

Visioning Report

MASTER PLAN UPDATE PHASE I

CHICAGO EXECUTIVE
AIRPORT



CMT
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Visioning Report Master Plan Update Phase I

Chicago Executive Airport
May 2015



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Executive Summary

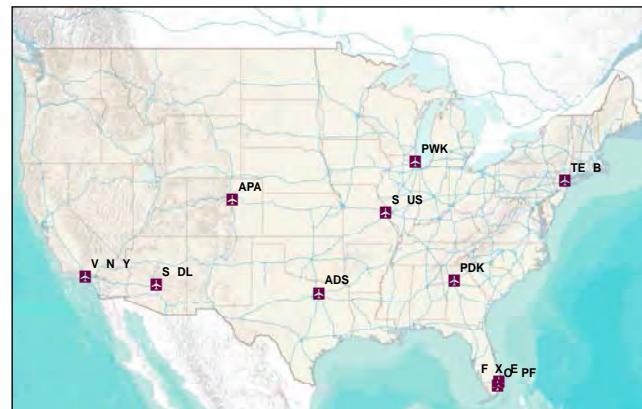
Many cities and villages across the country are seeking methods to prosper, while at the same time enhance the quality of life for their residents. However, there are always competing interests. Prudent planning can enable these communities to more fully and effectively leverage their existing assets to continually improve. These community assets include certain transportation infrastructure and facilities such as airports. For the communities of Wheeling and Prospect Heights, Chicago Executive Airport (CEA), also known as PWK, serves as such an asset. In the summer of 2014, the Airport Board of Directors of CEA made the decision to embark on a new planning effort, to ensure that their communities are able to best leverage the Airport as the asset it is while meeting federal obligations.

At the outset of this planning effort, the Airport, its governing board and its planners worked together to create a set of **guiding principles** which would provide a road map for future planning at CEA. These principles included: (1) integrating the Airport within the local communities, (2) fulfilling the Airport's role, (3) enhancing Airport safety and compatibility, and (4) maintaining financial viability. Any public asset of this nature would be compelled to properly and prudently plan for its future; combined, these principles provide a balanced perspective from which to analyze and plan for the Airport and its environs.

This Executive Summary highlights the results of the work done within the Phase I Report. Below is a list of the significant facts which were identified. Together, the facts listed below illustrate the uniqueness of CEA and its impact on local, regional, and national aviation and economic systems.

Top Facts

- CEA hosts 497 jobs, generating an estimated \$30-35 million in direct payroll alone.
- In 2013, the businesses operating at the Airport produced more than \$2.3 million in sales and real estate tax revenues combined.
- CEA is in the top ten of corporate airports in the United States.
- CEA is the 3rd busiest airport in the state of Illinois in terms of itinerant operations (trips further than 20 miles), and the fifth busiest airport in Illinois in terms of



Top Corporate Airports in the United States

total operations.

- CEA is the busiest reliever airport in the Chicagoland area.
- The Airport is also the top choice for international operations, hosting over half of the total of all customs operations at relievers in the Chicagoland area.
- Of the 31 Fortune 500 companies headquartered in Illinois, 29 are located in the Chicago metropolitan area; of these, CEA is the closest reliever airport to 23. [insert Fortune 500 exhibit]
- Between 1989 and 2009, much of improvement projects at CEA focused on safety and bringing the Airport into compliance with FAA regulations. In fact, more than \$70 million (92.4%) of that investment came from state and federal funds.
- Both Wheeling and Prospect Heights have identified areas of development or redevelopment interest in properties immediately adjacent to existing Airport property. For Wheeling this would be the Industrial Lane area and for Prospect Heights, it is the proposed industrial district south of Palatine Road on either side of the approach area for Runway 34.
- Projected industry growth trends show that business aviation will continue to be the rising force within general aviation both nationally and at CEA.
- Chicago Foreign Trade Zone (FTZ) #22 incentivizes area businesses to grow and prosper in this area.

Top Airports in Illinois

Airport	Itinerant Operations	Total Operations
O'Hare International	881,938	1,938,193
Chicago Midway	249,252	249,252
Saint Louis Downtown	45,332	93,377
Southern Illinois	29,306	682,680
Chicago Executive	57,196	676,440

Top Reliever Airports in Chicago

Airport	Itinerant Operations	Total Operations
Chicago Executive	57,196	76,440
DuPage	44,793	71,779
Aurora Municipal	29,52	59,304
Waukegan Regional	23,56	40,99

Given these substantial facts and the full content within this Phase I Report, it has become clear that the comprehensive master planning effort for CEA needs to be completed. The Board of Directors of CEA have chosen to accomplish the planning effort in phases. The level of detail and complexity within the planning effort will increase as the process plays out. But, CEA has chosen to move slowly and deliberately. Such an approach will ensure the transparency and community involvement that is so important to growing and prospering communities.

