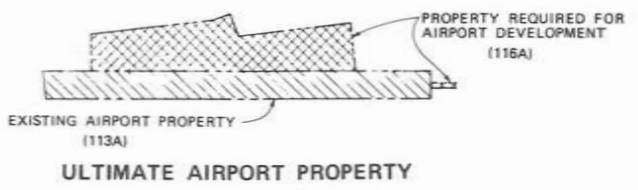


SOURCE: PORT OF PORTLAND
AURORA STATE AIRPORT
PERIOD: 1968-1970
(ALL WEATHER WINDS)

12 MPH CROSSWIND COVERAGE = 99.2%
USAGE: R/W 17 = 49.3% R/W 35 = 50.0%
15 MPH CROSSWIND COVERAGE = 99.5%
USAGE: R/W 17 = 49.4% R/W 35 = 50.1%
(-) INDICATES WIND, BUT LESS THAN 0.1%

WIND ROSE



FACILITIES	
NO.	
1	F.B.O. OFFICE
2	F.B.O. HANGAR
3	TEE HANGAR
4	CONTROL TOWER
5	CRASH, FIRE, RESCUE BLDG.
6	ADMIN./TERMINAL BUILDING
7	AVIONICS SHOP
8	HELIPORT
9	AUTOMOBILE PARKING
10	AIRPORT BEACON

- NOTES:
- FOR ADDITIONAL INFORMATION CONCERNING THE TERMINAL AREA SEE TERMINAL AREA PLAN.
 - FOR ADDITIONAL INFORMATION CONCERNING APPROACH SLOPES, CLEAR ZONES AND OBSTRUCTION SURFACES SEE ULTIMATE AIRPORT IMAGINARY SURFACES PLAN.
 - AFTER MLS STANDARDS HAVE BEEN ESTABLISHED, THE DIMENSIONS FOR RUNWAY WIDTH AND FOR APPROACH SURFACES MAY BE REVISED.
 - THE LOCATION OF THE MALSF IS SUBJECT TO CHANGE DEPENDING ON AN IFR WIND ANALYSIS.

BASIC DATA TABLE				
	RUNWAY DATA			
	EXISTING (1975)	STAGE I (1975-1980)	STAGE II (1980-1985)	STAGE III (1985-1995)
RUNWAY LENGTH	4,100'	4,100'	5,000'	6,000'
	1,250m	1,250m	1,524m	1,829m
RUNWAY WIDTH	150'	150'	150'	150'
	46m	46m	46m	46m
EFFECTIVE GRADIENT (%)	0.07	0.07	0.07	0.06
PERCENT WIND COVERAGE	99.5	99.5	99.5	99.5
INSTRUMENT RUNWAY	None	None	None	None
PAVEMENT STRENGTH*	30S	30S	30S	600
FAR PART 77 CATEGORY	B/C	B/C	B/C	B/C
FAR PART 77 APPROACH SLOPES	34:1	34:1	34:1	34:1
ACTUAL CLEAR APPROACH SLOPES	N26:1 S36:1	34:1	34:1	34:1
LIGHTING	L. Intensity	M. Intensity	M. Intensity	M. Intensity
MARKING	Basic	Non-Precision	Non-Precision	Non-Precision
NAVIGATIONAL AIDS	None	VASI	MALSF	MLS
OPERATIONAL ROLE	GU	GU	BT	BT

*Values given are the gross weight in 1,000 lbs. for single (S) and dual (D) gear aircraft.

BASIC DATA TABLE		
AIRPORT DATA		
	EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL)	195'	195'
AIRPORT REFERENCE POINT (ARP) LAT.	45° 14' 43"	45° 14' 44"
	LNG. 122° 46' 07"	122° 46' 07"
NAVIGATIONAL AIDS	NONE	MLS
NORMAL MAX. TEMP. HOTTEST MONTH	84°F (29°C)	84°F (29°C)
FUNCTIONAL ROLE	S3	S2
MISCELLANEOUS FACILITIES:		
TAXIWAY MARKING AND LIGHTING	NONE	BASIC

KEY TO ABBREVIATIONS

B/C Non-precision Instrument Runway Larger Than Utility
GU General Utility
BT Basic Transport
S3 Low Density Secondary System
S2 Medium Density Secondary System

