

North Central Texas



General Aviation and Heliport System Plan

H O R I Z O N 2 0 3 5



EXECUTIVE SUMMARY

MAY 2012

What is NCTCOG?

The North Central Texas Council of Governments is a voluntary association of cities, counties, school districts, and special districts which was established in January 1966 to assist local governments in **planning** for common needs, cooperating for mutual benefit, and **coordinating** for sound regional development.

It serves a 16-county metropolitan region centered around the two urban centers of Dallas and Fort Worth. Currently the Council has **240 members**, including 16 counties, 170 cities, 24 independent school districts, and 31 special districts. The area of the region is approximately **12,800 square miles**, which is larger than nine states, and the population of the region is over **6.5 million**, which is larger than 38 states.

NCTCOG's structure is relatively simple; each member government appoints a voting representative from the governing body. These voting representatives make up the **General Assembly** which annually elects a 15-member **Executive Board**. The Executive Board is supported by policy development, technical advisory, and study committees, as well as a professional staff of 310.

NCTCOG's offices are located in Arlington in the Centerpoint Two Building at 616 Six Flags Drive (approximately one-half mile south of the main entrance to Six Flags Over Texas).



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"The contents of this report reflect the views of the authors who are responsible for the opinions, findings, and conclusions presented herein. The contents do not necessarily reflect the views or policies of the Federal Aviation Administration, or the Texas Department of Transportation."

Foreword

The North Central Texas General Aviation and Heliport System Plan (System Plan) is a living, multi-dimensional document that provides guidance and recommendations for the successful future of General Aviation and Vertical Flight through 2035. The plan is important to local, State, and federal aviation and economic development stakeholders. Leading the study and assisting with its implementation is the North Central Texas Council of Governments. Funding and support has been provided by the Federal Aviation Administration.



**North Central Texas
Council of
Governments**

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1.0 Introduction

Funded and supported by the Federal Aviation Administration (FAA), the North Central Texas Council of Governments (NCTCOG) embarked on a multi-year initiative in 2006 to analyze and evaluate the current aviation environment, both General Aviation (GA) and Vertical Flight (VF) facilities, within the 16-county region with the purpose of updating the North Central Texas General Aviation and Heliport System Plan (System Plan). Contributing to the System Plan were the Texas Department of Transportation (TxDOT) and NCTCOG's Air Transportation Technical Advisory Committee (ATTAC), made up of airport managers and other aviation specialists in the study area.

The new System Plan is utilized by regional planners, airport sponsors and managers, economic development specialists, aviation businesses and enterprises, and other community and regional stakeholders. National stakeholders recognize the value of this in-depth and multi-dimensional planning document. In addition, the System Plan provides geographic-specific direction and guidance for TxDOT's Texas Aviation System Plan and FAA's Regional Aviation System Plan (RASP) for the Southwest Region, relative to GA and VF in North Central Texas. NCTCOG's aviation specialists worked with the consulting firm of CHA, Inc. and its development team; listed in Section 8 of this summary.

In order for stakeholders to implement the study's findings, the System Plan is available through various outlets including:

- Executive Summary, printed for distribution to stakeholders and interested members of the public
- Community meetings
- Stakeholder briefings
- Media briefings and general news releases
- Industry organizations
- Economic development advocates
- Additional stakeholder outreach





1.1 Impacts to the Region

System Plan recommendations focus on implementations related to airport facility encroachment and long-term sustainability through 2035. Communities and stakeholders must work together to protect and sustain our local airports in order to realize the benefits of regional general aviation and vertical flight development. These assets can have tremendous economic impact on North Central Texas.

Communication and proper airport facility planning can prevent incompatible land use and development encroachment. Sustainable practices protect local and global environments from pollution—and manage natural resources through conservation and reuse. Sustainability goals for GA airports typically include air quality, carbon emission control, waste management/recycling, energy usage, sound abatement, water quality and conservation and facility operations and management.

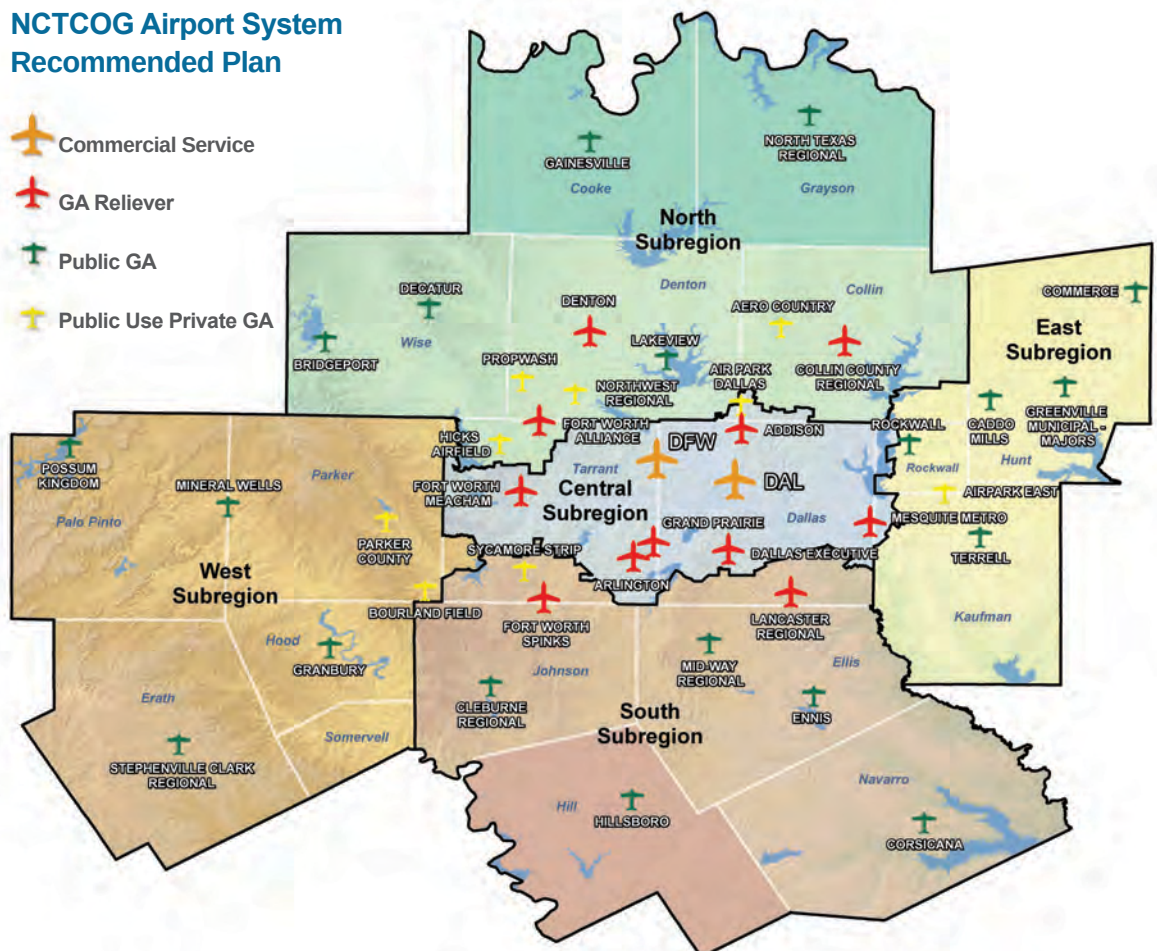
Surface transportation is critical. Access to and from airports should be a part of all local and regional plans and include identified funding sources.

Capacity and demand studies provide the baseline for recommendations. New technologies, including NextGen and Unmanned Aircraft Systems, will contribute significantly to aviation over the next several decades.

The System Plan encompasses 19 counties and 35 GA airports. In addition, five commercial airports serve the region. At the time of this study, more than 140 heliports were registered. The region is divided into five subregions, each with its own needs and unique characteristics.

NCTCOG Airport System Recommended Plan

-  Commercial Service
-  GA Reliever
-  Public GA
-  Public Use Private GA



2.0 Regional Characteristics

Understanding the region is paramount to understanding and working with the System Plan. Overall, North Central Texas is a vibrant, economically prosperous area that has, through the decades, based much of its success on the aviation industry and GA is a significant factor.

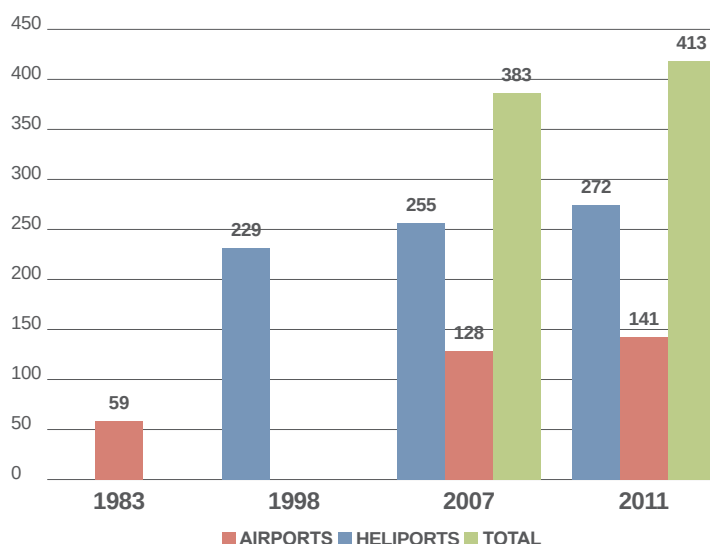


2.1 Inventory

North Central Texas has approximately 400 aviation facilities within the approximate 12,800 square-mile area. An inventory of aviation facilities was conducted as an early element of the System Plan. Research included site visits, attendance at aviation-related conferences, data collection, development of a categorization process, and GIS mapping. A significant effort was undertaken to collect additional data and improve existing data sets.

This data provides a baseline accounting of the regional system and can be monitored by measures utilized by NCTCOG. The System Plan recommends the following performance measures:

- Annual Aircraft Operations
- Based Aircraft by Type
- Number of Towered Airports
- Total Runway Length by Type
- Existing Economic Impact
- Existing Community Value
- System Plan Designation
- Area within the 60 Minute Travel Contours for Reliever Airports
- Annual Aviation Funding from TxDOT



While every airport was considered, not every airport was included in the System Plan's detailed analysis. Focus is on airports open to the public included in the National Plan of Integrated Airport Systems (NPIAS), and that may use public funding to adhere to FAA design and safety standards. Detailed characterization allows for forecasts and recommendations to be provided on a subregional basis.

Category 1 - Small turf or paved airports with maximum 3,500 ft. runway length. No instrument approach or weather reporting capability required.

Category 2 - Smaller facilities with runway systems with 3,501-5,000 ft. runway lengths and non-precision instrument approach capability. No weather reporting capability required.

Category 3 - Airports with 5,001-6,000 ft. runway systems able to accommodate most propeller types of aircraft with non-precision instrument approach capability and weather observation stations.

Category 4 - Large, mostly air carrier facilities with jet capable runway systems. Minimum 6,001 ft. runway length, precision instrument approach, weather observation stations and additional airport facilities.

