CHAPTER SEVEN: RECOMMENDED SYSTEM OF AIRPORTS

OVERVIEW

Chapter Seven of the Kansas Aviation System Plan (KASP) summarizes and interprets the results of analyses completed previously. This chapter presents findings that are tied to potential improvements that have been identified on both the statewide and the individual airport level. In addition, recommendations for new airports and airports to be added to the National Plan of Integrated Airport Systems (NPIAS) are included in this chapter. Finally, estimated development costs are presented that provide detail on the full scope of costs to develop the Kansas airport system to meet the goals and objectives presented in Chapter One.

It is important to note that the KASP is not a programming or an implementation document. The Kansas Department of Transportation (KDOT) does not own or operate any public airports in the Kansas system. The KASP is "top down" planning analysis; findings from this analysis must still be implemented by individual airports from the "bottom up."

SYSTEM ACTIONS TO RESPOND TO PERFORMANCE MEASURE TARGETS

A comprehensive analysis has been completed to determine how well the Kansas Aviation System is performing, relative to established performance measures and benchmarks. At the onset of this study, performance measures were identified that were consistent with the goals of Kansas' Long Range Transportation Plan, published in 2008. Targets for benchmarks were also derived in order to enhance the system's future performance.

Figure 7-1 summarizes the performance measures that were used in this study to evaluate the performance of the Kansas Aviation System. This table also shows benchmarks that are specific to each of the performance measures. Targets for the aviation system, relative to each of the performance measures, are also summarized in this table. Chapter Six of this study used each of the performance measures and benchmarks shown in Figure 7-1 to evaluate the ability of the Kansas Aviation System to meet established targets.

This chapter is divided into several sections, the first of which addresses actions that should be considered to raise the performance of the system to meet the targets noted in Figure 7-1. It is important to note that the Kansas Department of Transportation, and more specifically the Division of Aviation, has only a limited ability to affect change in the system for some of the performance measures.

The KASP provides an overview of where improvements to the Kansas Aviation System might be desirable. It is possible that local support for some of the projects identified in this plan could be lacking. Conversely, there could be local support and justification for more aggressive development than has been identified in this plan.

Figure 7-1: Goals, Performance Measures, and Target Performance for the Kansas Aviation System

GOAL: PRESERVE THE AVIATION SYSTEM ➧ PERFORMANCE MEASURE: PRESERVATION	
Benchmark	**Target Performance**
Percent of airport runways with a Pavement Condition Index (PCI) greater than 70.	100% of applicable airports should have a PCI of 70 or greater.
Percent of airports meeting minimum facility and service objectives.	Varies by objective and airport role (See Figure 6-6).
Percent of airports with clear approaches to the primary runway.	100% of all airports.
Percent of airports with adopted emergency response plans.	75% of all airports.
Percent of airports with adopted wildlife management plans.	100% of Commercial Service and Regional airports.
Percent of airports with adopted security plans.	100% of Commercial Service, Regional, Business, and Community airports.
GOAL: PROVIDE A MODERN NETWORK OF AIRPORTS ➧ PERFORMANCE MEASURE: MODERNIZATION	
Benchmark	**Target Performance**
Percent of airports within 50 nautical miles of an alternate airport with an ILS or LPV (300', 1 mile) approach.	96% of all airports.
Percent of airports with 24/7 fuel.	100% of Kansas' land area within 50 nautical miles of an airport with 24/7 fuel.
Percent of airports with jet fuel.	100% of Commercial Service and Regional airports.

Figure 7-1: Goals, Performance Measures, and Target Performance for the Kansas Aviation System (cont.)

GOAL: PROVIDE A NETWORK OF AIRPORTS THAT IS ACCESSIBLE BY THE AIR AND THE GROUND ➡ PERFORMANCE MEASURE: ACCESSIBILITY	
Benchmark	**Target Performance**
Percent of population and area within 90 minutes of a Commercial Service airport with 2 or more airlines.	80% of population and 50% of area.
Percent of population and area within 60 minutes of a Commercial Service airport with one or more airlines.	91% of population and 59% of area.
Percent of population and area within 45 minutes of a Regional airport.	91% of population and 55% of area.
Percent of population and area within 30 minutes of any airport.	98% of population and 89% of area.
Percent of population and area within 30 minutes of a NPIAS airport.	96% of population and 74% of area.
Percent of population and area within 30 minutes of an airport capable of supporting air ambulance services (design runway length, 60-foot runway width, AWOS, instrument approach).	94% of population and 72% of area.
Benchmark	**Target Performance**
Percent of population and area within 30 minutes of an airport with an instrument approach.	98% of population and 89% of area.
Percent of population and area within 30 nautical miles of an airport with on-site weather reporting.	100% of population and 100% of area.
Percent of state parks within 20 miles of an airport.	100% of all state parks.
Percent of communities in Kansas with a hospital and/or clinic that are served by an airport.	100% of all communities with a hospital and/or clinic.
Percent of population and area within 30 minutes of an airport able to support "physician" aircraft.	97% of population and 81% of area.

Figure 7-1: Goals, Performance Measures, and Target Performance for the Kansas Aviation System (cont.)

GOAL: SUPPORT LOCAL AND STATEWIDE ECONOMIC GROWTH ➧ PERFORMANCE MEASURE: ECONOMIC SUPPORT	
Benchmark	**Target Performance**
Percent of population and area within 45 minutes of an airport with a 5,000-foot or greater runway.	95% of population and 69% of area.
Percent of airports with ground transportation available.	100% of Commercial Service, Regional, and Business airports.
Percent of population within 45 minutes of an airport meeting business user needs (5,000' runway, jet fuel, precision or LPV approach).	91% of population and 56% of area.
Percent of airports within a community with a dedicated economic development staff.	No target set; monitor over time.
Percent of airports within 5 miles of an industrial park.	No target set; monitor over time.
GOAL: SUPPORT THE PROMOTION OF AVIATION EDUCATION ➧ PERFORMANCE MEASURE: EDUCATION	
Benchmark	**Target Performance**
Percent of airports that support fly-ins.	No target set; monitor over time.
Percent of airports with staff that have attended airport education training.	No target set; monitor over time.
Percent of airports with community outreach programs.	No target set; monitor over time.
Percent of airports supporting airframe and power plant (A&P) programs.	No target set; monitor over time.
Percent of airports that support flight training.	50% of all airports.

Source: KDOT Division of Aviation, Project Advisory Committee, and Wilbur Smith Associates.
Prepared: March 2009.

ACTIONS TO RESPOND TO PERFORMANCE MEASURE TARGETS

This section provides a summary of actions that are recommended to be undertaken to reach targets for each of the benchmarks identified in Table 7-1, assuming the target is not already met.

Goal: Preserve the aviation system ➧ Performance Measure: Preservation

A priority of KDOT's Division of Aviation is to preserve the facilities and functions of the airport system such that its investment in the system is used most effectively. The previous chapter outlined the benchmarks associated with the system preservation performance measure, as well as the system's performance relative to those benchmarks. Specific deficiencies were identified in the Kansas airport system's ability to meet the benchmarks, both in the present and in the future.

Figure 7-2 summarizes the system's performance and the percent of airports that are recommended for upgrades in each benchmark category in the Preservation performance measure. In Figure 7-2, the portion of airports labeled "Currently Meets Target" are those that possess the qualities required by the benchmark, and require no upgrades. The percentage of airports labeled "Recommended for Improvement" are those that are recommended to undertake projects to address deficiencies found in the previous chapter. Finally, airports labeled "Monitor Performance" are not subject to the benchmark. Most of the benchmarks included in Figure 7-2 are facility and service objectives.

Specific recommendations for individual airports may be found in **Supplement B.**

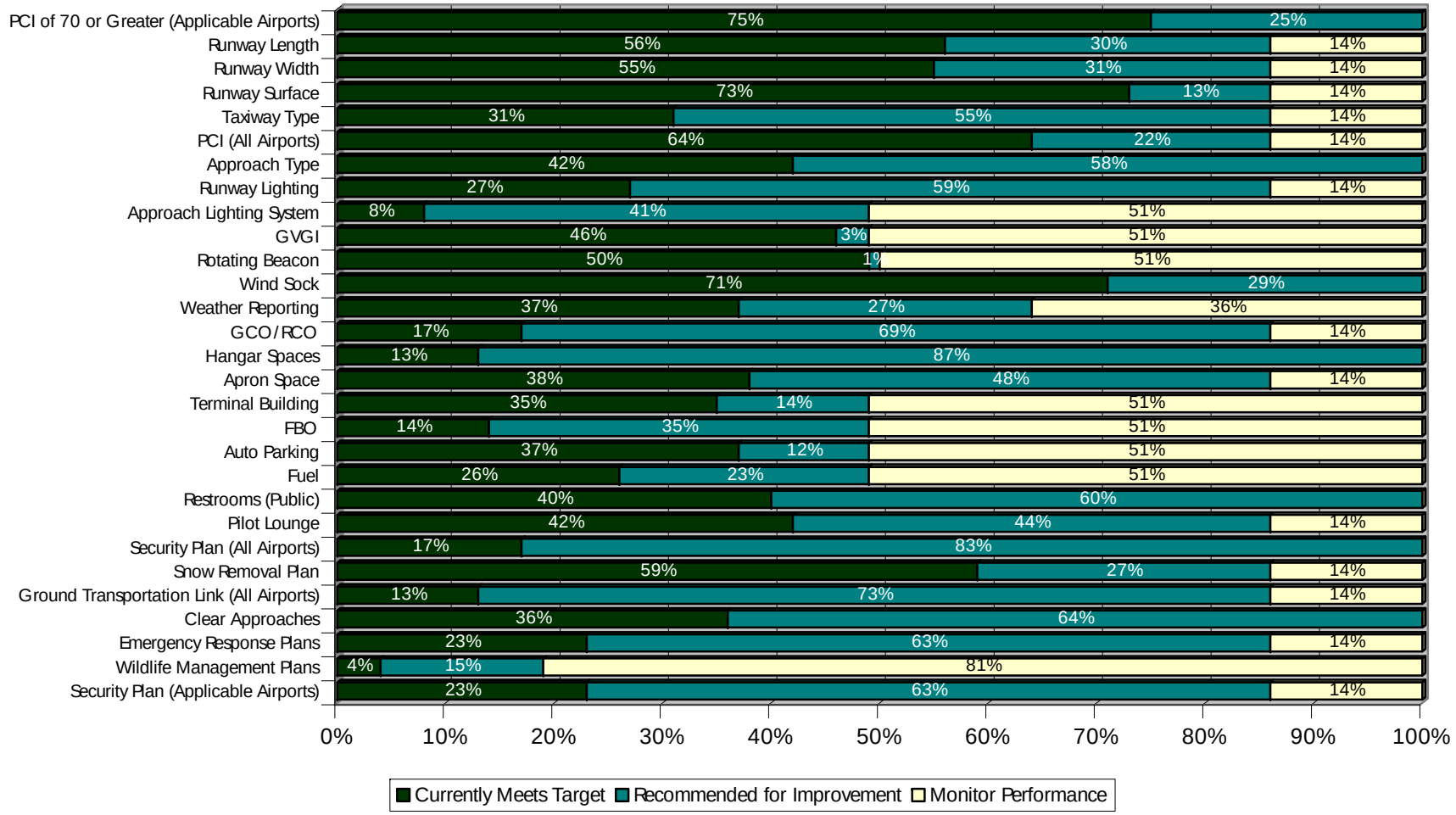
Goal: Provide a modern network of airports ➧ Performance Measure: Modernization

A fully modern system of airports is one that is developed in such a way as to allow for the safe, convenient operation of aircraft by the widest possible variety of users. Previously, a number of benchmarks were formulated to measure the development of Kansas' airports into a modern, integrated system. **Figure 7-3** provides a summary of the airports recommended for upgrades to reach established targets for the Modernization benchmarks. As above, airport percentages labeled "Currently Meets Target" meet the benchmark and require no upgrades. Portions of the airport system labeled "Recommended for Improvement" are recommended for projects to remedy shortfalls found in Chapter Six. Finally, the percentage of airports labeled "Monitor Performance" are not subject to the benchmark.

Goal: Provide a network of airports that is accessible by the air and the ground
Performance Measure: Accessibility

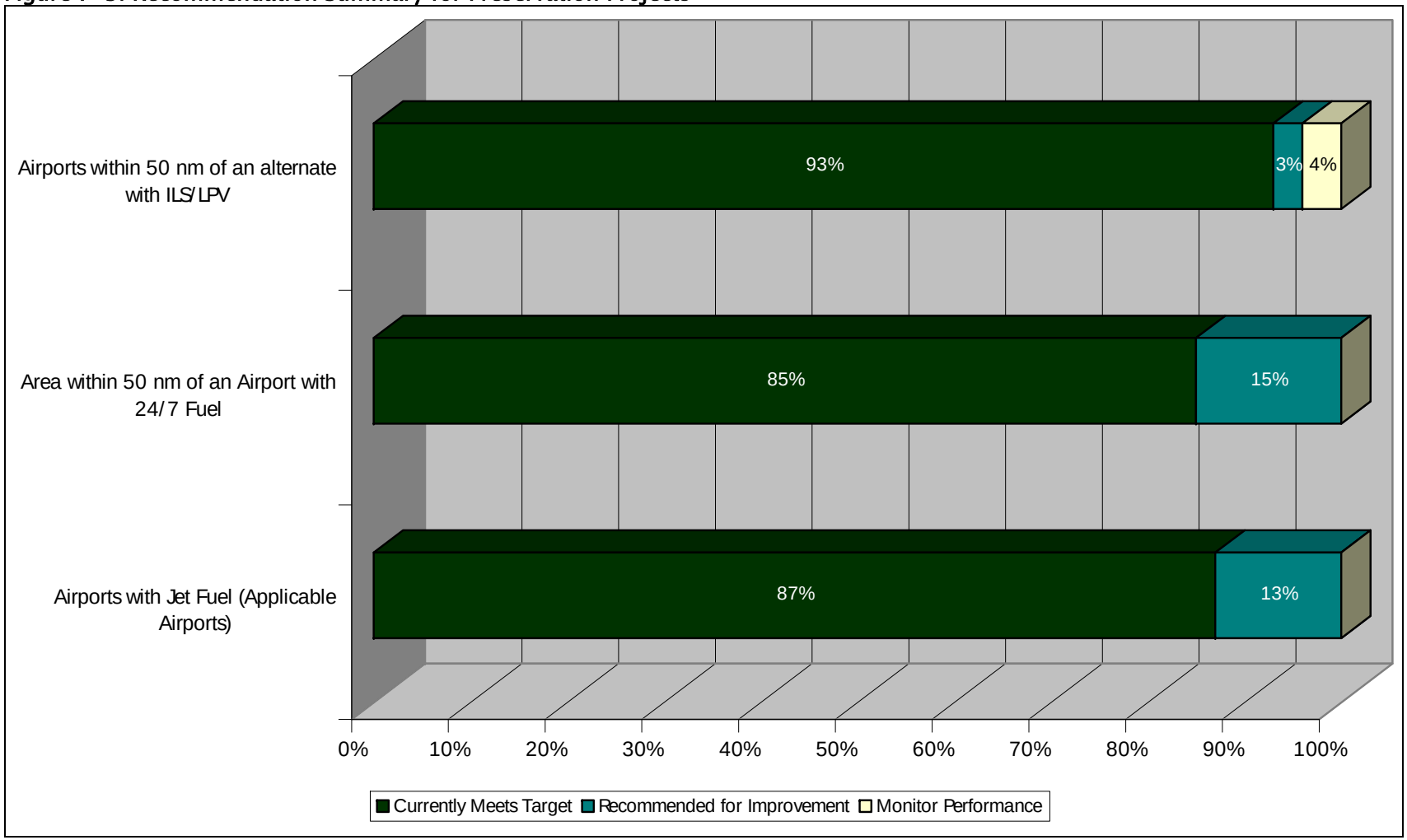
An airport system is most useful when its users can access its facilities both from the air and from the ground. Airports recommended for improvements to meet the benchmarks in the Accessibility performance measure are summarized in **Figure 7-4**. Of particular interest are the airports labeled "Recommended for Improvement" which are recommended for projects that improve the overall accessibility of the system. Specific improvement projects to raise the Kansas airport system's performance are found in Supplement B.

