

Chapter 8: Financial Implementation Plan

The financial implementation plan is designed to provide the Yakima Air Terminal with an approach to financing the development program selected during the planning process. Although comprehensive, the financial plan remains tentative in nature: changing demands, activity levels, cost inflation, and legislation can greatly change the optimal plan from one year to the next. Because of this, any financial implementation plan requires frequent re-examination and periodic adjustment as conditions warrant.

This chapter of the Master Plan is intended to become one of the primary references for decision-makers responsible for implementing Master Plan recommendations. Consequently, the narrative and graphic presentations must provide understanding of each recommended development item. This understanding will be critical in maintaining a realistic and cost-effective program that provides maximum benefit to the airport.

This chapter has been updated to incorporate the revised capital improvement program and funding source information for the year 2003 update.

8.1 Methodology

Determining the financial implications of the master plan capital improvement program begins with a description of the specific development items, and an assignment of each item to one of three development phases:

- Phase I (Short-Term): FY 2003 - FY 2007;
- Phase II (Intermediate): FY 2008 - FY 2012; and
- Phase III (Long-Term): FY 2013 - FY 2022.

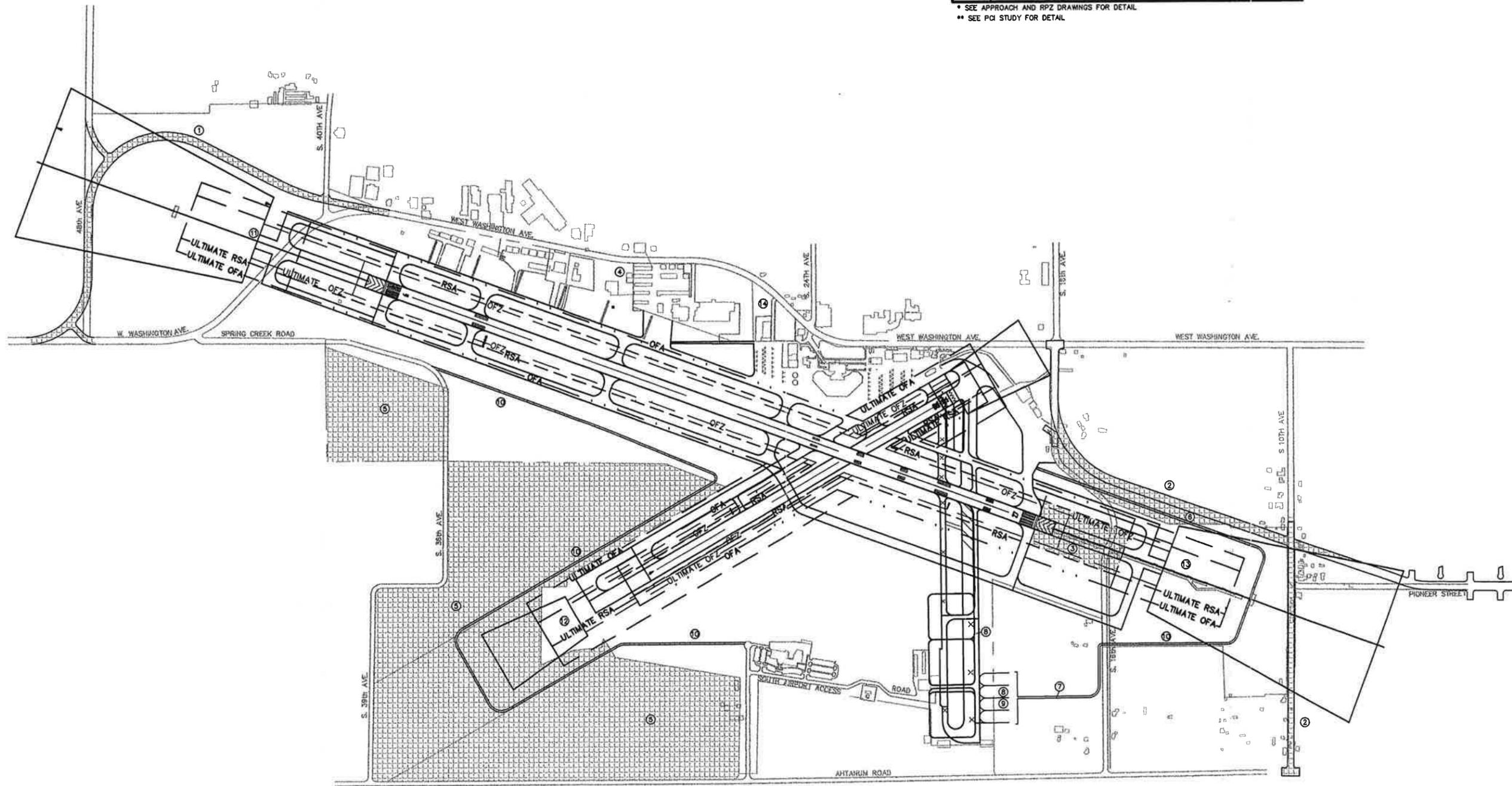
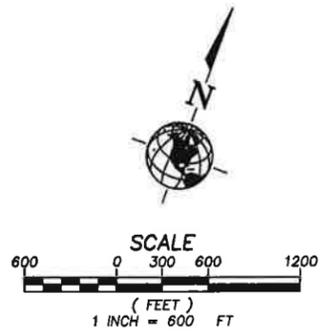
The assignment of projects to a specific phase is based on level of priority, demand and reasonable order of work items (for instance, property acquisition associated with improvements must occur before construction). Costs were then developed for the projects based on actual construction costs for other similar projects, in 2003 dollars. Federal, local, and private shares of all costs were then applied based on eligibility of funding. Federal funding traditionally has covered 90 percent of the project costs for eligible projects, with local funding making up the remaining 10 percent. Under the most recent authorization bill, the federal share of eligible projects was raised to 95 percent for all airports that are small hubs or below, which includes Yakima Air Terminal. Eligibility for funding does not insure that funds will be available or granted for the project.

8.2 Capital Improvement Program

The land and facilities needed to meet forecast aviation demand were previously described in Chapter 4, Facility Requirements. The planned improvements are depicted in Exhibits 8-1 and 8-2.

The Capital Improvement Program (CIP) details both timing and cost for the three development phases. An overview of total probable costs for the 20-year planning period is provided in Table 8-1. Costs for each development item were estimated using accepted engineering practice at a level of detail normally associated with project planning. Only aviation-related capital development is described: major repair and replacement programs associated with leasehold maintenance and improvement must be continually reviewed on a case by case basis with present and prospective tenants.

Due to the uncertainty that is inherent in a 20-year capital improvement plan it is important that the airport re-evaluate their plan throughout the twenty-year period to maintain its applicability. All projects and costs should be reviewed, and updated to the current dollars, prior to requested federal funding.