Airports in Subregions by Category

	CATEGORY			
SUBREGION	1	2	3	4
NORTH	2	5	1	4
SOUTH	0	3	4	1
EAST	2	2	1	1
WEST	2	3	1	0
CENTRAL	1	1	1	4

2.2 Trends Report

In order to obtain a thorough understanding of North Central Texas and how it is influenced by industry conditions, the 2009 New Technologies and Trends Report was prepared as a part of the System Plan. Topics include a historical perspective of aviation in the region; a legislative framework for aviation development in Texas; and a review of technology trends impacting GA aircraft, pilots, airports, and air navigation. A review of the relationships between the local community and the management and operations of airports emphasizes the importance of identifying mutual influences and benefits. Key findings include:

- Corporate aviation will lead GA growth regionally and nationally.
- Sustainability will become increasingly important for economic and environmental reasons.
- Value of existing airports will increase as the region grows.
- Access to aviation information will increase the utility, efficiency, and profitability of airports.
- The identification of funding needs for development will reveal new opportunities for public-private and public-public partnerships.
- The process by which commercial passengers fly will continue to change.
- The competitive nature of economic development activities will influence the way future development occurs.
- GA airports will have the opportunity to assume new, innovative, and economically stable roles within the regional aviation system.
- To ensure a future aviation workforce, enhanced educational opportunities are needed within Texas.
- Non-aeronautical revenue will become a major source of GA airport revenue.



- Increasingly, aviation and related industries will contribute to economic gains in the region.
- Technology will change the rules for aviation and its development.

In response to future workforce needs, NCTCOG initiated the North Texas Aviation Education Initiative to coordinate with industry and academic partners to form a complete and thorough aviation academic program in the region. The study addresses the needs at the university, community college, trade school, high school, and junior high levels.



2.3 Access and Demand

Several areas were studied to evaluate accessibility within the regional aviation system from both air and ground to assist with demand forecasting as well as guidance for system development and recommendations. In particular, roadway traffic volumes and travel times were reviewed in conjunction with future roadway improvement plans. Access to GA airports is a critical factor in the region's planning efforts. Airspace was also evaluated to detail areas of potential congestion.

Regional growth patterns, by land use, were analyzed to assess the impact of urban encroachment on the airport system. Outreach materials and technical guidebooks were developed to assist airport sponsors in utilizing mitigation techniques to protect their facilities operational efficiency.



2.3.1 Ground Access

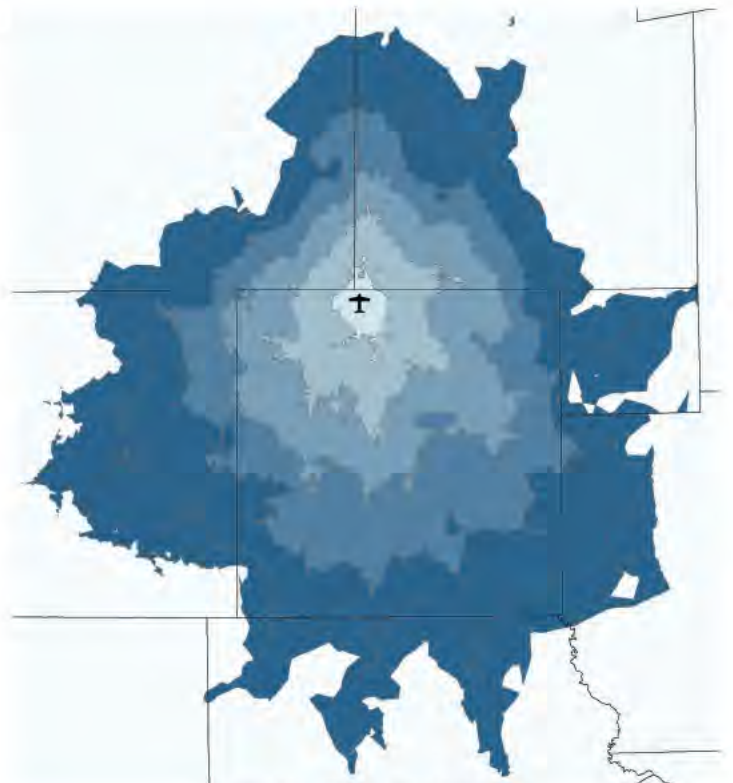
Congestion-free surface access to general aviation airports helps to sustain regional growth and encourage prosperity. This is especially true in North Central Texas where the vast aviation network consists of two commercial service airports, 11 reliever airports, and over 40 additional GA facilities. The Federal Highway Administration (FHWA) has established criteria for providing funding for airport surface access improvements. These roadways, called intermodal connectors, link airports to major U.S. highways and interstates. Generally, only airports with commercial service or significant cargo operations qualify for funding under FHWA's criteria. Currently, roadways surrounding Dallas/Fort Worth International Airport (DFW), Dallas Love Field (DAL), and Alliance Airport (AFW) have designated intermodal connectors.

The Federal Aviation Administration (FAA) and U.S. Department of Transportation (DOT) have encouraged the involvement of airport sponsors in planning and policy committees of Metropolitan Planning Organizations (MPO). NCTCOG, as the MPO for North Central Texas, actively promotes congestion management and improved air quality. A regional assessment of ground access at GA facilities re-enforces the link between the System Plan's multimodal facility recommendations and future airport ground access needs.

Observations and recommendations included in the Ground Access Assessment:

- In most instances, the growth in roadway traffic volume occurs at airports located in areas where developable land is available to accommodate both the growth and the resulting facility needs.
- Airport sponsors are encouraged to work with their local planning organizations to incorporate airport ground access needs into overall community-based plans.
- Forecasted airport activity should be considered as an enhancement to the travel demand models used by NCTCOG, to forecast future surface transportation needs.

Airports located centrally within higher growth areas have more programmed projects and committed funds within their impact areas than those near MPO boundaries or in slower growth areas. Although it appears that GA airports have been considered by the MPO in the programming of surface transportation improvements, it is unlikely that the airports' operations were a deciding factor in the project selection. Going forward, NCTCOG encourages the inclusion of GA airport ground access needs in funding decisions related to the surface transportation system.



Example Travel Time Contour



2.3.2 Demonstration Encroachment Analysis

North Central Texas remains a rapidly growing region despite the international recession that began in 2008. By 2040, the region is expected to be home to more than 10,000,000 residents and over 6,000,000 jobs. Although this kind of growth provides many economic benefits, it can lead to concerns about airport encroachment. Airports feel the pressures of urban encroachment in a variety of ways; residential development, height hazards, and other incompatible land uses. As growth continues, protecting and maintaining safe and navigable airspace around airports will be a challenge that must be met by airport sponsors to avoid future limitations on airport service. Obstructions from proposed building construction, communication towers, drilling rigs, and cranes can greatly affect aircraft operations. The FAA is not tasked with the prevention of encroachment on airports, although an existing FAA Obstruction Evaluation/ Airports Airspace Analysis (OE/AAA) reporting process helps monitor growth and development. Preventing construction of objects hazardous to air navigation is a local responsibility.

Local governments should foster compatible land use planning and development surrounding an airport or heliport to enable the long-term development of the facility and adjacent property for the benefit of the community and region. This includes protection of the land and the airspace.

The following actions are recommended for local governments with an airport in their jurisdictions:

- Implement zoning to prevent future incompatible development, both land and airspace.
- Protect or acquire land for future planned airport expansion, including runway extension and additional facilities.
- Discuss future plans for the airport with local development groups and political jurisdictions and review all proposed city and development projects adjacent to the airport to ensure long-term compatibility.
- Explore establishing an airport council to guide development. It should be comprised of members with different relevant positions within the government of nearby communities.
- Update airport documentation, such as the Airport Layout Plan (ALP), to reflect new airport goals.
- Educate city councils, planning and zoning commissions, and boards of adjustment about the airport's importance and the desired zones of protection to ensure its future viability.

NCTCOG offers a pamphlet, *A Guide for the Public – Preserving General Aviation Airports in North Texas*, for use as a tool by local governments, airports, and community organizations to assist in publicizing the roles of airports, how encroachment has detrimentally affected them in the past, and how compatible land-use practices can preserve them for the future. More information on this tool is available here.

www.nctcog.org/aviation/outreach

Saginaw Airport

An example of urban encroachment.







2.3.3 General Aviation Air Cargo

As the largest inland port in the nation, North Central Texas is a leader in global and domestic trade because of its vast system of highways, rail lines, and airports. According to the Dallas Regional Chamber of Commerce, the total value of registered imports and exports at the region's airports has nearly doubled since 2000, from \$30 billion a year to \$57 billion a year in 2008. In 2010, the region Dallas-Fort Worth International Airport and Fort Worth-Alliance Airport landed 3,732,532,090 pounds of cargo. DFW is ranked 9th in the country for air cargo. This success can be attributed to the presence of major distribution centers for Federal Express and United Parcel Service (UPS), the nation's largest Foreign Trade Zone located at AFW, and a superior network of GA airports. The ability to ship air cargo is essential for the economic growth of a region.

While DFW, AFW, and DAL provide scheduled air cargo operations, several of the region's GA airports aid businesses by allowing them to provide critical, just-in-time cargo shipments to their customers. Smaller GA airports can help make possible the seamless flow of goods to and from North Central Texas.

With the exception of AFW, no other GA airport has dedicated air cargo facilities such as ramps, warehouses, or sorting centers. However, many have common aircraft ramp areas capable of handling all-cargo aircraft. A regional assessment reveals that several GA airports have limited air cargo activity or expectations for such in the future. At these locations, air cargo service may consist of occasional flights by turbo-prop or corporate jets carrying high value or priority goods. The value of the item, to the sender and recipient, is generally considered to be substantial in order to warrant the expenditure of an air cargo operation.

Generally, airport managers are pleased to receive whatever air cargo business might be available, but they are not actively soliciting it. Rather, most airport managers note that air cargo routes, facilities, and operators are established at the large regional airports, so they perceive there to be little gain in seeking this business. On the other hand, airport managers who express an interest in air cargo have unique reasons, such as local business opportunities and providing for future transportation infrastructure.



2.3.4 Regional Airspace Analysis

Airspace, by its nature, is a finite resource and must be managed wisely to avoid saturation. While the current airspace system is effectively managed, airspace in North Texas could become overly congested at some point in the future. North Central Texas airspace is heavily influenced by the Class B airspace surrounding DFW and DAL. Their central location and proximity to each other creates irregularities in the Class B design, impacting the flow of GA traffic traversing the region and in and out of the airports due to the control necessary for safe operations. Pilots must be familiar with the operations in Class B airspace and use extra caution due to the large volume of jet traffic.