Figure 7-2: Recommendation Summary for Preservation Projects



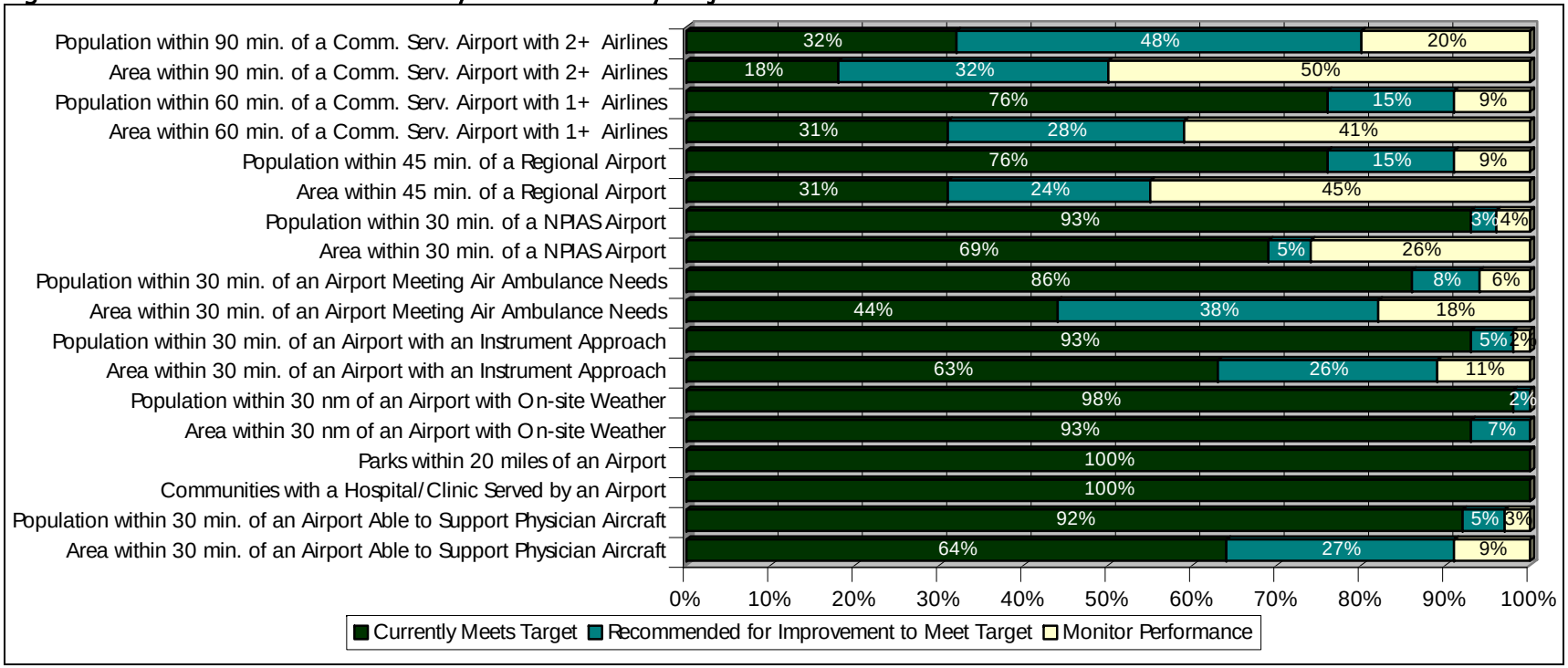
Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-3: Recommendation Summary for Preservation Projects



Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-4: Recommendation Summary for Accessibility Projects



Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Goal: Support local and statewide economic growth ➧ Performance Measure: Economic Support

As discussed previously, a state's airport system augments it local economies by speeding commerce. A fully developed airport system allows local businesses to send employees around the globe, encourages companies to start and expand businesses in the state, and helps the state attract tourists. It is key that Kansas' airport system be developed with the needs of both businesses and local communities in mind. As a result, specific benchmarks were developed to measure the Kansas system's performance as it relates to the needs of the state's economy.

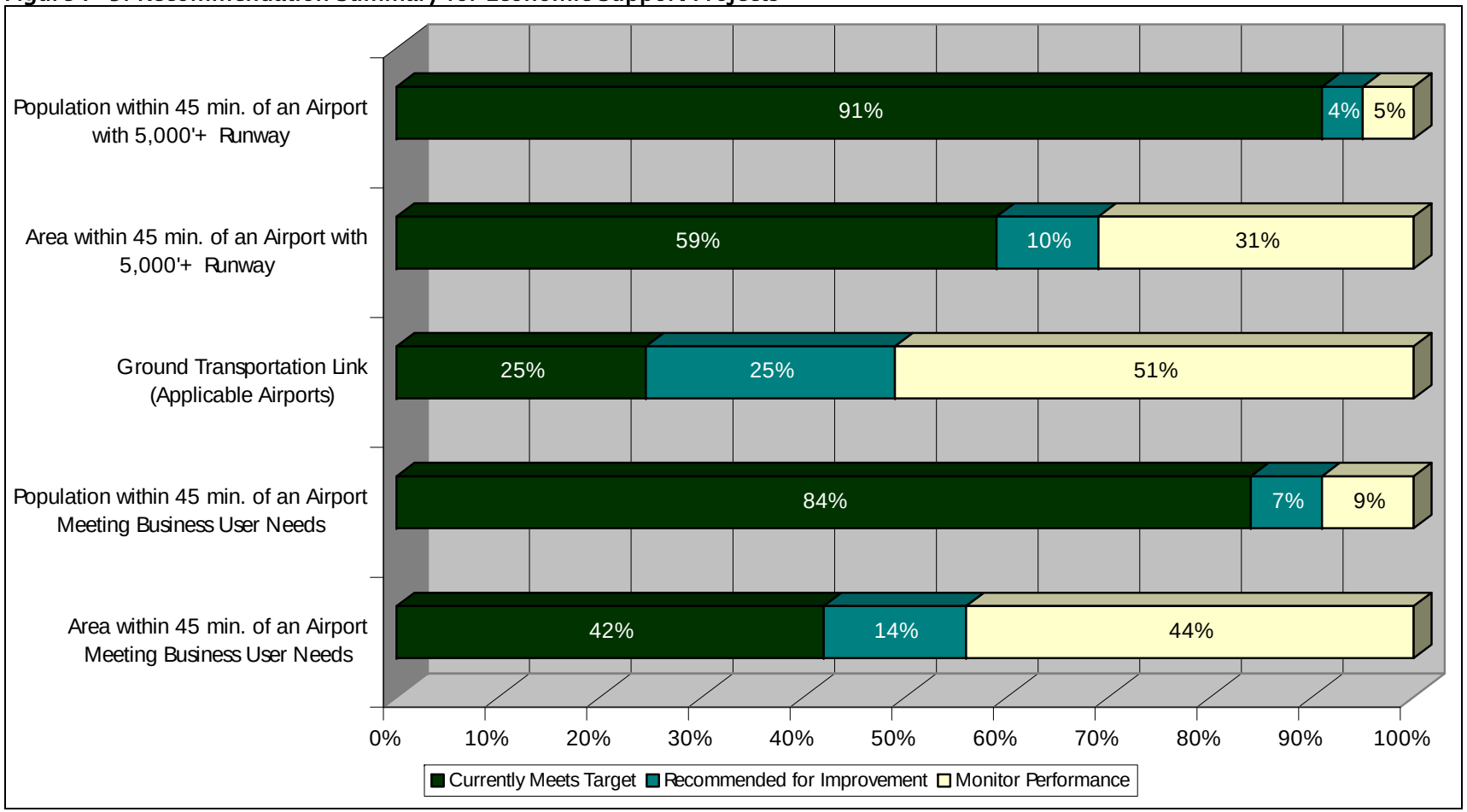
Figure 7-5 shows the elements of Kansas' airport system that are recommended for upgrades in order for the system to meet the targets set for Economic Support benchmarks. Specific recommendations for individual airports are found in Supplement B. It is important to note that some benchmarks in Figure 7-5 are informational, and as such no recommendations for improvements can be made.

Goal: Support the promotion of aviation education ➧ Performance Measure: Education

A well-developed airport system plays a role in expanding education in a state, primarily by offering career training opportunities for pilots, mechanics, and other aviation-related fields. At the same time, airports staffs are tasked with maintaining their own training and community outreach efforts. Measures to assure the ability of the Kansas airport system to provide career training to citizens and to promote continued relations with the local community were devised for the Education performance measure.

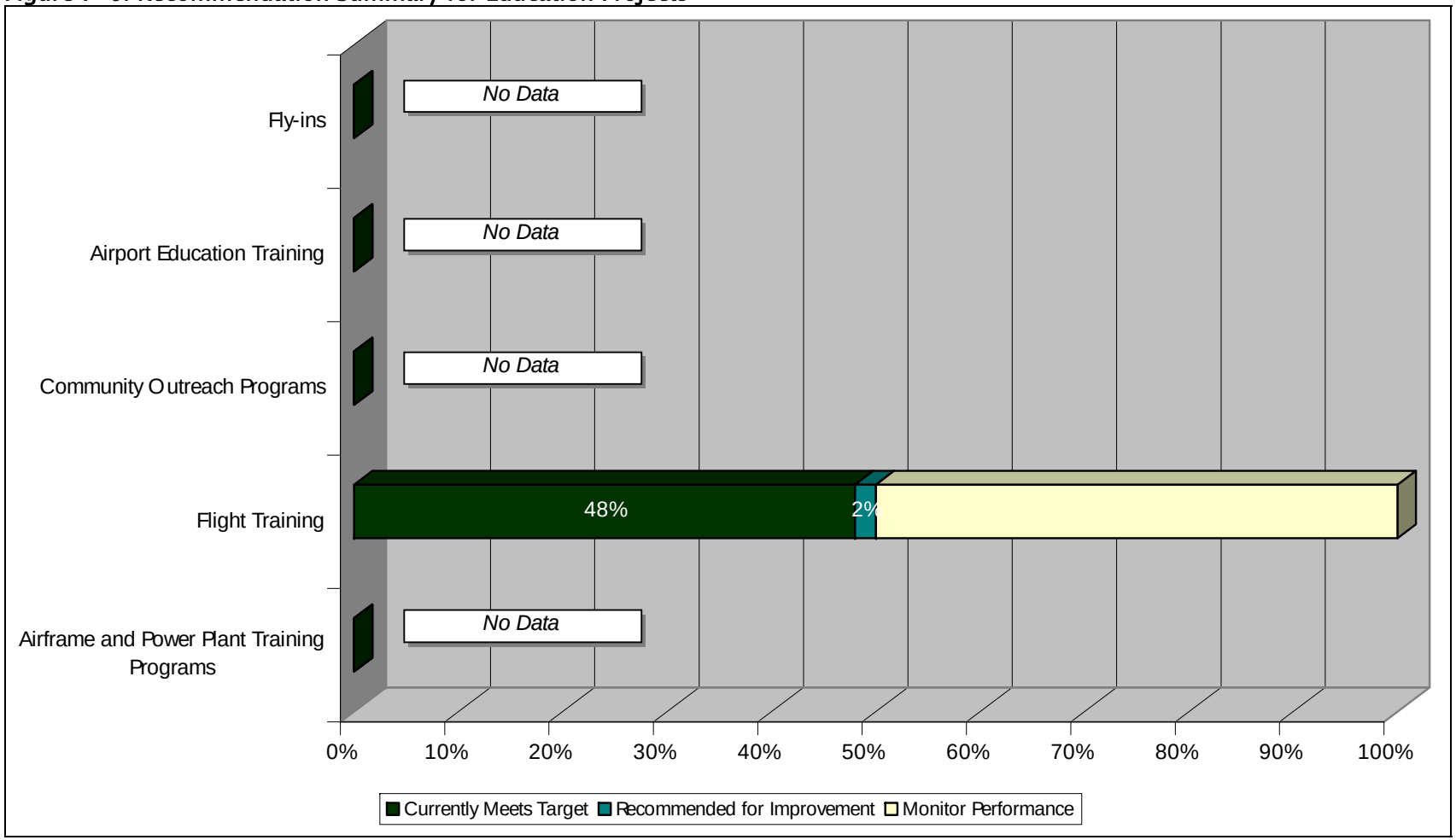
Figure 7-6 summarizes the system's performance and the percent of airports that are recommended for upgrades in each benchmark category in the Education performance measure. Supplement B shows individual airport-level recommendations for projects to improve these measures. Note that some benchmarks in Figure 7-6 are informational, and as such no recommendations for improvements can be made. Certain benchmarks have no data at present and therefore recommendations cannot be made. It is recommended that data be gathered for these benchmarks for inclusion in future updates of this document.

Figure 7-5: Recommendation Summary for Economic Support Projects



Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-6: Recommendation Summary for Education Projects



Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

NEW AIRPORTS AND RECOMMENDED NPIAS AIRPORTS

New Airports

Five communities in Kansas are currently considering or being considered for the construction of new airports. These communities are Leavenworth, Mayetta, Rooks County, Sharon Springs, and a consortium of communities in Northeast Kansas near Horton and Sabetha. These airports are at various stages in the planning process and construction has not begun at any of the five. The analysis in the following sections includes recommendations for the facilities and services to be developed at each to make certain the new airports meet their role objectives and are fully integrated in the existing Kansas airport system.

New NPIAS Airports

The NPIAS is the Federal Aviation Administration's (FAA) national airport plan. The NPIAS includes nearly 3,500 existing and proposed airports in the United States, which are of significance to the national air transportation system. Seventy-nine of Kansas' 142 public-use airports are included in the NPIAS for Fiscal Year 2009-2013. Airports included in the NPIAS are eligible to compete for federal funding from the FAA's Airport Improvement Program (AIP). As noted in Chapter Two, the FAA classifies airports in the NPIAS into categories such as primary commercial service, non-primary commercial service, or general aviation.

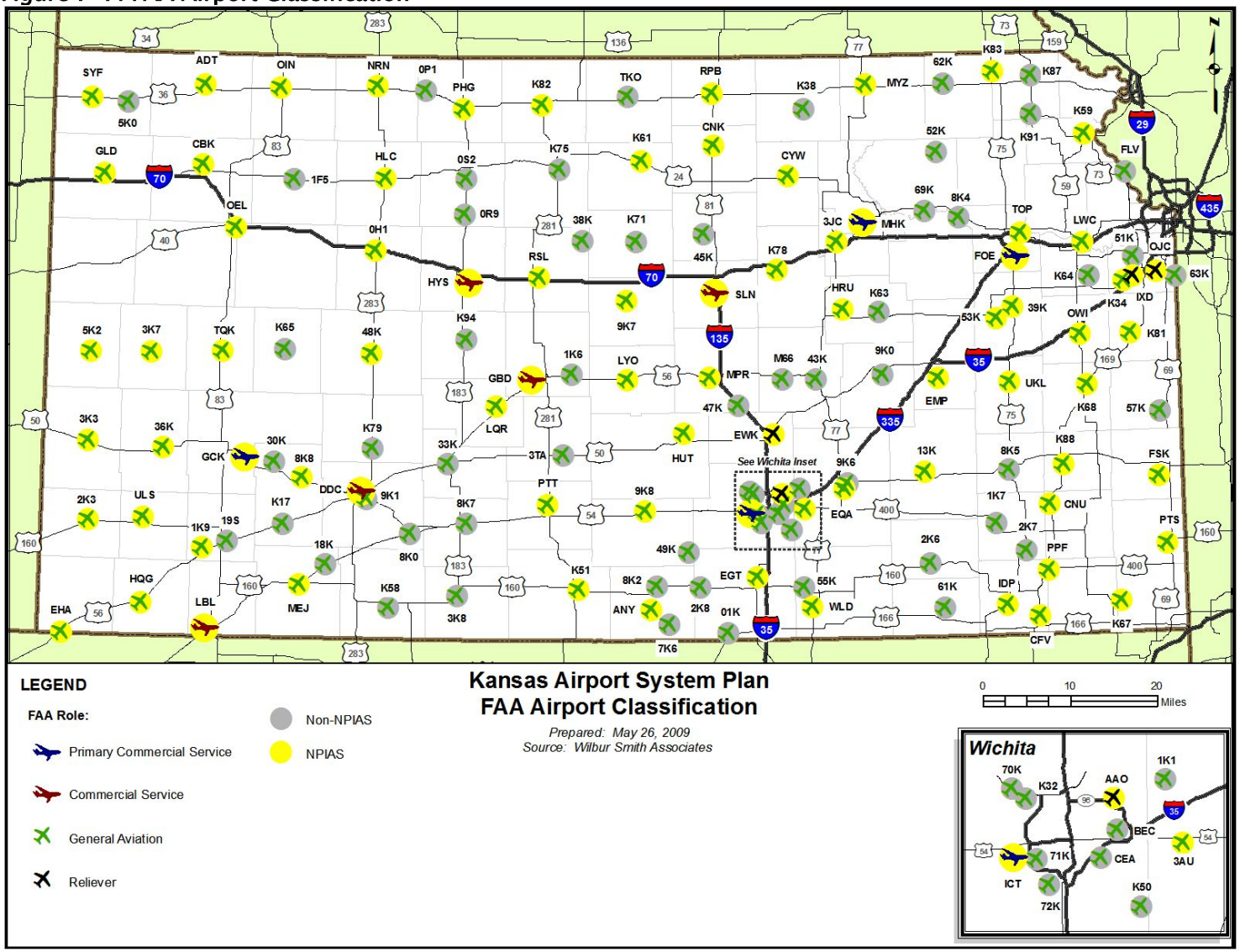
The FAA has established criteria for an airport's inclusion in the NPIAS, and there are currently eight commercial service airports and 71 general aviation airports in Kansas that are included in the 2009-2013 NPIAS. In addition, there are several airports which could now be considered for inclusion in the NPIAS since the previous KASP was completed over 10 years ago. Airport economics and significant changes in Kansas in regards to aviation, energy, tourism, and agriculture have lead to the need for a re-evaluation of potential NPIAS eligibility. The FAA's criteria are as follows:

- **Airports formerly in the NPIAS** – Airports that have been included at one time in the NPIAS but have been eliminated from the program are eligible for inclusion. These airports must meet other NPIAS criteria, however, such as a minimum level of based aircraft.
- **Airport's location in relation to the nearest NPIAS airport –** An airport that is included in a State Airport System Plan may be included in the NPIAS if it has 10 or more based aircraft and serves a community located at least 20 miles or a 30-minute drive from the nearest existing or proposed NPIAS airport.
- **Reliever Airport** – An existing or proposed airport may be included in the NPIAS if it relieves airport congestion in a metropolitan area by providing general aviation users with an alternative landing location.
- **Airports receiving U.S. Mail Service** – Any public airport where a carrier transports mail may be included in the NPIAS.
- **Airports with a National Defense Role** – Any public-use airport where a unit of the Air National Guard or of a reserve component of the Armed Forces of

the United States is permanently based or is adjacent to and who operates permanently assigned aircraft directly related to its mission is included in the NPIAS.