PHASE 1 IMPROVEMENTS (2003-2007)

PROJECT DESCRIPTION
1 RELOCATE WEST WASHINGTON AVE TO SOUTH 48TH AVE.
2 RWY 27 SAFETY AREA IMPROVEMENTS (VALLEY MALL BLVD.)
3 RWY 27 SAFETY AREA IMPROVEMENTS (AIRFIELD IMPROVEMENTS)
4 ACQUIRE ARFF VEHICLE INDEX B (1500 GALLON)
5 ACQUIRE PROPERTY FOR DEVELOPMENT - SOUTH CENTRAL (155 ACRES)
6 ACQUIRE PROPERTY FOR APPROACH PROTECTION-RWY 27/ VALLEY MALL (21 ACRES)
7 CONSTRUCT SOUTH GA ACCESS ROAD AND UTILITIES
8 RECONSTRUCT SOUTH GA TAXIWAYS
9 CONSTRUCT SOUTH GA STORAGE HANGARS
10 CONSTRUCT AIRFIELD ACCESS ROADS
11 OBSTRUCTION REMOVAL RUNWAY 09*
12 OBSTRUCTION REMOVAL RUNWAY 04-22*
13 OBSTRUCTION REMOVAL RUNWAY 27*
14 CONSTRUCT T-HANGARS (NORTH SIDE - PRIVATE)
15 FOGSEAL RWY 4, RWY 9, TAXIWAY A AND TAXIWAY B**
16 SLURRY SEAL TAXIWAY A, TAXIWAY B, AND TAXIWAY C**
17 REHABILITATE RUNWAY 04-22**
18 SLURRY SEAL APRON AREAS**

* SEE APPROACH AND RPZ DRAWINGS FOR DETAIL
 ** SEE PCI STUDY FOR DETAIL

**YAKIMA AIR TERMINAL
 MCALLISTER FIELD AIRPORT LAYOUT PLAN
 PROPOSED CIP PROJECTS
 PHASE 1 (2003-2007)**

W&H PRACTICE
 Planners • Engineers • Surveyors • Landscape Architects
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SCALE: 1"=600'
 PROJECT NO. 818377
 DRAWING FILE NAME: TyakPH1

DESIGNED BY: WLM	CHECKED BY: DSW
DRAWN BY: CMB	APPROVED BY: MIN
LAST EDIT: 10/06/03	PLOT DATE: 11/26/03
DATE BY REV	REVISION
	CK'D/APP'R

**TABLE 8-1
YAKIMA AIR TERMINAL – YEAR 2002 AIRPORT LAYOUT PLAN UPDATE
PROPOSED CAPITAL IMPROVEMENT PROJECTS**

Project Description	Total	Funding Source		
	Cost	FAA*	Local	Private
Phase I (2003-2007)				
Relocate West Washington Ave to South 48 th Ave (Partial Costs)	\$700,000	\$665,000	\$35,000	\$0
Acquired Property for Approach Protection – Runway 27 / Valley Mall (21 Acres)	\$525,000	\$498,750	\$25,250	\$0
Runway 27 Safety Area Improvements (Valley Mall Blvd) ***	\$3,500,000	\$3,325,000	\$175,000	\$0
Runway 27 Safety Area Improvements (Airfield Improvements)***	\$750,000	\$712,500	\$37,500	\$0
Acquire ARFF Vehicle Index B (1500 Gallon)	\$500,000	\$475,000	\$25,000	\$0
Acquire Property for Development – South Central (155 Acres)	\$3,875,000	\$3,681,250	\$193,750	\$0
Construct Airfield Access Roads	\$1,135,986	\$1,079,187	\$56,799	\$0
Obstruction Removal Runway 09	\$1,280	\$1,216	\$64	\$0
Obstruction Removal Runway 27	\$81,945	\$77,847	\$4,097	\$0
Obstruction Removal Runway 04-22	\$1,921	\$1,825	\$96	\$0
Reconstruct South GA Taxiways	\$750,000	\$712,500	\$37,500	\$0
Construct T-Hangars (North Side – Private)	\$504,000	\$0	\$0	\$504,000
Construct South GA Access Road and Utilities	\$500,000	\$250,000	\$250,000	\$0
Construct South GA Storage Hangars	\$500,000	\$0	\$500,000	\$0
Rehabilitate Runway 04-22**	\$2,112,100	\$2,006,495	\$105,605	\$0
Fogseal Runway 4, Runway 9, Taxiway A, and Taxiway B**	\$61,158	\$0	\$61,158	\$0
Slurry Seal Taxiway A, Taxiway B, And Taxiway C**	\$347,006	\$329,656	\$17,350	\$0
Slurry Seal Apron Areas ***	\$330,060	\$313,557	\$16,503	\$0
Subtotal Phase I	\$16,175,456	\$14,129,783	\$1,541,673	\$504,000

Phase II (2008-2012)				
Relocate / Expand Auto Parking and Walkways	\$508,495	\$483,070	\$25,425	\$0
Acquire Property for Development –				
South GA (36 Acres)	\$900,000	\$855,000	\$45,000	\$0
Acquire Property for Approach Protection –				
Runway 4 (53 Acres)	\$1,325,000	\$1,258,750	\$66,250	\$0
Acquire Property for Development –				
South GA (15 Acres)	\$375,000	\$356,250	\$18,750	\$0
Install runway 09 PAPI	\$63,448	\$60,275	\$3,172	\$0
Relocate / Expand Rental Car Parking	\$171,820	\$163,229	\$8,591	\$0
Expand Terminal Building – Baggage	\$2,000,612	\$1,900,581	\$100,031	\$0
Expand Terminal Building – Ticketing	\$2,204,194	\$1,102,097	\$1,102,097	\$0
Relocate Fire Station	\$2,082,709	\$1,041,355	\$1,041,355	\$0
Environmental Study for Taxiway D Construction	\$100,000	\$95,000	\$5,000	
Construct Parallel Taxiway D (7,602'x75')	\$3,278,855	\$3,114,912	\$163,943	\$0
Construct Armory Access Taxilane and Apron (Private)	\$500,000	\$0	\$0	\$500,000
Remove GA Tiedowns for Taxiway Separation	\$20,000	\$19,000	\$1,000	\$0
Airport Layout Plan Update	\$250,000	\$237,500	\$12,500	\$0
Pavement Overlays**	\$492,600	\$467,970	\$24,630	\$0
Pavement Reconstruction**	\$941,000	\$893,950	\$47,050	\$0
Pavement Fogseal**	\$61,158	\$0	\$61,158	\$0
Pavement Slurry Seal **	\$677,066	\$643,213	\$33,853	\$0
Pavement Rehabilitation**	\$2,112,100	\$2,006,495	\$105,605	\$0
Construct Fuel Farm	\$200,000	\$0	\$0	\$200,000
Environmental Study for Runway 04-22 Extension	\$100,000	\$95,000	\$5,000	
Extend Runway 04-22 (585'x150')	\$1,184,995	\$1,125,746	\$59,250	\$0
Construction De-Icing Facility	\$180,000	\$171,000	\$9,000	\$0
Subtotal Phase II	\$19,729,052	\$16,090,393	\$2,938,659	\$700,000

Phase III (2013-2022)

Master Plan Update	\$500,000	\$475,000	\$25,000	\$0
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Reconstruct Taxiway B**	\$527,000	\$500,650	\$26,350	\$0
Overlay Taxiway B and Taxiway C**	\$375,100	\$356,345	\$18,755	\$0
Reconstruct GA Aprons**	\$414,000	\$393,300	\$20,700	\$0
Overlay Terminal & GA Ramps**	\$117,500	\$111,625	\$5,875	\$0
Acquire Property for Approach Protection – Runway 09 (45 Acres)	\$1,125,000	\$1,068,750	\$56,250	\$0
Acquire Property for Approach Protection – Runway 27 (61 Acres)	\$1,525,000	\$1,448,750	\$76,250	\$0
Upgrade ARFF from Index B to Index C	\$800,000	\$760,000	\$40,000	\$0
Construct South Side Air Cargo Complex	\$1,165,175	\$466,070	\$233,035	\$466,070
Environmental Study for Runway 09-27 Extension	\$200,000	\$190,000	\$10,000	\$0
Extend Runway 09-27 and Parallel Taxiways A & D	\$9,746,653	\$9,259,320	\$487,333	\$0
Construct South GA Commercial Facilities (Private)	\$1,500,000	\$0	\$0	\$1,500,000
Pavement Overlays**	\$985,200	\$935,940	\$49,260	\$0
Pavement Reconstruction**	\$1,882,000	\$1,787,900	\$94,100	\$0
Pavement Fogseal**	\$122,316	\$0	\$122,316	\$0
Pavement Slurry Seal**	\$1,354,132	\$1,286,425	\$67,707	\$0
Pavement Rehabilitation**	\$4,224,200	\$4,012,990	\$211,210	\$0
Subtotal Phase III	\$26,563,276	\$23,053,066	\$1,544,140	\$1,966,070
Cumulative Total =	\$62,467,783	\$53,273,241	\$6,024,472	\$3,170,070

* ELIGIBILITY FOR FAA FUNDING DOES NOT INSURE THAT FUNDS WILL BE AVAILABLE OR GRANTED FOR THE PROJECT.