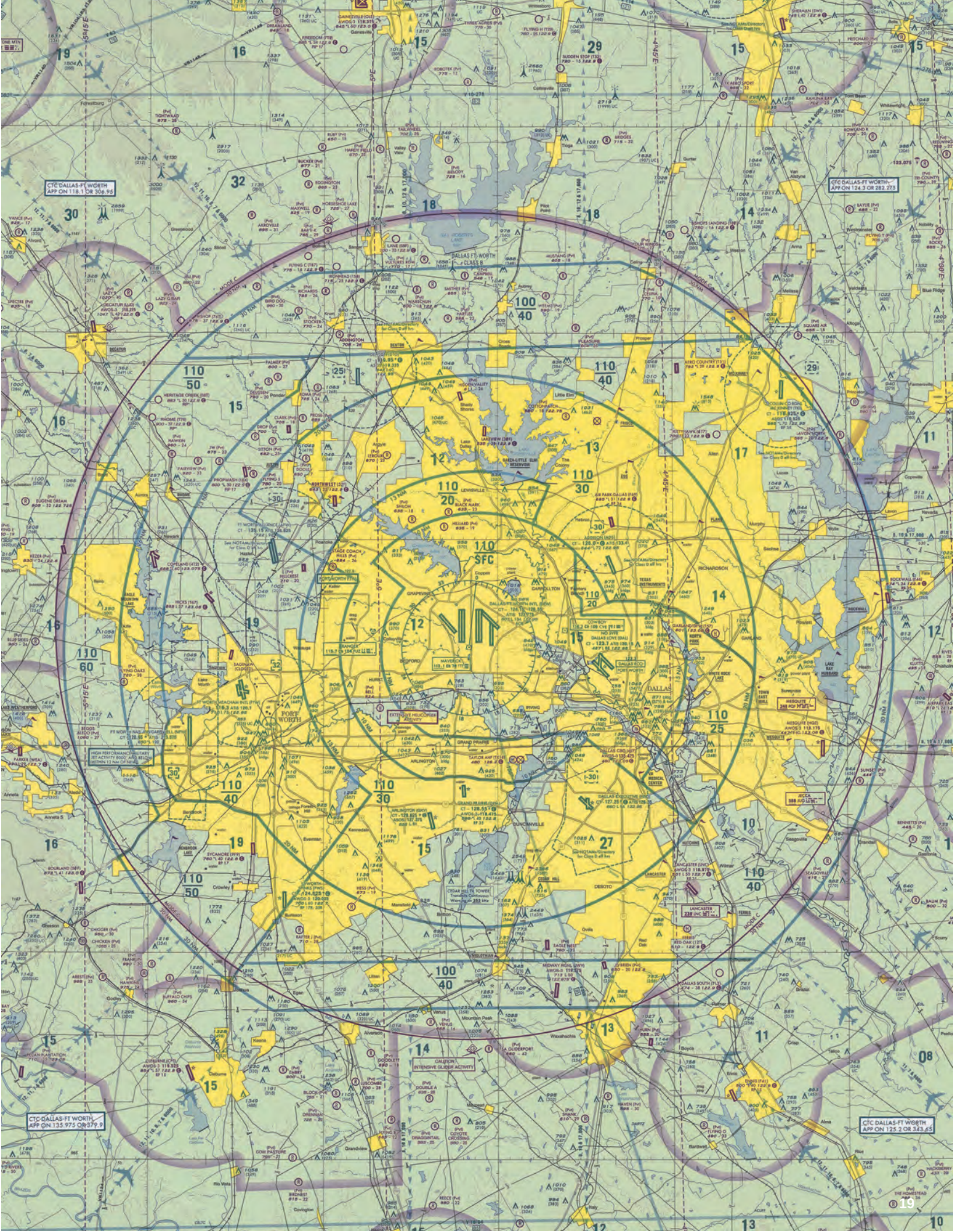
The Next Generation Air Transportation System (NextGen) is a multi-faceted federal initiative to combine the capabilities of satellite-based and other emerging technologies with the need to accommodate increasing levels of air traffic. The NextGen program seeks to implement safer and more efficient departure, en route, and arrival procedures to improve the overall capacity of the nation's airport/airspace system. The continuing implementation of the NextGen program moves away from ground-based surveillance and navigation equipment and procedures and places a greater reliance on the capabilities and flexibilities of new and more dynamic Global Positioning System (GPS) procedures.

NextGen will have an effect on several aspects of the region's aviation system. From an airspace standpoint, pilots will have the ability to specify direct routes for their flight rather than fly formally established routes. They will also have real-time, accurate information about other pilots in the immediate area and the surrounding weather. This data transferred electronically through the NextGen system will reduce the volume of communication and information required to be processed through Air Traffic Control (ATC), thus increasing the overall level of traffic volume that can be handled.

In September 2005, the FAA implemented Area Navigation (RNAV) Standard Instrument Departures (SID) at DFW using GPS technology. RNAV allows pilots to fly directly from one pre-assigned point (or waypoint) to another, rather than having to depart using vectors or assignments from ATC. This has resulted in better traffic flow in the terminal airspace surrounding DFW. Cost savings, reduced communication errors, and increased departure capacity have also been realized since implementation.

NextGen serves to expand the capacity of the national air transportation system by encouraging the use of underutilized airport and terminal facilities. By providing the same capabilities available to larger airports, a broader definition of "reliever airport" can expand the ability of congested regions to handle increased activity without requiring extensive capital improvements. The implementation of NextGen will help to ensure adequate room to accommodate future traffic and allow for the development of a new approach and departure procedure for each of the region's airports.





2.3.5 Special Events

Being home to four professional sports teams and a major National Association for Stock Car Auto Racing (NASCAR) track, North Central Texas has several facilities capable of hosting a variety of large special events. Out-of-region visitors will consistently pour into the area with each major sporting and entertainment event planned for these venues, providing a boost to the region's economy. As the region's surface and air transportation infrastructure becomes congested with this influx of people, the General Aviation (GA) System becomes an even more critical regional component. To help ensure the overall success of an event, the GA system of airports must be ready to maximize their role by following best practice guidelines established in the North Central Texas General Aviation and Heliport System Plan (System Plan).

Most airports in North Central Texas are experiencing increased air traffic related to large events. To illustrate the important role GA plays during special events, aviation consultant firm SH&E estimated that Super Bowl XLV, held in Arlington in February 2011, would result in 4,000 attendees arriving on 1,000 GA aircraft. Moreover, Arlington Municipal Airport (GKY) has reported an increase of four times the amount of GA traffic for a concert and a consistent substantial increase in activity during Cowboys games.



In order to successfully address GA demand during a large special event, airport sponsors/owners should be included in the pre-event planning, often beginning one to two years in advance of the activity itself. Basic planning steps that should be followed are:

- Review the scope of the event, including the venues
- Identify planning partners
- Identify number and type of attendees to determine aviation demand
- Identify aviation service area(s) and the capacities and services of their facilities
- Allocate the anticipated aircraft to facilities within the service area(s)
- Coordinate with appropriate agencies regarding airport operations
- Develop an event operations guidebook(s)

Working together with other transportation providers, a GA airport that is accessible to the event venue will see a significant shift in activity on event day. Planning for special surface transportation (taxi or shuttle service), aircraft parking and security adjustments, changes in airport (and airport tower) hours of operation and additional staffing needs before, during, and after the event is critical. Continued evaluation of these events, focusing on ways to improve the overall experience of the visitor, will ensure on-going success. A pleasant experience by the special event visitor results in potential repeat visits and business for the GA airport and the region as a whole, thereby encouraging the economic growth that naturally comes from hosting large events.



JOHN HARRELSON/GETTY IMAGES





2.3.6 Unmanned Aircraft Systems

Establishing operational policies and procedures for unmanned aircraft systems (UAS) in the civilian aviation sector is a necessity. UAS can perform airborne duties at lower operational costs while reducing risk to human life, as well as reduce environmental concerns such as air emissions and noise. This technology appeals to three major market segments: military, civilian, and commercial.

In addition to the military, other uses of UAS include:

Law Enforcement Agencies. Federal, state and local departments are using digital photography and other technology for investigative purposes.

Agriculture and Conservation. UAS can monitor soil erosion, crops and flood plains.

Real Estate. UAS can be equipped to create high definition video and photo imagery that ordinary cameras could not mimic.

Construction. When properly equipped, UAS can capture CAD quality geo-coded imagery to create three-dimensional maps and topography analysis.

Utilities/Railroads. UAS can increase pipeline and transmission line inspection efficiencies and use detection devices to record the release of water and toxic materials.

Maritime and Shipping. A UAS platform with a high definition platform has the capability to conduct surveillance in ports and on ships.

Entertainment/News Media. UAS can be used to observe breaking news events, as well as to capture event imagery at unusual angles. Sports coverage can also be enhanced.

VIP Services. UAS can provide security services to high-profile individuals.

The anticipated growth of this industry will most assuredly be an economic catalyst on national and international fronts. The industry is expected to generate over \$11 billion in annual revenues by 2021.

Responding to the demand to certify this technology for the non-military markets, agencies such as FAA are drafting or have instituted policies and procedures dictating acceptable operational requirements.

3.0 Airport Sustainability: Ensuring Our Future

According to the Airports Council International (ACI), sustainability practices in aviation are further defined as “a holistic approach to managing an airport so as to ensure the integrity of the Economic viability, Operational efficiency, Natural resource conservation, and Social responsibility (EONS) of the airport.”

Several organizations throughout the world contribute research and guidance on sustainability. Among them are the Sustainable Aviation Guidance Alliance (SAGA), the Airport Cooperative Research Program (ACRP) of the Transportation Research Board (TRB), American Association of Airport Executives (AAAE), ACI, Airports Consultant Council (ACC), and the Federal Aviation Administration (FAA).





3.1 Environmental Sustainability Practices

Sustainable practices protect local and global environments from pollution and manage natural resources through conservation and reuse.

Sustainability goals and targets for general aviation (GA) airports typically include air quality, carbon emission control, waste management/recycling, energy usage, noise abatement, surface transportation, water quality and conservation, and facility operations and management.

A sustainability master plan can incorporate these goals into the planning process. Once a plan is put together, a sustainability assessment follows to provide for a baseline to document the airport's current resource consumption and to determine the status of environmental programs. Tracking and analysis may continue on a monthly, quarterly, or annual basis.

The assessment audits elements such as energy usage, alternative energy usage, waste disposal volumes and destinations, recycling programs, greenhouse gas emissions, stormwater discharges, water usage, indoor

environmental quality issues, landscape maintenance, and general custodial services through field investigations and historical documentation.

GA airport staff should educate themselves on sustainability initiatives and funding sources. It is important that airport sponsors, who include local governments and elected officials, understand and support these efforts. Regional agencies could provide a task force and training to assist local airports and their sponsors with setting goals and obtaining funding. While the spectrum of sustainability practices is quite broad, each airport must analyze which are the most cost-efficient and attainable goals that can be reached and sustained through the future.

These efforts are becoming more of a requirement for our airport systems rather than just a notion to help our environment. Regulatory requirements are becoming more stringent in many aspects that encourage such practices. The aviation and airport community must continue to show commitment to reducing its operational footprint in the future.



3.2 Economic Sustainability Practices

As a complement to environmental efforts, economic sustainability is clearly needed for everyday airport operations and success. As funding streams can be scarce in tough economic times, many airports are turning to more business-oriented approaches to increase revenue and ensure longevity.

Traditionally, GA airports generate revenue from charging for land, terminal, office, and hangar space as well as fuel sales, and fuel flowage and tie down/ramp fees. These sources provide much of the airport's revenues and aid in self-sufficiency. Although traditional services make up the primary revenue source, alternative methods such as agriculture, temporary or special event usage, mineral extraction, utility services, renewable energy, or online auctions of airport equipment. GA airports can increase revenue by market expansion in the following areas:

- Service Improvements
- Partnerships with Private Enterprises
- Partnerships with other Public Agencies and Institutions
- Offering Incentives for Corporate Activity
- Retaining Existing Tenants and Transient Clients
- Branding, Marketing, and Promoting the Airport
- Updating Rates & Charges/Lease Agreements
- Developing Non-aeronautical Real Estate
- Improvements to Airside Infrastructure
- Improvements to Landside Facilities
- Offering Self-service Fueling

GA airport facilities can be expected to contribute significantly to the local community in terms of jobs, income, and total economic output. Capital investments in aviation facilities by the public and private sectors stimulate the economy further. A new metric, Airport Community Value (ACV), should be utilized by sponsors and managers to assess the value of an airport now, and with long-term support, into the future. Understanding and implementing sustainable practices is important to encourage support from the local community. Every day more municipalities are pressuring their airport managers



and sponsors to become self-sufficient, pushing the need to act sooner rather than later. Proactive airports will benefit from investing the time and energy now to learn how to be economically sustainable and add value to the community.