LEGEND		
EXISTING	ULTIMATE	
---	---	GROUND CONTOURS
---	---	PROPERTY LINE
+	+	STORM DRAIN INLET
•••••	•••••	RUNWAY LIGHTS
----	----	THRESHOLD LIGHTS
○	○	FACILITIES
○	○	AIRPORT REFERENCE POINT
---	---	BUILDING RESTRICTION LINE (BRL)
□	□	BUILDINGS
□	□	FACILITIES TO BE REMOVED
---	---	DRAINAGE COURSE
---	---	DRAINAGE CULVERT
---	---	FENCE

FEDERAL AVIATION ADMINISTRATION APPROVAL			
Approval Date	11 JUNE 1976	By	Date
See Approval Letter	11 JUNE 1976	Date	
GEORGE L. BULEY Chief, Airports Planning Branch			
AERONAUTICS DIVISION APPROVAL			
ROY M. RAASINA	13 MAY 1976	By	Date
Manager Airport Branch			
PAUL E. BURKET	13 MAY 1976	By	Date
Administrator			

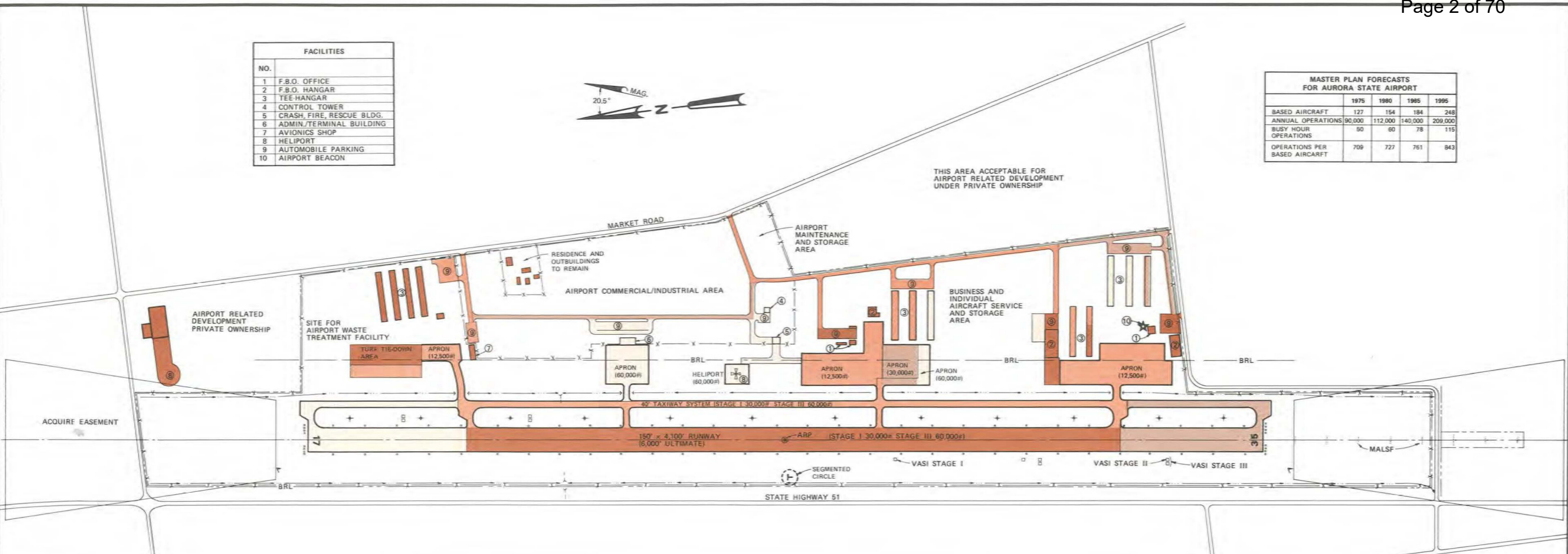
No.	Revision	By	Appr.	Date
AURORA STATE AIRPORT AURORA, OREGON				
AIRPORT LAYOUT PLAN				
OREGON STATE AERONAUTICS DIVISION SALEM, OREGON				
Township	4s	Range	1w	Scale as Shown
Section	2, 11	County	MARION	Date 13 MAY 76
				Sheet 1 of 3