** PER PCI REPORT RECOMMENDATIONS

*** PER RUNWAY SAFETY AREA ANALYSIS

- ALL COST ESTIMATES ARE IN 2003 DOLLARS.

- TOTAL COSTS INCLUDE CONSTRUCTION, TEMPORARY FLAGGING AND SIGNING, CONSTRUCTION STAKING, SALES TAX, ENGINEERING, ADMINISTRATION, AND CONTINGENCY, AS APPLICABLE.

8.3 Airport Development and Funding Sources

Financing capital improvements at the airport will not rely exclusively upon the financial resources of the Yakima Air Terminal. Capital improvements funding is available through various grants-in-aid programs on the state and federal levels and local passenger facility charges. The following discussion outlines the key sources for capital improvement funding.

Federal Aid to Airports

The United States Congress has long recognized the need to develop and maintain a system of aviation facilities across the nation for national defense and promotion of interstate commerce. Various grants-in-aid programs to public airports have been established over the years for this purpose. The legislation enacted in early 2000 was entitled the *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century* or AIR-21.

This four-year bill covered fiscal years 2000-2003. This was breakthrough legislation because it authorized funding levels significantly higher than ever before. Airport Improvement Program (AIP) funding was authorized at \$2.475 billion in FY 2000, \$3.2 billion in FY 2001, \$3.3 billion in FY2002, and \$3.4 billion in FY2003.

The most recent legislation enacted for FY 2004-2007 is entitled the *Vision 100 – Century of Aviation Reauthorization Act*. This legislation authorizes AIP funding at \$3.4 billion in FY 2004, \$3.5 billion in FY 2005, \$3.6 billion in FY 2006, and \$3.7 billion in FY 2007. This legislation also increased the federal share of eligible projects from 90 to 95 percent.

The source for AIP funds is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Trust Fund also finances the operation of the FAA. It is funded by user fees, taxes on airline tickets, aviation fuel, and various aircraft parts.

Under the current AIP, on airports such as the Yakima Air Terminal, eligible projects (such as property acquisition, airfield, apron, and some terminal improvements) receive 95 percent federal participation. Funds are distributed each year by the FAA under authorization from Congress. A portion of the annual distribution is to primary commercial service airports (defined as airports with greater than 10,000 annual enplanements), based upon enplanement levels. Each commercial service airport receives a minimum of \$1,000,000 per year in entitlements (if AIP is funded at the fully authorized amount). Lower levels could occur based on appropriations. Additional amounts are received, determined by the number of enplanements per year.

With 85,239 enplanements in 2000, the Yakima Air Terminal received \$1,191,518 in entitlements for FY2002. This funding level is projected to increase with enplanement growth through the planning period. Additional discretionary funds may be distributed by the FAA based on the priority of the requested project.

Eligible projects for discretionary funding include: pavement rehabilitation; property acquisition; airfield improvements; aprons; safety items (such as aircraft rescue and fire fighting [ARFF] facilities, securing safety areas, and security fencing); and access road improvements. Priorities are assigned for each type of project contemplated by the airport. ARFF, safety areas, obstruction removal, Part 1542 (security), and pavement rehabilitation receive higher priority than land acquisition, new taxiways, roads, and terminal buildings. Chapter 6 of FAA *Order 5100.38A, Change 2* discusses AIP funding eligibility of terminal projects. Generally, eligible items include areas defined by public use and (new in AIR-21) areas that are directly attributable to the movement of passengers and baggage in air commerce. Much of the terminal costs proposed for the Yakima Air Terminal are AIP eligible. Parking lot improvements are included for funding, based on recent security requirements.

Under FAA *Order 5100.38A, Change 2*, allowance is made for expanded terminal and parking lot eligibility. Section 47110(d)(2) “allows costs of terminal development in revenue-producing areas and construction, reconstruction, repair, and improvements of non-revenue-producing parking lots in revenue producing areas, and construction, reconstruction, repair, and improvement of non-revenue-producing public parking lots at commercial service airports that annually enplane 0.05 percent or less of the total U.S. enplanements” (including nonhub primary airports, such as the Yakima Air Terminal).

Passenger Facility Charges

Passenger facility charges (PFCs) were authorized by Congress through the Aviation Safety and Capacity Act of 1990. Authorized agencies are allowed to impose a charge of as much as \$4.50 for each enplaned passenger. (The level was increased from \$3.00 to \$4.50 under AIR-21).

PFCs are collected for the Yakima Air Terminal, but can only be used on approved projects. However, they can be used to fund all of a project, or to match other AIP funds. The PFCs calculated for each year of the planning periods are based upon forecast enplanements over the future planning periods.

Air Cargo Entitlement

Air cargo entitlement funds are available to airports that are served by all cargo aircraft with an annual landed weight in excess of 100 million pounds. This level of activity is not expected to be reached at Yakima within the planning horizon; therefore, these funds will not be included in this analysis. Should circumstances change, however, this fund could become a valuable source of revenue.

FAA Facilities and Equipment Program

The Airway Facilities Division of the FAA administers the Facilities and Equipment (F&E) Program. This program provides funding for the installation and maintenance of various navigational aids and equipment of the national airspace system. Under the F&E program, funding is provided for FAA airport traffic control towers, enroute navigational aids, on-airport navigational aids, and approach lighting systems. An item in the capital improvement program included for funding under this program is the Runway 9 PAPI. Relocation of navigational aids associated with runway extensions will be accomplished by Airway Facilities under AIP funded reimbursable agreements.

State Aid to Airports

WSDOT grants are obtained through the Aviation Division Airport Aid Program. These grants are awarded to those airports who submit applications for funding of particular improvement projects to the state. These grants are generally issued to smaller general aviation airports, many of which are not eligible for FAA funding. Due to limited funds, state monies are traditionally used for maintenance of and improvements to the existing airport facilities, such as pavement repair and fencing. It is assumed that state funding will not be available to fund capital improvement projects at the Yakima Air Terminal.

Local Funding

The balance of project costs, after consideration has been given to grants and PFCs, must be funded through local resources. There are several alternatives for local financing of airport projects, including: airport revenues; loans and/or bonds; and leasehold financing.

8.4 Capital Improvements Funding

Experience has indicated that problems have materialized from the standard time-based format of

traditional planning documents. The problems center around their inflexibility and inherent inability to deal with unforeseen changes that may occur.

While it is necessary for scheduling and budgeting purposes to consider the timing of airport development, the actual need for facilities is established by airport activity. Proper master planning implementation suggests the use of airport activity levels rather than time as guidance for development.

The contributors to the airport’s development are primarily its users through a system of leases and fees. These sources include not only the rates and charges for airport use imposed by the airport, but also federal airport improvement programs. The key sources for funding were outlined in the previous section.

Under the current entitlement formula, for the first 50,000 enplanements, the airport receives \$15.60 per enplanement (assuming full AIP funding). For the next 50,000 enplanements, the airport receives \$10.40 per enplanement. The next 400,000 boardings provide \$5.20 per enplanement. For the next 500,000, the airport receives \$1.30 per enplanement. For all other enplanements over one million, the airport receives \$1.00 per enplaned passenger.