Figure 7-7 depicts the location of Kansas' existing public-use airports and their NPIAS classification.

Figure 7-7: FAA Airport Classification



An existing or proposed airport not meeting the prior criteria may be included in the NPIAS if it meets all of the following:

- It is included in the State Airport System Plan
- It serves a community more than 30 minutes from the nearest NPIAS airport
- It is forecast to have 10 or more based aircraft within the short-term planning period (5-years)
- There is an eligible public sponsor willing to undertake the ownership and development of the airport

Airports that do not meet any of the previously discussed entry criteria may be considered for inclusion in the NPIAS on the basis of a special justification. This justification must show that there is a significant national interest in the airport. Such special justifications include:

- A determination that the benefits of the airport will exceed its development costs
- Written documentation describing isolation
- Airports serving the needs of Native American communities
- Airports needed to support recreation areas
- Airports needed to develop or protect important national resources

Appendix B includes a detailed analysis of the Kansas airports under consideration for inclusion in the NPIAS. Based on the findings in Appendix B, it is recommended that the following airports should seek to be included in future revisions of the NPIAS:

- New Airport at Leavenworth
- Paul Windle Municipal (Greensburg)
- Montezuma Municipal
- Gilmore (Pleasanton)
- Washington County Memorial (Washington)

AIRPORT ACTIONS

As mentioned previously, a task of the KASP was to develop facility and service objectives for each airport role category. These objectives should be used by each airport when updating its master plan or ALP. Based on each airport's future assigned role (Commercial Service, Regional, Business, Community, or Basic), the facility and service objectives provide guidance on items each airport should have in place to best fill its system role and meet the needs of its projected users. The facility and service objectives for each airport classification were developed using input from KDOT Division of Aviation and the study's Project Advisory Committee. Facility and service objectives developed as part of this plan are shown in **Figure 7-8**.

Individual airport summaries that are presented in Supplement B provide comparisons that enable each airport to clearly see the facilities and services that it should have to meet its system role. These tables also enable the airports to compare their objectives

to the actual facilities and services that they have in place. Through this comparison, each airport can identify which facility and service upgrades are desirable for their individual airport.

The next sections of this chapter summarize recommendations identified from the facility and service objective analysis, and the total system costs for providing all recommended upgrades.

Recommended Runway Lengthening Projects

Facility and service objectives established for Kansas' airports, as part of this system plan, identify specific targets for runway length that are based on each airport's assigned system role. Review of the facility and service objectives shows that several of the system airports are recommended for a runway lengthening project to support the facility and service targets.

To meet the system plan's facility and service objectives, there are 45 system airports (including potential new airports) that are recommended to lengthen their primary runway. **Figure 7-9** lists those airports that should be considered for runway lengthening projects. Specific runway extension lengths can be found in the airport-specific facility and service objective summaries in Supplement A.

Figure 7-8: Facility and Service Objectives

Objective	*Commercial*	*Regional*	*Business*	*Community*	*Basic*
Runway Length (ft)	5,500	5,000	4,000	3,200	Maintain
Runway Width (ft)	100	100	75	60	Maintain
Runway Surface	Paved/All Weather Surface	Paved/All Weather Surface	Paved/All Weather Surface	Paved/All Weather Surface	Not an Objective
Taxiway Type	Parallel Taxiway	Parallel Taxiway	Turnarounds	Turnarounds	Not an Objective
PCI	70 or Greater	70 or Greater	70 or Greater	70 or Greater	Not an Objective
Approach Type	Precision	Near-Precision	Non-Precision	Non-Precision	Visual
Runway Lighting	MIRL and MITL	MIRL and MITL	MIRL and LITL	MIRL	Not an Objective
Approach Lighting System	MALSR	MALSR	ALS, Desired	Not an Objective	Not an Objective
GVGI	PAPI and REILs	PAPI and REILs	PAPI and REILs	Not an Objective	Not an Objective
Rotating Beacon	Rotating Beacon	Rotating Beacon	Rotating Beacon	Not an Objective	Not an Objective
Wind Sock	Lighted Wind Sock	Lighted Wind Sock	Lighted Wind Sock	Lighted Wind Sock	Wind Sock
Weather	AWOS or ASOS	AWOS or ASOS	AWOS or ASOS	AWOS or ASOS	Not an Objective
GCO	GCO	GCO	GCO	GCO	Not an Objective
Hangar Spaces	100% of Based Aircraft	100% of Based Aircraft	100% of Based Aircraft	100% of Based Aircraft	100% of Based Aircraft
Apron Space	100' x 100'	100' x 100'	100' x 100'	100' x 100'	Not an Objective
Terminal	Terminal	Terminal	Terminal	Not an Objective	Not an Objective
FBO	Full Service FBO	Limited FBO	Not an Objective	Not an Objective	Not an Objective
Auto Parking	Auto Parking	Auto Parking	Auto Parking	Maintain	Maintain
Fuel	AvGas and Jet A	AvGas and Jet A	AvGas, Jet A as Needed	Not an Objective	Not an Objective
Restrooms	Restrooms	Restrooms	Restrooms	Restrooms	Restrooms
Pilots Lounge	Pilots Lounge	Pilots Lounge	Pilots Lounge	Pilots Lounge	Not an Objective
Security Plan	Security Plan	Security Plan	Security Plan	Security Plan	Security Plan
Snow Removal Plan	Snow Removal Plan	Snow Removal Plan	Snow Removal Plan	Snow Removal Plan	Not an Objective
Ground Transportation Link	Link to Ground Transport	Link to Ground Transport	Link to Ground Transport	Not an Objective	Not an Objective

Source: Wilbur Smith Associates.
Prepared: March 2009.

Figure 7-9: Recommended Development – Runway Lengthening

Associated City	*Airport Name*
Regional	
Oberlin	Oberlin Municipal
Wellington	Wellington Municipal
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Atchison	Amelia Earhart
Concordia	Blosser Municipal
Ellsworth	Ellsworth Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Osage City	Osage City Municipal
Smith Center	Smith Center Municipal
Wichita	Cessna Aircraft Field
Wichita	Riverside
Community	
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cimmaron	Cimarron Municipal
Cottonwood Falls	Chase County
Dighton	Dighton
Gardner	Gardner Municipal
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Horton	Horton Municipal
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake
Lyons	Lyons Rice County
Marion	Marion Municipal
Moline	Elk County
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Oswego	Oswego Municipal
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore
Rose Hill	Cook Airfield
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
St. Francis	Cheyenne County Municipal
St. Mary's	St Mary's Airpark
Stafford	Stafford Municipal
Wamego	Wamego Municipal
Wichita	Westport

Figure 7-9: Recommended Development – Runway Lengthening (cont.)

Associated City	*Airport Name*
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Runway Widening Projects

The facility and service objectives shown in Figure 7-8 identify minimum objectives for runway widths by each airport's assigned system role. Review of the facility and service objectives shows that 50 of the system's airports, including proposed new airports, should have a runway widening project to meet the minimum objectives for each role category. **Figure 7-10** lists those airports to be considered for runway widening projects.

Figure 7-10: Recommended Development – Runway Widening

Associated City	*Airport Name*
Regional	
Oberlin	Oberlin Municipal
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Atchison	Amelia Earhart
Augusta	Augusta Municipal
Benton	Stearman Field
Coldwater	Comanche County
Concordia	Blosser Municipal
Elkhart	Elkhart Morton
Ellsworth	Ellsworth Municipal
Johnson	Stanton County Municipal
Marysville	Marysville Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Norton	Norton Municipal
Osage City	Osage City Municipal
Phillipsburg	Philipsburg Municipal
Scott City	Scott City Municipal
Smith Center	Smith Center Municipal
Tribune	Tribune Municipal
Wichita	Cessna Aircraft Field
Wichita	Riverside
Community	
Cimarron	Cimarron Municipal
Dighton	Dighton

Figure 7-10: Recommended Development – Runway Widening (cont.)

Associated City	*Airport Name*
Fredonia	Fredonia
Gardner	Gardner Municipal
Garnett	Garnett Municipal
Hillsboro	Alfred Schroeder
Hoxie	Hoxie Sheridan County
La Crosse	Rush County
Lakin	Lakin
Leoti	Mark Hoard Memorial
Lucas	Lucas
Lyons	Lyons Rice County
Mankato	Mankato
Marion	Marion Municipal
Minneapolis	Minneapolis City County
Moline	Elk County
Ness City	Ness City Municipal
Oswego	Oswego Municipal
Pleasanton	Gilmore
Rose Hill	Cook Airfield
Sabetha	Sabetha Municipal
St. Francis	Cheyenne County Municipal
WaKeeney	Trego WaKeeney
Wamego	Wamego Municipal
Wichita	Westport
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Runway Paving Projects

A number of Kansas' airports are turf fields. Depending on the role each airport is assigned, some of these turf runways are recommended to be paved in order for the airport to meet the objectives for its respective role. A review of the facility and service objectives indicates that 14 of Kansas' airports have a turf runway needing a paving project to meet the minimum objectives for each role category. An additional five proposed new airports are included among recommended paving projects. **Figure 7-11** lists those airports where turf runways or new runways are recommended to be paved.

Figure 7-11: Recommended Development – Runway Paving

Associated City	*Airport Name*
Regional	
New Airport	Leavenworth
New Airport	Northeast Kansas
Community	
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cottonwood Falls	Chase County
Greensburg	Paul Windle Municipal
Horton	Horton Municipal
Lincoln	Lincoln Municipal
Lyndon	Pomona Lake
Onaga	CE Grutzmacher
Plainville	Plainville Airpark Rooks County
Sedan	Sedan City
Seneca	Seneca Municipal
St. Mary's	St Mary's Airpark
Stafford	Stafford Municipal
Stockton	Stockton Municipal
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Taxiway Projects

The facility and service objectives shown in Figure 7-8 identify the required type of taxiway for each airport's assigned system role. Commercial Service and Regional airports require a full parallel taxiway system, while Business and Community airports require turnarounds at each runway end. Basic airports are not required to have taxiways. Review of the facility and service objectives reveals that 56 of Kansas' airports are recommended to have a taxiway project to meet the minimum objectives for each role category. This includes five proposed new airports. **Figure 7-12** lists those airports that are recommended for taxiway construction projects.

Figure 7-12: Recommended Development – Taxiways

Associated City	*Airport Name*
Regional	
Iola	Allen County
Oberlin	Oberlin Municipal
Pittsburg	Atkinson Municipal
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Abilene	Abilene Municipal
Atchison	Amelia Earhart
Coldwater	Comanche County
Ellsworth	Ellsworth Municipal
Medicine Lodge	Medicine Lodge
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Phillipsburg	Philipsburg Municipal
Wichita	Beech Factory
Wichita	Riverside
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Clay Center	Clay Center Municipal
Cottonwood Falls	Chase County
Dighton	Dighton
Gardner	Gardner Municipal
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Jetmore	Jetmore Municipal
Kinsley	Kinsley Municipal
Lakin	Lakin
Leoti	Mark Hoard Memorial
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake
Lyons	Lyons Rice County
Mankato	Mankato
Minneapolis	Minneapolis City County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore

Figure 7-12: Recommended Development – Taxiways (cont.)

Associated City	*Airport Name*
Community	
Sedan	Sedan City
Seneca	Seneca Municipal
St. Francis	Cheyenne County Municipal
St. Mary's	St Marys Airpark
Stafford	Stafford Municipal
Stockton	Stockton Municipal
Sublette	Sublette Flying Club
Wamego	Wamego Municipal
Wichita	Westport
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Runway Maintenance Projects

As reported previously in this chapter, a number of Kansas' airports have primary runways that require maintenance projects in order to meet a minimum Pavement Condition Index of 70. All paved primary runways in Kansas are required to meet this PCI minimum; at present 23 of Kansas' airports require runway maintenance projects to meet this standard. **Figure 7-13** lists those airports where runway pavements are recommended to be improved. In addition, as pavements deteriorate with age and use over the life of this plan, additional airports will need runway rehabilitation, even if PCI ratings for those runways are above 70. While those airports are not listed here, costs associated with these rehab projects are included in later sections of this chapter.

Figure 7-13: Recommended Development – Runway Maintenance

Associated City	*Airport Name*
Regional	
Hutchinson	Hutchinson
Independence	Independence
Newton	Newton City County
Winfield	Strother Field
Business	
Atchison	Amelia Earhart
Augusta	Augusta Municipal
Emporia	Emporia Municipal
Fort Scott	Fort Scott Municipal
Medicine Lodge	Medicine Lodge
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Phillipsburg	Philipsburg Municipal

Figure 7-13: Recommended Development – Runway Maintenance (cont.)

Associated City	*Airport Name*
Business	
Scott City	Scott City Municipal
Smith Center	Smith Center Municipal
Community	
Anthony	Anthony Municipal
Clay Center	Clay Center Municipal
Eureka	Eureka Municipal
Garnett	Garnett Municipal
Lakin	Lakin
Lyons	Lyons Rice County
Moline	Elk County
Oxford	Oxford Municipal
Pleasanton	Gilmore

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Approach Capabilities

Facility and service objectives established for this study call for Commercial Service airports to be supported by precision approaches, Regional airports to have near-precision approaches, and Business and Community have at least non-precision approaches. **Figure 7-14** shows airports that are recommended to upgrade or install the type of approach specified for the respective airport role. There are a total of 54 airports in Kansas' airport system, including the five proposed airports, that need upgraded approach capabilities to meet this study's facility and service objectives.

Figure 7-14: Recommended Development – Approaches

Associated City	*Airport Name*
Regional	
Oberlin	Oberlin Municipal
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Coldwater	Comanche County
Ellsworth	Ellsworth Municipal
Medicine Lodge	Medicine Lodge
Osage City	Osage City Municipal
Syracuse	Syracuse Hamilton County Municipal
Tribune	Tribune Municipal
Wichita	Riverside
Community	
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cimarron	Cimarron Municipal
Cottonwood Falls	Chase County

Figure 7-14: Recommended Development – Approaches (cont.)

Associated City	*Airport Name*
Community	
Dighton	Dighton
Fredonia	Fredonia
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Hillsboro	Alfred Schroeder
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Jetmore	Jetmore Municipal
Kinsley	Kinsley Municipal
La Crosse	Rush County
Lakin	Lakin
Leoti	Mark Hoard Memorial
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake
Mankato	Mankato
Marion	Marion Municipal
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Osborne	Osborne Municipal
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore
Rose Hill	Cook Airfield
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
St. Mary's	St Marys Airpark
Stafford	Stafford Municipal
Stockton	Stockton Municipal
Sublette	Sublette Flying Club
WaKeeney	Trego WaKeeney
Wamego	Wamego Municipal
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Airfield Lighting Projects

A facility objective set forth for Kansas' airports is appropriate runway/taxiway lighting for each airport role. As shown in Figure 7-8, all airports in the Kansas system, with the exception of the Basic role airports, are recommended to have medium intensity runway lighting (MIRL). Airports in the Commercial Service and Regional role categories are also recommended to have medium intensity taxiway lighting (MITL) while Business airports should have low intensity taxiway lighting (LITL). Community and Basic airports are not required to have specific taxiway lighting systems. **Figure 7-15** lists 51 existing and proposed airports in Kansas where runway and/or taxiway lighting are recommended to be installed or improved. It should be noted that certain runway and taxiway projects at some airports may require relocation or replacement of lighting systems; these are included in Figure 7-15.