Economic viability can be difficult without a strategy. The following recommendations are intended to fortify the economic sustainability of an aviation facility:

- Designate staff to develop and monitor the facility's sustainability program.
- Dedicate time for identified individuals to attend industry workshops, webinars/seminars, and conferences on a regular basis to keep abreast of the most current sustainability practices.
- Seek out and understand the special funding sources available for sustainable practices.
- Review local and regional sustainable policies and goals; dedicate staff and budgets as applicable to meet those goals.
- Develop facility-specific sustainability goals, in addition to those identified regionally.

- Consistently track sustainability goals for progress and develop new goals as practical.
- Publicize sustainability accomplishments.
- Use Airport Business Plans to provide leverage to help city officials on board with policy changes
- Use Airport Business Plans to provide proof when you speak to the city to determine ROI
- Implement a sustainability program (economic, environmental, social)
- Develop a strategic business plan to prioritize goals and create a timeline for implementation.
- Improve airport services to attract new clients and more corporate activity.
- Annually review and update “Rates & Charges.”
- Find alternative sources of revenue by using market expansion.
- Develop public-private partnerships to attract more business to the airport.





3.3 Wildlife Mitigation Strategies

Wildlife impacts on airports and aircraft can have a direct effect on sustainability and safety. Attracted to an airport because of food, water or a desirable habitat, wildlife can create significant hazards for pilots and airport operations. According to the FAA, wildlife is attracted to waste disposal operations such as landfills, stormwater management ponds, drainage channels, wetlands, golf courses, and agricultural activities. Moreover, birds and mammals striking aircraft during take-off, landing, or in flight cause millions of dollars in damages annually and threaten lives. Airport sponsors and managers are federally obligated to ensure a safe operating environment; it is the airport's goal to make their property as unattractive to wildlife as possible by removing food, water, and shelter. Reducing the amount of wildlife on and near an airport greatly reduces the chance of wildlife colliding with aircraft.

The Federal Aviation Administration is placing a very high importance on reducing the impacts of wildlife with the National Airspace System. Many GA airports will be mandated in the future to have detailed mitigation plans in place, to ensure aircraft safety. This may come in the form of a Wildlife Hazard Assessment and Management Plan by a certified wildlife biologist. An assessment will identify the wildlife present, including seasonal wildlife, and a management plan will detail how best to remove the hazard.



The removal of the attractant may solve a wildlife problem, yet some destructive animals may be adaptable to habitat modifications. Auditory and visual frightening devices can be effective in controlling wildlife but must be varied on a regular basis. Falcons and dogs can be trained to frighten creatures away, and traps can be set to capture and relocate animals. Sometimes, extermination which requires FAA approval is the best option to eliminate the potential of strikes. Applicable federal, state, and local laws should be reviewed prior to any removal or handling of any wildlife species.

Resources, such as the materials produced by the System Plan, are designed to assist airport staff and policy officials in properly mitigating wildlife impacts.

Tools available at website:

- **Airport Wildlife Brochure** is designed to be a guide for the public on the importance of mitigating wildlife at airports. This brochure explains why wildlife is a major concern to airports and how the airports mitigate wildlife. It also provides resources on federal and state regulations and information on how the public can get involved.
- **Airport Mitigation Handbook** is designed to be a quick reference field guide for airport operators. This handbook has information on the regional wildlife, mitigation techniques, regulations, and commonly used resources and contact information.



4.0 Meeting Future Needs

One of the ultimate outputs of the System Plan is the determination of potential locations and types of airport facilities that will be needed to serve North Central Texas through 2035. To accomplish a dependable assessment of the system needs, a comprehensive forecast was derived for the study period.



4.1 Forecasting

Methods developed to guide the System Plan provide a nonstandard approach to forecasting regional GA activity. Short-term forecasts support airport planning and personnel requirements; intermediate and long-term forecasts are used to plan major capital investments, including new airports.

The process uses a combination of market share and single variable regression analyses for forecasting the based jet airport and a multinomial linear regression for the non-jet based aircraft and the number of airport operations. It is unique to traditional methodologies such as market share, econometric, time series, and simulation. To conform to FAA policy, NCTCOG compared the results to two sets of forecast data; the FAA's Terminal Area Forecasts (TAF) and airport master plans.

Additional considerations in the forecasting process were: airspace, ground access, service area population and employment, fuel prices, pilot population, risk factors and thresholds, NextGen technology, and relationships between based aircraft and operations at various airports.

Forecasting was applied to the following:

- **Airside Development Planning.** Forecasting indicates future need for airside infrastructure such as length and strength of the runways and taxiways and navigational aids that impact safety and ease of access.
- **Landside Development Planning.** Facilities influence activity. These include ramp space, fueling facilities, maintenance services and ties, and pilot and passenger amenities.
- **Financial Side Planning (Airport Business Planning).** Various measures of aviation activity are directly or indirectly tied to the revenues and costs associated with operating an airport. The ability to calculate an anticipated return on investment is a factor in capital investment decisions.
- **Community Side Planning.** The relationship between an airport and its adjacent communities is important in maintaining the sustainability of the facility and adjacent economic interests.

Subregional Based Non-Jet Aircraft Forecasts

SUBREGION	CURRENT		FORECAST YEAR			
	2010	2015	2020	2025	2030	2035
NORTH	1,865	2,051	2,216	2,381	2,544	2,710
SOUTH	541	642	730	818	905	992
EAST	238	319	380	440	500	559
WEST	288	348	394	440	486	532
CENTRAL	1,314	1,436	1,567	1,700	1,832	1,963
TOTAL	4,245	4,796	5,287	5,779	6,266	6,756

Subregional Based Jet Aircraft Forecast

SUBREGION	CURRENT		FORECAST YEAR			
	2010	2015	2020	2025	2030	2035
NORTH	69	82	98	118	141	167
SOUTH	18	22	27	32	39	47
EAST	1	2	3	5	8	11
WEST	2	3	4	5	7	8
CENTRAL	288	328	375	428	490	553
TOTAL	378	436	507	589	684	787

Subregional Local Operations Forecast

SUBREGION	CURRENT		FORECAST YEAR			
	2010	2015	2020	2025	2030	2035
NORTH	407,297	429,369	457,053	486,083	515,770	547,067
SOUTH	143,639	149,843	160,890	172,386	184,369	196,673
EAST	93,288	101,080	107,868	114,822	122,033	129,488
WEST	59,800	66,302	71,528	76,901	82,410	87,987
CENTRAL	264,255	279,976	303,049	327,675	353,157	379,678
TOTAL	968,279	1,026,569	1,100,388	1,177,867	1,257,740	1,340,893

Subregional Itinerant Operations Forecast

SUBREGION	CURRENT		FORECAST YEAR			
	2010	2015	2020	2025	2030	2035
NORTH	241,363	255,647	273,185	292,237	312,762	334,643
SOUTH	92,621	96,846	103,386	110,402	117,921	125,749
EAST	55,904	59,729	63,126	67,006	70,691	74,840
WEST	36,135	39,282	42,153	45,096	48,120	51,192
CENTRAL	290,504	310,052	335,005	362,668	393,234	424,781
TOTAL	716,527	761,556	816,855	877,409	942,728	1,011,206

4.2 Needs Assessment

Three scenarios were developed to explore all feasible options for the purpose of determining airport system capacity. Considerations included current airport capacity, expansion and associated facility costs, projected demands in subregions, and the benefits and risks of public and private airports.

While many privately owned airports maintain a strong presence and play a vital role in serving capacity needs in the region, they have proven to be historically susceptible to closure throughout the nation, including North Central Texas. Strong pressures, such as urban development, tax increases, and maintenance and facility costs can cause a privately owned facility to close.

Not federally-obligated to remain open to the public, they may cease operations at any time, leaving aircraft owners looking for a new airport. As such, this study analyzed impacts of such facility losses affecting system capacity in 2035.

Scenario 1(a): A contracted aviation system, which assumed that all privately-owned, public-use airports would close and landside expansion was constricted to current property.

Scenario 1(b): A contracted aviation system, which assumed that all privately-owned, public-use airports would close with no landside expansion restrictions.

Scenario 2: All facilities remained open to consider the value of privately-owned facilities with no landside expansion restrictions.

Ultimately, the benchmark 2035 facility needs for scenarios became the basis for the recommended developments component of this study. While Scenario 2 concluded that the existing system can likely accommodate the 2035 forecasted demand utilizing the current aviation system; further examination will be needed due to capacity levels reaching 80 percent in certain areas which could indicate the need for a new publicly-owned airport and extensive landside development.



4.3 Development Recommendations

The System Plan's Recommended Development Plan takes into consideration how the system may need to look in order to meet general aviation needs, based on the demand forecasts for 2035. Recommendations are based on current airport capacity, expansion and new facility cost estimates, benefits of public and private GA airports and the projected demand in each of the five subregions (north, south, east, west, central).

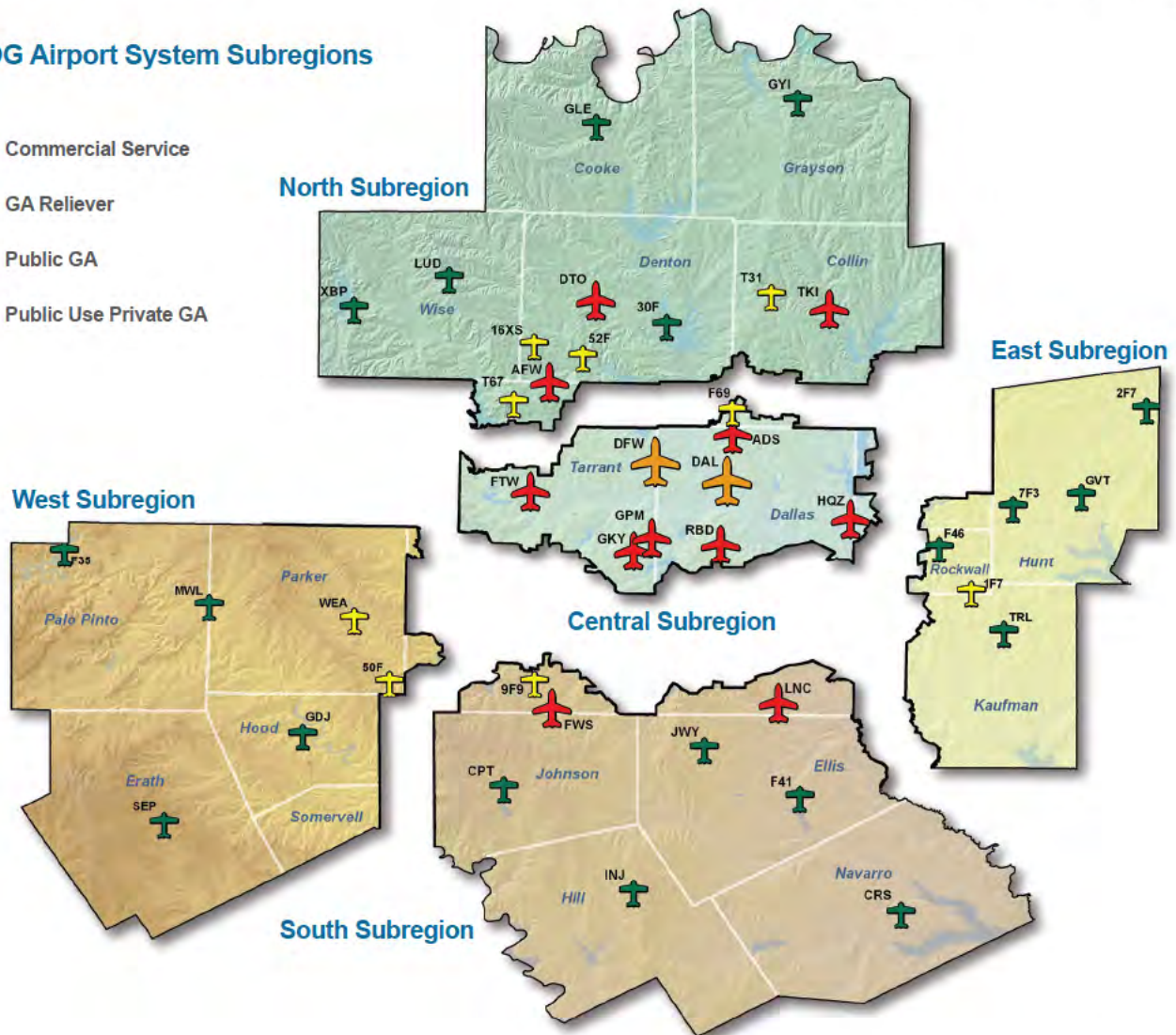
While there are over 400 aviation facilities in the region, 39 airports are considered essential and are in the forecast that is the basis for the Recommended Development Plan. Thirty of these airports are publicly-owned and for public use. The other nine are privately-owned, yet still for public use.

