RYAN AIRFIELD
TUCSON AIRPORT AUTHORITY

INTRODUCTION

Introduction

This update of the Ryan Airfield (RYN) Master Plan has been undertaken to evaluate the airport's capabilities and role, to review forecasts of future aviation demand, and to plan for the timely development of new or expanded facilities that may be required to meet that demand. The ultimate goal of the master plan is to provide systematic guidelines for the airport's overall development, maintenance, and operation.

The master plan is intended to be a proactive document which identifies and then plans for future facility needs well in advance of the actual need for the facilities. This is done to ensure that the Tucson Airport Authority (TAA), Arizona Department of Transportation (ADOT), and the Federal Aviation Administration (FAA) can coordinate project approvals, design, financing, and construction to avoid experiencing detrimental effects due to inadequate facilities.

An important result of the master plan is reserving sufficient areas for future facility needs. This protects development areas and ensures they will be readily available when required to meet future demand. The intended result is a development concept which outlines the proposed uses for all areas of airport property.

The preparation of this master plan is evidence that the TAA recognizes the importance of air transportation to the Tucson community and the associated challenges inherent in providing for its unique operating and improvement needs. The cost of maintaining an airport is an investment which yields impressive benefits to the community and the region. With a sound and realistic master plan, Ryan Airfield can

maintain its role as an important link to the national air transportation system for the community and maintain the existing public and private investments in its facilities.

MASTER PLAN GOALS AND OBJECTIVES

The primary objective of the master plan is to provide the community and public officials with proper guidance for future development which will address aviation demands and be wholly compatible with the environment. The accomplishment of this objective requires the evaluation of the existing airport and determination of what actions should be taken to maintain an adequate, safe, and reliable airport facility in support of those long term goals. This master plan will provide an outline of necessary development and give those responsible an advance notice of future airport funding needs so that appropriate steps can be taken to ensure that adequate funds are budgeted and planned.

Specific goals for the airport are:

- To preserve and protect public and private investments in existing airport facilities;
- To enhance the safety of aircraft operations;
- To be reflective of community and regional goals, needs, and plans;
- To ensure that future development is environmentally compatible;
- To establish a schedule of development priorities and a program to meet the needs of the proposed improvements in the master plan;
- To develop a plan that is responsive to air transportation demands;
- To develop an orderly plan for use of the airport;
- To coordinate this master plan with local, regional, state, and federal agencies, and;
- To develop active and productive public involvement throughout the planning process.

Specific objectives of this master plan designed to help in attaining these goals include:

- Research and evaluate socioeconomic factors likely to affect the air transportation demand in the region.
- Determine projected needs of airport users through the year 2030 in support of airport development alternatives.
- Recommend improvements that will enhance the airport's safety capabilities to the maximum extent possible within affordability parameters established jointly with ADOT.
- Establish general aviation requirements and evaluate general aviation facility alternatives.

- Conduct an evaluation of the facility needs for approved aviation fuels for General Aviation at the airport.

- Update future facility development plans, including utilities.

- Incorporate the findings and recommendations of the 2005 Drainage Study.

- Produce current and accurate base maps and Airport Layout Plan drawings.

- Investigate the proper horizontal and vertical position for the future extension of Runway 6R-24L.

- Establish a schedule of priorities and an affordable program for the improvements proposed in the Master Plan.

- Prioritize the airport capital improvement program and develop a detailed financial plan.

- Assess the continued validity of Ryan Airfield's Noise Compatibility Program and suggest changes where necessary.

- Develop ways to encourage greater use of Ryan Airfield as a reliever to Tucson International Airport.

- Develop active and productive public involvement throughout the planning process.

The Master Plan will provide recommendations from which the TAA may take action to improve the airport and all associated services important to public needs, convenience, and economic growth. The plan will benefit all residents of the area by providing a single, comprehensive plan which supports and balances the continued growth of aviation activity with the preservation of the surrounding environs.

BASELINE ASSUMPTIONS

A study such as this typically requires several baseline assumptions that will be used throughout the analysis. The baseline assumptions for this study are as follows:

- Ryan Airfield will remain as a general aviation reliever airport through the planning period.

- The City of Tucson and Pima County population, employment, and economy will continue to grow positively through the 20-year period of this Master Plan as forecast by the Pima County Association of Governments (PAG).

- The general aviation industry will continue to grow positively through the planning period as forecast by the Federal Aviation Administration (FAA) in its annual Aerospace Forecasts.

- Civil aviation activity will continue to share the Arizona airspace with the military air installations and its training operations.

- Both a federal program and state program will be in place through

the planning period to assist in funding future capital development needs.