PFCs can be utilized to fund 100 percent of a project. They may be used as matching funds for AIP grants or to augment AIP-funded projects. PFCs can be used for debt service and financing costs of bonds for eligible airport development. These funds may also be commingled with general revenue for bond debt service. Before submitting a PFC application, the airport must give notice and an opportunity for consultation to airlines operating at the airport.

PFCs are to be treated similar to other airport improvement grants rather than as airport revenues, and will be administered by the FAA. Participating airlines are able to retain up to eight cents per passenger for administrative handling purposes.

TABLE 8-2
POTENTIAL ENTITLEMENT AND PFC FUNDS
YAKIMA AIR TERMINAL

Period	Annual Enplanements	Annual Entitlement Funding	Annual PFC Funding*
Current (2002)	59,522	\$1,000,000 **	\$267,849
Short Term (2008)	101,800	\$1,309,360	\$458,100
Intermediate (2013)	110,600	\$1,355,120	\$497,700
Long Term (2022)	128,300	\$1,447,160	\$577,350

* Based on collection of \$4.50 per enplanement

** Minimum Entitlement assuming full appropriation

8.5 Debt Service Schedule

The Air Terminal’s debt obligations have included general obligation bonds, but records show that these have

been satisfied and no long term debt obligations currently exist.

8.6 Plan Implementation

The successful implementation of the Yakima Air Terminal Airport Master Plan will require sound judgment on the part of Airport management with regard to implementation of projects to meet future activity demands, while maintaining the existing infrastructure to support new development.

While the projects included in the capital program have been divided into short, intermediate, and long-term planning periods, the Airport will need to consider the scheduling of projects in a flexible manner, and add new projects from time to time to satisfy safety or design standards, or newly created demands.

As new buildings or pavement are added, the as-built information should be reflected on these drawings, and the revised drawings resubmitted to the FAA for approval. The updated Part 77 airspace drawings (with updated zoning ordinance) should be adopted by the planning departments in both the City of Yakima and Yakima County, to ensure that towers or other high objects are not constructed in the runway approaches.

ATTACHMENT 1: General Conformity Applicability Analysis (40 CFR Part 93 Subpart B) – June 2003

1.0 Introduction

The Federal Clean Air Act Amendment of 1990 requires federal agencies to ensure that their actions conform to the State Implementation Plan (SIP) for the airshed in which the action would take place. The SIP is a comprehensive plan consisting of multiple volumes that provides for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS) and includes emission limitations and control measures to attain and maintain the NAAQS.

The federal action under review is Federal Aviation Administration (FAA) approval of the Airport Layout Plan (ALP) for Yakima Air Terminal (YKM). The ALP is a comprehensive set of development projects identified by the airport sponsor for planning purposes. The airport sponsor for Yakima Air Terminal is the Yakima Air Terminal Board. FAA reviews the planned development with respect to safety, efficiency, utility, and environmental impact. The ALP is reviewed and updated every few years to ensure that Yakima Air Terminal can continue to meet the demand for aviation services and to address FAA safety requirements. Before FAA can approve the ALP, the FAA must demonstrate that the planned development would conform to the SIP.

The purpose of this applicability determination is to document the project-related emissions associated with the recommendations shown on the ALP. This evaluation shows that the emissions from the projects identified on the ALP (also referred to as “the proposed action”) are below the de minimis levels for all pollutants of concern. As a result, the General Conformity requirements have not been triggered and no further analysis is required.

TABLE 1
SUMMARY OF DIRECT & INDIRECT EMISSIONS PROPOSED YAKIMA AIR TERMINAL ALP APPROVAL

Years	PM10 (tons/year)
2004-2006	75.9
2007-2011	20.5
2012-2019	45.8
2020	0.0
De Minimis	100

Source: Synergy Consultants, June 2003.

2.0 Regulatory Framework

Federally funded and approved actions or projects are subject to the General Conformity regulations set forth under 40 CFR Part 93, Subpart B. General Conformity is defined as demonstrating that a project conforms to the SIP’s purpose of eliminating or reducing the severity and frequency of violations of the ambient air quality standards and achieving expeditious attainment of such standards. A conformity determination is required for a project proposed to be located in a nonattainment or maintenance area if the project’s total direct and indirect emissions of criteria pollutants would equal or exceed the annual de minimis emissions levels set forth in 40 CFR 93.153 or if the project-related emissions are “regionally significant.” Total direct and indirect emissions are the sum of the emissions increases and decreases from the proposed action, or the “net” change in emissions anticipated to occur as a result of the proposed action (40 CFR 93.152). The

applicability determination and conformity determination processes are shown schematically in **Appendix A**.

Portions of the Yakima area are designated as non-attainment for Particulate Matter less than 10 microns (PM₁₀) and is not classified relative to Carbon Monoxide (CO). Relative to CO, the Airport is not located in the area that is subject to a maintenance plan. Yakima Air Terminal is located in a non-attainment area for PM₁₀. In accordance with the Federal Clean Air Act (CAA) amendments, this General Conformity applicability determination focuses on PM₁₀. The applicable de-minimis emission levels are 100 tons per year (40 CFR 93.153[b] [2]). If the project's total direct and indirect emissions meet or exceed these levels, a conformity determination is required, including requisite air quality analyses. **Table 1** summarizes the total direct and indirect emissions associated with the proposed action. Emissions are less than the de-minimis thresholds. As a result, per the regulatory applicability test, the General Conformity provisions do not apply.

An action is considered regionally significant under the General Conformity regulations if the emissions associated with the action are 10% or more of the region's emissions for that particular pollutant. Section 7.0 contains a demonstration that the emissions from the proposed action are not regionally significant.

3.0 State Implementation Plan

Responsibility for ensuring compliance with the NAAQS in the Yakima Area has been delegated by the Environmental Protection Agency (EPA) to the Washington State Department of Ecology (Ecology) and the Yakima Region Clean Air Authority (YRCAA). In 1998, the EPA approved the State Implementation Plan (SIP) for the Yakima PM₁₀ area. **Table 2** shows the emissions inventory reflected in the current approved SIP.

TABLE 2
ANNUAL EMISSIONS INVENTORY – YAKIMA PM10 AIRSHED
(TONS PER YEAR – TPY)

Source Category	1990 (tons per year)	1994 Without Controls (tpy)	1994 With Controls (tpy)
Point sources	328	328	328
Area sources			
Woodstoves	825	855	171
Other heating	42	44	44
Other area sources	206	213	213
Resuspended road dust	597	619	619
Mobile sources - tailpipe	297	308	308
Total	2,297	2,366	1,683

Source: Charlie Stansel, Yakima Regional Clean Air Authority, June 2003.

The Yakima Regional Clean Air Authority is currently preparing an emissions inventory that will be used in the region's maintenance plan submittal to DOE and USEPA. The maintenance plan submittal will use 2000 as its base year, 2010 as an intermediate year, with 2015 being used as the maintenance demonstration year.

4.0 The Proposed Action

As was noted earlier, the Yakima Air Terminal Board is seeking approval of the proposed Airport Layout Plan for Yakima Air Terminal. At this time, the Board is seeking unconditional approval of the projects shown on the ALP. Table 3 lists the proposed improvements by phase.

Generally, the projects noted on the Airport Layout Plan reflect:

- Improvements necessary for runway safety area compliance and approach protection
- Extension of the runways to enable service by cargo aircraft
- Development of facilities to accommodate anticipated airport users

With the runway extension the Airport will be able to accommodate cargo users with aircraft type that are not able to use the Airport today, there would be a slight increase in annual operations with the proposed improvements.

A number of area roadway projects are planned by the City of Yakima and the City of Union Gap to address area roadway congestion. These projects were presumed to be with a conforming Transportation Improvement Plan.

5.0 Analysis

The following section summarizes the analysis years, discusses anticipated changes of direct and indirect emissions and explains the emissions calculation methodology.