The FAA's airport system planning philosophy dictates the consideration of the need for new airports and/or the expansion of existing airports to support system capacity within the planning horizon. Even though measures of airport capacity are made on a regional or subregional basis, local circumstances can be important factors. For an aviation system plan, capacity is measured in the amount of aircraft storage that can be developed at each airport (landside) and the number of annual operations that can be safely conducted by arriving and departing aircraft (airside).

The recommended plan details an appropriate scenario for ensuring adequate and strategic capacity to meet future demand requirements. Assumed is a loss of some privately-owned airport capacity within the region by

NCTCOG Airport System Subregions

-  Commercial Service
-  GA Reliever
-  Public GA
-  Public Use Private GA



2035, due to urban development pressures, lack of land use controls, absence of federal grant assurances, and other monetary and environmental factors. As these facilities are not mandated by the federal government to remain open to the public, the capacity they provide to the region may disappear at any time.

Should a larger privately-owned airport close, the capacity shortfall is likely to require a new airport. Given this possibility, the System Plan suggests acquisition by a municipality of an existing privately-owned airport or the construction of a new facility. This facility would most likely be near the convergence of the North and Central Subregions. If a privately-owned facility in this area were to close, a capacity shortfall would occur. To make such a decision, an airport site-selection study should compare the feasibility of expanding existing facilities or developing green field sites. Due to the length of time required to expand or build new facilities, future planning must be on-going and proactive, not reactive.

Additionally, while there is physically enough land available to provide storage space for the forecast aircraft, there are not enough hangars to store the aircraft. Much of the future development in the region will need to be directed towards aircraft storage and associated amenities. A cost of approximately \$188 million is estimated for aircraft storage, compared to the \$43 million for land and \$40 million for pavement.



The study assumes that most airport improvement projects can be funded through the traditional sources. The Texas Department of Transportation (TxDOT) utilizes FAA funding via the Block Grant Program. In Texas, GA airports that are part of the FAA's National Plan of Integrated Airport Systems (NPIAS) are eligible for 90 percent FAA funding for most projects; a local match of 10 percent is required. While eligible, hangars and fueling systems are typically privately-funded. Privately-owned airports must finance projects without federal or state assistance. Public-Private partnerships for non-eligible projects should be pursued to the benefit of all parties. Estimated infrastructure expenditures for public-use airports are anticipated to total \$275 million through 2035.

Recommended Plan Cost Breakdown: Public Airports

YEAR	FEDERAL/STATE	STATE ONLY	LOCAL	PRIVATE	TOTAL
CURRENT	\$53,959,331	\$203,253	\$6,049,754	\$44,876,139	\$105,088,476
2015	\$1,061,775	\$0	\$117,975	\$12,525,000	\$13,704,750
2020	\$8,088,750	\$0	\$898,750	\$13,635,000	\$22,622,500
2025	\$1,239,300	\$0	\$137,700	\$21,990,000	\$23,367,000
2030	\$1,202,850	\$0	\$133,650	\$51,818,550	\$53,155,050
2035	\$8,175,263	\$0	\$908,363	\$47,790,000	\$56,873,626
TOTAL	\$73,727,269	\$203,253	\$8,246,191	\$192,634,689	\$274,811,402
PERCENTAGE	26.8%	0.1%	3.0%	70.1%	100.0%



The regional development and associated costs to meet GA needs are grouped into these five components:

- **Land** – Land includes areas that are needed to ensure the airport has the appropriate control over all safety areas required by the FAA and property needed to construct infrastructure to accommodate future demand.
- **Lighting & Nav aids** – Lighting includes the different types of lighting and observation systems that are necessary for safe operations to and from an airport.
- **Storage** – Storage includes the buildings necessary to store aircraft and terminal area for passengers and pilots.
- **Pavement** – Pavement includes the physical pavement expansion in the form of runways, taxiways, and aprons.
- **Fuel** – Fuel includes the fueling systems, such as the tanks and pumps, for aircraft of all types.





Recommended Plan: North Central Texas Region

	PRIVATE AIRPORT COSTS	PUBLIC AIRPORT COSTS	TOTAL COSTS
 LAND	\$0	\$43,157,448	\$43,157,448
 PAVEMENT	\$5,831,700	\$33,116,125	\$38,947,825
 BUILDINGS	\$16,920	\$187,818,350	\$187,835,270
 LIGHTING AND NAVAIDS	\$2,796,080	\$10,644,480	\$13,440,560
 FUEL	\$75,000	\$75,000	\$150,000
			\$283,531,103

Recommended Plan: Central Subregion

	PRIVATE AIRPORT COSTS	PUBLIC AIRPORT COSTS	TOTAL COSTS
 LAND	\$0	\$23,044,111	\$23,044,111
 PAVEMENT	\$1,925,700	\$9,472,500	\$11,398,200
 BUILDINGS	\$0	\$127,252,050	\$127,252,050
 LIGHTING AND NAVAIDS	\$478,200	\$2,014,320	\$2,492,520
			\$164,186,881

Existing Landside Capacity Utilized: 65%

2035 Airside Capacity Utilized: 64%

The Central Subregion of the System Plan is made up of Tarrant and Dallas, and parts of Collin, Kaufman and Rockwall counties. Of the five subregions, this geographical region is anticipated to have the highest concentration of based aircraft through 2035, utilizing over 60 percent of the available capacity. The Central Subregion will have to expand their infrastructure more than the other subregions to ensure they do not reach 100 percent capacity. It is anticipated that about \$164 million in improvements will be needed through 2035.

The demand demonstrates a large need for additional aircraft storage in the Central Subregion during the forecast period, or approximately \$127 million in investments for hangar space. Additionally, over \$11 million will be needed to expand existing runways, taxiways, and aprons. Public airports will need to purchase a total of 230 acres at an estimated cost of \$23 million for airport



Central Subregion

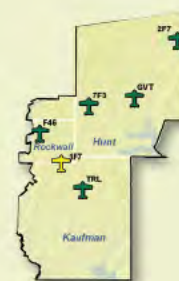
ADS	Addison
GKY	Arlington Municipal
F69	Dallas Airpark
RBD	Dallas Executive
DAL	Dallas Love Field
DFW	Dallas/Fort Worth International
FTW	Fort Worth Meacham
GPM	Grand Prairie Municipal
HQZ	Mesquite Metro

Recommended Plan: East Subregion

	PRIVATE AIRPORT COSTS	PUBLIC AIRPORT COSTS	TOTAL COSTS
 LAND	\$0	\$1,080,897	\$1,080,897
 PAVEMENT	\$1,822,200	\$3,391,360	\$5,213,560
 BUILDINGS	\$0	\$3,348,300	\$3,348,300
 LIGHTING AND NAVAIDS	\$340,000	\$1,471,200	\$1,811,200
			\$11,453,957

Existing Landside Capacity Utilized: 34% 2035 Airside Capacity Utilized: 14%

The East Subregion of the System Plan is made up of Hunt and Kaufman, and parts of Collin County. In order to meet the area's needs through 2035, public and private airports should invest approximately \$11.5 million. More than \$5 million should be spent on pavement for runways, taxiways and aprons, and another \$3.4 million should be invested in T-hangars and terminal space.



East Subregion

- 1F7 Airpark East
- 2F7 Commerce Municipal
- 7F3 Caddo Mills Municipal
- F46 Rockwall Municipal
- GVT Greenville - Majors
- TRL Terrell Municipal

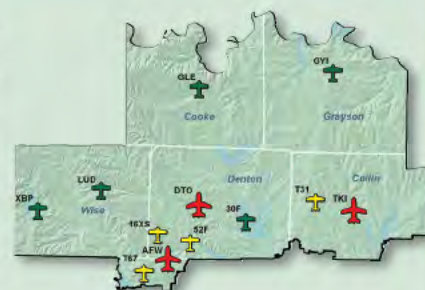
Recommended Plan: North Subregion

	PRIVATE AIRPORT COSTS	PUBLIC AIRPORT COSTS	TOTAL COSTS
 LAND	\$0	\$12,139,704	\$12,139,704
 PAVEMENT	\$2,050,800	\$14,724,645	\$16,775,445
 BUILDINGS	\$16,920,000	\$49,890,000	\$66,810,000
 LIGHTING AND NAVAIDS	\$1,464,200	\$4,478,880	\$5,943,080
 FUEL	\$75,000	\$75,000	\$150,000
			\$101,818,229

Existing Landside Capacity Utilized: 49% 2035 Airside Capacity Utilized: 43%

The North Subregion of the System Plan is made up of Wise, Denton, Collin, Grayson and Cooke, as well as a portion of Tarrant County. This geographic area is projected to have the most available capacity in 2035. With this excess capacity, extensive opportunities for aviation-related economic development exist. In order to maximize the opportunities and meet future demand, approximately \$102 million should be invested in infrastructure, including aircraft storage, pavement, and land for airport safety areas. As there are several private airports within the North Subregion, approximately \$20 million of this will need to be invested by the airport owners to meet future demand for paved areas and hangar space. In order to meet future demand, \$66.8 million should be invested in construction of almost 600 T-hangar bays and approximately 150,000 square feet of conventional hangar space.

Other major expenditures should be made to extend runways and taxiways and construct a parallel runway. Two hundred seventy-five acres should be purchased by public airports for airport safety areas.



North Subregion

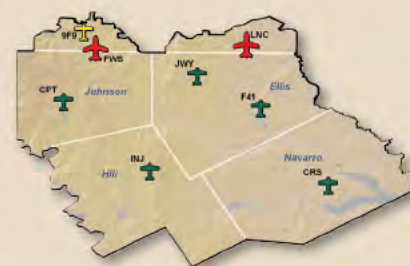
- T31 Aero Country
- XBP Bridgeport Municipal
- TKI Collin County Regional
- LUD Decatur Municipal
- DTO Denton Municipal
- AFW Fort Worth Alliance
- GLE Gainesville Municipal
- T67 Hicks Field
- 30F Lakeview
- GYI North Texas Regional
- 52F Northwest Regional
- 16X Propwash

Recommended Plan: South Subregion

	PRIVATE AIRPORT COSTS	PUBLIC AIRPORT COSTS	TOTAL COSTS
 LAND	\$0	\$3,659,864	\$3,659,864
 PAVEMENT	\$0	\$4,858,620	\$4,858,620
 BUILDINGS	\$0	\$4,800,000	\$4,800,000
 LIGHTING AND NAVAIDS	\$0	\$1,155,080	\$1,155,080
			\$14,473,564

Existing Landside Capacity Utilized: 57% 2035 Airside Capacity Utilized: 26%

The South Subregion of the System Plan is made up of Johnson, Ellis, Hill and Navarro, and the southern parts of Tarrant and Dallas counties. In order to meet forecast demand in 2035, public airports should invest approximately \$14.5 million; there are no private facilities in this subregion. About \$5 million should be invested in the construction of T-hangers, and another \$5 million to expand runways, taxiways, and aprons.