Figure 7-15: Recommended Development – Airfield Lighting

Associated City	*Airport Name*
Regional	
Oberlin	Oberlin Municipal
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Atchison	Amelia Earhart
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Osage City	Osage City Municipal
Smith Center	Smith Center Municipal
Wichita	Cessna Aircraft Field
Wichita	Riverside
Community	
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cimmaron	Cimarron Municipal
Cottonwood Falls	Chase County
Dighton	Dighton
Eureka	Eureka Municipal
Fredonia	Fredonia
Gardner	Gardner Municipal
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Hillsboro	Alfred Schroeder
Horton	Horton Municipal
Jetmore	Jetmore Municipal
Kinsley	Kinsley Municipal
Lincoln	Lincoln Municipal
Lyndon	Pomona Lake
Lyons	Lyons Rice County
Mankato	Mankato
Marion	Marion Municipal
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Plainville	Plainville Airpark Rooks County

Figure 7-15: Recommended Development – Airfield Lighting (cont.)

Associated City	*Airport Name*
Pleasanton	Gilmore
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
St. Francis	Cheyenne County Municipal
St. Mary's	St Marys Airpark
Stafford	Stafford Municipal
Sublette	Sublette Flying Club
WaKeeney	Trego WaKeeney
Wamego	Wamego Municipal
Wichita	Westport
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Approach Lighting System (ALS) Projects

In addition to the approach and airfield lighting requirements set forth in the facility and service objectives, it is also an objective for Commercial Service and Regional airports to have a medium-intensity approach lighting system with runway alignment indicator (MALSR) in place. It is also desirable for Business airports to have an approach lighting system (ALS). Each of these systems compliments a published approach by giving the approach more desirable visibility minimums which are very important at airports in Kansas. There are 48 existing and proposed airports that are recommended to install a MALSR or an ALS, as shown in **Figure 7-16**.

Figure 7-16: Recommended Development – Approach Lighting Systems

Associated City	*Airport Name*
Regional	
Iola	Allen County
McPherson	McPherson
Oberlin	Oberlin Municipal
Pittsburg	Atkinson Municipal
Pratt	Pratt Industrial
Wellington	Wellington Municipal
Winfield	Strother Field
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Abilene	Abilene Municipal
Atchison	Amelia Earhart
Atwood	Atwood Rawlins
Augusta	Augusta Municipal
Benton	Stearman Field
Burlington	Coffey County
Chanute	Chanute Martin Johnson
Coffeyville	Coffeyville Municipal
Colby	Shalz Field
Coldwater	Comanche County
Concordia	Blosser Municipal
El Dorado	Capt Jack Thomas
Elkhart	Elkhart Morton
Ellsworth	Ellsworth Municipal
Emporia	Emporia Municipal
Fort Scott	Fort Scott Municipal
Hill City	Hill City Municipal
Hugoton	Hugoton Municipal
Johnson	Stanton County Municipal
Kingman	Kingman Clyde Cessna
Larned	Larned Pawnee
Marysville	Marysville Municipal
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Norton	Norton Municipal
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Parsons	Tri City
Phillipsburg	Philipsburg Municipal
Russell	Russell Municipal
Scott City	Scott City Municipal
Smith Center	Smith Center Municipal

Figure 7–16: Recommended Development – Approach Lighting Systems (cont.)

Associated City	*Airport Name*
Syracuse	Syracuse Hamilton County Municipal
Tribune	Tribune Municipal
Ulysses	Ulysses
Wichita	Cessna Aircraft Field
Wichita	Riverside

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Generic Visual Glideslope Indicator (GVGI) Projects

A facility objective set forth for Kansas' airports is for airports in the Commercial Service, Regional, and Business roles to possess generic visual glideslope indicators (GVGI). GVGI can be precision approach path indicators (PAPIs) in newer installations, or Visual approach slope indicators (VASIs) in older installations. GVGIs are not specified for Community and Basic airports. **Figure 7-17** lists 41 existing and proposed airports in Kansas where GVGI systems are recommended to be installed. It should be noted that certain runway and taxiway projects at airports may require relocation or replacement of lighting systems; these projects are included in Figure 7-17.

Figure 7–17: Recommended Development – GVGIs

Associated City	*Airport Name*
Regional	
Goodland	Renner Field Goodland
Hutchinson	Hutchinson
Newton	Newton City County
Oberlin	Oberlin Municipal
Olathe	New Century Air Center
Topeka	Philip Billard Municipal
Winfield	Strother Field
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Atchison	Amelia Earhart
Atwood	Atwood Rawlins
Augusta	Augusta Municipal
Benton	Stearman Field
Burlington	Coffey County
Chanute	Chanute Martin Johnson
Coffeyville	Coffeyville Municipal
Colby	Shalz Field
Concordia	Blosser Municipal
El Dorado	Capt Jack Thomas
Elkhart	Elkhart Morton
Ellsworth	Ellsworth Municipal

Figure 7-17: Recommended Development – GVGIs (cont.)

Associated City	*Airport Name*
Fort Scott	Fort Scott Municipal
Johnson	Stanton County Municipal
Marysville	Marysville Municipal
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Norton	Norton Municipal
Oakley	Oakley Municipal
Olathe	Johnson County
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Parsons	Tri City
Phillipsburg	Philipsburg Municipal
Scott City	Scott City Municipal
Smith Center	Smith Center Municipal
Syracuse	Syracuse Hamilton County Municipal
Tribune	Tribune Municipal
Ulysses	Ulysses
Wichita	Cessna Aircraft Field
Wichita	Riverside

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Beacon Projects

The facility and service objectives shown in Figure 7-8 indicate that Commercial Service, Regional, and Business airports should possess a lighted beacon for identification of airports from the air. Review of the airport system's performance relative to the beacon objective indicates that four of Kansas' airports should have a beacon to meet the minimum objectives for each role category. **Figure 7-18** lists those airports.

Figure 7-18: Recommended Development – Beacons

Associated City	*Airport Name*
Regional	
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Medicine Lodge	Medicine Lodge
Tribune Municipal	Tribune

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Windsock Projects

A facility objective for Kansas' airports is for airports in the Commercial Service, Regional, Business and Community roles to possess lighted windsocks, while Basic airports should have an unlighted windsock. **Figure 7-19** lists 41 existing and proposed airports in Kansas where windsocks are recommended to be installed or upgraded.

Figure 7-19: Recommended Development – Windsocks

Associated City	*Airport Name*
Regional	
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Burlington	Coffey County
Concordia	Blosser Municipal
Moundridge	Moundridge Municipal
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Ulysses	Ulysses
Wichita	Cessna Aircraft Field
Wichita	Riverside
Community	
Baldwin City	Vinland Valley Aerodrome
Fredonia	Fredonia
Hillsboro	Alfred Schroeder
Jetmore	Jetmore Municipal
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake
Mankato	Mankato
Marion	Marion Municipal
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Onaga	CE Grutzmacher
Osborne	Osborne Municipal
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore
Seneca	Seneca Municipal
St. Mary's	St Marys Airpark
Sublette	Sublette Flying Club
Wamego	Wamego Municipal
Washington	Washington County
Wichita	Westport
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Figure 7-19: Recommended Development – Windsocks (cont.)

Associated City	*Airport Name*
Basic	
Council Grove	Council Grove Municipal
Dodge City	Wilroads Gardens
Prairie View	Van Pak
Yates Center	Yates Center

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended On-Site Weather Reporting Projects

This study's facility and service objectives set a target for all Commercial Service, Regional, Business, and Community airports to have on-site weather reporting capabilities. Airports currently without on-site weather reporting can be excluded from this requirement if another airport within a short distance is equipped with weather reporting. Weather reporting can be provided by either an automated weather observation system (AWOS), an automated surface observation system (ASOS), or air traffic control tower. As shown in **Figure 7-20**, there are 40 existing and proposed airports that are recommended to have on-site weather reporting.

Figure 7-20: Recommended Development – Weather Reporting

Associated City	*Airport Name*
Regional	
Oberlin	Oberlin Municipal
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Abilene	Abilene Municipal
Coldwater	Comanche County
El Dorado	Capt Jack Thomas
Marysville	Marysville Municipal
Moundridge	Moundridge Municipal
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Beloit	Moritz Memorial
Clay Center	Clay Center Municipal
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Herington	Herington Regional
Hoxie	Hoxie Sheridan County
Kinsley	Kinsley Municipal
Lakin	Lakin
Lincoln	Lincoln Municipal
Lyons	Lyons Rice County
Mankato	Mankato

Figure 7-20: Recommended Development – Weather Reporting (cont.)

Associated City	*Airport Name*
Marion	Marion Municipal
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Osborne	Osborne Municipal
Oswego	Oswego Municipal
Pleasanton	Gilmore
Sedan	Sedan City
Seneca	Seneca Municipal
St. Mary's	St Marys Airpark
Sublette	Sublette Flying Club
WaKeeney	Trego WaKeeney
Washington	Washington County
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Ground Communications Outlet Projects

A facility objective for Kansas' airports is for airports in the Commercial Service, Regional, Business and Community roles to possess ground communications outlets (GCOs). A GCO is an automatic, remotely controlled, ground-to-ground communications device, whereby pilots at non-towered airports may contact the local air traffic control facility and/or flight service station by aircraft radio-to-telephone connection located on the airport. The 87 existing and proposed airports shown **Figure 7-21** are locations where GCOs are recommended to be installed.

Figure 7-21: Recommended Development – GCOs

Associated City	*Airport Name*
Regional	
Iola	Allen County
Newton	Newton City County
Oberlin	Oberlin Municipal
Pratt	Pratt Industrial
Wellington	Wellington Municipal
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Abilene	Abilene Municipal
Atchison	Amelia Earhart
Atwood	Atwood Rawlins
Augusta	Augusta Municipal

Figure 7-21: Recommended Development – GCOs (cont.)

Associated City	*Airport Name*
Benton	Stearman Field
Burlington	Coffey County
Coffeyville	Coffeyville Municipal
Colby	Shalz Field
Coldwater	Comanche County
Concordia	Blosser Municipal
El Dorado	Capt Jack Thomas
Elkhart	Elkhart Morton
Ellsworth	Ellsworth Municipal
Fort Scott	Fort Scott Municipal
Hugoton	Hugoton Municipal
Johnson	Stanton County Municipal
Kingman	Kingman Clyde Cessna
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Norton	Norton Municipal
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Phillipsburg	Philipsburg Municipal
Scott City	Scott City Municipal
Smith Center	Smith Center Municipal
Syracuse	Syracuse Hamilton County Municipal
Tribune	Tribune Municipal
Community	
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Beloit	Moritz Memorial
Cimmaron	Cimarron Municipal
Clay Center	Clay Center Municipal
Cottonwood Falls	Chase County
Dighton	Dighton
Eureka	Eureka Municipal
Fredonia	Fredonia
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Herington	Herington Regional
Hillsboro	Alfred Schroeder
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Jetmore	Jetmore Municipal
Junction City	Freeman Field
Kinsley	Kinsley Municipal
La Crosse	Rush County
Lakin	Lakin
Leoti	Mark Hoard Memorial
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake

Figure 7-21: Recommended Development – GCOs (cont.)

Associated City	*Airport Name*
Lyons	Lyons Rice County
Marion	Marion Municipal
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Osborne	Osborne Municipal
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Paola	Miami County
Pleasanton	Gilmore
Rose Hill	Cook Airfield
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
St. Francis	Cheyenne County Municipal
St. Mary's	St Marys Airpark
Stafford	Stafford Municipal
Sublette	Sublette Flying Club
WaKeeney	Trego WaKeeney
Wamego	Wamego Municipal
Washington	Washington County
Wichita	Westport
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Hangar Projects

The facility and service objectives shown in Figure 7-8 show that all airports in Kansas' airport system should have enough hangar space to house 100 percent of the airport's based aircraft. Review of the airport system's performance relative to the hangar objective shows that 83 of Kansas' existing airports are recommended to have additional hangars. **Figure 7-22** lists those airports. While the number of hangars to be added at each airport is not prescribed in the KASP, recommendations to address the need for additional hangar space can be found in the airport-specific facility and service objective summaries in Supplement B. While not included in Figure 7-22, the five proposed new airports, upon their completion, are recommended to construct hangars to house based aircraft as required by airport users.

Figure 7-22: Recommended Development – Hangars

Associated City	*Airport Name*
Commercial Service	
Hays	Hays Regional
Manhattan	Manhattan Regional
Salina	Salina Municipal
Wichita	Wichita Mid Continent
Regional	
Goodland	Renner Field Goodland
Independence	Independence
Lawrence	Lawrence Municipal
McPherson	McPherson
Newton	Newton City County
Oberlin	Oberlin Municipal
Olathe	New Century Air Center
Pratt	Pratt Industrial
Topeka	Philip Billard Municipal
Wellington	Wellington Municipal
Wichita	Col James Jabara
Winfield	Strother Field
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Abilene	Abilene Municipal
Atwood	Atwood Rawlins
Benton	Stearman Field
Coffeyville	Coffeyville Municipal
Coldwater	Comanche County
Ellsworth	Ellsworth Municipal
Kingman	Kingman Clyde Cessna
Larned	Larned Pawnee
Marysville	Marysville Municipal
Moundridge	Moundridge Municipal
Norton	Norton Municipal
Olathe	Johnson County
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Scott City	Scott City Municipal
Smith Center	Smith Center Municipal
Tribune	Tribune Municipal
Ulysses	Ulysses
Wichita	Beech Factory
Wichita	Riverside
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Belleville	Belleville Municipal
Cimmaron	Cimarron Municipal
Clay Center	Clay Center Municipal
Cottonwood Falls	Chase County
Dighton	Dighton

Figure 7-22: Recommended Development – Hangars (cont.)

Associated City	*Airport Name*
Eureka	Eureka Municipal
Fredonia	Fredonia
Gardner	Gardner Municipal
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Herington	Herington Regional
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Junction City	Freeman Field
Lakin	Lakin
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake
Lyons	Lyons Rice County
Mankato	Mankato
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Osborne	Osborne Municipal
Oswego	Oswego Municipal
Paola	Miami County
Pleasanton	Gilmore
Rose Hill	Cook Airfield
Sedan	Sedan City
Seneca	Seneca Municipal
St. Francis	Cheyenne County Municipal
Sublette	Sublette Flying Club
Wamego	Wamego Municipal
Washington	Washington County
Wichita	Westport
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs
Basic	
Argonia	Argonia Municipal
Bird City	Bressler Field
Caldwell	Caldwell Municipal
Council Grove	Council Grove Municipal

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Apron Projects

The KASP's facility and service objectives set a target for all Commercial Service, Regional, Business, and Community airports to have a 100'x100' paved aircraft parking apron. As shown in **Figure 7-23**, there are 46 airports, including the five proposed airports, that do not currently meet the objective and are recommended to construct a new apron or expand an existing apron area.

Figure 7-23: Recommended Development – Aprons

Associated City	*Airport Name*
Regional	
Wellington Municipal	Wellington
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Atwood	Atwood Rawlins
Benton	Stearman Field
Ellsworth	Ellsworth Municipal
Medicine Lodge	Medicine Lodge
Oakley	Oakley Municipal
Russell	Russell Municipal
Smith Center	Smith Center Municipal
Wichita	Riverside
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cottonwood Falls	Chase County
Dighton	Dighton
Fredonia	Fredonia
Greensburg	Paul Windle Municipal
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake
Mankato	Mankato
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Osborne	Osborne Municipal
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Paola	Miami County
Pleasanton	Gilmore
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
St. Mary's	St Marys Airpark
Stafford	Stafford Municipal
Sublette	Sublette Flying Club

Figure 7-23: Recommended Development – Aprons (cont.)

Associated City	*Airport Name*
Wamego	Wamego Municipal
Washington	Washington County
Wichita	Westport
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Terminal Projects

A facility objective for Kansas' airports is for airports in the Commercial Service, Regional, and Business roles to have public terminal buildings for use by pilots and visitors. Eight airports should consider the addition of a terminal building to meet the facility and service objectives for their respective roles. This recommendation includes the two proposed airports in the Regional role category. **Figure 7-24** lists these eight airports.

Figure 7-24: Recommended Development – Terminals

Associated City	*Airport Name*
Regional	
Wichita	Col James Jabara
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Tribune	Tribune Municipal

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Fixed Base Operator (FBO) Projects

Fixed base operators (FBOs) provide services for general aviation aircraft, pilots, and passengers. FBOs typically provide fuel, maintenance and storage for aircraft, flight planning and rest areas for pilots, and meeting space, concessions, and ground services for passengers. The facility and service objectives set a target for all Commercial Service airports to have a full-service FBO, while Regional airports should possess a limited-service FBO. While many FBOs are private businesses, some are run by the airport's sponsor. Services provided by FBOs could be offered by the sponsor of each airport at reasonable cost.