Drawn: CRS
Check: RDL
Appr: MRM

FIGURE 23

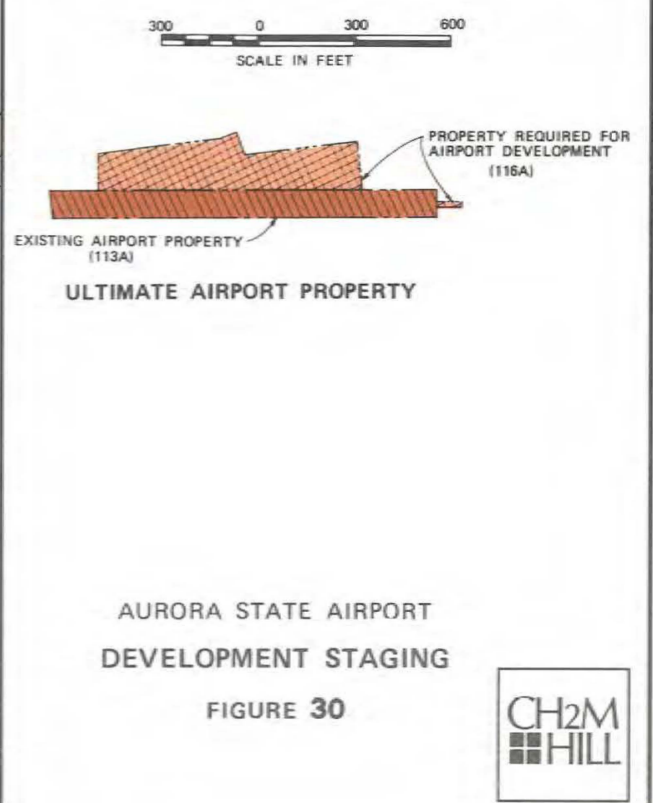
FACILITIES	
NO.	
1	F.B.O. OFFICE
2	F.B.O. HANGAR
3	TEE-HANGAR
4	CONTROL TOWER
5	CRASH, FIRE, RESCUE BLDG.
6	ADMIN./TERMINAL BUILDING
7	AVIONICS SHOP
8	HELIPORT
9	AUTOMOBILE PARKING
10	AIRPORT BEACON

MASTER PLAN FORECASTS FOR AURORA STATE AIRPORT				
	1975	1980	1985	1995
BASED AIRCRAFT	127	154	184	248
ANNUAL OPERATIONS	90,000	112,000	140,000	209,000
BUSY HOUR OPERATIONS	50	60	78	115
OPERATIONS PER BASED AIRCRAFT	709	727	761	843



