INTRODUCTION AND SUMMARY

The Charles B. Wheeler Downtown Airport (MKC) Master Plan study was undertaken by the City of Kansas City Aviation Department (KCAD) to outline a long-range plan for the use of the airport that will yield a safe, efficient, economical, and environmentally acceptable air transportation facility. The planning effort was conducted by Coffman Associates, with technical assistance from TapanAm Associates, Inc., Leibowitz-Horton AMC, Inc., S-K Design Group, Inc., and Dr. Lee R. McPheters.

This master plan is a timely reassessment of the development direction of the airport with regards to changes in the general aviation industry and local economy. General aviation has experienced a resurgence in recent years, particularly as it relates to business aviation. With changes occurring in the general aviation aircraft fleet mix, it is important to evaluate the impact of future general aviation facility needs.

The most critical issue addressed in this master plan was updating the airfield to meet current safety design standards for business aircraft. MKC has grown into one of the busiest corporate airports in the country. Ensuring the airfield provides adequate runway length, instrumentation, and other safety features to continue to serve this critical and growing sector of aviation was one of the key purposes of this master plan.

An important part of the process was public involvement. The planning process included a 19-member Planning Advisory Committee (PAC), which directly reviewed study materials and provided input. The PAC was comprised of local citizens, airport users, as well as federal, state, regional, and local government agencies.
Aviation Department staff also took part in the committee meetings.

A complete listing of PAC members can be found at the end of this introductory chapter. The committee met four times during the study to review the information and findings, and to provide input and comment throughout the process.

Local citizens were also able to review and comment on the planning study through a series of Public Information Workshops (PIWs). Four such PIWs were held. The PAC and PIWs were instrumental in shaping the final airport plan.

The preparation of this master plan is evidence that the City of Kansas City recognizes the importance of general aviation to the community and the associated challenges inherent in providing for its unique operating and improvement needs. With a sound and realistic master plan, the Charles B. Wheeler Downtown Airport can maintain its role as an important link in the local, regional, and national air transportation system, and the community can continue to realize the economic benefits from the public and private investments in the facility.

**AIRPORT ROLE**

The federal government has had an important role in the development of airports in the United States. Many of the nation's existing airports were either initially constructed by the federal government, or their development and maintenance was partially funded through various federal grant-in-aid programs to local communities. In large measure, the system of airports existing today is due to the existence of federal policy that promotes the development of civil aviation. As part of its effort to maintain a system of airports to meet the needs of civil aviation and promote air commerce, the United States Congress has continually supported a national plan for the development and maintenance of airports.

The current national airport system plan is the National Plan of Integrated Airport Systems (NPIAS). A primary purpose of the NPIAS is to identify the airports that are important to national transportation. This includes all commercial service airports, all reliever airports, and selected general aviation airports. A total of 3,489 airports are identified in the NPIAS, of which 3,364 are existing airports and 125 are proposed airports. Because of the importance of Charles B. Wheeler Airport to the local community and the national air transportation system, the FAA includes it in the NPIAS.

The NPIAS classifies MKC as a general aviation reliever airport. Reliever airports are high-capacity general aviation airports in major metropolitan areas. They are designed to provide general aviation users with attractive alternatives to commercial service hub airports such as Kansas City International Airport. They also provide general aviation access to the surrounding area. The 260 reliever airports across the country have an
average of 228 based aircraft, and together account for 27 percent of the nation's general aviation fleet.

DEMAND-BASED PLANNING

The proper planning of a facility of any type must consider the demand that may occur in the future. For Charles B. Wheeler Downtown Airport, 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 to 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 City to change specific development in response to unanticipated needs or demand. The forecast planning horizons are summarized in Table A.

<table>
<thead>
<tr>
<th>TABLE A</th>
<th>Aviation Demand Planning Horizons</th>
<th>Charles B. Wheeler Downtown Airport</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1999 Short Term</td>
<td>Intermediate Term</td>
</tr>
<tr>
<td>OPERATIONS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td>42,412 48,000</td>
<td>52,700 63,400</td>
</tr>
<tr>
<td>Itinerant</td>
<td>102,920 116,800</td>
<td>128,200 152,600</td>
</tr>
<tr>
<td>Total Operations</td>
<td>145,332 164,800</td>
<td>180,900 216,000</td>
</tr>
<tr>
<td>Based Aircraft</td>
<td>300 330</td>
<td>350 395</td>
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</table>

AIRPORT PLANS

The master plan for MKC provides for the orderly use of existing airport facilities to enhance the safety of aircraft operations, maintain existing airfield and passenger terminal facilities, and support future aviation demand (should new levels of demand be experienced). The master plan includes provisions to ensure the long-term viability and self-sufficiency of the airport by maximizing available areas at the airport for both aviation-related and commercial opportunities. Exhibit A depicts elements of the master plan for Charles B. Wheeler Downtown Airport.
AIRFIELD RECOMMENDATIONS

The principal airfield recommendations focus first upon safety and capacity. It is of key importance to ensure that airport design standards are upheld to the maximum extent feasible, particularly in relation to the runway safety area (RSA). Other recommendations are provided to improve the efficiency and circulation on the airfield.