According to the airport-specific facility and service objective summaries found in Supplement B, just two airports, Northeast Kansas and the new airport in Leavenworth, are recommended to add the services of a limited-service FBO. Upon completion of

these two new facilities, measures to add limited FBO services will certify the airport system meets this service objective.

Recommended Auto Parking Projects

This study's facility and service objectives set a target for all Commercial Service, Regional, and Business airports to have sufficient paved auto parking for its users, while Community and Basic airports are to maintain their current auto parking facilities. As shown in **Figure 7-25**, there are 11 existing and proposed airports that are recommended to have additional paved auto parking spaces.

Figure 7-25: Recommended Development – Auto Parking

Associated City	*Airport Name*
Regional	
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Coldwater	Comanche County
Concordia	Blosser Municipal
Hill City	Hill City Municipal
Medicine Lodge	Medicine Lodge
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Smith Center	Smith Center Municipal
Tribune	Tribune Municipal
Wichita	Riverside

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Fuel Facility Projects

The facility and service objectives shown in Figure 7-8 show that all airports in the Commercial and Regional airport roles should have both AvGas and Jet-A fueling facilities, and that Business airports should have AvGas at a minimum, and Jet-A if an airport has based jets. Review of the airport system's performance relative to this objective shows that 20 of Kansas' existing airports require augmentation to their fueling facilities to meet the minimum objectives for their role categories. Two proposed Regional airports are also recommended to develop appropriate fueling. It is further recommended that new fueling facilities be accessible on a round-the-clock basis through either a credit card reader or on-call FBO services. **Figure 7-26** lists those 22 airports.

Figure 7-26: Recommended Development – Fuel Facilities

Associated City	*Airport Name*
Regional	
Oberlin Municipal	Oberlin
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Atwood	Atwood Rawlins
Coldwater	Comanche County
Elkhart	Elkhart Morton
Ellsworth	Ellsworth Municipal
Hill City	Hill City Municipal
Kingman	Kingman Clyde Cessna
Marysville	Marysville Municipal
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Norton	Norton Municipal
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Russell	Russell Municipal
Smith Center	Smith Center Municipal
Syracuse	Syracuse Hamilton County Municipal
Tribune	Tribune Municipal
Wichita	Riverside

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Restroom Projects

It is an objective for all airports in Kansas to provide restroom facilities for its users. As shown in **Figure 7-27**, there are 57 existing and proposed airports where construction of restrooms is recommended if the objective is to be met. Several of these restroom projects should be completed in concert with the recommended terminal projects shown in Figure 7-24.

Figure 7-27: Recommended Development – Restrooms

Associated City	*Airport Name*
Regional	
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Osage City	Osage City Municipal
Tribune	Tribune Municipal
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cimmaron	Cimarron Municipal
Cottonwood Falls	Chase County
Dighton	Dighton
Fredonia	Fredonia
Greensburg	Paul Windle Municipal
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Jetmore	Jetmore Municipal
Kinsley	Kinsley Municipal
La Crosse	Rush County
Lincoln	Lincoln Municipal
Lyndon	Pomona Lake
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
Stafford	Stafford Municipal
Stockton	Stockton Municipal
Sublette	Sublette Flying Club
WaKeeney	Trego WaKeeney
Wamego	Wamego Municipal
Washington	Washington County
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Figure 7-27: Recommended Development – Restrooms (cont.)

Associated City	*Airport Name*
Basic	
Wilcox Field	Anthony
Argonia Municipal	Argonia
Bressler Field	Bird City
Bucklin	Bucklin
Caldwell Municipal	Caldwell
Council Grove Municipal	Council Grove
Wilroads Gardens	Dodge City
Ellinwood Municipal	Ellinwood
Fowler	Fowler
Hiawatha Municipal	Hiawatha
Neodesha Municipal	Neodesha
Norwich	Norwich
Cedar Air Park	Olathe
Van Pak	Prairie View
Yates Center	Yates Center

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Pilot's Lounge Projects

The facility and service objectives shown in Figure 7-8 show that all airports the Commercial Service, Regional, Business, and Community airport roles should have a pilot's lounge for use in preparing for flights or resting during long flights. Review of the airport system's performance relative to this objective indicates that 45 existing and proposed system airports should construct a pilot's lounge to meet the minimum objectives for each role category. **Figure 7-28** lists those airports. Pilot lounge construction could be incorporated into plans for terminal construction or restroom construction, where applicable (see Figures 7-24 and 7-27).

Figure 7-28: Recommended Development – Pilot's Lounges

Associated City	*Airport Name*
Regional	
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Abilene	Abilene Municipal
Augusta	Augusta Municipal
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Osage City	Osage City Municipal
Tribune	Tribune Municipal
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cimmaron	Cimarron Municipal
Cottonwood Falls	Chase County
Dighton	Dighton
Greensburg	Paul Windle Municipal
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Kinsley	Kinsley Municipal
La Crosse	Rush County
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake
Mankato	Mankato
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Osborne	Osborne Municipal
Oxford	Oxford Municipal
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore
Rose Hill	Cook Airfield
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
Stafford	Stafford Municipal
Stockton	Stockton Municipal
Sublette	Sublette Flying Club
WaKeeney	Trego WaKeeney
Wamego	Wamego Municipal
Washington	Washington County
New Airport	Mayetta
New Airport	Rooks County

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Security Plan Projects

A facility and service objective for all airports in Kansas' airport system is an adopted security plan. As shown earlier in the system performance analysis, 118 new and proposed airports in Kansas are recommended to adopt a security plan to meet this performance benchmark. **Figure 7-29** shows these airports.

Figure 7-29: Recommended Development – Security Plans

Associated City	*Airport Name*
Regional	
Iola	Allen County
McPherson	McPherson
Oberlin	Oberlin Municipal
Wellington	Wellington Municipal
Winfield	Strother Field
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Abilene	Abilene Municipal
Atchison	Amelia Earhart
Atwood	Atwood Rawlins
Augusta	Augusta Municipal
Benton	Stearman Field
Burlington	Coffey County
Chanute	Chanute Martin Johnson
Coffeyville	Coffeyville Municipal
Colby	Shalz Field
Coldwater	Comanche County
Concordia	Blosser Municipal
El Dorado	Capt Jack Thomas
Elkhart	Elkhart Morton
Fort Scott	Fort Scott Municipal
Hill City	Hill City Municipal
Hugoton	Hugoton Municipal
Johnson	Stanton County Municipal

Figure 7-29: Recommended Development – Security Plans (cont.)

Associated City	*Airport Name*
Kingman	Kingman Clyde Cessna
Larned	Larned Pawnee
Marysville	Marysville Municipal
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Norton	Norton Municipal
Oakley	Oakley Municipal
Osage City	Osage City Municipal
Ottawa	Ottawa Municipal
Parsons	Tri City
Russell	Russell Municipal
Smith Center	Smith Center Municipal
Syracuse	Syracuse Hamilton County Municipal
Tribune	Tribune Municipal
Ulysses	Ulysses
Wichita	Cessna Aircraft Field
Wichita	Riverside
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Belleville	Belleville Municipal
Beloit	Moritz Memorial
Cimmaron	Cimarron Municipal
Clay Center	Clay Center Municipal
Cottonwood Falls	Chase County
Dighton	Dighton
Eureka	Eureka Municipal
Fredonia	Fredonia
Garnett	Garnett Municipal
Greensburg	Paul Windle Municipal
Herington	Herington Regional
Hillsboro	Alfred Schroeder
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
Jetmore	Jetmore Municipal
Junction City	Freeman Field
Kinsley	Kinsley Municipal
La Crosse	Rush County
Lakin	Lakin
Leoti	Mark Hoard Memorial
Lincoln	Lincoln Municipal
Lucas	Lucas
Lyndon	Pomona Lake

Figure 7-29: Recommended Development – Security Plans (cont.)

Associated City	*Airport Name*
Lyons	Lyons Rice County
Mankato	Mankato
Marion	Marion Municipal
Minneapolis	Minneapolis City County
Moline	Elk County
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Osborne	Osborne Municipal
Oswego	Oswego Municipal
Oxford	Oxford Municipal
Paola	Miami County
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore
Rose Hill	Cook Airfield
Sabetha	Sabetha Municipal
Sedan	Sedan City
Seneca	Seneca Municipal
St. Francis	Cheyenne County Municipal
St. Mary's	St Marys Airpark
Stafford	Stafford Municipal
Stockton	Stockton Municipal
Sublette	Sublette Flying Club
WaKeeney	Trego WaKeeney
Wamego	Wamego Municipal
Washington	Washington County
Goodland	Renner Field Goodland
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs
Basic	
Anthony	Wilcox Field
Argonia	Argonia Municipal
Bird City	Bressler Field
Bucklin	Bucklin
Caldwell	Caldwell Municipal
Council Grove	Council Grove Municipal
Dodge City	Wilroads Gardens
Ellinwood	Ellinwood Municipal
Fowler	Fowler
Harper	Harper Municipal
Hiawatha	Hiawatha Municipal
Ingalls	Ingalls Municipal
Neodesha	Neodesha Municipal
Norwich	Norwich

Figure 7-29: Recommended Development – Security Plans (cont.)

Associated City	*Airport Name*
Olathe	Cedar Air Park
Prairie View	Van Pak
Satanta	Satanta Municipal
Stilwell	Hillside
Wichita	Westport Auxiliary
Yates Center	Yates Center

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Snow Removal Plan Projects

The facility and service objectives shown in Figure 7-8 require airports in all role categories except Basic airports to have adopted a snow removal plan. Through a review of data pertaining to the airport system's performance among the facility and service objectives, 37 airports (including proposed airports) in these role categories in Kansas' airport system require a snow removal plan. These airports are listed in **Figure 7-30**.

Figure 7-30: Recommended Development – Snow Removal Plans

Associated City	*Airport Name*
Regional	
New Airport	Leavenworth
New Airport	Northeast Kansas
Business	
Atchison	Amelia Earhart
Atwood	Atwood Rawlins
El Dorado	Capt Jack Thomas
Moundridge	Moundridge Municipal
Smith Center	Smith Center Municipal
Wichita	Cessna Aircraft Field
Wichita	Riverside
Community	
Anthony	Anthony Municipal
Ashland	Harold Krier Field
Baldwin City	Vinland Valley Aerodrome
Cimmaron	Cimarron Municipal
Cottonwood Falls	Chase County
Greensburg	Paul Windle Municipal
Horton	Horton Municipal
Hoxie	Hoxie Sheridan County
La Crosse	Rush County
Lakin	Lakin
Lincoln	Lincoln Municipal
Lyndon	Pomona Lake
Minneapolis	Minneapolis City County
Moline	Elk County

Figure 7-30: Recommended Development – Snow Removal Plans (cont.)

Associated City	*Airport Name*
Montezuma	Montezuma Municipal
Ness City	Ness City Municipal
Onaga	CE Grutzmacher
Oxford	Oxford Municipal
Plainville	Plainville Airpark Rooks County
Pleasanton	Gilmore
St. Francis	Cheyenne County Municipal
Stafford	Stafford Municipal
Stockton	Stockton Municipal
Sublette	Sublette Flying Club
Washington	Washington County
New Airport	Mayetta
New Airport	Rooks County
New Airport	Sharon Springs

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Recommended Ground Transportation Acquisition Projects

An objective for the Kansas system of airports is for all airports except Basic-category airports to have a ground transportation link. As described in previous chapters, ground transportation allows visitors to leave the airport to conduct business in the local community. Ground transportation linkages at airports come most frequently in the form of courtesy/loaner cars, or rental cars at larger facilities. To meet this objective, 12 existing and proposed system airports are recommended to acquire ground transportation capabilities as demand warrants. These airports are listed in **Figure 7-31**.

Figure 7-31: Recommended Development – Ground Transportation

Associated City	*Airport Name*
Regional	
Independence	Independence Municipal
New airport	Leavenworth
New airport	Northeast Kansas
Business	
Coldwater	Comanche County
El Dorado	Capt. Jack Thomas
Hill City	Hill City Municipal
Meade	Meade Municipal
Medicine Lodge	Medicine Lodge
Moundridge	Moundridge Municipal
Parsons	Tri-City
Russell	Russell Municipal
Tribune	Tribune Municipal

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

DEVELOPMENT COSTS

Costs that are discussed in the final section of this chapter are those that may be incurred to raise the performance of the system to meet identified targets, to resolve performance shortfalls noted for facility and service objectives, and to implement current Capital Improvement Plans (CIPs).

The scope of this plan does not allow for detailed cost estimates to be developed. To develop costs shown in this final chapter, average unit costs for 2009 were used with input from KDOT Division of Aviation. These costs are not reflective of airport-specific conditions which might cause costs to be higher or in some instances lower. It is most likely that cost estimates provided in this chapter are conservative and that actual costs will exceed these estimates. Inclusion of a project in this document does not commit state or federal funding for that project. It is the role of the airport master plan to justify a project and develop more detailed cost estimates for airport-specific projects.

To fully fund all projects identified by the KASP and planned capital improvement projects that have been identified by study airports, an estimated $665 million in federal, state, and local funds (2009 dollars) would be needed over 20 years. **Figure 7-32** reflects these costs. As previously mentioned, costs provided in this section have not been developed to the level of detail that would result from master planning, a financial feasibility study, or an engineering study. The costs discussed in this section do provide KDOT Division of Aviation with an understanding of the general cost range that could be associated with achieving higher compliance ratings for each of the system performance measures. Cost shown in Table 7-30 would also enable study airports to act on their existing CIPs.

Figure 7-32: Total Development Costs by Airport Classification

Airport Role	*Total Estimated 20-Year Development Costs*
Commercial	$218,591,398
Regional	$120,009,196
Business	$170,400,622
Community	$149,410,235
Basic	$6,938,316
Total	**$665,349,767**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-33 identifies estimated costs by project type over the planning period, and whether those costs arise from KASP planning estimates or from an airport's CIP. It is also worth noting that the costs shown in Figure 7-33 will continually change over the 20-year planning period, due to inflation, changes in labor and materials costs, and general economic conditions.

Figures 7-34 through 7-38 show similar information as displayed in Figure 7-33, though by airport role category.

Many larger airports in Kansas have CIPs that extend into later years of the 20-year planning timeframe, and these CIP costs were incorporated into the development costs estimated in the long-term planning period. For those airports that do not have CIPs extending beyond the short- and/or mid-term, estimated costs are derived from facility and service objectives within the system plan.

Figures 7-39 through 7-70 provide cost estimates by project type over the 20-year planning period, aggregated into short-, mid-, and long-term planning horizons. These cost estimates are generally reflective of the cost that could be incurred over the next 20 years to enable airports in Kansas to meet facility and service objectives established by this study, as well as address airport-specific CIP projects. Not all projects listed in these figures are eligible for FAA funding.

In addition, there are two benchmarks that require multiple projects in order to be satisfied. These benchmarks are "Percent of Population and Area within 30 Minutes of an Airport Capable of Supporting Air Ambulance Services" and "Percent of Population and Area within 45 Minutes of an Airport Meeting Business User Needs." As discussed in previous chapters, several facilities and services are required for these benchmarks to be met, thus additional cost information for projects to improve these benchmarks are shown in **Figures 7-71 and 7-72**. These costs are a sum of those for the individual projects included in each of these two benchmarks, not in addition, and the total costs in Figures 7-71 and 7-72 are not included in the total development costs shown in Figures 7-33 through 7-38.