5.1 Analysis Years

The General Conformity rules require consideration of the following [40 CFR 93.183] based on the current approved SIP:

1. The year mandated by the Federal Clean Air Act amendments for attainment by the region or the latest year for which emissions are projected in the SIP. In February 1998, the EPA approved the SIP for the Yakima PM₁₀ non-attainment area. The attainment year was identified as 1994 as that was the last year in which a violation of the national ambient air quality standard occurred.¹

**TABLE 3
PROPOSED AIRPORT IMPROVEMENTS – YAKIMA AIR TERMINAL**

	Phase I 2004-2006	Phase 2 2007-2011	Phase 3 2012-2020
Install PAPI on Runway 09		X	
RSA Standards compliance			
Relocate 16th Ave to the west (Rwy 27 RSA)	X		
Relocate Wash. Ave to S.48th (Rwy 9 RSA)	X		
RSA Grading	X		
OFA compliance			
Remove GA tiedowns for Taxiway A separation		X	

¹ A copy of the SIP was not available. However, the dates required by the analysis were confirmed with Charlie Stansel at the Yakima Regional Clean Air Authority. June 10, 2003.

	Phase I 2004-2006	Phase 2 2007-2011	Phase 3 2012-2020
Remove obstructions			
Runway 04-22	X		
Runway 09	X		
Runway 27	X		
Extension of Runway 04/22			
Extend Runway 04 by 585ft		X	
Acquire 53 acres for Runway 04 approach		X	
Develop South Central Airport Area			
Acquire 155 acres	X		
Install security fence and gates	X		
Construct South Parallel taxiway D		X	
Construct T-Hangars W of parking N of 9/27	X		
Development of multi-use air cargo complex			X
Development of GA facilities south of 9/27			
Acquire 76 acres		X	
Construct S GA internal access roads	X		
Construct S GA taxiway	X		
Construct S GA commercial facilities			X
Construct S GA storage hangars	X		
Install airfield access roads	X		
Construct Fuel Farm		X	
Terminal modifications to meet security and growth			
Relocate FireStation #4		X	
Relocate/expand public parking add walkway covers		X	
Relocate and expand the rental car parking		X	
Expand terminal east for baggage screening		X	
Expand terminal west for ticketing		X	
Extension of Runway 9/27 & Parallel taxiways			
Acquire 45 acres for Runway 09 approach			X
Acquire 61 acres for Runway 27 approach			X
Extend Runway 9 by about 1,279 feet			X

	Phase I 2004-2006	Phase 2 2007-2011	Phase 3 2012-2020
Extend Runway 27 by about 1,278 feet			X
Others			
Install airfield access roads	X		
Construct deicing collection system for terminal apron		X	
Airfield Access to the Armory		X	

Source: WH Pacific, May 2003

2. The year in which the total direct and indirect emissions from the project are greatest. As was noted earlier, the proposed improvements principally reflect airfield safety and efficiency improvements, which would be expected to result in changes in taxi/idle/delay times and associated emissions. In addition to airport operating emissions, construction emissions will result from implementing the proposed improvements. Therefore, peak year of emissions was identified by adding the project-related operating and construction emissions in each time frame.
3. Any year for which the SIP specifies an emissions budget. No projections were made in the SIP past the year 1994.

Although the SIP projects emissions from 1990 through 1994, the Yakima Regional Clean Air Authority is currently in the process of developing a new emissions inventory that will likely form the basis for further SIP maintenance demonstrations. However, the Conformity Regulations require use of the existing SIP for conformity demonstrations. Therefore, this conformity evaluation considers emissions in the current year without the project, emissions at the end of the planning horizon (2022) when the project is complete, as well as emissions associated with construction during interim years.

5.2 Direct vs. Indirect Emissions

The General Conformity regulations specify that the sum of the direct and indirect emissions is compared to the applicable de minimis thresholds for purposes of identifying the need to conduct a conformity determination. Direct emissions are defined as those emissions of a criteria pollutant or precursors of a criteria pollutant that are caused or initiated by the federal action and occur at the same time and place as the action. Emissions from construction equipment and activities are examples of direct emissions.

Indirect emissions are defined as those emissions of a criteria pollutant or precursors of a criteria pollutant that:

1. Are caused by the federal action, but may occur later in time or may be farther removed in distance from the action itself but are still reasonably foreseeable; and
2. The federal agency can practicably control and will maintain control over due to a continuing program responsibility of the federal agency.

The evaluation of emissions from the proposed action focused on emissions from construction activities since the projects as well as changes in aircraft operating emissions.

Total direct and indirect emissions are the sum of the emissions increases and decreases from the proposed action, or the “net” change in emissions anticipated to occur as a result of the proposed project [40 CFR 93.152]. Therefore, a conformity determination is not required if the differences in emissions with the proposed action (the Build Alternative), as compared with not taking the action (the Do-Nothing/No-Build Alternative), are below the applicable de minimis levels.

5.3 Emissions Calculation Methodology

To calculate the **airport operating emissions**, the FAA's Emissions Dispersion Modeling (EDMS) Version 4.11 was used. Data generated by the Master Plan concerning existing and forecast aviation activity (aircraft operations and aircraft type) was input the model. Default aircraft operating times were used for the Do-Nothing/No Build scenario for all aircraft operating times and for ground support equipment (GSE). To quantify the with Master Plan emissions, the aircraft time-in-modes were increased to reflect the increased taxi-time necessary to taxi to the extended runway ends, as well as to taxi to areas south of Runway 9-27. Based on an average taxi speed of 10 miles per hour, the increased taxi distance of 1,290 feet, the taxi mode was increased by 1.45 minutes for all aircraft types. Additional general aviation and cargo operations accessing the new development south of Runway 9-27 would experience an increase taxi time of 0.7 minutes (for a total of 2.16 minutes). In addition, without the runway extension projects, the airport would not be able to accommodate about 4 cargo operations a day during the weekday; therefore, the with project condition include a slightly greater level of aircraft operations (1,320 annual operations).

Table 4 lists the airport operating emissions that would be affected by the proposed improvements.

TABLE 4
TONS PER YEAR OF AIRCRAFT AND GSE EMISSIONS

Pollutant	2000	2020 Without Project	2020 With Project
CO	452.3	544.7	554.2
VOC	48.8	54.4	57.3
NOx	34.1	50.8	51.5
SOx	2.3	3.4	3.5
PM10	0.3	0.5	0.5

Source: Bridgenet Consulting Services, June 10, 2003. Note: EDMS does not contain PM10 emission factors for most aircraft, and thus, emissions above reflect emissions from non-road Ground support equipment.

As is shown above, airport operating-related PM₁₀ emissions would not change with the proposed improvements, remaining less than 1 tons per year.

A number of area roadway projects are planned by the City of Yakima and City of Union Gap to address area roadway congestion. These projects were presumed to be with a conforming Transportation Improvement Plan.

Construction related PM₁₀ emissions were calculated using the EPA's AP-42 method for fugitive dust, using a calculation based on area disturbed and construction duration multiplied together with the factor 1.2. Fugitive dust was then translated into PM₁₀ by assuming that half of fugitive dust would be composed of particulate matter of 10 microns or smaller.

**TABLE 5
TONS PER YEAR OF CONSTRUCTION EMISSIONS**

Construction Period	PM ₁₀
2004-2006	75.9
2007-2011	10.5
2012-2019	45.8

Source: Synergy Consultants, June 2003

In total, about 660.7 tons of PM₁₀ would be emitted by all projects shown on the ALP. At this time it is not possible to identify the specific years within each phase during which any specific construction project would occur. Therefore the emissions of projects occurring in each phase were averaged by the duration of the phase (5 years). Phase I would represent 379.4 tons for 5 years or 75.9 tons on an average year. Based on the emissions identified for each project, it might be possible with uncontrolled fugitive dust for emissions to exceed the de minimis threshold if projects such as the Parallel Taxiway for the South Central area were undertaken in the same year as development of the T-Hangars and general aviation support areas. Therefore, Yakima Air Terminal will either use soil stabilization chemicals to ensure 80% or more fugitive dust control or stage the projects (across multiple years) to ensure that the de minimis threshold is not exceeded.