**TABLE 10
DEVELOPMENT SCHEDULE**

STAGE I - 1975-1980		STAGE II - 1980-1985		STAGE III - 1985-1995	
PROJECT DESCRIPTION	QUANTITY	PROJECT DESCRIPTION	QUANTITY	PROJECT DESCRIPTION	QUANTITY
ACQUIRE LAND FOR AIRPORT DEVELOPMENT	116 ACRES	EXTEND, PAVE AND MARK RUNWAY (30,000#)	900 L.F.	EXTEND, PAVE AND MARK RUNWAY (60,000#)	1,000 L.F.
ACQUIRE AIR EASEMENTS	18 ACRES	EXTEND MEDIUM INTENSITY RUNWAY LIGHTS	900 L.F.	STRENGTHEN AND MARK RUNWAY (TO 60,000#)	5,000 L.F.
REMOVE OBSTRUCTIONS	1.5 ACRES	EXTEND, PAVE AND MARK TAXIWAY SYSTEM (30,000#)	1,000 L.F.	EXTEND MEDIUM INTENSITY RUNWAY LIGHTS	1,000 L.F.
PAVE AND MARK PARALLEL TAXIWAY SYSTEM (30,000#)	5,100 L.F.	PAVE AND MARK HOLDING APRON (30,000#)	5,000 S.F.	EXTEND, PAVE AND MARK TAXIWAY SYSTEM (60,000#)	1,200 L.F.
PAVE AND MARK HOLDING APRONS (30,000#)	10,000 S.F.	REPOSITION VASI SYSTEM	1 END	STRENGTHEN AND MARK TAXIWAY SYSTEM (TO 60,000#)	6,100 L.F.
PAVE AND MARK PARKING APRONS (12,500#)	305,000 S.F.	INSTALL MEDIUM INTENSITY EXIT TAXIWAY LIGHTS	700 L.F.	PAVE AND MARK HOLDING APRON (60,000#)	5,000 S.F.
CONSTRUCT TURF PARKING AREA	10 AIRCRAFT	INSTALL LIGHTED WIND CONES	2 EACH	INSTALL MEDIUM INTENSITY TAXIWAY LIGHTS	6,500 L.F.
INSTALL ROTATING BEACON AND TOWER	1 EACH	PAVE AND MARK PARKING APRON (30,000#)	56,000 S.F.	PAVE AND MARK PARKING APRONS (60,000#)	98,000 S.F.
INSTALL LIGHTED WIND TEE AND SEGMENTED CIRCLE	1 EACH	INSTALL MALSF APPROACH LIGHT SYSTEM	1 END	EXPAND VASI SYSTEM	2 ENDS
STRENGTHEN RUNWAY (TO 30,000#)	4,100 L.F.	INSTALL PARKING APRON LIGHTING	600 L.F.	INSTALL MICROWAVE LANDING SYSTEM (OR EQUIVALENT)	1 END
INSTALL NON-PRECISION RUNWAY MARKING	4,100 L.F.	PAVE AND MARK AIRPORT ROADWAYS	3,200 L.F.	INSTALL PARKING APRON LIGHTING	1,200 L.F.
INSTALL MEDIUM INTENSITY RUNWAY LIGHTS	4,100 L.F.	PAVE AND MARK AIRCRAFT AUTOMOBILE PARKING FACILITIES	30 AUTOS	CONSTRUCT CRASH, FIRE, RESCUE STATION	2,500 S.F.
INSTALL VASI SYSTEM	2 ENDS	EXTEND FENCING	3,400 L.F.	CONSTRUCT CONTROL TOWER (BY FAA)	1 EACH
INSTALL NON-DIRECTIONAL BEACON	1 EACH	CONSTRUCT TEE-HANGARS (PRIVATE DEVELOPMENT)	10 AIRCRAFT	PAVE AND MARK HELIPORT	19,000 S.F.
INSTALL TAXIWAY REFLECTORS	5,100 L.F.			PAVE AND MARK AIRPORT ROADWAYS	500 L.F.
PAVE AND MARK AIRPORT ROADWAYS	3,600 L.F.			PAVE AND MARK AUTOMOBILE PARKING FACILITIES	90 AUTOS
PAVE AND MARK AUTOMOBILE PARKING FACILITIES	80 AUTOS			CONSTRUCT TERMINAL/ADMINISTRATION BUILDING	5,000 S.F.
CONSTRUCT FENCING	6,000 L.F.			EXTEND FENCING	2,500 L.F.
CONSTRUCT TEE-HANGARS (PRIVATE DEVELOPMENT)	34 AIRCRAFT			CONSTRUCT TEE-HANGARS (PRIVATE DEVELOPMENT)	90 AIRCRAFT



AURORA STATE AIRPORT MASTER PLAN

1976 - 1995

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AERONAUTICS DIVISION
OREGON DEPARTMENT OF TRANSPORTATION

ACKNOWLEDGEMENTS

Project Advisors:

Paul Burket, Administrator
Oregon Aeronautics Division

Vaughn Sterling, Director
Transportation Group, CH2M HILL

Project Director:

Roy Raasina, Manager
Airports Branch
Oregon Aeronautics Division

CH2M HILL Staff:

Malcolm Miner, Project Manager
Richard Luebbers, Planner/Engineer
Charles Seelye, Draftsman and Illustrator
Becky Potts, Typist

Advisory Committee:

Dave Baker
Department of Environmental Quality

Mark Beisse, Planner
Federal Aviation Administration

George Buley, Chief
Planning Branch
Federal Aviation Administration

Raymond Costello, Aviation Planner
Oregon Department of Transportation

David Heal, Aviation Planner
Port of Portland

Dennis Lewis
Mid-Willamette Valley Council of Governments

Dale McGee
U. S. Department of Agriculture
Soil Conservation Service and representing
Department of Land Conservation & Development

William Pettis
Columbia Region Association of Governments

Dick Reynolds, Senior Planner
Marion County Planning Commission

Gustavo Rivera, Planning Director
Clackamas County Planning Department

Robert Royer
Assistant Director for Planning
Oregon Department of Transportation

Robert Whipps, Chairman
City of Aurora Planning Commission

Other:

John E. Parnell, Noise Consultant

Shirley Hoy, Administrative Assistant
Oregon Aeronautics Division

Many others, too numerous to name, aided in developing this Plan. They included representatives of various public agencies and several individual interested citizens.

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The Oregon Division of Aeronautics' primary role in this project is that of airport owner and sponsor.