South Subregion

CRS	C David Campbell Field-Corsicana Municipal
CPT	Cleburne Regional
F41	Ennis Municipal
FWS	Fort Worth Spinks
INJ	Hillsboro Municipal
LNC	Lancaster Municipal
JMW	Mid-Way Regional
9F9	Sycamore Strip

Recommended Plan: West Subregion

	PRIVATE AIRPORT COSTS	PUBLIC AIRPORT COSTS	TOTAL COSTS
 LAND	\$0	\$3,232,872	\$3,232,872
 PAVEMENT	\$33,000	\$669,000	\$702,000
 BUILDINGS	\$0	\$2,528,000	\$2,528,000
 LIGHTING AND NAVAIDS	\$513,680	\$1,525,000	\$2,038,680
			\$8,501,552

Existing Landside Capacity Utilized: 60% 2035 Airside Capacity Utilized: 18%

The West Subregion of the System Plan is made up of Parker, Palo Pinto, Erath, Hood and Somervell, and parts of Tarrant County. This Subregion will need to invest \$8.5 million in improvements by 2035 to meet demand. Land acquisition can be expected to total \$3.1 million and T-hangar bays should be constructed at a cost of \$2.3 million. This region has the opportunity to expand its infrastructure due to the lack of geographic constraints, but will need to make up for the lack of public infrastructure.



West Subregion

50F	Bourland Field
SEP	Clark Field Municipal
GDJ	Granbury Regional
MWL	Mineral Wells
WEA	Parker County
F35	Possum Kingdom

4.4 Airport Community Value

GA airports attract new jobs and support industry growth which, in turn, boosts the quality of life for area residents. However, environmental concerns and financial constraints may impede airport operations and future developments. A new two part metric – Part A: Current Airport Community Value (ACV) and Part B: Future ACV, are designed as part of the North Central Texas General Aviation and Heliport System Plan (System Plan) to help an airport sponsor compare the facility’s value to other community assets, as well as its importance to the regional and State aviation systems.

Historically, airport economic impact studies rely on surveys of jobs and spending to ascertain the direct labor and expenditure of airport resources. These studies look in detail at jobs and income, direct spending, induced benefits, total output in dollars, and tax revenues. However, in many cases, there are no comparable enterprises to gauge the significance of an airport to the local economy. For example, with the traditional study template, it is difficult to know if a GA airport generates as much economic benefit as a school, public library, or road project—all of which are competing for local funding.



4.4.1 Value Modifying Factors

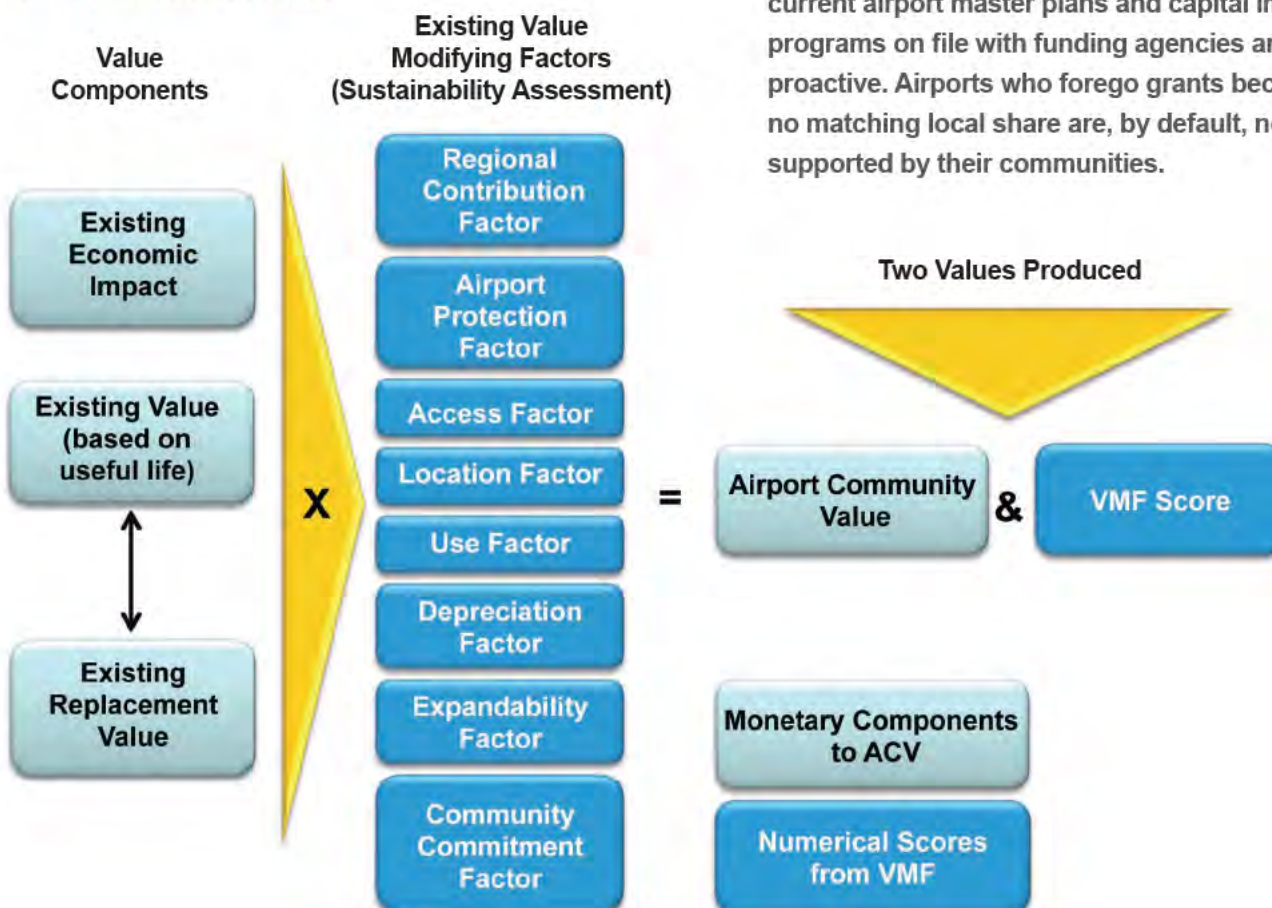
Unlike cost/benefit studies, economic impact analyses do not determine returns on investment. In fact, traditional economic impact methodology cannot be incorporated into the FAA's current cost-benefit analysis process. The new ACV metric is designed to include both an estimation of economic impact (total output) combined with asset value estimates of an airport. These baseline values are then subjected to economic sustainability assessment factors, referred to as Value Modifying Factors (VMF), to reach an overall ACV (see the ACV process chart). The six VMFs include:

1. **Regional Airport Resource Factor** - assesses what types of aircraft fly in and out of an aviation facility as well as the population served.
2. **Airport Protection Factor** - assesses the actions a community takes to increase or protect the value of

its aviation related investment(s). These include land use compatibility, height hazard zoning, runway safety areas, and runway protection zones.

3. **Location/Access Factor** - convenience is measured by relative location to economic activity centers as well as surface access to interstate highways, regional arterials, local arterials, and passenger/freight facilities.
4. **Business Use Index Factor** – considers if an airport accommodates business aircraft that directly contribute to jobs and commerce in the ACV scoring method.
5. **Expandability Factor** - provides an assessment of whether an airport can expand, both on and off airport property, thus ensuring future accommodation of aviation demand.
6. **Community Commitment Factor** - helps to measure the support an airport receives from its sponsoring community. Communities that have developed current airport master plans and capital improvement programs on file with funding agencies are considered proactive. Airports who forego grants because there is no matching local share are, by default, not considered supported by their communities.

ACV Estimation Process





4.4.2 Replacement Value and Input

During the evaluation process, two estimates are used to determine the asset value of the property and facility. Replacement value is calculated by multiplying unit construction costs by the existing quantities of facilities.

Estimates of an existing/depreciated facility value employ “useful” life estimates of system airport facilities, thereby reducing the asset valuation for all but the newest of facilities. See the Airport Replacement Value Input Sheet.

4.4.3 ACV by Subregions

As a part of the study, the ACV metrics were applied to 41 GA airports in North Central Texas. Values for the monetary metrics for the airports were then aggregated and weighted according to VMFs to arrive at ACV results for the five subregions in the study.

Subregional Results of Part A - Current ACV

(IN MILLIONS)	TOTAL ACV OUTPUT	TOTAL ECONOMIC EXISTING VALUE	VALUE	REPLACEMENT	WEIGHTED VMF
NORTH	\$3,133	\$1,883	\$1,230	\$1,708	20
WEST	\$216	\$98	\$119	\$152	15
SOUTH	\$357	\$63	\$294	\$383	20
CENTRAL	\$2,265	\$1,413	\$852	\$1,111	22
EAST	\$1,813	\$1,311	\$502	\$753	17
COMBINED TOTALS	\$7,764	\$4,767	\$2,997	\$4,106	94





5.0 Vertical Flight

A significant component of the North Central Texas General Aviation and Heliport System Plan (System Plan) identifies vertical flight (VF) needs in the region to determine if new facilities are needed to meet future demand. Heliports can be located almost anywhere, and at the time of this study, North Central Texas had 141 FAA registered heliports.

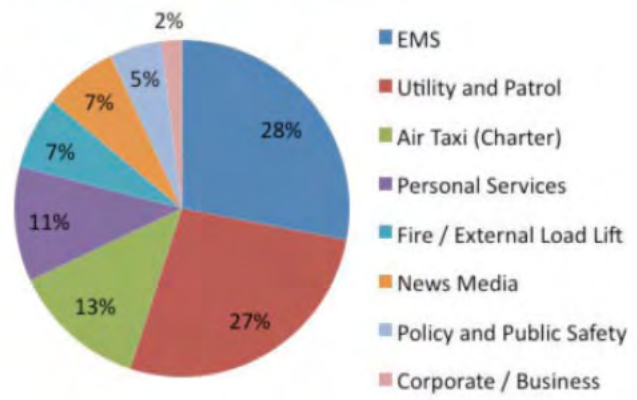
North Central Texas has experienced significant growth in population and employment throughout the last decade. Even with the economic uncertainty in the past three years, NCTCOG's long-term demographic projections for population, employment, and per capita income indicate a steady growth through 2035, which will have a positive impact on vertical flight demand.

5.1 Inventory

Vertical Flight activity is typically generated by helicopters based in the area for most of the year. The activity boundary is limited by the average range of a helicopter, approximately 100 to 150 miles, and rarely involves travel between major metropolitan areas. There are approximately 446 helicopters based here.

Helicopters have a high annual utilization rate (hours flown per year), particularly when compared to most fixed-wing aircraft. This is consistent with the need to amortize operating costs. Helicopter operators often serve multiple entities dividing their missions between public agencies, (including municipal, county, and federal police agencies) and private companies.