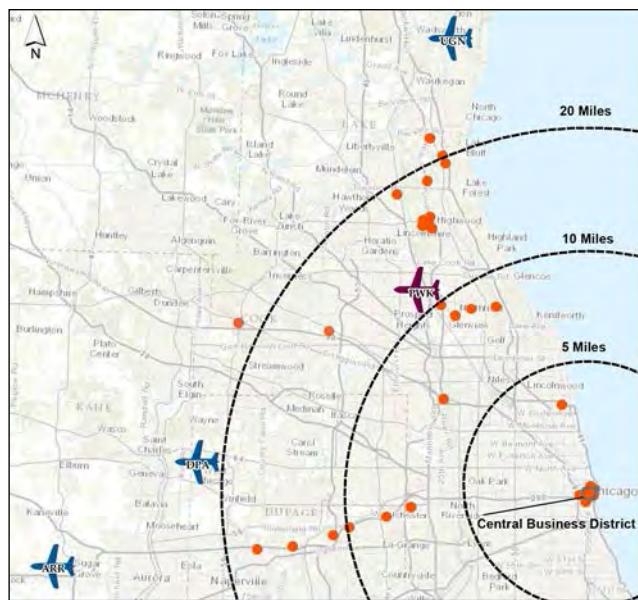
First and foremost, the Federal Aviation Administration (FAA) mandates that such master planning be completed regularly. In CEA's case, it has been more than thirty years since the last comprehensive planning effort was completed. The Airport and its sponsors recognized this fact when initiating Phase I of the project. Planning at CEA is also critical because the Airport functions in such a way that it is integral to the financial well-being of both Wheeling and Prospect Heights due to its economic impacts discussed above.

Planning is necessary at the Airport not only because both communities have expressed interest in the development and redevelopment of areas adjacent to the Airport in their own planning documents, but also because even a cursory look at the Airport and its immediate environment show that there is significant untapped potential for new development in the area.

Finally, completing a master plan update at CEA would provide the opportunity to directly address community concerns regarding the Airport. At two public engagement sessions in early 2015, the top three concerns listed by attendees were safety, aircraft noise, and impacts to the environment. The Airport and its planners concur with these expressions and intend to address and expand upon them via the establishment of an Airport Planning Advisory Team (APAT) in the future to aid with subsequent planning tasks. The APAT would consist of diverse stakeholders who would offer input as the various phases of the planning process progresses.

For these reasons, as well as those described with greater detail and specificity within the body of this report, Phase II represents the next phase in the Airport's planning effort. It is essential to meeting federal obligations.

Towered Reliever Proximity to Fortune 500s in Chicago



Further, ongoing studies, such as Phase II will be critical to leveraging the Airport and its economic development potential in a sustainable and comprehensive manner. Planning allows for pre-coordination between the Airport, the communities, the State, the FAA, and other impacted agencies and parties. This coordination is what lays the groundwork for the orderly growth and development of the airport, in harmony with neighbors. This thorough, comprehensive, and thoughtful master planning illustrates to potential investors or developers that the Airport and its communities only intend to move forward in a conscientious and orderly manner.



1929



1965



2012

CEA Through Time

Source: CEA, 2015; CMT, 2015.



Chicago Executive Airport. Source: CMT, 2014.

Foreword

When the City of Prospect Heights and the Village of Wheeling acquired Chicago Executive Airport, previously Palwaukee Airport, in 1986, one of the primary motivations was to preserve the Airport as an infrastructure asset and economic engine to both communities and the region. When any new entity takes ownership of a public-use airport, that entity makes a commitment to protect and enhance the airport as a facility open for public use that provides access to the national aviation system. In Prospect Heights' and Wheeling's case at CEA, this responsibility came with a significant return on its investment.