Runway 1-19

Runway 1-19 is currently 7,001 feet long by 150 feet wide. Analysis indicated that Runway 1-19 does not conform with FAA design standards for the RSA or the runway object free area (ROFA). The FAA recommends that the RSA for Approach Category D aircraft be cleared and graded 500 feet wide (centered on the runway) and extend 1,000 feet beyond both runway ends.

The recommended concept is depicted on Exhibit A. It includes short runway extensions on both ends. The first step is to grade the safety area to the maximum extent feasible off both ends.

To the south, a graded safety area can be provided for 400 feet beyond the existing pavement end. A 100-foot pavement extension is also planned on this end to assist in meeting the takeoff length requirements of the users.

To the north, the runway safety area is planned to be graded for 600 feet beyond the existing runway end. This will require grading beyond the levee and into the Missouri River floodway.

The safety area will be brought to existing grades prior to reaching the river bank. It will also have room to relocate the access roadway around the end of the RSA. To meet takeoff length requirements of the users, the runway will be extended 300 feet into the graded safety area.

In order to maximize the extended RSA at 800 feet, the plan also includes a 500-foot displacement of the landing threshold from both relocated runway ends. The result will be a total runway pavement length of 7,401 feet, with a landing length of 6,401 feet in both directions. The effective takeoff length will be 6,901 feet in both directions. The runway would have 800 feet of RSA behind both landing thresholds.

As proposed, the recommended plan would require up to 90,000 cubic yards of fill on the river side of the levee. Initial hydraulic analysis has indicated that the plan could be implemented with no rise in flood elevations. This will be analyzed in more detail during the environmental assessment (EA) and Corps of Engineers permit phases of the project.

Runway 3-21

Runway 3-21 is 5,052 feet long by 150 feet wide and serves as a crosswind runway. The north end of the runway is currently displaced 693 feet to provide adequate obstacle clearance. Historically, the runway has been used by aircraft up to and including Approach Category D (approach speeds up to 166 knots).
Runway 3-21 meets FAA standards for crosswind coverage for small aircraft. It also provides some operational capacity, and serves as a back-up runway when Runway 1-19 is not available for any reason. Thus, the recommended plan is to maintain the runway at ARC B-II (approach speeds up to 121 knots and wingspans up to 49 feet) standards, but recognize its use, on an interim basis, by Categories C and D aircraft when Runway 1-19 is not available.

To meet Category D design standards would require the same RSA standards as Runway 1-19. The resulting displacements to meet this standard would reduce the effective runway length to less than 4,000 feet. This length would not be suitable for the aircraft for which it would be designed. For this reason, the plan recommends maintaining the runway to ARC B-II standards.

**Taxiway System**

The current taxiway system at the airport is inefficient and can be confusing to transient pilots. The recommended plan includes modifying the taxiway system as depicted on Exhibit A. This includes adding some new taxiways and removing several existing taxiways to enhance efficiency and safety. As depicted, the proposed taxiway system would reduce maintenance costs, while increasing airfield efficiency and reducing the potential for pilot confusion. The system would be implemented over time. As the existing pavements begin to require rehabilitation or reconstruction, they would be removed and replaced with portions of the new taxiway plan.

**LANDSIDE IMPROVEMENTS**

Recommended landside improvements include those associated with roads, hangars, and relocation of the fuel farm. As proposed, the plan will provide the opportunity to meet projected demands.

The Runway 1-19 RSA improvements will include extending the north RSA beyond the levee and into the floodway of the Missouri River. This will also require the relocation of Lou Holland Drive. As depicted, the road would be routed around the extended RSA, along the riverbank, then northeast to merge back into the existing road alignment.

The plan also recommends relocating the existing fuel farm to the southwest side of the airport. The existing fuel farm is located in the runway protection zone (RPZ) for Runway 19. FAA standards indicate that fuel farms not be located in the RPZ. The proposed site is adjacent and south of the Save-A-Connie Foundation hangar.

The recommended plan includes additional hangar development on both the east and west sides of the airport. Hangar development on the east side will fill in undeveloped sites. The proposed west side development includes the redevelopment of area presently protecting the terminal VOR (TVOR). As depicted, the plan would include a new road leading from Lou Holland Drive. T-hangar development
is proposed south of the existing T-
hangars.

CAPITAL NEEDS
FINANCING

The master plan has identified approximately $69.6 million in capital needs over the planning period (see Table B). Nearly 75 percent of the total costs are eligible for grants-in-aid

administered by the Federal Aviation Administration (FAA). The source for these grants is the Aviation Trust Fund, which is a depository for federal aviation taxes such as those from airline tickets, aviation fuel, aircraft registrations, and other aviation-related fees. The FAA distributes funds from the Aviation Trust Fund through the Airport Improvement Program (AIP). Under the AIP, eligible projects can receive up to 90 percent funding from the FAA.