6.0 Regional Significance Determination

There are two tests that could subject a federal action to General Conformity requirements. The first is exceeding the de minimis thresholds as discussed earlier. The second is if the project emissions are regionally significant. Under General Conformity, “regionally significant” applies to projects that have emissions that are ten percent or more of the region’s emissions for that particular pollutant. The emissions attributable to constructing and operating the proposed actions would not be regionally significant, as shown below in **Table 6**. The proposed action would generate less than 10% of all of the region’s pollutants, and is thus not regionally significant.

**TABLE 6
REGIONAL SIGNIFICANCE DETERMINATION**

	PM10 (tons/year)
Total Region Emissions of PM10	1,683
Regional Significance Criteria (%)	10% or 168.3 tons
Peak project-related emissions	75.9 tons

The second test that is conducted to determine the applicability of the General Conformity regulations is a comparison of project-related emissions to the de minimis thresholds. As noted earlier, the de minimis threshold for the Yakima area is 100 tons per year for PM₁₀.

7.0 Conformity Conclusion

As shown above, the proposed action has been demonstrated by this document to conform to the SIP and that the General Conformity requirements are not applicable. As the analysis in **Table 1 through Table 6** show, the proposed action will not result in emissions that would equal or exceed the de minimis thresholds nor would it be regionally significant. A formal conformity determination, therefore, is not legally required for

the proposed action (approval of the ALP). EPA rules and guidance are clear that where the net emissions increase resulting from the projects do not exceed the applicable threshold rates there are no further obligations with regard to the General Conformity rules. Thus, the proposed action is consistent with the SIP.

APPENDIX A: Construction Emissions Worksheets

PM10 Calculations

Yakima ALP Recommendations		No Controls				With Controls		
		PM10	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
Months	Acres	Dust	Phase 1	Phase 2	Phase 3	Phase 1	Phase 2	Phase 3
1.5	1.0	1.8	0.9	0.0	0.0	0.2	0.0	0.0
6	13.3	95.5	47.7	0.0	0.0	9.5	0.0	0.0
6	13.3	95.5	47.7	0.0	0.0	9.5	0.0	0.0
4	3.0	14.4	7.2	0.0	0.0	1.4	0.0	0.0
15	5.0	90.0	45.0	0.0	0.0	9.0	0.0	0.0
7	8.0	67.5	33.8	0.0	33.8	0.0	6.8	0.0
10	32.1	385.7	192.9	0.0	0.0	0.0	0.0	38.6
5	35.4	212.2	106.1	0.0	0.0	21.2	0.0	0.0
5	15.0	90.0	45.0	0.0	0.0	9.0	0.0	0.0
6	10.0	72.0	36.0	0.0	0.0	0.0	0.0	7.2
7	12.0	100.8	50.4	0.0	12.6	7.6	2.5	0.0
5	2.0	12.0	6.0	0.0	6.0	0.0	1.2	0.0
5	2.0	12.0	6.0	0.0	0.0	1.2	0.0	0.0
5	6.0	36.0	18.0	0.0	0.0	3.6	0.0	0.0
5	3.0	18.0	9.0	0.0	0.0	1.8	0.0	0.0
5	3.0	18.0	9.0	0.0	0.0	1.8	0.0	0.0
Projects Total		1321.3	660.7	52.4	228.9	75.9	10.5	45.8
Per Year Average			75.9	10.5	45.8	15.2	2.1	9.2

AP-42 Fugitive Dust Calculation: 1.2 * Months * Acres
 PM10 uncontrolled -- assumed to be half of Fugitive Dust
 Controlled PM10 assumes an 80% reduction

Glossary

A

Advisory Circular (AC): A series of external FAA publications consisting of all non-regulatory material of a policy, guidance, and informational nature.

Air Cargo: All commercial air express and air freight with the exception of air mail and air parcel post.

Air Carrier: A regularly scheduled airline activity performed by airlines certificated in accordance with Federal Aviation Regulations (FAR) Parts 121 or 127.

Aircraft Mix: The numerical or percentage breakdown of aircraft into categories based on aircraft engine and weight.

Aircraft Operation: Any aircraft arrival or departure, including touch-and-go operations.

Aircraft Type: A distinctive model of aircraft, as designated by the manufacturer.

Airline: A scheduled air carrier certificated by the Federal Aviation Administration under Part 121 of the Federal Aviation Regulations.

Airline Operations: Takeoffs and landings performed by aircraft operated by Part 121 or 127 airlines on scheduled and non-scheduled flights.

Airport: A landing area regularly used by aircraft for receiving or discharging passengers or cargo.

Airport Service Area: The geographic area that generates demand for aviation services at an airport.

Airport Surveillance Radar (ASR): A navigation instrument used to control air traffic within the immediate airport traffic areas.

Airspace: The area above the ground in which aircraft travel. It is divided into corridors, routes, and restricted zones for the control and safety of traffic.

AIR-21: The United States Congress has long recognized the need to develop and maintain a system of aviation facilities across the nation for national defense and promotion of interstate commerce. The most recent legislation was enacted in early 2000, and is entitled the *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century* or AIR-21. This four-year bill covers fiscal years 2000-2003. Airport Improvement Program (AIP) funding was authorized at \$2.475 billion in FY2000, \$3.2 billion in FY2001, \$3.3 billion in FY2002, and \$3.4 billion in FY2003.

Air Taxi: The transport of people or property for compensation or hire as a commercial operator (not an air carrier) in an aircraft having a maximum seating capacity of less than 20 passengers or a maximum payload capacity of 6,000 pounds; or the carriage in air commerce of person or property in common carriage operations solely between points entirely within a state of the U.S. in aircraft having a maximum seating capacity of 30 seats or less or a maximum capacity of 7,500 pounds or less.

Air Traffic Control Tower (ATCT): A central operations facility in the terminal air traffic control system, consisting of a tower, including an associated IFR room if radar equipped, using air/ground communications and/or radar, visual signaling, and other devices to provide safe and expeditious movement of terminal air traffic.

Air Route Traffic Control Center (ARTCC): A facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

Ambient: The sum total of existing environmental conditions for any given impact category.

Ambient Air Quality: The existing quality of the air.

Aquatic: Growing or living in or upon water.

Approach Light System (ALS): An airport lighting facility which provides visual guidance to landing aircraft by radiating light beams in a directional pattern by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach for landing.

Approach Surface: An imaginary inclined surface longitudinally centered on the extended centerline of a runway, extending outward and upward from the runway. It has a shallower gradient than the corresponding glide slope.

Apron: An area on an airport designated for the parking, loading, fueling, or servicing of aircraft.

Aviation Easement: A form of limited property right purchase that establishes legal land-use control prohibiting incompatible development of areas required for airports or aviation-related purposes.

Azimuth: Horizontal direction or bearing; usually measured from the reference point of 0 degrees clockwise through 360 degrees.

B

Base Leg: A flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

Based Aircraft: Aircraft stationed at the airport on a permanent basis.

Beacon: See rotating beacon.

Biotic Community: Recognizable assemblages of vegetation and wildlife organisms generally functioning as a unit.

Building Restriction Line (BRL): A clearance restriction which is usually parallel to runway and taxiway centerlines, at varying distances depending on the type of approach to the individual runway or the type of aircraft to use the taxiway.

C

Capacity: The airport operating level, expressed as the number of aircraft movements that can occur at an airport over a specified time period.