MASTER PLAN ELEMENTS AND PROCESS

The Ryan Airfield Master Plan is being prepared in a systematic fashion following FAA guidelines and industry-accepted principles and practices. The master plan has six chapters that are intended to assist in the discovery of future facility needs and provide the supporting rationale for their implementation.

Chapter One - Inventory summarizes the inventory efforts. The inventory efforts are focused on collecting and assembling relevant data pertaining to the airport and the area it serves. Information is collected on existing airport facilities and operations. Local economic and demographic data is collected to define the local growth trends. Planning studies which may have relevance to the master plan are also collected.

Chapter Two - Forecasts examines the potential aviation demand for aviation activity at the airport. This analysis reviews and updates the Ryan Airfield demand forecasts previously prepared for the TAA in the 1999 *Ryan Airfield Airport Master Plan*. The forecast effort takes into account local socioeconomic information, as well as national air transportation trends to quantify the levels of aviation activity which can reasonably be expected to occur at Ryan Airfield through the year 2027. The results of this effort are used to determine the types and sizes of facilities which will be required to meet the projected aviation demands on the airport through the planning period.

Chapter Three - Facility Requirements comprises the demand/capacity and facility requirements analyses. The intent of these analyses is to compare the existing facility capacities to forecast aviation demand and determine where deficiencies in capacities (as well as excess capacities) may exist. Where deficiencies are identified, the size and type of new facilities to accommodate the demand are identified. The airfield analysis focuses on improvements needed to serve the type of aircraft expected to operate at the airport in the future, as well as navigational aids to increase the safety and efficiency of operations. This element also examines the terminal area facilities, general aviation facilities, and support needs.

Chapter Four - Alternatives considers a variety of solutions to accommodate the projected facility needs. This element proposes various facility and site plan configurations which can meet the projected facility needs. An analysis is completed to identify the strengths and weaknesses of each proposed development alternative, with the intention of determining a conceptual direction for development.

Chapter Five – Recommended Master Plan Concept provides both a graphic and narrative description of the recommended plan for the use, development, and operation of the airport. An environmental overview is

also provided. The master plan also supports the official Airport Layout Plan (ALP) and detailed technical drawings depicting airspace, land use, and property data. These drawings are used by the FAA in determining grant eligibility and funding.

Chapter Six - Financial Plan establishes the capital needs program, which defines the schedules and costs for the recommended development projects. The plan then evaluates the potential funding sources to analyze financial strategies for successful implementation of the plan.

Appendices – Appendices are included in the final Master Plan report. These include a glossary of aviation terms used in the study, and an F.A.R. Part 150 Review analyzes existing and future airport noise contours and determine land use impacts. The Part 150 Review also analyzes impacts on the local population, the status of the 1990 Noise Compatibility Plan (NCP), noise abatement issues, and land use compatibility planning issues.

COORDINATION

The Ryan Airfield Master Plan is of interest to many within the local community. This includes local citizens, community organizations, airport users, airport tenants, local and state planning agencies, and aviation organizations. As the airport is a strategic component of the state and national aviation systems, the Ryan Airfield Master Plan is of importance to both state and federal agencies responsible for overseeing air transportation.

To assist in the development of the master plan, the TAA has identified a group of community members and aviation interest groups to act in an advisory role in the development of the master plan. Members of the Planning Advisory Committee (PAC) reviewed phase reports and provided comments throughout the study to help ensure that a realistic, viable plan was developed.

To assist in the review process, draft working papers were prepared at the various milestones in the planning process. The working paper process allows for timely input and review during each step within the master plan to ensure that all master plan issues are fully addressed as the recommended program develops.

A series of public information workshops were also held as part of the plan coordination. The public information workshops are designed to allow any and all interested persons to become informed and provide input concerning the master plan. Notices of meeting times and locations were advertised through the media as well as local neighborhood associations.

SUMMARY AND RECOMMENDATIONS

The proper planning of a facility of any type must consider the demand that may occur in the future. For Ryan Airfield, this involved updating forecasts to identify potential future aviation demand. Because of the cyclical nature of the economy, it is virtually impossible to predict with certainty year-to-year fluctuations in activity when looking five, ten, and twenty years into the future.

Recognizing this reality, the Master Plan is keyed more towards potential demand "horizon" levels than future dates in time. These "planning horizons" were established as levels of activity that will call for consideration of the implementation of the next step in the Master Plan program. By developing the airport to meet the aviation demand levels instead of specific points in time, the airport will serve as a safe and efficient aviation facility, which will meet the operational demands of its users while being developed in a cost efficient manner. This program allows the TAA to adjust specific development in response to unanticipated needs or demand.

The forecast approach recognizes the current economic climate and anticipates a gradual recovery through the planning period of this master plan. The forecast planning horizons are summarized in **Table A**.