Figure 7-33: Total Development Costs by Period

	Short Term (2009-2012)		*Mid Term (2013-2019)*		*Long Term (2020-2029)*		*Total Cost (2009-2029)*		
Project Description:	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*Grand Total*
Airfield									
Runway Length	$367,200	$9,649,145	$3,279,060	$5,724,595	$874,470	$0	$4,520,730	$15,373,740	$19,894,470
Runway Width	$3,612,315	$1,523,136	$8,405,790	$0	$3,555,510	$0	$15,573,615	$1,523,136	$17,096,751
Taxiway	$0	$16,516,254	$18,914,375	$13,770,088	$2,038,750	$0	$20,953,125	$30,286,342	$51,239,467
Turnaround	$2,744,000	$0	$6,364,800	$0	$3,381,850	$0	$12,490,650	$0	$12,490,650
Pavement Maintenance	$18,615,625	$79,272,695	$63,060,968	$29,739,182	$25,147,548	$1,142,952	$106,824,141	$110,154,829	$216,978,970
Runway Lighting	$130,900	$2,861,883	$565,565	$1,114,845	$886,219	$220,920	$1,582,684	$4,197,648	$5,780,332
Taxiway Lighting	$0	$1,677,520	$0	$360,000	$0	$0	$0	$2,037,520	$2,037,520
Subtotal	***$25,470,040***	***$111,500,633***	***$100,590,558***	***$50,708,710***	***$35,884,347***	***$1,363,872***	***$161,944,945***	***$163,573,215***	***$325,518,160***
Navigational Aids									
Approach	$2,000,000	$2,850,931	$4,200,000	$0	$900,000	$0	$7,100,000	$2,850,931	$9,950,931
Approach Lighting	$1,400,000	$0	$4,950,000	$758,000	$26,400,000	$0	$32,750,000	$758,000	$33,508,000
PAPI	$1,305,000	$685,487	$1,125,000	$348,906	$210,000	$0	$2,640,000	$1,034,393	$3,674,393
REILS	$480,000	$160,000	$600,000	$22,960	$100,000	$0	$1,180,000	$182,960	$1,362,960
Rotating Beacon	$0	$113,640	$100,000	$0	$0	$0	$100,000	$113,640	$213,640
Wind sock	$620,000	$62,467	$375,000	$20,000	$25,000	$0	$1,020,000	$82,467	$1,102,467
Weather	$1,625,000	$163,158	$2,400,000	$0	$875,000	$0	$4,900,000	$163,158	$5,063,158
GCO	$980,000	$0	$600,000	$0	$140,000	$0	$1,720,000	$0	$1,720,000
Subtotal	***$8,410,000***	***$4,035,683***	***$14,350,000***	***$1,149,866***	***$28,650,000***	***$0***	***$51,410,000***	***$5,185,549***	***$56,595,549***
General Aviation Facilities									
Hangar	$19,500,000	$909,406	$24,500,000	$0	$27,000,000	$0	$71,000,000	$909,406	$71,909,406
Apron	$750,000	$30,693,053	$2,310,000	$19,690,283	$1,350,000	$0	$4,410,000	$50,383,336	$54,793,336
Terminal	$750,000	$105,600,000	$750,000	$0	$500,000	$0	$2,000,000	$105,600,000	$107,600,000
FBO	$0	$0	$100,000	$0	$0	$0	$100,000	$0	$100,000
Auto Parking	$540,000	$0	$675,000	$0	$405,000	$0	$1,620,000	$0	$1,620,000
Fuel	$1,610,000	$272,000	$939,000	$0	$79,000	$0	$2,628,000	$272,000	$2,900,000
Restrooms	$400,000	$0	$80,000	$0	$211,000	$0	$691,000	$0	$691,000
Pilots Lounge	$950,000	$0	$200,000	$0	$25,000	$0	$1,175,000	$0	$1,175,000
Ground Transportation Link	$100,000	$0	$0	$0	$0	$0	$100,000	$0	$100,000
Subtotal	***$24,600,000***	***$137,474,459***	***$29,554,000***	***$19,690,283***	***$29,570,000***	***$0***	***$83,724,000***	***$157,164,742***	***$240,888,742***
Planning/ Environmental									
Security Plan	$945,000	$0	$60,000	$0	$0	$0	$1,005,000	$0	$1,005,000
Snow Removal Plan	$89,000	$0	$166,000	$0	$150,000	$0	$405,000	$0	$405,000
Master Plan/ ALP	$7,625,000	$1,291,316	$9,825,000	$95,000	$18,925,000	$0	$36,375,000	$1,386,316	$37,761,316
Environmental Assessment	$2,100,000	$271,000	$525,000	$130,000	$150,000	$0	$2,775,000	$401,000	$3,176,000
Subtotal	***$10,759,000***	***$1,562,316***	***$10,576,000***	***$225,000***	***$19,225,000***	***$0***	***$40,560,000***	***$1,787,316***	***$42,347,316***
Total Cost:	**$69,239,040**	**$254,573,091**	**$155,070,558**	**$71,773,859**	**$113,329,347**	**$1,363,872**	**$337,638,945**	**$327,710,822**	**$665,349,767**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-34: Total Development Costs by Period – Commercial Service Airports

	Short Term (2009-2012)		*Mid Term (2013-2019)*		*Long Term (2020-2029)*		*Total Cost (2009-2029)*		
Project Description:	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*Grand Total*
Airfield									
Runway Length	$0	$3,005,263	$0	$0	$0	$0	$0	$3,005,263	$3,005,263
Runway Width	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxiway	$0	$0	$0	$1,773,425	$0	$0	$0	$1,773,425	$1,773,425
Turnaround	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pavement Maintenance	$0	$27,501,742	$1,724,750	$7,786,173	$11,100,000	$1,142,952	$12,824,750	$36,430,867	$49,255,617
Runway Lighting	$0	$1,327,900	$0	$0	$0	$0	$0	$1,327,900	$1,327,900
Taxiway Lighting	$0	$626,759	$0	$360,000	$0	$0	$0	$986,759	$986,759
Subtotal	***$0***	***$32,461,664***	***$1,724,750***	***$9,919,598***	***$11,100,000***	***$1,142,952***	***$12,824,750***	***$43,524,214***	***$56,348,964***
Navigational Aids									
Approach	$0	$0	$0	$0	$0	$0	$0	$0	$0
Approach Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0
PAPI	$500,000	$0	$0	$0	$0	$0	$500,000	$0	$500,000
REILS	$0	$0	$0	$0	$0	$0	$0	$0	$0
Rotating Beacon	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wind sock	$0	$0	$0	$0	$0	$0	$0	$0	$0
Weather	$0	$0	$0	$0	$0	$0	$0	$0	$0
GCO	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$500,000***	***$0***	***$0***	***$0***	***$0***	***$0***	***$500,000***	***$0***	***$500,000***
General Aviation Facilities									
Hangar	$8,000,000	$0	$0	$0	$0	$0	$8,000,000	$0	$8,000,000
Apron	$0	$25,754,997	$0	$15,842,437	$0	$0	$0	$41,597,434	$41,597,434
Terminal	$0	$105,600,000	$0	$0	$0	$0	$0	$105,600,000	$105,600,000
FBO	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auto Parking	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0
Restrooms	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pilots Lounge	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ground Transportation Link	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$8,000,000***	***$131,354,997***	***$0***	***$15,842,437***	***$0***	***$0***	***$8,000,000***	***$147,197,434***	***$155,197,434***
Planning/ Environmental									
Security Plan	$0	$0	$0	$0	$0	$0	$0	$0	$0
Snow Removal Plan	$0	$0	$0	$0	$0	$0	$0	$0	$0
Master Plan/ ALP	$950,000	$445,000	$1,750,000	$0	$3,400,000	$0	$6,100,000	$445,000	$6,545,000
Environmental Assessment	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$950,000***	***$445,000***	***$1,750,000***	***$0***	***$3,400,000***	***$0***	***$6,100,000***	***$445,000***	***$6,545,000***
Total Cost:	**$9,450,000**	**$164,261,661**	**$3,474,750**	**$25,762,035**	**$14,500,000**	**$1,142,952**	**$27,424,750**	**$191,166,648**	**$218,591,398**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-35: Total Development Costs by Period – Regional Airports

	Short Term (2009-2012)		*Mid Term (2013-2019)*		*Long Term (2020-2029)*		*Total Cost (2009-2029)*		
Project Description:	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*Grand Total*
Airfield									
Runway Length	$0	$0	$1,440,000	$0	$0	$0	$1,440,000	$0	$1,440,000
Runway Width	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxiway	$0	$5,807,289	$16,740,000	$2,882,143	$0	$0	$16,740,000	$8,689,432	$25,429,432
Turnaround	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pavement Maintenance	$4,226,850	$11,422,712	$22,779,275	$5,198,848	$1,237,275	$0	$28,243,400	$16,621,560	$44,864,960
Runway Lighting	$0	$834,581	$0	$0	$0	$0	$0	$834,581	$834,581
Taxiway Lighting	$0	$573,696	$0	$0	$0	$0	$0	$573,696	$573,696
Subtotal	***$4,226,850***	***$18,638,278***	***$40,959,275***	***$8,080,991***	***$1,237,275***	***$0***	***$46,423,400***	***$26,719,269***	***$73,142,669***
Navigational Aids									
Approach	$0	$2,029,415	$400,000	$0	$0	$0	$400,000	$2,029,415	$2,429,415
Approach Lighting	$750,000	$0	$3,000,000	$0	$3,000,000	$0	$6,750,000	$0	$6,750,000
PAPI	$350,000	$170,000	$210,000	$0	$0	$0	$560,000	$170,000	$730,000
REILS	$0	$0	$120,000	$0	$0	$0	$120,000	$0	$120,000
Rotating Beacon	$0	$0	$80,000	$0	$0	$0	$80,000	$0	$80,000
Wind sock	$0	$62,467	$50,000	$0	$0	$0	$50,000	$62,467	$112,467
Weather	$125,000	$0	$250,000	$0	$0	$0	$375,000	$0	$375,000
GCO	$100,000	$0	$40,000	$0	$0	$0	$140,000	$0	$140,000
Subtotal	***$1,325,000***	***$2,261,882***	***$4,150,000***	***$0***	***$3,000,000***	***$0***	***$8,475,000***	***$2,261,882***	***$10,736,882***
General Aviation Facilities									
Hangar	$6,000,000	$0	$13,500,000	$0	$3,000,000	$0	$22,500,000	$0	$22,500,000
Apron	$0	$3,409,171	$360,000	$1,910,000	$0	$0	$360,000	$5,319,171	$5,679,171
Terminal	$0	$0	$500,000	$0	$0	$0	$500,000	$0	$500,000
FBO	$0	$0	$100,000	$0	$0	$0	$100,000	$0	$100,000
Auto Parking	$0	$0	$270,000	$0	$0	$0	$270,000	$0	$270,000
Fuel	$120,000	$0	$416,000	$0	$0	$0	$536,000	$0	$536,000
Restrooms	$0	$0	$20,000	$0	$0	$0	$20,000	$0	$20,000
Pilots Lounge	$0	$0	$50,000	$0	$0	$0	$50,000	$0	$50,000
Ground Transportation Link	$10,000	$0	$0	$0	$0	$0	$10,000	$0	$10,000
Subtotal	***$6,130,000***	***$3,409,171***	***$15,216,000***	***$1,910,000***	***$3,000,000***	***$0***	***$24,346,000***	***$5,319,171***	***$29,665,171***
Planning/ Environmental									
Security Plan	$90,000	$0	$30,000	$0	$0	$0	$120,000	$0	$120,000
Snow Removal Plan	$0	$0	$10,000	$0	$0	$0	$10,000	$0	$10,000
Master Plan/ ALP	$1,225,000	$514,474	$875,000	$95,000	$3,025,000	$0	$5,125,000	$609,474	$5,734,474
Environmental Assessment	$600,000	$0	$0	$0	$0	$0	$600,000	$0	$600,000
Subtotal	***$1,915,000***	***$514,474***	***$915,000***	***$95,000***	***$3,025,000***	***$0***	***$5,855,000***	***$609,474***	***$6,464,474***
Total Cost:	**$13,596,850**	**$24,823,805**	**$61,240,275**	**$10,085,991**	**$10,262,275**	**$0**	**$85,099,400**	**$34,909,796**	**$120,009,196**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-36: Total Development Costs by Period – Business Airports

	Short Term (2009-2012)		*Mid Term (2013-2019)*		*Long Term (2020-2029)*		*Total Cost (2009-2029)*		
Project Description:	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*Grand Total*
Airfield									
Runway Length	$0	$4,447,868	$900,000	$4,495,700	$446,250	$0	$1,346,250	$8,943,568	$10,289,818
Runway Width	$1,564,950	$1,523,136	$5,180,550	$0	$2,546,250	$0	$9,291,750	$1,523,136	$10,814,886
Taxiway	$0	$10,481,012	$2,174,375	$5,199,615	$818,125	$0	$2,992,500	$15,680,627	$18,673,127
Turnaround	$800,000	$0	$1,440,000	$0	$1,956,250	$0	$4,196,250	$0	$4,196,250
Pavement Maintenance	$5,377,275	$24,396,154	$10,591,875	$3,901,103	$4,867,313	$0	$20,836,463	$28,297,257	$49,133,720
Runway Lighting	$0	$310,400	$0	$491,950	$712,969	$0	$712,969	$802,350	$1,515,319
Taxiway Lighting	$0	$477,065	$0	$0	$0	$0	$0	$477,065	$477,065
Subtotal	***$7,742,225***	***$41,635,635***	***$20,286,800***	***$14,088,368***	***$11,347,157***	***$0***	***$39,376,182***	***$55,724,003***	***$95,100,185***
Navigational Aids									
Approach	$700,000	$636,617	$1,100,000	$0	$300,000	$0	$2,100,000	$636,617	$2,736,617
Approach Lighting	$650,000	$0	$1,950,000	$758,000	$23,400,000	$0	$26,000,000	$758,000	$26,758,000
PAPI	$315,000	$112,500	$845,000	$0	$210,000	$0	$1,370,000	$112,500	$1,482,500
REILS	$400,000	$60,000	$440,000	$0	$100,000	$0	$940,000	$60,000	$1,000,000
Rotating Beacon	$0	$113,640	$20,000	$0	$0	$0	$20,000	$113,640	$133,640
Wind sock	$125,000	$0	$100,000	$0	$0	$0	$225,000	$0	$225,000
Weather	$625,000	$0	$275,000	$0	$0	$0	$900,000	$0	$900,000
GCO	$340,000	$0	$240,000	$0	$0	$0	$580,000	$0	$580,000
Subtotal	***$3,155,000***	***$922,757***	***$4,970,000***	***$758,000***	***$24,010,000***	***$0***	***$32,135,000***	***$1,680,757***	***$33,815,757***
General Aviation Facilities									
Hangar	$4,000,000	$488,914	$7,000,000	$0	$8,000,000	$0	$19,000,000	$488,914	$19,488,914
Apron	$300,000	$845,546	$600,000	$1,442,378	$0	$0	$900,000	$2,287,924	$3,187,924
Terminal	$750,000	$0	$250,000	$0	$500,000	$0	$1,500,000	$0	$1,500,000
FBO	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auto Parking	$540,000	$0	$405,000	$0	$405,000	$0	$1,350,000	$0	$1,350,000
Fuel	$1,490,000	$272,000	$523,000	$0	$79,000	$0	$2,092,000	$272,000	$2,364,000
Restrooms	$40,000	$0	$10,000	$0	$111,000	$0	$161,000	$0	$161,000
Pilots Lounge	$150,000	$0	$25,000	$0	$0	$0	$175,000	$0	$175,000
Ground Transportation Link	$90,000	$0	$0	$0	$0	$0	$90,000	$0	$90,000
Subtotal	***$7,360,000***	***$1,606,460***	***$8,813,000***	***$1,442,378***	***$9,095,000***	***$0***	***$25,268,000***	***$3,048,838***	***$28,316,838***
Planning/ Environmental									
Security Plan	$510,000	$0	$15,000	$0	$0	$0	$525,000	$0	$525,000
Snow Removal Plan	$35,000	$0	$150,000	$0	$150,000	$0	$335,000	$0	$335,000
Master Plan/ ALP	$3,750,000	$131,842	$1,800,000	$0	$6,000,000	$0	$11,550,000	$131,842	$11,681,842
Environmental Assessment	$150,000	$196,000	$75,000	$130,000	$75,000	$0	$300,000	$326,000	$626,000
Subtotal	***$4,445,000***	***$327,842***	***$2,040,000***	***$130,000***	***$6,225,000***	***$0***	***$12,710,000***	***$457,842***	***$13,167,842***
Total Cost:	**$22,702,225**	**$44,492,694**	**$36,109,800**	**$16,418,746**	**$50,677,157**	**$0**	**$109,489,182**	**$60,911,440**	**$170,400,622**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-37: Total Development Costs by Period – Community Airports