Circling Approach: A descent used in an approved procedure to an airport for a circle to land maneuver.

Commercial Aviation: Aircraft activity licensed by state or federal authority to transport passengers and/or cargo on a scheduled or non-scheduled basis.

Community: A city, group of cities, or a Metropolitan Statistical Area receiving scheduled air service by a certificated route air carrier at an airport.

Commuter Airline: Air carriers that operate aircraft with a maximum of 60 seats, and that provide at least five scheduled round trips per week between two or more points, or that carry mail.

Compass Locator (LOM): A low-power, low- or medium-frequency radio beacon installed in conjunction with the instrument landing system. When LOM is used, the locator is at the Outer Marker; when LMM is used, the locator is at the Middle Marker.

Condemnation: Proceedings under which a property interest may be forcibly acquired; government may condemn land through the power of eminent domain; an individual may apply inverse condemnation to obtain just compensation for a property interest taken by government without prior agreement.

Conical Surface: A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet and extending to a height of 350 feet above the airport elevation.

Critical Aircraft: The user aircraft which requires the most sophisticated facilities at the airport; the aircraft for which facilities are designed. Also referred to as the design aircraft.

Critical Habitat: An entire habitat, or portion thereof, having any constituent element that is necessary to the normal needs or survival of an endangered or threatened species.

D

Decibel (dB): A unit of measurement used to describe sound pressure level. It is a dimensionless unit, which is commonly expressed as one-tenth of the logarithm of the ratio between two power levels, one of which is nominally a reference level. The human auditory response to a given increase in sound pressure is approximately proportional to the increase in sound pressure in comparison to the pressure already present.

Displaced Threshold: Actual touchdown point on specific runways designated due to obstructions which make it impossible to use the actual physical runway end.

Distance Measuring Equipment (DME): An airborne instrument which indicated the distance the aircraft is from a fixed point, usually a VOR station.

DNL: Day-Night Noise Level. The daily average noise metric in which that noise occurring between 10:00 p.m. and 7:00 a.m. is penalized by 10 times.

Draft Environmental Impact Statement (DEIS): FAA's initial evaluation of the environmental impact of a proposed action when coordinated pursuant to Section 102(2)(c) of NEPA is initiated.

Downwind Leg: A flight path parallel to the landing runway in the direction *opposite* to landing. The downwind leg normally extends between the crosswind leg and the base leg.

E

Ecology: The science or study of the relationship between an organism and its environment.

Ecosystem: An ecological community together with its physical environment, considered as a unit.

Effective Runway Gradient: The maximum difference between runway centerline elevations divided by the runway length, expressed as a percentage.

Eminent Domain: Right of the government to take property from the owner, upon compensation, for public facilities or other purposes in the public interest.

Endangered Species: Those species in danger of extinction throughout all or a significant portion of their range.

Enplanement: A term applying to passengers and cargo which board a departing aircraft.

Enroute Airways: The route a flight follows from departure point to destination.

Express: Property transported under published air express tariffs.

F

Fauna: A collective term for the animal species present in an ecosystem.

Fixed Based Operator (FBO): A private enterprise engaged in services related to general aviation, such as fuel sales, aircraft maintenance, aircraft storage, aircraft rental and sales, flight instruction and crop dusting.

Flora: A collective term for the plant species present in an ecosystem.

Floodplain: That area which would be inundated by storm runoff which would occur under a given recurrent frequency flood condition.

Fleet Mix: See Aircraft Mix.

Flight Service Station (FSS): FAA facility used for pilot briefings on weather, airports, altitudes, routes, and other flight planning data.

G

General Aviation (GA): All aviation activities except those performed by commercial air carrier or military.

General Aviation Aircraft: All civil aircraft except those owned by and classified as air carrier.

General Obligation Bond: A form of public indebtedness backed by the full faith and credit of the municipality or other appropriate public body.

Glide Slope (GS): Electronic vertical guidance provided the pilot while on the final approach to landing; usually an angle between two degrees and three degrees and intersecting the runway in the touch down area.

Global Positioning System (GPS): A navigational technology based on a constellation of satellites orbiting approximately 11,000 miles above the surface of the earth.

H

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

I

IFR Conditions: Weather conditions below the minimum prescribed for flight under VFR.

Indirect Source: A facility, building, structure, or installation which attracts mobile air pollution source activity that results in emissions of a pollutant for which there is a national standard.

Instrument Landing System (ILS): A landing approach system that establishes a course and a decent path to align an aircraft with a runway for final approach.

Instrument Flight Rules (IFR): Rules that govern flight procedures when ceiling and visibility are below 1,000 feet and three miles respectively.

Instrument Approach: A landing approach using electronic aids and made without visual reference to the ground.

Itinerant Operations: Arrivals and departures of aircraft to or from an area greater than 20 miles from the airport. Itinerant operations may involve an aircraft based at the airport or an aircraft from another airport.

L

Localizer (LOC): An electronic instrument that is part of an ILS and emits radio signals which provide the pilot with course guidance to the runway centerline.

Local Operations: Operations performed by aircraft which: (1) operate in the local traffic pattern or within sight of the tower; (2) are known to be departing for or arriving from +/- light in local practice areas located within a 20 mile radius of the control tower; and (3) execute simulated instrument approaches or low passes at the airport.

M

Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights (MAIS-R): A facility by which the pilot is provided visual reference to the instrument runway during transition from instrument to visual flight.

Microwave Landing System: A new instrument landing system using VHF radio signals to guide the aircraft's approach instead of the VHF system still widely used. The microwave system provides for fewer ground reflections, takes up less space, and uses small aeriels.

Minimum Descent Altitude (MDA): The lowest altitude, expressed in feet above MSL, to which descent is authorized on final approach or during circling-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided.

Middle Marker (MM): An electronic beacon which indicates a position approximately 3,500 feet from the landing threshold.

Military Operations: An operation by military aircraft.

Missed Approach: A prescribed procedure to be followed by aircraft that cannot complete an attempted landing at an airport.

N

Nautical Mile: A measure of lineal distance equal to one minute of a great circle at the equator and is the length of one minute of latitude, (6,076.1155 feet). To convert to statute miles multiply by 1.150779.

Navaid: Any navigational aids, such as PAPI, MALS, REIL, etc.

Noise Contour: A line connecting points of equal noise exposure.

Non-Directional Beacon (NDB): A radio beacon transmitting non-directional signals that a pilot of an aircraft equipped with direction-finding equipment can determine his/her bearing to or from the radio beacon and "home" in on or track to or from the station. When the radio beacon is installed in conjunction with the instrument landing system marker, it is normally called a compass locator.

Non-precision Approach Procedure: A standard instrument approach procedure in which no electronic glide slope is provided.

Non-scheduled Service: Revenue flights that are not operated in regular scheduled service such as charter flights and all non-revenue flights incident to such flights.

O

Operation: Any airborne arrival or departure of an aircraft at or from an airport. "Touch-and-go" practice landings are considered as two operations.

Origination: The initial enplanement of any passengers and cargo; total originations include all enplanements except transfers and stop-overs.

Outer Marker (OM): An electronic beacon that indicates a position at which aircraft will intercept the ILS glide path.

P

Parts 25 and 121 Criteria: Those applicable portions of the Federal Aviation Regulations within which criteria for operational takeoff flight paths are defined.

Part 77: The applicable portions of Federal Aviation Regulations which define obstructions to air navigation.

Passenger Facility Charge: Passenger Facility Charges (PFCs) were authorized by Congress through the Aviation Safety and Capacity Act of 1990. Authorized agencies are allowed to impose a charge of as much as \$4.50 for each enplaned passenger. (The level was increased from \$3.00 to \$4.50 under AIR-21).

Peak Hour: Represents that highest number of operations or passengers during the busiest hour of an average day of a peak month.