TABLE A
Aviation Demand Planning Horizons
Ryan Airfield

	2007	2008	Short Term	Intermediate Term	Long Term
ANNUAL OPERATIONS					
Military	2,978	3,760	3,500	3,500	3,500
General Aviation					
Itinerant	75,037	59,930	61,000	70,500	100,000
Local	171,410	104,262	107,000	119,500	150,000
Total Operations	249,425	167,952	171,000	193,500	253,500
Based Aircraft	301	242	266	296	369

The Airport Layout Plan set has also been updated to act as a blueprint for everyday use by management, planners, programmers, and designers. These plans were prepared on computer to help ensure their continued use as an everyday working tool for airport management.

This Master Plan is an update of the previous Ryan Airfield Master Plan completed in 1999. Since the completion of that plan the TAA has constructed new taxiways and resurfaced others to improve taxiway circulation. Adjacent lands have been acquired to protect runway approaches and to allow for future airport development opportunities. Several new hangar facilities have been constructed and the north apron has been expanded to provide additional aircraft parking po-

sitions. The updated Master Plan carries many of the previous concepts forward with revisions made to accommodate changes in the industry and in the market area. **Exhibit IA** depicts the updated plan.

With three runways, the longest measuring 5,500 feet, the airport currently operates as a general aviation reliever airport to Tucson International Airport. In order to serve growing business jet aircraft operations the plan recommends an ultimate length of 8,300 feet and width of 100 feet for the primary runway (Runway 6R-24L). The parallel runway (Runway 6L-24R) is planned to be extended to 5,005 feet improving airfield capacity and redundancy. Crosswind Runway 15-33 is planned for an ultimate length of 4,800 feet. At this length Runway 15-33 will better serve small aircraft.

Airfield drainage issues are of primary importance to the airport and will need to be addressed prior to any improvements of the primary runway. Proposed airfield drainage improvements involve raising the primary runway and portions of the crosswind runway and various taxiways to allow for the installation of box culverts.

Additional airfield improvements recommended include the construction of a helicopter training touchdown and lift-off (TLOF) area and a heliport. These facilities will segregate rotorcraft operations from fixed-wing operations improving airfield capacity and enhancing safety.

The development of additional aircraft storage hangars, parking aprons, fuel storage facilities, a new airport traffic control tower, and other aviation services at the airport have been planned to provide adequate facilities for existing and forecast users of the airport.

SHORT TERM PLANNING HORIZON IMPROVEMENTS

- Construct perimeter service road and security fencing
- Upgrade airfield drainage system
- Construct additional hangar facilities
- Rehab and preservation of existing airfield pavements

INTERMEDIATE TERM PLANNING HORIZON IMPROVEMENTS

- Extend Runway 6L-24R to 5,005 feet
- Renovate airport traffic control tower and add office space
- Acquire 119.3 acres for future airport development and runway approach protection
- Construction of additional hangar facilities
- Pavement preservation
- Expand apron capacity by 88,200 square yards
- Extend Runway 15-33 to a full length of 4,800 feet
- Construct heliport

LONG TERM PLANNING HORIZON IMPROVEMENTS

- Construct dual parallel Taxiway C
- Construct high-speed exit taxiways
- Raise Runway 6R-24L
- Relocate Taxiway B

- Construction of additional hangar facilities
- Pavement preservation
- Extend Runway 6R by 800 feet for a full length of 6,300 feet
- Construct helicopter training TLOF area
- Install approach lighting systems on Runways 6R and 24L
- Construct a new airport traffic control tower
- Widen Runway 6R-24L to 100 feet

Detailed costs were prepared for each development item included in the capital improvement program. As shown in **Table B**, implementation of the total program will require a total financial commitment of approximately $80.3 million dollars over the long-term planning horizon. Nearly 96 percent of the recommended program funding could be funded through state or federal grant-in-aid programs. The source for federal monies is through the Airport Improvement Program (AIP), administered by the Federal Aviation Administration (FAA), which was established to maintain the integrity of the air transportation system. Federal monies could come from the Aviation Trust Fund which is the depository for federal aviation taxes such as those from airline tickets, aviation fuel, aircraft registrations, and other aviation-related fees. Federal AIP funding of 95 percent can be received from the FAA for eligible projects.

The Arizona Department of Transportation (ADOT) also provides a separate state funding mechanism which receives annual funding appropriation from collection of statewide aviation related taxes. Eligible projects can receive up to 90 percent funding from ADOT for non-federally funded projects, and one-half (2.5 percent) of the local share for projects receiving federal AIP funding. The following table depicts the breakdown of federal, state, and local funding for the implementation of the short term capital improvement program.