JUNE 1976



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GLOSSARY

BT	Basic Transport, a category of airport serving BT aircraft, which are all air-planes of 12,500 to 60,000 pounds maximum gross take off weight; also includes turbojets under 12,500 pounds.	NDB	Non-directional Beacon, an electronic beacon providing directional guidance to aircraft.
DEQ	Oregon Department of Environmental Quality	NEF	Noise Exposure Forecast, used as guidance for predicting human response to aircraft noise.
DG	Dual Gear Aircraft	OAD	Oregon Aeronautics Division, Oregon Department of Transportation.
EPA	Environmental Protection Agency	SCS	U.S. Department of Agriculture, Soil Conservation Service
FAA	Federal Aviation Administration	SG	Single Gear Aircraft
FAR	Federal Aviation Regulation	SMSA	Standard Metropolitan Statistical Area, a standard area used to measure, compare, and predict socio-economic trends in metropolitan areas.
FBO	Fixed Base Operator; FBO's provide aviation services at airports.	TRACON	Terminal Radar Control Facility
GA	General Aviation, includes all types of aviation except Air Carriers and Military.	VASI	Visual Approach Slope Indicator
GU	General Utility, a category of airport serving GU Aircraft, which are all air-planes under 12,500 pounds maximum gross take off weight.	VFR	Visual Flight Rules, can be used when the visibility is greater than 3 miles and the ceiling is higher than 1,000 feet.
IFR	Instrument Flight Rules; Required in controlled airspace with a visibility of less than 3 miles and/or ceilings lower than 1000 feet.	VOR/DME	Very high frequency Omni-directional Radio range/Distance Measuring Equipment. It provides an instrument approach procedure using VORTAC.
LCDC	Oregon Land Conservation and Development Commission	VORTAC	Very high frequency Omni-directional Radio range with TACAN (Tactical Air Navigation Equipment).
MALSF	Medium Intensity Approach Lighting System with sequence flashers; for use during instrument weather (IFR).		
MLS	Microwave Landing System, used to provide horizontal and vertical guidance to landing aircraft during low visibility weather.		



INTRODUCTION



INTRODUCTION

Throughout recent years changing patterns of aviation activities at the Aurora State Airport have made it difficult for the Oregon Aeronautics Division to maintain a responsive program for improvement. Short term needs have been met, but there has been no long range development plan for the airport.

There have been a long series of changes in the fixed base operations at the airport. These changes and replacements have affected the services to the airport user and sometimes even the nature of the airport's traffic growth.

Even while airport traffic was on a steady increase there have been periodic occurrences of crisis situations for which there was little time for advance planning. Revenues to the owner, the Oregon Aeronautics Division, have fluctuated, and financial planning has been difficult for the State, which is responsible for the airport.

The airport is one of the busiest general aviation airports in Oregon. Traffic includes a full range of general aviation equipment. Aurora State Airport serves portions of several counties, both rural and urban, and a wide variety of business and private users. Figure 1 is a recent photograph of the airport.

Many of the airport's facilities require improvements appropriate to present and predicted air traffic. Also today's unprecedented emphasis on environmental compatibility and land use planning demands that the airport community and the airport owner identify airport needs and seek balanced solutions.

In May 1975 the Oregon Aeronautics Division, Department of Transportation, retained CH2M HILL as airport consultants to prepare a master plan for the Aurora State Airport.

The Aurora State Airport Master Plan was developed through the combined efforts of many participants. They included representatives from local and state governments, the Federal Aviation Administration and many private citizens representing surrounding communities and users of the airport.



AURORA STATE AIRPORT

AURORA, OREGON

FIGURE 1

It is important to note that the Master Plan is a program to anticipate public needs and to maintain compatibility with other public interests. It is not a program to stimulate growth or development.

This Master Plan provides the community at large and appropriate public agencies with a means to understand the airport's significance and to implement plans and programs related to the airport.

The Master Plan describes the kind and magnitude of development needed for aviation services and facilities and provides an orderly schedule for development through 1995. The plan also endeavors to preserve and improve the airport through economical solutions that remain compatible with regional development and responsive to community wishes.

Objectives accomplished and included in the Master Plan are:

- Preparation of an inventory of facilities and conditions and a collection of data essential to understanding the airport and its operation.
- Development of aviation forecasts and a determination of the airport's role in the airport system through 1995.
- An analysis of airport space and facilities requirements.
- Presentation of graphic depictions of recommended future development of all areas within and adjacent to the airport.
- Evaluation of the impact of future development upon the environment and the surrounding community.
- Establishment of a schedule for development by priorities and a staged improvement program with cost estimates.
- Specific recommendations for implementing the development program including a financial plan.