<table>
<thead>
<tr>
<th>Planning Horizons</th>
<th>Total Needs</th>
<th>FAA-AIP Eligible</th>
<th>Local Share</th>
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<tr>
<td>Short Term</td>
<td>$40.9</td>
<td>$28.7</td>
<td>$12.2</td>
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<tr>
<td>Intermediate Term</td>
<td>21.5</td>
<td>17.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Long Range</td>
<td>7.2</td>
<td>5.9</td>
<td>1.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$69.6</td>
<td>$52.1</td>
<td>$17.5</td>
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</table>

Note: FAA share considers the amount eligible for federal funding assistance. Actual FAA grants for each project could be less.

As a general aviation airport, Charles B. Wheeler Downtown Airport receives an annual entitlement from the AIP of $150,000. The airport is also eligible to receive discretionary funding from the AIP. The FAA prioritizes discretionary needs, both regionally and nationally, prior to making discretionary funding decisions. Unlike entitlement funding, discretionary funding is not guaranteed. The Kansas City Aviation Department will need to pursue discretionary funding, as entitlement funding will be far from sufficient to cover the identified capital needs (see Table B).

It is highly likely that the airport will not receive all the federal funds it may be eligible for. In that case, additional funds may be needed from other sources, or affected projects may need to be delayed or cancelled.

The Kansas City Aviation Department will need to utilize its own resources to provide the remaining project costs. The first source will be revenues generated by MKC that exceed the operating costs for the airport. A financial analysis has been developed that examines the revenue generating
potential of MKC under both moderate and aggressive rates & charges scenarios. It is recognized that extended phase-in periods may be necessary to achieve fair market value rates in the future. As a result, net revenues at MKC are not likely to cover capital costs, at least in the near term.

Any shortfalls in net revenues would result in an increased need for funding from KCAD's Airport Fund. This will need to be weighed with the ongoing capital needs at Kansas City International Airport.

**AIRPORT ECONOMIC VALUE**

One of the more important reasons for a public entity to own and operate an airport is its economic value to the community. This includes the benefits related to aviation business activities in the form of revenues generated by on-airport businesses, as well as expenditures by air travelers for lodging, restaurants, ground transportation, retail goods and services, etc. A more significant benefit is the value of the airport to the sales and production capabilities of local business and industry. Finally, there is the value of the role the airport plays in attracting new business and industry to the community.

Economic impact is typically measured in **direct benefits** resulting directly from activities involved in providing aviation services. The direct operating impact is primarily the economic activity of on-airport businesses. Sales and production benefits to a business or industry as a result of their use of air transportation would also be considered a direct benefit. **Indirect benefits** are primarily a result of spending by air travelers in the community. **Induced benefits** are the multiplier effects of the direct and indirect benefits. For example, when an aircraft mechanic's wages are spent to purchase food, housing, clothing, etc., these dollars induce more jobs and income in the general economy to create a second round of spending.

**Table C** summarizes the results of an economic benefit study conducted for Charles B. Wheeler Downtown Airport as part of the master plan study. This study used the results of surveys of on-airport businesses and users, and air travelers to determine its findings.

As shown in the table, the revenues generated from activities conducted at the airport are $134.1 million. This activity directly supports 641 local jobs, with total payroll/earnings of $27.2 million.

Air visitors using the MKC bring an additional $7.7 million to the economy annually. This supports 113 jobs with a payroll/earnings of $1.9 million. Combining the indirect benefits derived from air travelers and the direct revenues resulting from activity conducted at the airport, the airport is estimated to support 754 local jobs, with a payroll of $29.1 million, and introduces a total of $141.8 million into the local economy, annually.
An added economic benefit is the additional revenues, payroll, and jobs resulting from the indirect and direct revenues recirculating through the economy. Table C indicates that this additional economic benefit totals $138.0 million annually, supporting 754 jobs with a payroll/earnings of $33.5 million.

Table C
Charles B. Wheeler Downtown Airport
Total Economic Benefits – FY2002
(Million $)

<table>
<thead>
<tr>
<th>Category</th>
<th>Revenues</th>
<th>Earnings</th>
<th>Employment</th>
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<tbody>
<tr>
<td>Direct On-Airport Benefits</td>
<td>$134.1</td>
<td>$27.2</td>
<td>641</td>
</tr>
<tr>
<td>Air Visitor Benefits</td>
<td>$7.7</td>
<td>$1.9</td>
<td>113</td>
</tr>
<tr>
<td>Combined Direct and Indirect Benefits</td>
<td>$141.8</td>
<td>$29.1</td>
<td>754</td>
</tr>
<tr>
<td>Indirect Benefits (Multiplier Effect)</td>
<td>$138.0</td>
<td>$33.5</td>
<td>1,057</td>
</tr>
<tr>
<td>Total Benefits (Direct + Indirect + Induced)</td>
<td>$279.8</td>
<td>$62.6</td>
<td>1,811</td>
</tr>
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</table>

The On-Airport Benefits category includes private firms and public agencies located on the Charles B. Wheeler Downtown Airport. Private employers are airlines, businesses providing general aviation services, specialized providers of aviation services, and non-aviation businesses that lease space in the terminal. Government employers include the KCAD and FAA personnel.

In summary, the total economic benefits to the local community due to the presence of the airport are $279.8 million, which supports 1,811 jobs with payroll/earnings of $62.6 million.
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