This project was funded in large part by the Federal Aviation Administration through the Airport Improvement Program (AIP Grant No. 3-42-0088-050-2010) with additional matching funds provided by the Pennsylvania Department of Transportation and the Reading Regional Airport Authority.

Prepared by

AECOM

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