The Master Plan deals with a program for the future of the airport and with guidelines for compatible use of the surrounding land. Because future trends and goals may not exactly match present forecasts and current community policies, the Master Plan has built-in flexibility to adjust to changes without detracting from its overall integrity.

Following adoption of the Master Plan the goal will be to follow through with a continuous implementation program, updating the Master Plan as required. This will be the best way to maximize the airport's benefits while minimizing costs and adverse impacts. It is also the best way to insure that the airport remains a compatible neighbor.



SUMMARY



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RECOMMENDATIONS

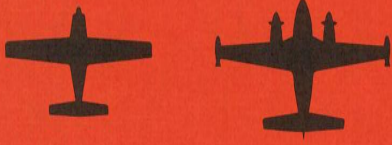
- This airport Master Plan should be adopted and implementation commenced immediately.
- Application should be made to the FAA for funds to support the Implementation Plan.
- The Aurora State Airport should be retained at its existing site.
- In order for the State to implement the Master Plan the State needs to control all airport land. Therefore acquisition of the land for the terminal area should be accomplished without delay.
- The existing airport dimensional criteria should be preserved even though they partially surpass usual FAA airport standards.
- The parallel taxiway and exit taxiway system must be constructed immediately. This is necessary to protect public safety and to provide adequate runway capacity.
- Obstruction removal should be accomplished as described in the Master Plan.
- Paved aircraft parking aprons should be provided in the near future.
- Improved airfield lighting should be installed in the near future.
- The airport maintenance program should be accelerated, particularly as regards runway pavement rehabilitation and airfield surface drainage improvements.
- The State should continue to work closely with Marion and Clackamas Counties to develop compatible land use planning for the airport environs.
- The State should work closely with Marion and Clackamas Counties to develop zoning changes on and near the airport as recommended by the Master Plan.
- The State Aeronautics Division should make recommendations to the State Highway Division for improving access routes and facilities.
- The establishment of bus and/or limousine service to the airport should be encouraged.
- At this time no appropriate alternatives for airport ownership seem to exist. The State should retain ownership of the airport because its closure would have a critical adverse impact on the Oregon Aviation System.
- The State should take a more active part in the management of the entire airport and particularly give more attention to user service and problems.
- The State should develop an expanded airport management program and increase its airport staff as necessary to administer the airport operation and development program.
- The State's financial policy should be to make the airport more self-supporting. This should be accomplished by obtaining more direct control of the sources of airport revenues. Revenues should be increased in accordance with area competition and inflation rates. Lease rates should be reviewed frequently and revised to maintain consonance with general economic conditions.
- Airport traffic surveys should be made periodically and incorporated into the Master Plan and the Oregon Aviation System Plan.
- A program to collect weather data should be initiated and used for facility planning.
- The State should schedule periodic reviews of the Master Plan. It should be revised whenever necessary to keep it current.
- In updating the Master Plan the State should work closely with the airport users, local governments, and citizens. A flexible attitude and approach to the planning process should be maintained. Also it is important to keep the public and public agencies informed as to what impacts off-airport plans may impose on this public facility.