National Helicopter Missions





5.2 Facility Classifications

A large amount of helicopter activity takes place at airports; yet dedicated helicopter facilities benefit the airspace system. Due to the unique operating characteristics of helicopters, they are usually assigned to routes away from those of fixed-wing aircraft. Simultaneous coordination at an airport often creates a greater work load for air traffic controllers, thus reducing an airport's capacity. Helicopter facilities can relieve an airport's demand for capacity by dispersing joint rotorcraft and fixed-wing activity.

As part of the System Plan Inventory process, VF facilities were, however, classified by type of use and business. Only Federal Aviation Administration (FAA) registered vertical flight facilities were accounted for in the inventory. While all facilities should be registered with the FAA, some facilities located on airports were not counted separately and/or are not registered with the FAA. The following are classifications of VF aircraft:

- **Public Safety/Forest Service (PS)** – Publicly owned heliports primarily established for use by municipal and police, fire, security agencies, transportation authorities, highway patrol, homeland security, state and federal agencies such as fish and wildlife management, park patrol, and forestry management and the military. There are seven such facilities in North Central Texas. The City of Dallas and the City of Fort Worth operate police patrol helicopters as backup to ground operations and first responders to incidents within their patrol areas. The Texas Department of Public Safety (DPS) patrols North Central Texas outside of the urban areas. The transportation of special teams and high security needs associated with weapons and surveillance gear demand close control of these facilities.
- **Emergency Medical Service (RX)** – Private-use facilities, designed for local Emergency Medical Service (EMS) helicopter providers, located at or near medical centers, hospital emergency rooms, and regional trauma centers. Hospital heliports are essential elements of the air service facility system.



North Central Texas has more than 50 facility heliports, including sport stadiums, universities, racetracks, marinas, and rural medical facility landing areas. Rapid transfer for emergency care saves lives. Rush hour traffic gridlock, travel distances, and difficult ambulance movements from rural locations stimulate the rapid expansion of EMS helicopters. Among these providers are Careflight, Air Evac, Helinet, and PHI.

- **Corporate/Business (CP)** – Private-use heliports designed and prepared for company use to transport business executives, time-sensitive cargo, and valuable assets. Corporations typically own these facilities to support their own transportation and security needs. Frequently, these heliports serve dual purposes by providing emergency access for disaster relief. Over 30 facilities of this type are documented in North Central Texas. Among the business operators in North Central Texas are EDS, Frito Lay, Omniflight, and CFS Air.
- **Transport/Commuter (TR)** – Public-use heliports for the use of private, commercial, and public commuter helicopter operators with prior permission and on a space available basis. Air Center Helicopters, Epic Helicopters, Sky Helicopters, Quality Aircraft, Longhorn Helicopters, and North Texas Helicopters are among the providers of corporate VF transportation in North Central Texas.

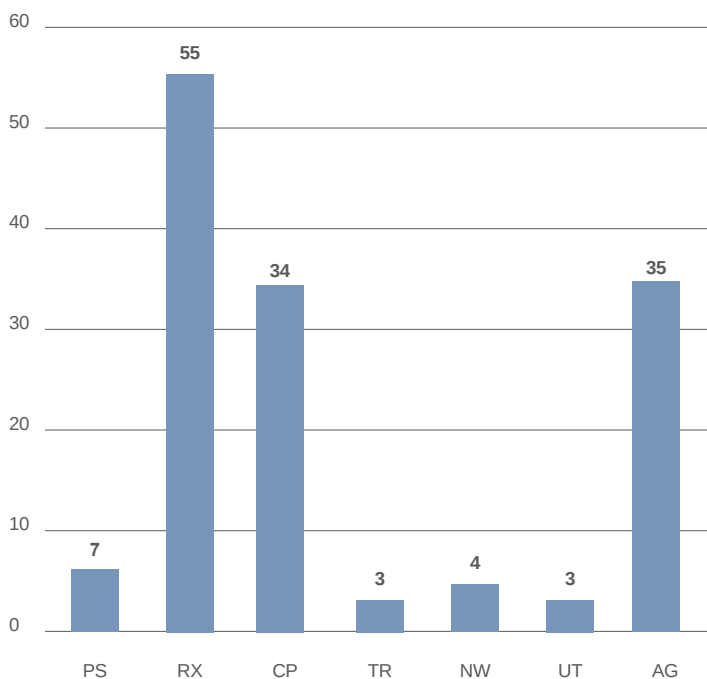
Three public-use, free-standing heliports are identified in the region, however, others are delineated on layout plans of public airports. The City of Dallas incorporates



a vertiport in its Central Business District designed to accommodate Vertical Take-Off and Landing (VTOL) aircraft. The City of Garland has also established a public-use, publicly owned heliport for public safety and corporate users.

- **News Media/Broadcast (NW)** – Private-use heliports accommodate helicopter news media, traffic patrols, and other media.

North Central Texas Vertical Flight Facilities by Category



When the media responds to breaking news, they need fast flexible transportation and an aerial view is often the best vantage point to assess the situation.

Additionally, public dignitaries, celebrities, and elected officials are frequently shuttled to and from these heliports. Four facilities are dedicated to news media in the region. Sky Helicopters, Fox 4, and A.H. Belo are the operators for the regional broadcasts.

- **Utility/Pipeline Patrol (UT)** – Electric, water, gas, and telecommunications facilities are supported by helicopter transport. These facilities may serve as a base for patrol or in direct support of utility projects. Rapid response to transport equipment and personnel is crucial for utility assessment and repairs, especially in a hazardous situation. Three facilities serve area utility companies such as TXU, Chesapeake, ATMOS, and XTO.
- **Agricultural/Instructional/Personal (AG)** – Heliports designated to support flight instruction and agricultural operations, such as crop dusting and personal use, are typically privately owned and operated facilities frequently established by an individual owner. These heliports are often established on grass or unpaved areas near homes or on ranches for convenient access. There are more than 30 VF facilities used for personal or agricultural purposes in North Central Texas. In addition to numerous private flight schools in the region, Eurocopter and Bell Helicopter, two major manufacturers, also provide on-site training.



5.3 Factors Influencing Vertical Flight

Fluctuations in helicopter operations can be affected by many factors, including traffic congestion, airspace, and aviation infrastructure limitations. As helicopters serve a wide array of missions for commercial, private, governmental, and military uses, their activity is not directly influenced by one factor more than another. Public-agency helicopters are not directly affected by the state and federal economies as are corporate/air taxi, training, personal, and utility operators.

Region-wide congestion and highway capacity

Large sections of the highway system have moderate to severe highway congestion and increasing delays in the region's highway networks stimulate an increase in the use of helicopters.

Availability of off-airport landing sites

Off-airport landing sites, such as parking lots, rooftops, or open fields are crucial to the vitality of the rotorcraft industry. Off-airport landing sites should be available to ensure that operators can provide a high level of service and meet service/mission requirements.

Airspace and airport access restrictions

Temporary Flight Restrictions (TFR) and Special Federal Aviation Regulations can impact overall aircraft operations. Since the early 2000s, the FAA has developed more stringent safety restrictions on the national airspace, in turn impacting the accessibility of navigable airspace and the nature of the aviation industry. As a result, long-term and permanent federal restrictions on airspace and zoning ordinances can also restrict local regional rotorcraft growth and activity.

Financial impacts of insurance and vertical flight technology

While business aviation's safety record in 2010 was good, fiscal losses rose significantly for scheduled airlines. This may negatively impact GA insurance compounding high operational costs, and could remain a long-term issue. As the business aviation community looks for ways to reduce costs, more efficient and cost-effective operations may be realized through new technologies, alternative fuels, and the Next Generation Air Transportation system (NextGen).

As the FAA continues to develop air and ground infrastructure for NextGen, helicopters are expected to utilize Wide Area Augmentation Systems (WAAS) to perform all-weather landings based on real-time differential correction of Global Positioning System (GPS) signals. According to the FAA, WAAS will bring several benefits to vertical flight operations such as:

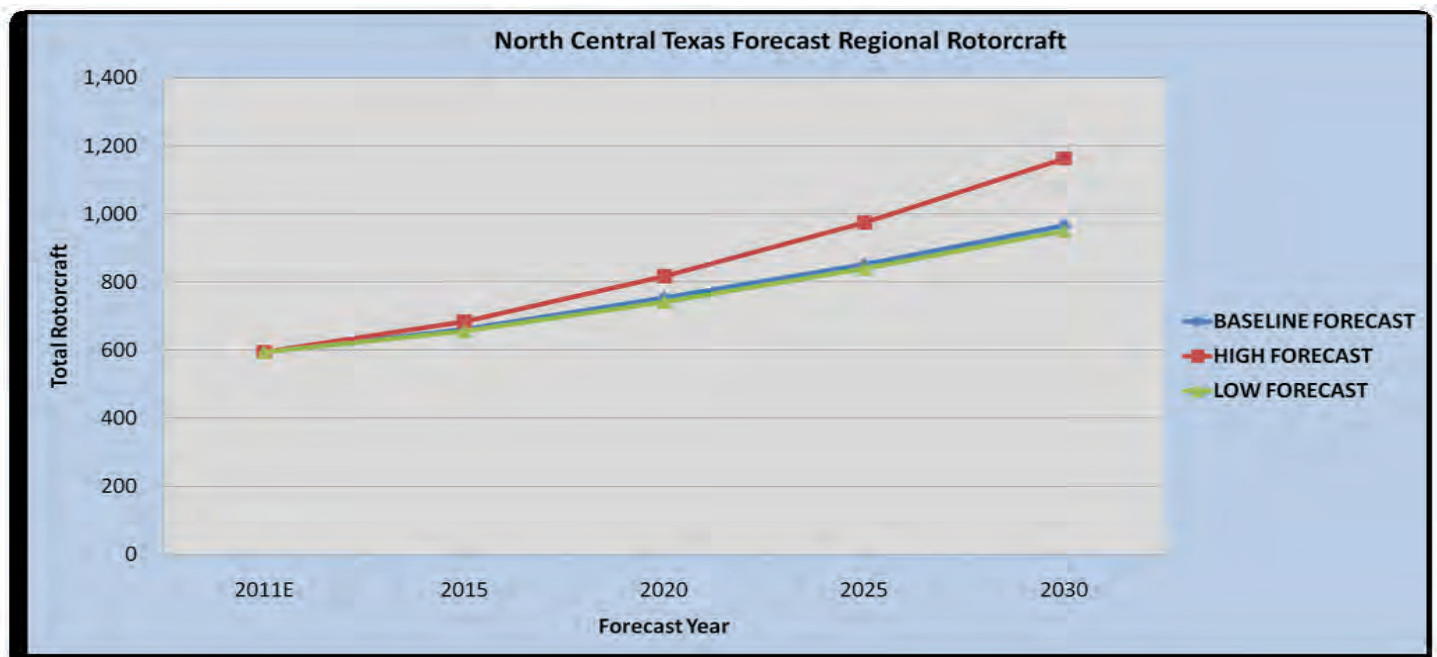
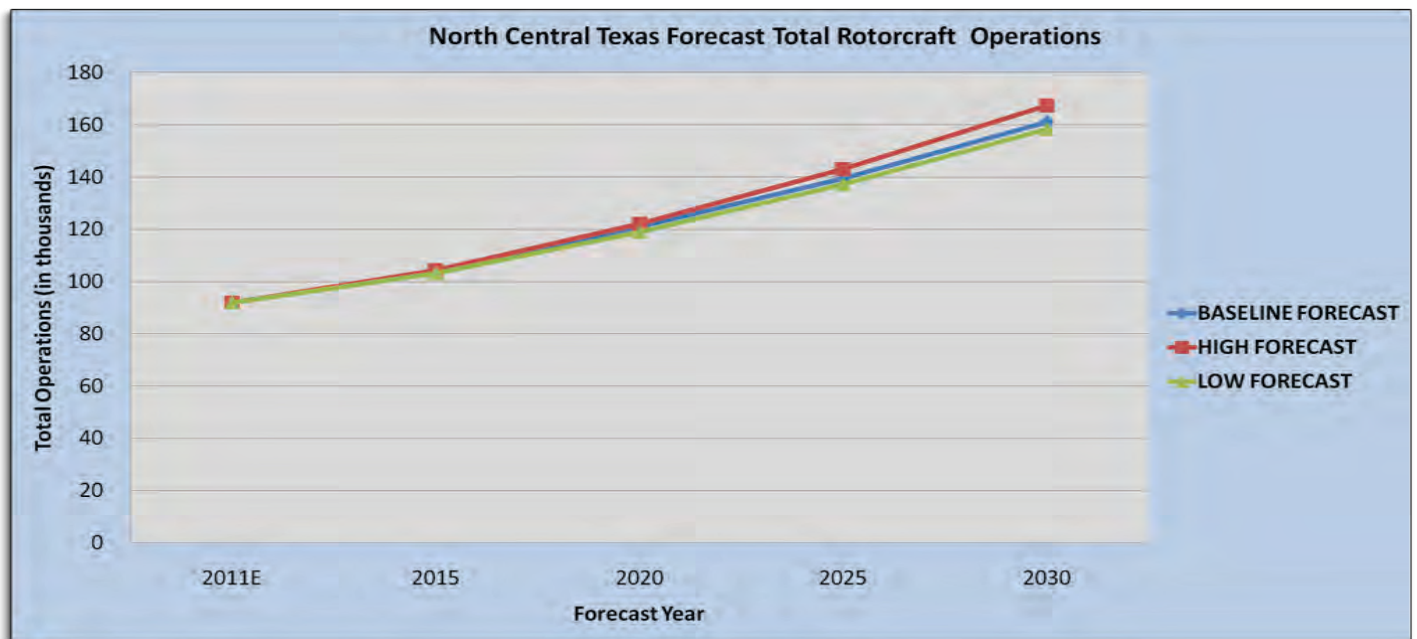
- Precision-like approaches, including vertical guidance, without the installation of expensive infrastructure
- Better options for alternate landing facilities
- More direct routes