	Short Term (2009-2012)		*Mid Term (2013-2019)*		*Long Term (2020-2029)*		*Total Cost (2009-2029)*		
Project Description:	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*Grand Total*
Airfield									
Runway Length	$367,200	$2,196,014	$939,060	$1,228,895	$428,220	$0	$1,734,480	$3,424,909	$5,159,389
Runway Width	$2,047,365	$0	$3,225,240	$0	$1,009,260	$0	$6,281,865	$0	$6,281,865
Taxiway	$0	$227,953	$0	$3,914,905	$1,220,625	$0	$1,220,625	$4,142,858	$5,363,483
Turnaround	$1,944,000	$0	$4,924,800	$0	$1,425,600	$0	$8,294,400	$0	$8,294,400
Pavement Maintenance	$9,011,500	$15,952,087	$25,291,752	$12,853,058	$7,942,960	$0	$42,246,212	$28,805,145	$71,051,357
Runway Lighting	$130,900	$389,002	$565,565	$622,895	$173,250	$220,920	$869,715	$1,232,817	$2,102,532
Taxiway Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$13,500,965***	***$18,765,056***	***$34,946,417***	***$18,619,753***	***$12,199,915***	***$220,920***	***$60,647,297***	***$37,605,729***	***$98,253,026***
Navigational Aids									
Approach	$1,300,000	$184,899	$2,700,000	$0	$600,000	$0	$4,600,000	$184,899	$4,784,899
Approach Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0
PAPI	$140,000	$402,987	$70,000	$348,906	$0	$0	$210,000	$751,893	$961,893
REILS	$80,000	$100,000	$40,000	$22,960	$0	$0	$120,000	$122,960	$242,960
Rotating Beacon	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wind sock	$475,000	$0	$225,000	$20,000	$25,000	$0	$725,000	$20,000	$745,000
Weather	$875,000	$163,158	$1,875,000	$0	$875,000	$0	$3,625,000	$163,158	$3,788,158
GCO	$540,000	$0	$320,000	$0	$140,000	$0	$1,000,000	$0	$1,000,000
Subtotal	***$3,410,000***	***$851,044***	***$5,230,000***	***$391,866***	***$1,640,000***	***$0***	***$10,280,000***	***$1,242,910***	***$11,522,910***
General Aviation Facilities									
Hangar	$1,000,000	$420,492	$4,000,000	$0	$14,500,000	$0	$19,500,000	$420,492	$19,920,492
Apron	$450,000	$683,339	$1,350,000	$495,468	$1,350,000	$0	$3,150,000	$1,178,807	$4,328,807
Terminal	$0	$0	$0	$0	$0	$0	$0	$0	$0
FBO	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auto Parking	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0
Restrooms	$300,000	$0	$50,000	$0	$10,000	$0	$360,000	$0	$360,000
Pilots Lounge	$800,000	$0	$125,000	$0	$25,000	$0	$950,000	$0	$950,000
Ground Transportation Link	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$2,550,000***	***$1,103,831***	***$5,525,000***	***$495,468***	***$15,885,000***	***$0***	***$23,960,000***	***$1,599,299***	***$25,559,299***
Planning/ Environmental									
Security Plan	$250,000	$0	$15,000	$0	$0	$0	$265,000	$0	$265,000
Snow Removal Plan	$54,000	$0	$6,000	$0	$0	$0	$60,000	$0	$60,000
Master Plan/ ALP	$1,700,000	$200,000	$4,400,000	$0	$5,500,000	$0	$11,600,000	$200,000	$11,800,000
Environmental Assessment	$1,350,000	$75,000	$450,000	$0	$75,000	$0	$1,875,000	$75,000	$1,950,000
Subtotal	***$3,354,000***	***$275,000***	***$4,871,000***	***$0***	***$5,575,000***	***$0***	***$13,800,000***	***$275,000***	***$14,075,000***
Total Cost:	**$22,814,965**	**$20,994,931**	**$50,572,417**	**$19,507,087**	**$35,299,915**	**$220,920**	**$108,687,297**	**$40,722,938**	**$149,410,235**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-38: Total Development Costs by Period – Basic Airports

	Short Term (2009-2012)		*Mid Term (2013-2019)*		*Long Term (2020-2029)*		*Total Cost (2009-2029)*		
Project Description:	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*KASP*	*Airport CIP*	*Grand Total*
Airfield									
Runway Length	$0	$0	$0	$0	$0	$0	$0	$0	$0
Runway Width	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxiway	$0	$0	$0	$0	$0	$0	$0	$0	$0
Turnaround	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pavement Maintenance	$0	$0	$2,673,316	$0	$0	$0	$2,673,316	$0	$2,673,316
Runway Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0
Taxiway Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$0***	***$0***	***$2,673,316***	***$0***	***$0***	***$0***	***$2,673,316***	***$0***	***$2,673,316***
Navigational Aids									
Approach	$0	$0	$0	$0	$0	$0	$0	$0	$0
Approach Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0
PAPI	$0	$0	$0	$0	$0	$0	$0	$0	$0
REILS	$0	$0	$0	$0	$0	$0	$0	$0	$0
Rotating Beacon	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wind sock	$20,000	$0	$0	$0	$0	$0	$20,000	$0	$20,000
Weather	$0	$0	$0	$0	$0	$0	$0	$0	$0
GCO	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$20,000***	***$0***	***$0***	***$0***	***$0***	***$0***	***$20,000***	***$0***	***$20,000***
General Aviation Facilities									
Hangar	$500,000	$0	$0	$0	$1,500,000	$0	$2,000,000	$0	$2,000,000
Apron	$0	$0	$0	$0	$0	$0	$0	$0	$0
Terminal	$0	$0	$0	$0	$0	$0	$0	$0	$0
FBO	$0	$0	$0	$0	$0	$0	$0	$0	$0
Auto Parking	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fuel	$0	$0	$0	$0	$0	$0	$0	$0	$0
Restrooms	$60,000	$0	$0	$0	$90,000	$0	$150,000	$0	$150,000
Pilots Lounge	$0	$0	$0	$0	$0	$0	$0	$0	$0
Ground Transportation Link	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$560,000***	***$0***	***$0***	***$0***	***$1,590,000***	***$0***	***$2,150,000***	***$0***	***$2,150,000***
Planning/ Environmental									
Security Plan	$95,000	$0	$0	$0	$0	$0	$95,000	$0	$95,000
Snow Removal Plan	$0	$0	$0	$0	$0	$0	$0	$0	$0
Master Plan/ ALP	$0	$0	$1,000,000	$0	$1,000,000	$0	$2,000,000	$0	$2,000,000
Environmental Assessment	$0	$0	$0	$0	$0	$0	$0	$0	$0
Subtotal	***$95,000***	***$0***	***$1,000,000***	***$0***	***$1,000,000***	***$0***	***$2,095,000***	***$0***	***$2,095,000***
Total Cost:	**$675,000**	**$0**	**$3,673,316**	**$0**	**$2,590,000**	**$0**	**$6,938,316**	**$0**	**$6,938,316**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-39: Total Development Costs by Period – Airfield – Runway Length

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$3,005,263	$0	$0	$0	$0	$0	$3,005,263	$3,005,263
Regional	$0	$0	$1,440,000	$0	$0	$0	$1,440,000	$0	$1,440,000
Business	$0	$4,447,868	$900,000	$4,495,700	$446,250	$0	$1,346,250	$8,943,568	$10,289,818
Community	$367,200	$2,196,014	$939,060	$1,228,895	$428,220	$0	$1,734,480	$3,424,909	$5,159,389
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$367,200**	**$9,649,145**	**$3,279,060**	**$5,724,595**	**$874,470**	**$0**	**$4,520,730**	**$15,373,740**	**$19,894,470**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-40: Total Development Costs by Period – Airfield – Runway Width

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$0	$0	$0	$0	$0	$0	$0
Business	$1,564,950	$1,523,136	$5,180,550	$0	$2,546,250	$0	$9,291,750	$1,523,136	$10,814,886
Community	$2,047,365	$0	$3,225,240	$0	$1,009,260	$0	$6,281,865	$0	$6,281,865
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$3,612,315**	**$1,523,136**	**$8,405,790**	**$0**	**$3,555,510**	**$0**	**$15,573,615**	**$1,523,136**	**$17,096,751**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-41: Total Development Costs by Period – Airfield – Taxiways

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$1,773,425	$0	$0	$0	$1,773,425	$1,773,425
Regional	$0	$5,807,289	$16,740,000	$2,882,143	$0	$0	$16,740,000	$8,689,432	$25,429,432
Business	$0	$10,481,012	$2,174,375	$5,199,615	$818,125	$0	$2,992,500	$15,680,627	$18,673,127
Community	$0	$227,953	$0	$3,914,905	$1,220,625	$0	$1,220,625	$4,142,858	$5,363,483
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$16,516,254**	**$18,914,375**	**$13,770,088**	**$2,038,750**	**$0**	**$20,953,125**	**$30,286,342**	**$51,239,467**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-42: Total Development Costs by Period – Airfield – Turnarounds

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$0	$0	$0	$0	$0	$0	$0
Business	$800,000	$0	$1,440,000	$0	$1,956,250	$0	$4,196,250	$0	$4,196,250
Community	$1,944,000	$0	$4,924,800	$0	$1,425,600	$0	$8,294,400	$0	$8,294,400
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$2,744,000**	**$0**	**$6,364,800**	**$0**	**$3,381,850**	**$0**	**$12,490,650**	**$0**	**$12,490,650**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-43: Total Development Costs by Period – Airfield – Pavement Maintenance

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$27,501,742	$1,724,750	$7,786,173	$11,100,000	$1,142,952	$12,824,750	$36,430,867	$49,255,617
Regional	$4,226,850	$11,422,712	$22,779,275	$5,198,848	$1,237,275	$0	$28,243,400	$16,621,560	$44,864,960
Business	$5,377,275	$24,396,154	$10,591,875	$3,901,103	$4,867,313	$0	$20,836,463	$28,297,257	$49,133,720
Community	$9,011,500	$15,952,087	$25,291,752	$12,853,058	$7,942,960	$0	$42,246,212	$28,805,145	$71,051,357
Basic	$0	$0	$2,673,316	$0	$0	$0	$2,673,316	$0	$2,673,316
Total	**$18,615,625**	**$79,272,695**	**$63,060,968**	**$29,739,182**	**$25,147,548**	**$1,142,952**	**$106,824,141**	**$110,154,829**	**$216,978,970**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-44: Total Development Costs by Period – Airfield – Runway Lighting

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$1,327,900	$0	$0	$0	$0	$0	$1,327,900	$1,327,900
Regional	$0	$834,581	$0	$0	$0	$0	$0	$834,581	$834,581
Business	$0	$310,400	$0	$491,950	$712,969	$0	$712,969	$802,350	$1,515,319
Community	$130,900	$389,002	$565,565	$622,895	$173,250	$220,920	$869,715	$1,232,817	$2,102,532
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$130,900**	**$2,861,883**	**$565,565**	**$1,114,845**	**$886,219**	**$220,920**	**$1,582,684**	**$4,197,648**	**$5,780,332**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-45: Total Development Costs by Period – Airfield – Taxiway Lighting

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$626,759	$0	$360,000	$0	$0	$0	$986,759	$986,759
Regional	$0	$573,696	$0	$0	$0	$0	$0	$573,696	$573,696
Business	$0	$477,065	$0	$0	$0	$0	$0	$477,065	$477,065
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$1,677,520**	**$0**	**$360,000**	**$0**	**$0**	**$0**	**$2,037,520**	**$2,037,520**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-46: Total Development Costs by Period – Airfield – Total Airfield

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$32,461,664	$1,724,750	$9,919,598	$11,100,000	$1,142,952	$12,824,750	$43,524,214	$56,348,964
Regional	$4,226,850	$18,638,278	$40,959,275	$8,080,991	$1,237,275	$0	$46,423,400	$26,719,269	$73,142,669
Business	$7,742,225	$41,635,635	$20,286,800	$14,088,368	$11,347,157	$0	$39,376,182	$55,724,003	$95,100,185
Community	$13,500,965	$18,765,056	$34,946,417	$18,619,753	$12,199,915	$220,920	$60,647,297	$37,605,729	$98,253,026
Basic	$0	$0	$2,673,316	$0	$0	$0	$2,673,316	$0	$2,673,316
Total	**$25,470,040**	**$111,500,633**	**$100,590,558**	**$50,708,710**	**$35,884,347**	**$1,363,872**	**$161,944,945**	**$163,573,215**	**$325,518,160**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-47: Total Development Costs by Period – NAVAIDS – Approaches

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$2,029,415	$400,000	$0	$0	$0	$400,000	$2,029,415	$2,429,415
Business	$700,000	$636,617	$1,100,000	$0	$300,000	$0	$2,100,000	$636,617	$2,736,617
Community	$1,300,000	$184,899	$2,700,000	$0	$600,000	$0	$4,600,000	$184,899	$4,784,899
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$2,000,000**	**$2,850,931**	**$4,200,000**	**$0**	**$900,000**	**$0**	**$7,100,000**	**$2,850,931**	**$9,950,931**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-48: Total Development Costs by Period – NAVAIDS – Approach Lighting

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$750,000	$0	$3,000,000	$0	$3,000,000	$0	$6,750,000	$0	$6,750,000
Business	$650,000	$0	$1,950,000	$758,000	$23,400,000	$0	$26,000,000	$758,000	$26,758,000
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$1,400,000**	**$0**	**$4,950,000**	**$758,000**	**$26,400,000**	**$0**	**$32,750,000**	**$758,000**	**$33,508,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-49: Total Development Costs by Period – NAVAIDS – GVGIs

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$500,000	$0	$0	$0	$0	$0	$500,000	$0	$500,000
Regional	$350,000	$170,000	$210,000	$0	$0	$0	$560,000	$170,000	$730,000
Business	$315,000	$112,500	$845,000	$0	$210,000	$0	$1,370,000	$112,500	$1,482,500
Community	$140,000	$402,987	$70,000	$348,906	$0	$0	$210,000	$751,893	$961,893
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$1,305,000**	**$685,487**	**$1,125,000**	**$348,906**	**$210,000**	**$0**	**$2,640,000**	**$1,034,393**	**$3,674,393**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-50: Total Development Costs by Period – NAVAIDS – REILs

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$120,000	$0	$0	$0	$120,000	$0	$120,000
Business	$400,000	$60,000	$440,000	$0	$100,000	$0	$940,000	$60,000	$1,000,000
Community	$80,000	$100,000	$40,000	$22,960	$0	$0	$120,000	$122,960	$242,960
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$480,000**	**$160,000**	**$600,000**	**$22,960**	**$100,000**	**$0**	**$1,180,000**	**$182,960**	**$1,362,960**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009.

Figure 7-51: Total Development Costs by Period – NAVAIDS – Beacons

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$80,000	$0	$0	$0	$80,000	$0	$80,000
Business	$0	$113,640	$20,000	$0	$0	$0	$20,000	$113,640	$133,640
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$113,640**	**$100,000**	**$0**	**$0**	**$0**	**$100,000**	**$113,640**	**$213,640**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-52: Total Development Costs by Period – NAVAIDS – Windsocks

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$62,467	$50,000	$0	$0	$0	$50,000	$62,467	$112,467
Business	$125,000	$0	$100,000	$0	$0	$0	$225,000	$0	$225,000
Community	$475,000	$0	$225,000	$20,000	$25,000	$0	$725,000	$20,000	$745,000
Basic	$20,000	$0	$0	$0	$0	$0	$20,000	$0	$20,000
Total	**$620,000**	**$62,467**	**$375,000**	**$20,000**	**$25,000**	**$0**	**$1,020,000**	**$82,467**	**$1,102,467**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-53: Total Development Costs by Period – NAVAIDS – Weather Reporting

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$125,000	$0	$250,000	$0	$0	$0	$375,000	$0	$375,000
Business	$625,000	$0	$275,000	$0	$0	$0	$900,000	$0	$900,000
Community	$875,000	$163,158	$1,875,000	$0	$875,000	$0	$3,625,000	$163,158	$3,788,158
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$1,625,000**	**$163,158**	**$2,400,000**	**$0**	**$875,000**	**$0**	**$4,900,000**	**$163,158**	**$5,063,158**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-54: Total Development Costs by Period – NAVAIDS – GCOs

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$100,000	$0	$40,000	$0	$0	$0	$140,000	$0	$140,000
Business	$340,000	$0	$240,000	$0	$0	$0	$580,000	$0	$580,000
Community	$540,000	$0	$320,000	$0	$140,000	$0	$1,000,000	$0	$1,000,000
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$980,000**	**$0**	**$600,000**	**$0**	**$140,000**	**$0**	**$1,720,000**	**$0**	**$1,720,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-55: Total Development Costs by Period – NAVAIDS – Total NAVAIDs

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$500,000	$0	$0	$0	$0	$0	$500,000	$0	$500,000
Regional	$1,325,000	$2,261,882	$4,150,000	$0	$3,000,000	$0	$8,475,000	$2,261,882	$10,736,882
Business	$3,155,000	$922,757	$4,970,000	$758,000	$24,010,000	$0	$32,135,000	$1,680,757	$33,815,757
Community	$3,410,000	$851,044	$5,230,000	$391,866	$1,640,000	$0	$10,280,000	$1,242,910	$11,522,910
Basic	$20,000	$0	$0	$0	$0	$0	$20,000	$0	$20,000
Total	**$8,410,000**	**$4,035,683**	**$14,350,000**	**$1,149,866**	**$28,650,000**	**$0**	**$51,410,000**	**$5,185,549**	**$56,595,549**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-56: Total Development Costs by Period – General Aviation Facilities – Hangars