SUMMARY

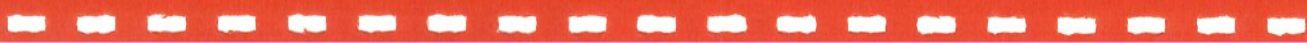
FINDINGS

- No formal long-range Plan has ever been accomplished for the Aurora State Airport.
- The lack of a Master Plan makes long-range financial planning difficult or nearly impossible because there can be no budget targets for improvements.
- The Aurora State Airport serves a large service area, including several counties. The airport's sphere of influence is regional in magnitude, and the airport can be considered to be part of a regional system of airports for the greater Portland area.
- Surface access to the airport is poor from Marion County, but it is mostly adequate from other counties north of the airport.
- The airport needs maintenance of existing private and public facilities. Pavement and drainage are key items.
- The airport is built to standards exceeding minimum FAA requirements and often surpassing maximum FAA criteria.
- The lack of a parallel taxiway is a serious problem both for safety and for airfield capacity.
- Improvements to airport facilities are not keeping pace with increases in air traffic levels.
- There is no on-site airport management to enforce airport operational safety regulations on a uniform basis.
- Aircraft parking areas are in very poor condition and their use is limited by weather and soil conditions.
- The airport has no central focal point, and no main entrance. This is confusing to transient pilots and visitors who are seeking a main terminal area.
- The airport is owned in two parts. The runway area is owned by the Oregon Aeronautics Division and is basically a paved flight strip. All revenue producing areas of the airport are owned by private interests, who are under no specific obligation to guarantee minimum levels of service to the public.
- Multiple ownership of separate parts of the airport make master planning and policy development impossible to implement through any comprehensive program or Master Plan.
- The Aurora State Airport has inadequate recognition by public comprehensive plans and by zoning ordinances. Land use planners must be provided with information regarding aviation trends.
- Although the airport use is now compatible with adjacent land use, the surrounding area has potential for growth. Therefore the airport needs to be guaranteed protection from encroachment throughout the long-range future.
- The current zoning of the airport, Public Amusement (PA), is inappropriate. Zoning adjacent to the airport, Residential-Agricultural (RA), is at least partially potentially incompatible with the airport. Proposed rezoning to Exclusive Farm Use (EFU) would be very compatible.
- The Master Plan forecasts significant increases in general aviation traffic. Master Plan forecasts for 1995 show 248 based aircraft, 209,000 annual operations, 115 operations during the busy hour.
- By 1995 eight percent of the aircraft are predicted to be multi-engine propeller aircraft and three percent will be turbojet aircraft. The airport will be serving a population of over one million people. Forecasts show a need for an air traffic control tower, a crash/ fire/rescue station, a terminal building, and full time supervision by an airport manager. No airline traffic is predicted for the future.
- The airport's current role is General Utility, but this is forecast to change to Basic Transport as more corporate types and turbojet aircraft use the airport by the mid-1980's. The specific year when actual activity will indicate the role to be Basic Transport will partially depend upon the airport development program of the Port of Portland and upon urban growth from Portland southward toward Aurora.
- The existing airport site properly protected by land use planning, is adequate to accommodate the 20-year forecast needs of the Aurora State Airport.
- A proposed new airport in the southeast Portland area would affect Aurora State Airport slightly by absorbing a small portion of the aviation demand and slowing the growth of the airport, but the effects would not be significant.
- Two serious capacity problems limit the airport at this time. There is a runway capacity problem because of the lack of a parallel taxiway and there is a parking problem, particularly during wet weather, because of the lack of paved public apron space.

- The airport does not presently provide sufficient public service facilities.
- Employment on the airport is increasing. Between 100 and 125 persons are directly employed on the airport. Their direct plus indirect salary impact is estimated to approach \$1,000,000 annually, and the economic impact of the airport is on the increase.
- Eventually the airport will require a longer runway to accommodate more complex aircraft forecast in the future, but the need for a second runway is not apparent throughout the 20-year study period.
- IFR approach procedures for the airport are unsatisfactory. Minima are poor and the requirement for DME equipment in the aircraft is limiting.
- The airport has no on-site nav aids. Additional electronic and visual nav aids are required.
- The Master Plan has developed a schedule of projects by priority necessary to develop the airport. They are contained in the Plan.
- For extensive terminal area development soil and drainage conditions may dictate the use or installation of central waste treatment facilities.
- The impacts caused by the operation of the airport upon the surrounding environment are light and can remain light if compatible land use planning is accomplished. This is described in the Master Plan.
- The Master Plan presents a three-stage 20-year capital development program. Total estimated costs including private and Federal investments are about \$3.3 million in 1976 dollars.
- The capital development program can be carried out with a State of Oregon share of \$767,000 for the 20-year period based on the current Federal participation basis.
- Currently the revenue produced by the airport is inadequate to support development to meet forecast aviation demand levels. Under this Airport Master Plan the State's revenue could be developed to support the program recommended by the Master Plan.
- Complexities of airport operational management under a two part ownership, (i. e., State and private), will increase as air traffic levels and levels of competition of private interests increase.
- As traffic levels increase and activities become more complex the present staffing level of the Airport Branch of the State Aeronautics Division is not adequate to properly manage the operation and development of the airport.
- Although the Oregon Aviation System Plan has recommended transfer of the airport to a unit of local government, no such agency appears to be available. State ownership of all airport property and management by the State appears to be the only viable alternative for successful operation and development of the Aurora State Airport.



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