TABLE B
Development Funding Summary
Ryan Airfield

PLANNING HORIZON	Total Costs	FAA Share	ADOT Share	Local Share
Short Term Program	$14,072,163	$7,368,391	$5,295,974	$1,407,801
Intermediate Term Program	$22,470,668	$19,797,791	$1,765,453	$907,424
Long Term Program	$43,840,416	$41,648,395	$1,096,010	$1,096,010
TOTAL PROGRAM COST	$80,383,247	$68,814,577	$8,157,437	$3,411,235

With the airport master plan completed, the most important challenge is implementation. The cost of developing and maintaining aviation facilities is an investment which yields impressive benefits for the community. This plan and associated development program provides the tools the TAA will require to meet the challenges of the future. By providing a safe and efficient facility, Ryan Airfield will continue to be a valuable asset to the City of Tucson and the surrounding region.

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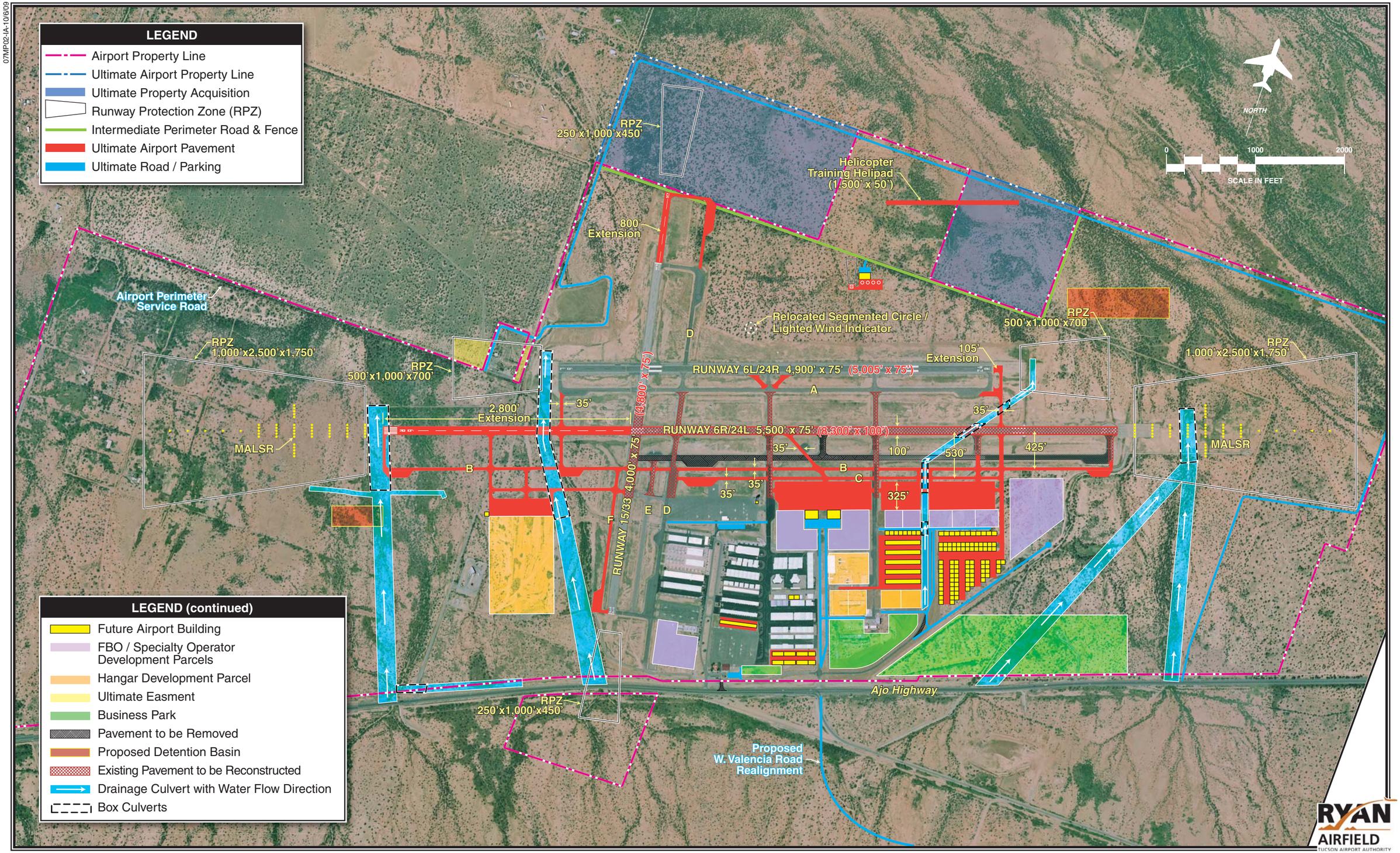

Exhibit IA
AIRFIELD DEVELOPMENT CONCEPT