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$8,000,000	$0	$0	$0	$0	$0	$8,000,000	$0	$8,000,000
Regional	$6,000,000	$0	$13,500,000	$0	$3,000,000	$0	$22,500,000	$0	$22,500,000
Business	$4,000,000	$488,914	$7,000,000	$0	$8,000,000	$0	$19,000,000	$488,914	$19,488,914
Community	$1,000,000	$420,492	$4,000,000	$0	$14,500,000	$0	$19,500,000	$420,492	$19,920,492
Basic	$500,000	$0	$0	$0	$1,500,000	$0	$2,000,000	$0	$2,000,000
Total	**$19,500,000**	**$909,406**	**$24,500,000**	**$0**	**$27,000,000**	**$0**	**$71,000,000**	**$909,406**	**$71,909,406**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-57: Total Development Costs by Period – General Aviation Facilities – Aprons

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$25,754,997	$0	$15,842,437	$0	$0	$0	$41,597,434	$41,597,434
Regional	$0	$3,409,171	$360,000	$1,910,000	$0	$0	$360,000	$5,319,171	$5,679,171
Business	$300,000	$845,546	$600,000	$1,442,378	$0	$0	$900,000	$2,287,924	$3,187,924
Community	$450,000	$683,339	$1,350,000	$495,468	$1,350,000	$0	$3,150,000	$1,178,807	$4,328,807
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$750,000**	**$30,693,053**	**$2,310,000**	**$19,690,283**	**$1,350,000**	**$0**	**$4,410,000**	**$50,383,336**	**$54,793,336**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-58: Total Development Costs by Period – General Aviation Facilities – Terminals

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$105,600,000	$0	$0	$0	$0	$0	$105,600,000	$105,600,000
Regional	$0	$0	$500,000	$0	$0	$0	$500,000	$0	$500,000
Business	$750,000	$0	$250,000	$0	$500,000	$0	$1,500,000	$0	$1,500,000
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$750,000**	**$105,600,000**	**$750,000**	**$0**	**$500,000**	**$0**	**$2,000,000**	**$105,600,000**	**$107,600,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-59: Total Development Costs by Period – General Aviation Facilities – FBOs

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$100,000	$0	$0	$0	$100,000	$0	$100,000
Business	$0	$0	$0	$0	$0	$0	$0	$0	$0
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$100,000**	**$0**	**$0**	**$0**	**$100,000**	**$0**	**$100,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-60: Total Development Costs by Period – General Aviation Facilities – Auto Parking

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$270,000	$0	$0	$0	$270,000	$0	$270,000
Business	$540,000	$0	$405,000	$0	$405,000	$0	$1,350,000	$0	$1,350,000
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$540,000**	**$0**	**$675,000**	**$0**	**$405,000**	**$0**	**$1,620,000**	**$0**	**$1,620,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-61: Total Development Costs by Period – General Aviation Facilities – Fuel

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$120,000	$0	$416,000	$0	$0	$0	$536,000	$0	$536,000
Business	$1,490,000	$272,000	$523,000	$0	$79,000	$0	$2,092,000	$272,000	$2,364,000
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$1,610,000**	**$272,000**	**$939,000**	**$0**	**$79,000**	**$0**	**$2,628,000**	**$272,000**	**$2,900,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-62: Total Development Costs by Period – General Aviation Facilities – Restrooms

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$20,000	$0	$0	$0	$20,000	$0	$20,000
Business	$40,000	$0	$10,000	$0	$111,000	$0	$161,000	$0	$161,000
Community	$300,000	$0	$50,000	$0	$10,000	$0	$360,000	$0	$360,000
Basic	$60,000	$0	$0	$0	$90,000	$0	$150,000	$0	$150,000
Total	**$400,000**	**$0**	**$80,000**	**$0**	**$211,000**	**$0**	**$691,000**	**$0**	**$691,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-63: Total Development Costs by Period – General Aviation Facilities – Pilot's Lounges

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$50,000	$0	$0	$0	$50,000	$0	$50,000
Business	$150,000	$0	$25,000	$0	$0	$0	$175,000	$0	$175,000
Community	$800,000	$0	$125,000	$0	$25,000	$0	$950,000	$0	$950,000
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$950,000**	**$0**	**$200,000**	**$0**	**$25,000**	**$0**	**$1,175,000**	**$0**	**$1,175,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-64: Total Development Costs by Period – General Aviation Facilities – Ground Transportation

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$10,000	$0	$0	$0	$0	$0	$10,000	$0	$10,000
Business	$90,000	$0	$0	$0	$0	$0	$90,000	$0	$90,000
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$100,000**	**$0**	**$0**	**$0**	**$0**	**$0**	**$100,000**	**$0**	**$100,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-65: Total Development Costs by Period – General Aviation Facilities – General Aviation Facilities Total

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$8,000,000	$131,354,997	$0	$15,842,437	$0	$0	$8,000,000	$147,197,434	$155,197,434
Regional	$6,130,000	$3,409,171	$15,216,000	$1,910,000	$3,000,000	$0	$24,346,000	$5,319,171	$29,665,171
Business	$7,360,000	$1,606,460	$8,813,000	$1,442,378	$9,095,000	$0	$25,268,000	$3,048,838	$28,316,838
Community	$2,550,000	$1,103,831	$5,525,000	$495,468	$15,885,000	$0	$23,960,000	$1,599,299	$25,559,299
Basic	$560,000	$0	$0	$0	$1,590,000	$0	$2,150,000	$0	$2,150,000
Total	**$24,600,000**	**$137,474,459**	**$29,554,000**	**$19,690,283**	**$29,570,000**	**$0**	**$83,724,000**	**$157,164,742**	**$240,888,742**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-66: Total Development Costs by Period – Planning/Environmental – Security Plans

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$90,000	$0	$30,000	$0	$0	$0	$120,000	$0	$120,000
Business	$510,000	$0	$15,000	$0	$0	$0	$525,000	$0	$525,000
Community	$250,000	$0	$15,000	$0	$0	$0	$265,000	$0	$265,000
Basic	$95,000	$0	$0	$0	$0	$0	$95,000	$0	$95,000
Total	**$945,000**	**$0**	**$60,000**	**$0**	**$0**	**$0**	**$1,005,000**	**$0**	**$1,005,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-67: Total Development Costs by Period – Planning/Environmental – Snow Removal Plans

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$0	$0	$10,000	$0	$0	$0	$10,000	$0	$10,000
Business	$35,000	$0	$150,000	$0	$150,000	$0	$335,000	$0	$335,000
Community	$54,000	$0	$6,000	$0	$0	$0	$60,000	$0	$60,000
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$89,000**	**$0**	**$166,000**	**$0**	**$150,000**	**$0**	**$405,000**	**$0**	**$405,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-68: Total Development Costs by Period – Planning/Environmental – Master Plans/Airport Layout Plans

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$950,000	$445,000	$1,750,000	$0	$3,400,000	$0	$6,100,000	$445,000	$6,545,000
Regional	$1,225,000	$514,474	$875,000	$95,000	$3,025,000	$0	$5,125,000	$609,474	$5,734,474
Business	$3,750,000	$131,842	$1,800,000	$0	$6,000,000	$0	$11,550,000	$131,842	$11,681,842
Community	$1,700,000	$200,000	$4,400,000	$0	$5,500,000	$0	$11,600,000	$200,000	$11,800,000
Basic	$0	$0	$1,000,000	$0	$1,000,000	$0	$2,000,000	$0	$2,000,000
Total	**$7,625,000**	**$1,291,316**	**$9,825,000**	**$95,000**	**$18,925,000**	**$0**	**$36,375,000**	**$1,386,316**	**$37,761,316**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-69: Total Development Costs by Period – Planning/Environmental – Environmental Assessments

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$600,000	$0	$0	$0	$0	$0	$600,000	$0	$600,000
Business	$150,000	$196,000	$75,000	$130,000	$75,000	$0	$300,000	$326,000	$626,000
Community	$1,350,000	$75,000	$450,000	$0	$75,000	$0	$1,875,000	$75,000	$1,950,000
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$2,100,000**	**$271,000**	**$525,000**	**$130,000**	**$150,000**	**$0**	**$2,775,000**	**$401,000**	**$3,176,000**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-70: Total Development Costs by Period – Planning/Environmental – Total Planning/Environmental

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$950,000	$445,000	$1,750,000	$0	$3,400,000	$0	$6,100,000	$445,000	$6,545,000
Regional	$1,915,000	$514,474	$915,000	$95,000	$3,025,000	$0	$5,855,000	$609,474	$6,464,474
Business	$4,445,000	$327,842	$2,040,000	$130,000	$6,225,000	$0	$12,710,000	$457,842	$13,167,842
Community	$3,354,000	$275,000	$4,871,000	$0	$5,575,000	$0	$13,800,000	$275,000	$14,075,000
Basic	$95,000	$0	$1,000,000	$0	$1,000,000	$0	$2,095,000	$0	$2,095,000
Total	**$10,759,000**	**$1,562,316**	**$10,576,000**	**$225,000**	**$19,225,000**	**$0**	**$40,560,000**	**$1,787,316**	**$42,347,316**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-71: Total Development Costs by Period – Air Ambulance Capabilities

	Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)		
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$125,000	$84,211	$325,000	$0	$0	$0	$450,000	$84,211	$534,211
Business	$1,565,000	$1,548,136	$5,815,550	$1,954,146	$3,292,500	$0	$10,673,050	$3,502,282	$14,175,332
Community	$1,513,000	$0	$3,308,320	$1,228,895	$962,000	$0	$5,783,320	$1,228,895	$7,012,215
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$3,203,000**	**$1,632,347**	**$9,448,870**	**$3,183,041**	**$4,254,500**	**$0**	**$16,906,370**	**$4,815,388**	**$21,721,758**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-72: Total Development Costs by Period – Business User Capabilities

		Short Term (2009-2012)		Mid Term (2013-2019)		Long Term (2019-2029)		Total (2009-2029)	
Airport Role	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*KASP*	*CIP*	*Grand Total*
Commercial	$0	$0	$0	$0	$0	$0	$0	$0	$0
Regional	$120,000	$84,211	$1,948,000	$0	$0	$0	$2,068,000	$84,211	$2,152,211
Business	$0	$0	$0	$0	$0	$0	$0	$0	$0
Community	$0	$0	$0	$0	$0	$0	$0	$0	$0
Basic	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$120,000**	**$84,211**	**$1,948,000**	**$0**	**$0**	**$0**	**$2,068,000**	**$84,211**	**$2,152,211**

Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

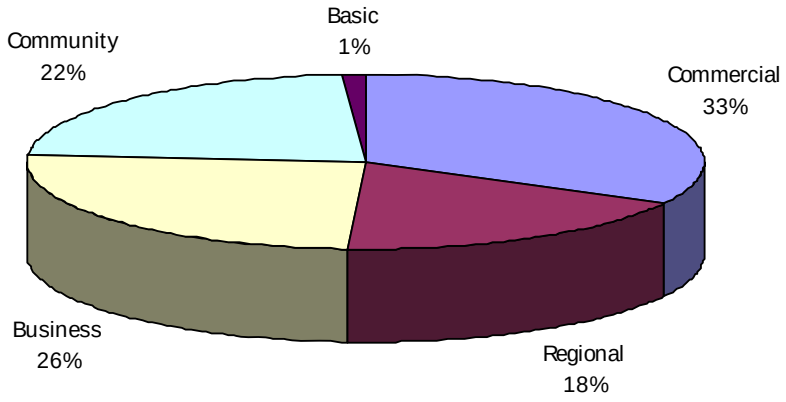
Figure 7-73 summarizes the estimated 20-year costs by airport role. As shown, 50 percent of these costs would be incurred to raise the level of performance for Commercial Service and Regional Airports in Kansas. The remaining 50 percent would be needed to raise the level of performance of Business, Community, and Basic airports.

Figure 7-74 shows these costs by major cost category, which indicates that nearly half of all development costs are attributable to Airfield development, and over one-third to General Aviation facility development.

Figure 7-75 breaks down the individual cost categories and shows cost categories that amount to more than five percent of total development costs. Pavement Maintenance and Terminal costs are the largest categories, accounting for 47 percent of all costs. Hangars, Taxiways, and Aprons each account for eight percent of total development costs.

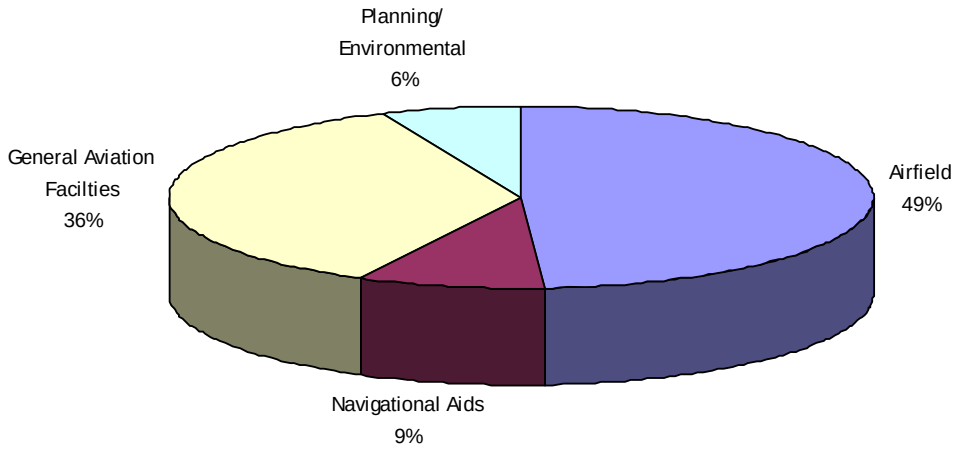
It is worth noting that one especially large project – a new commercial terminal currently programmed in Wichita Mid-Continent's CIP – accounts for nearly 20 percent of all costs shown in this document. In the absence of this project, relatively more investment is actually being recommended in Kansas' Business and Community airports. Similarly, the general aviation facilities cost center in Figure 7-72 would be proportionally smaller, as would terminal costs in Figure 7-73.

Figure 7-73: 20-Year Development Costs by Airport Role



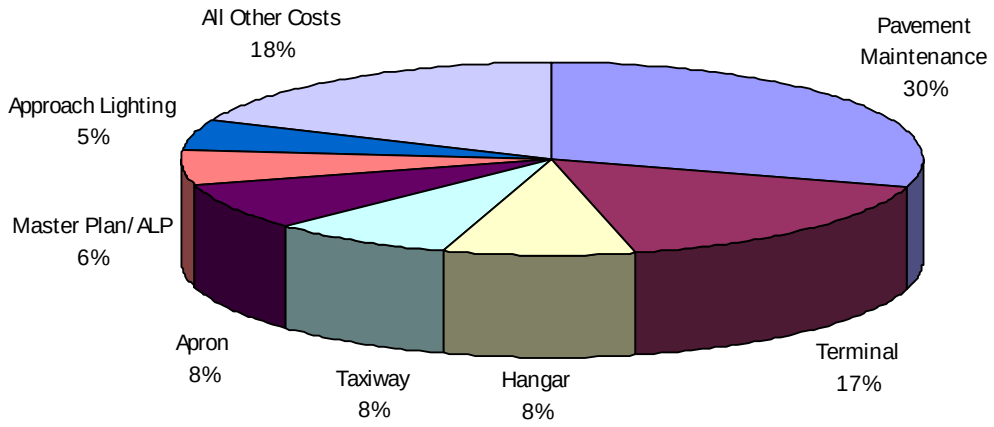
Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-74: 20-Year Development Costs by Major Cost Category



Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

Figure 7-75: 20-Year Development Costs by Individual Cost Category



Source: Wilbur Smith Associates, HNTB.
Prepared: March 2009

FUNDING NEEDS

Over the next 20 years, the approximate annual average cost to raise the level of performance of airports in Kansas would be at least $33 million (in 2009 dollars). Between 2000 and 2007, when federal, state, and local funding sources are all considered, each year an average of $25.9 million has been invested in airports in Kansas.

It is likely that the annual funding estimate of $33 million to maintain and enhance airports in Kansas is conservative. Actual annual funding needs will almost certainly exceed this estimate. In the past, through federal and state funding streams, KDOT has generally been able to respond to grant requests from system airports. Expanding on historic levels of state funding is vital to the Kansas airport system and to ultimate success of this plan.

The Kansas Aviation System Plan has identified costs that will be needed to elevate the overall performance of the state's airport system and enable individual airports in the system to fulfill their designated roles. The importance of Kansas' airports to the economy of the state, cities and counties is undeniable. The system must be maintained and justifiably expanded to meet the needs of the aviation community, but also meet the economic demands in the state.

SUMMARY

As critical parts of the state's infrastructure and economy, Kansas' airports must be maintained and expanded to fully meet the state's business and transportation needs. This chapter provided recommendations and estimated costs for developing the Kansas aviation system to meet the demands placed upon it. Via the recommendations made in this chapter, the Kansas Department of Transportation has a blueprint for ensuring its system of airports will continue to safely and efficiently serve each community, and the state as a whole.