The FAA is currently coordinating with the aviation industry to advance the progression and development of WAAS technology so the helicopter sector can take advantage of its new capabilities and enjoy the benefits in rotorcraft air navigation. Specifically, in North Central Texas, the FAA is working with the EMS provider CareFlite, to develop low Instrumental Flight Rule (IFR) routes as a result of the industry development of GPS-based precision approach procedures. Once integrated into the airspace system, WAAS will increase the utility and service roles of the VF industry.

5.4 VF Activity Forecasts

Due to the difficulty in predicting the impact of factors influencing vertical flight, three separate VF forecast scenarios were analyzed; baseline, low, and high. Each scenario assumes a growth rate based on the FAA's National Forecasts. The goal of this exercise is to project the anticipated future demand of regional helicopter activity.

Results indicate a similar correlation between the baseline and low forecast scenarios; the baseline forecast projects slightly higher registered rotorcraft and operations than the low. As expected, the high forecast scenario predicts registered rotorcraft and operations will more than double over the life of the forecast.



5.5 Vertical Flight Recommendations

Vertical flight is a critical component of the System Plan. The number of VF aircraft hours flown in our region is expected to increase significantly.

Considering the diversity and range of public and private services provided by vertical flight operations, VF has a profound impact on our region, both economically and from an emergency services perspective. Considering the anticipated population growth and exponentially increasing traffic on area roadways, the following recommendations are made:

- Hospitals with trauma centers should consider constructing a heliport; similar medical facilities not yet constructed should include heliports in building plans.
- Other public entities and businesses with heliport/heliport facilities, should make those available to emergency services operators during disaster relief efforts.
- Heliports in proximity to special event venues should be utilized to provide transportation to and from event activities
- Air taxis should move more people to and from special events to help reduce roadway congestion.
- Police and fire departments should increase their VF efficiencies by purchasing new aircraft and training more pilots.
- Public safety organizations should consider operating out of existing facilities for quick mobilization.
- Heliports and helipads should provide fuel stations for public or private use.
- Vertical flight outreach activities should be planned to inform and educate the public on VF contributions to public safety and EMS operations.
- All VF facilities should be registered with the FAA and adhere to the National Fire Protection Agency.
- Local land-use ordinances should protect the airspace surrounding VF facilities.



6.0 Summary

The Regional General Aviation and Heliport System Plan, over the five-year study period, has resulted in some innovative products and important strategy that we hope will be beneficial to regional airports, planners, and the communities they serve. The following recommendations provide guidance to our aviation industry stakeholders for the future of aviation in our region:

Ground Access

Developing successful ground access strategies is crucial to airport development and should be integrated into comprehensive community-based planning. There is a clear correlation between efficient ground access surrounding airports and the economic sustainability of that airport.

- Airport sponsors are encouraged to work with their local planning organizations to incorporate airport ground access needs into overall community-based plans.
- Enhancements to the travel demand models used by NCTCOG to forecast future surface transportation needs should be considered, to include forecasted airport activity as a factor in future traffic volumes. Going forward, NCTCOG encourages the inclusion of GA airport ground access needs in the surface transportation system's funding decisions.

Municipalities and Airports

As communities and local governments become more aware of the impact that local airports have on the public at large, municipal planning and input should become integral to the overall airport and city planning processes.

- Implement zoning to prevent future incompatible development, both land and airspace.
- Protect or acquire land for future planned airport expansion, including runway extension and additional facilities.
- Discuss future plans for the airport with local development groups and political jurisdictions and review all proposed city and development projects adjacent to the airport to ensure long-term compatibility.
- Educate city councils, planning and zoning commissions, and boards of adjustment about the airport's importance and the desired zones of protection to ensure its future viability.



Special Events Planning

Understanding how the general aviation system, including vertical flight facilities, can be maximized during special events, is crucial for North Central Texas to support large scale events in the region.

- Identify planning partners.
- Identify aviation service area(s) and the capacities and services of their facilities.
- Coordinate with appropriate agencies regarding airport operations.
- Develop an event operations guidebook.

Economic Sustainability

An economically sustainable aviation facility needs a definitive strategy from both a regional and individual facility perspective.

- Review local and regional sustainable policies and goals and dedicate staff and budgets as applicable in support of those goals.
- Develop facility-specific sustainability goals, in addition to those identified regionally.
- Use Airport Business Plans to help city officials gain leverage for policy changes impacting community airports.
- Use Airport Business Plans to illustrate Return on Investment principles to local governments.
- Annually review and update “Rates & Charges.”
- Find alternative sources of revenue through market expansion.

- Develop public-private partnerships to attract more business to the airport.

Vertical Flight

The diversity of vertical flight in North Central Texas encompasses an array of services that benefits both the private and public sectors and should be well-publicized to educate and garner public support.

- Hospitals with trauma centers should consider constructing a heliport; similar medical facilities not yet constructed should include heliports in building plans.
- Police and fire departments should increase their VF efficiencies by purchasing new aircraft and training more pilots.
- Public safety organizations should consider operating out of existing facilities for quick mobilization.
- Heliports and helipads should provide fuel stations for public or private use.
- The public should be educated and more informed about VF contributions to public safety and EMS operations, to create awareness and garner support for VF activities.
- Local land-use ordinances should protect the airspace surrounding VF facilities.



7.0 Implementation

The role of NCTCOG is to promote the System Plan in such a way that the national and regional communities are aware of the plan and its recommendations as well as to provide the necessary support to ensure a viable aviation system for years to come. This includes contacting a variety of national and regional stakeholders through the appropriate outlets to garner support and resources and explaining why the plan should be used as the basis for future planning and development within the region.



During the five years of study, an enormous amount of aviation information was gathered for multiple purposes, including extensive modeling to develop recommendations for expanding and sustaining GA in North Central Texas over the next 25 years. Development recommendations are presented in the System Plan according to geographic subregions so that the information and potential impacts are useful to local communities.

In order for stakeholders to fully utilize the findings, the System Plan must be made available through effective communication channels, such as:

- NCTCOG's website
- Community meetings
- Stakeholder briefings
- Media briefings and general news releases
- Industry organizations
- Economic development advocates

NCTCOG offers many resources including suggestions on connecting with stakeholders, brochures and other outreach materials, and staff presentations to stakeholders as requested.

Airport Sponsor Implementation

There are certain actions that can be taken by an airport sponsor to ensure a successful system plan into the future. While NCTCOG is primed to assist sponsors by providing education and advocating on behalf of the aviation system, it is up to each individual sponsor to complete the recommended development to sustain this system. Sponsors should review and adopt the system plan's recommendations, as applicable, after determining the best development initiatives for that airport.

A key step for sponsors is Capacity Threshold Planning. When airport capacity reaches 60 percent, the sponsor should begin the planning for expansion in order to begin construction at 80 percent capacity. To act accordingly ensures that the airport will not reach 100 percent capacity.

The significance of the 80 percent capacity threshold is demonstrated in North Central Texas by the number of airports in the System Plan that are anticipated to exceed their capacity by 2035.

If privately-owned airports were not included in the System Plan, other airports would exceed 80 percent of ASV capacity by 2035. Some airports are constrained from expanding by their existing property lines and can be expected to exceed their landside development capacity by 2035. Therefore, regional capacity must be increased at other airports. Again, future planning must be on-going and proactive, not reactive, because of the time required for expansion and new facility construction.

8.0 System Plan Documents

An in-depth look into the study process along with topic analyses, data sources, and methodologies can be found in the following reports, which served as the basis for the findings and recommendations in this Executive Summary.

Airport Community Value (ACV)

Airport Community Value, Part A, March 2011

Airport Community Value Model

Airport Community Value Manual

Airport Recommendations

Forecasting Summary Report, December 2011

General Aviation Airport Development
Recommendations, January 2012

Implementation Plan

Subregion Analysis Report, July 2010

Regional Characteristics

Inventory Summary Report, July 2010

Ground Access Report, May 2010

Demonstration Encroachment Analysis Surrounding
Lancaster Municipal Airport, February 2008

General Aviation Air Cargo Analysis, January 2009

Airspace Report, May 2010

Special Events Report, May 2010

New Technologies and Industry Trends Report -
Second Edition, April 2009

New Technologies and Industry Trends Report -
First Edition, January 2008

Unmanned Aircraft Systems Report, December 2011

Tools

Educational Videos

Airport Environmental Sustainability Report,
February 2011

Airport Economic Sustainability Report, December 2011

Airports and Wildlife – A Guide for the Public

Preserving General Aviation Airports

Importance of General Aviation Brochure

Vertical Flight

Vertical Flight Report, July 2011

Potential Public Use Vertical Flight Facility Locations,
July 2010

Vertical Flight Community Value, July 2010

Vertical Flight Community Value Facility Scoring Matrices

Vertical Flight: Sample Ordinances, August 2009

Miscellaneous

Recommended Performance Measures, January 2009

Aviation and Heliport Use Survey, December 2009

The General Aviation and Heliport System Plan was conducted with the assistance of the following team members:





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