Precision Approach Path Indicator (PAPI): An airport lighting facility in the terminal area navigation system used primarily under VFR conditions. The PAPI provides visual descent guidance to aircraft on approach to landing through a single row of two to four lights, radiating a high-intensity red or white beam to indicate whether the pilot is above or below the required approach path to the runway. The PAPI has an effective visual range of 5 miles during the day and 20 miles at night.

Precision Instrument: The term used to describe an approach using both horizontal and vertical guidance. This term also describes the runway with this type of approach and the markings on the runway.

Primary Runway: That runway which provides the best wind coverage, etc.; this runway receives the most usage at an airport.

Primary Surface: A surface longitudinally centered on a runway. When the runway has a hard surface, the primary surface extends 200 feet beyond each runway end; but when there is no hard surface, or planned hard surface, the primary surface ends at the end of the runway. The width of the primary surface of a runway will be that width prescribed in FAA Part 77 for the most precise existing or planned approach to that runway end.

R

Revenue Bonds: A form of public indebtedness backed by the revenue generated by the facility for which the debt was incurred.

Rotating Beacon: A visual NAVAID displaying flashes of white and/or colored light used to indicate the location of an airport.

Runway (RW): A defined area on an airport prepared for landing and takeoff of aircraft.

Runway End Identification Lights (REIL): An airport lighting facility in the terminal area navigational system consisting of one flashing white high intensity light installed at each approach end corner of a runway and directed toward the approach zone, which enables the pilot to identify the threshold of a usable runway.

Runway Protection Zone (RPZ): The inner portion of a runway approach surface.

Runway Safety Area: An area symmetrical about the runway centerline and extending beyond the ends of the runway that must be free of obstructions.

S

Scheduled Service: Transport service operated over an air carrier's certificated routes, based on published flight schedules.

Segmented Circle: An airport aid identifying the traffic pattern direction.

Socioeconomic: Data pertaining to the population and economic characteristics of a region.

Special Use Airspace: Airspace of defined dimensions, within which flight of aircraft, while not wholly prohibited, is subject to restrictions or to hazards that may exist to non-participating aircraft.

Straight-In Approach: A descent in an approach procedure in which the final approach course alignment and descent gradient permits authorization of straight-in landing minimums.

Student Activity: Any aviation activity by student pilots.

T

Taxiway (TWY): A defined area on an airport prepared for the surface movement of aircraft to and from the runway.

Terminal Airspace: The controlled airspace normally associated with aircraft departure and arrival patterns to or from airports within a terminal control system.

Terminal Building: That building on an airport which is used in making the transition between surface and air transportation.

T-Hangar: A T shaped aircraft storage building which provides economical shelter for a single aircraft.

Threshold: The physical end of a runway's pavement.

Tie Downs: An area on an airport specifically designed for the outdoor storage of aircraft.

Total Operations: The total of all operations (domestic and international) performed at an airport.

Touch-and-Go Operations: An aircraft operation for practice or testing purposes characterized by a landing touch down and then continuing takeoff without stopping.

Traffic Pattern: The flow of traffic that is prescribed for aircraft landing at, taxiing on, or taking off from an airport.

Transition Surface: An imaginary surface extending to the sides of the approach surface and inclined at a specified gradient 90 degrees to the extended centerline of the runway. Any object penetrating this surface would be an obstruction to air navigation.

Turnaround: A taxiway designed for turning around or holding aircraft at the end of a runway when a full parallel taxiway is not provided.

U

UNICOM: A ground radio communications station which provides pilots with pertinent airport information at specific airports.

V

Visual Approach Slope Indicator (VASI): A lighting system providing a visual flight path, within the airport approach zone, so that an approaching pilot can establish a more positive controlled descent. Also PAPI.

Vector: A heading issued to an aircraft to provide navigational guidance by radar.

Visual Flight Rules (VFR): Rules under which aircraft are operated by visual reference to the ground, and fly on a "see and be seen" principle.

Very High Frequency Omni-Directional Range (VOR): Air navigation aid which provides bearing information to aircraft.

W

Wind Cone (Sock): Conical wind direction indicator.

Wind Coverage: Refers to orientation of runway in relationship to direction of prevailing winds (concerns usability of runway for takeoffs and landings).

Wind Rose: A diagram indicating the prevalence of winds from various directions, at a specific place.

Wind Tee: A visual device used to advise pilots about wind direction.

 **Acronyms**

A

AC:	Advisory Circular
ADF:	Automatic Direction Finder
AGL:	Above Ground Level
AIP:	Airport Improvement Program
ASR:	Airport Surveillance Radar
ALP:	Airport Layout Plan
ALS:	Approach Lighting System
ARFF:	Aircraft Rescue and Fire Fighting
ARTCC:	Air Route Traffic Control Center
ASDA:	Accelerate - Stop Distance Available
ASV:	Annual Service Volume
ATC:	Air Traffic Control
ATCT:	Air Traffic Control Tower
AWOS:	Automated Weather Observing System

B

BRL:	Building Restriction Line
BWR:	Bucher, Willis & Ratliff

C

CAT:	Category
CWY:	Clearway

D

dB:	Decibel
DME:	Distance Measuring Equipment
DNL:	Day/Night Average Sound Level
DOT:	Department of Transportation

F

FAA:	Federal Aviation Administration
FAR:	Federal Aviation Regulation
FIS:	Federal Inspection Service
FBO:	Fixed Base Operator
FSS:	Flight Service Station
FTZ:	Foreign Trade Zone

G

GA:	General Aviation
GVGI:	Generic Visual Slope Indicator
GS:	Glide Slope

H

HIRL:	High Intensity Runway Lights
HUD:	U. S. Department of Housing and Urban Development

I

IFR:	Instrument Landing System
ILS:	Instrument Flight Rules
IMC:	Instrument Meteorological Conditions
INM:	Integrated Noise Model

K

KHz:	Kilohertz
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L

LDA: Landing Distance Available
 LIRL: Low Intensity Runway Lights
 LOC: Localizer

M

MALSF: Medium Intensity Approach Lighting System
 MALSR: Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
 MDA: Minimum Descent Altitude
 MHz: Megahertz
 MRL: Medium Intensity Runway Lights
 MITL: Medium Intensity Taxiway Lights
 MM: Middle Marker
 MOA: Military Operations Area
 MSA: Metropolitan Statistical Area
 MSL: Mean Sea Level

N

NAVAID: Navigational Aid
 NDB: Nondirectional Beacon
 NOS: National Ocean Survey
 NPI: Nonprecision Instrument
 NPIAS: National Plan of Integrated Airport System
 NWS: National Weather Service

O

OAG: Official Airline Guide
 OC: Obstruction Chart
 OM: Outer Marker
 OPBA: Operations Per Based Aircraft

P

PAPI: Precision Approach Path Indicators
PIR: Precision Instrument
PLASI: Pulsating Light Approach Slope Indicator

R

RAIL: Runway Alignment Indicator Lights
REIL: Runway End Identifier Lights
RNAV: Area Navigation
RPZ: Runway Protection Zone
RVR: Runway Visibility Range
RW: Runway

S

SSALF: Simplified Short Approach Light System with Sequenced Flasher Lights
SSALR: Simplified Short Approach Light System with RAIL

T

TACAN: Tactical Air Navigation
TAP: Terminal Area Plan
TCA: Terminal Control Area
TERPS: Terminal Instrument Procedures
TVOR: Terminal Very High Frequency Omni Range
TW: Taxiway

U

UHF: Ultra-High Frequency
USGS: United States Geological Survey

V

VASI: Visual Approach Slope Indicator
VFR: Very High Frequency
VMC: Visual Meteorological Conditions
VOR: VHF Omni-Directional Range

Y

YKM: Yakima Air Terminal