At its most basic element, the Airport produces economic contributions to both communities in the form of jobs, tax revenues, and monies spent by visitors or employers/employees in the local economies. The Airport also serves as a port for companies to access Wheeling, Prospect Heights, and the Chicago metropolitan area, as well as a gateway providing companies and individuals global aviation access. **Looking forward, this Master Plan seeks to explore opportunities and challenges to meet current and future aviation demand, maximize economic returns, strategically align the airport plan with the communities' comprehensive plans and identify the foundational elements that should be considered in forming the framework for the continued development of CEA.**

As a gateway within the Chicago metropolitan area,

CEA plays a strategic role in linking Wheeling and Prospect Heights to regional, national, and global economies. Chicago itself has always been a major transportation hub within the interior of the country. As a region, Chicago has been a primary inland port within the U.S. resembling the trade capability of many coastal cities. Initially the greatest port on Lake Michigan, Chicago then evolved into a major passenger and manufacturing railroad hub due to its strategic positioning in the Midwest. With the progression of the 20th century and the rise of aviation as a more efficient long-distance transportation option, the Chicagoland area developed a network of first-class aviation facilities. Among other factors, this network of aviation facilities allows Chicago to compete economically worldwide. CEA has been present in this network of transportation facilities since the beginning of aviation. It continues to play a major role as part of the national system of airports and in the Chicago metropolitan area as its premier corporate aviation airport, functioning as a gateway to national and international markets.

Simultaneously, the economic dynamics within our urban centers themselves are shifting dramatically. Over the past decades, industry and business centers have cycled between the city center and the suburbs. Most recently, the trend shows that young professionals and new workers entering the workforce prefer urban over suburban lifestyles. Jobs are moving back to the city

as this trend gains momentum, especially in service and technological industries. Companies like Google, McDonalds, Motorola Mobility, and United Continental Holdings have all moved corporate locations back to the central business district following the talented young professionals already migrating there. This trend is visible in Chicago, but not unique to the city; indeed, other major metropolitan areas are experiencing the same trend including New York, Boston, Philadelphia, and Atlanta. The effect of this trend is clear: jobs in Chicago's central business district grew by 13% since 2010, supporting more than 542,000 jobs alone according to the Illinois Department of Employment Security.¹

The economic benefit of the Airport as it currently exists is well-established. The Airport generates sales taxes on goods and services and real estate taxes on their leases, providing additional revenue to Prospect Heights and Wheeling. Not only are these direct benefits a testament to CEA's economic contribution, CEA also does not rely on any local tax proceeds or other local appropriations in order to finance its day-to-day operations or capital improvements despite operating within a much more highly constrained physical environment that limits its economic potential.

Need for a New Master Plan

In mid-2014, the CEA Board recognized a need for a new master plan. The Airport's previous comprehensive study was completed over 30 years ago to support its public acquisition. Under the 1984 master plan, the primary focus of development revolved around bringing the airfield into compliance with Federal Aviation Administration (FAA) safety regulations. This effort recently culminated in the installation of an aircraft arresting bed called Engineered Materials Arrestor System (EMAS) south end of Runway 16/34, with an additional arrestor bed being completed later in 2015 on the north end of Runway 16/34.

EMAS is defined in FAA Advisory Circular No 150/5220-22A as "high energy absorbing materials of selected strength, which will reliably and predictably crush under the weight of an aircraft". CEA installed EMAS to improve substandard safety areas at both ends of Runway 16/34. This safety improvement is designed to arrest aircraft that overshoot the runway end and keep them from traversing onto roadways or other populated areas and is a significant safety improvement for the Airport. Intermittent focused planning efforts have occurred at CEA since the completion of the 1984 Master Plan, but these were planning documents used to refine the application of FAA standards over time.

With the Airport having accomplished major improvements to comply with federal standards, the CEA Board recognized the need to update the Master Plan to

establish the framework for the continued development of the Airport and to meet future aeronautical demands. The current guiding document, the 1984 Master Plan, references a different era of aviation, local environment, and sets of FAA regulations at CEA. **The FAA requires that any federally-obligated airport – meaning airports which have accepted federal assistance for development programs – plan for its ability to meet future aviation demand and remain economically viable.** This process ensures that airports prudently administer federal funds to promote the safety and viability of a given facility. The Illinois Department of Transportation Division of Aeronautics (IDA) also requires that airports within the state plan do so for similar reasons.

The current master plan update is intended to be completed in multiple phases, the first of which involved an overview of pertinent development considerations. Phase I included substantial data collection and analysis to investigate existing conditions of the Airport and nearby environment as well as gauge the current and forecasted state of the aviation industry. This analysis resulted in a series of considerations for the subsequent and more substantive phases of the master plan process. This Phase I report aims to illustrate the environment within which CEA operates, identify development opportunities, and serve as a visioning document and framework for the detailed analysis and planning effort to be completed in subsequent phases.

Guiding Principles

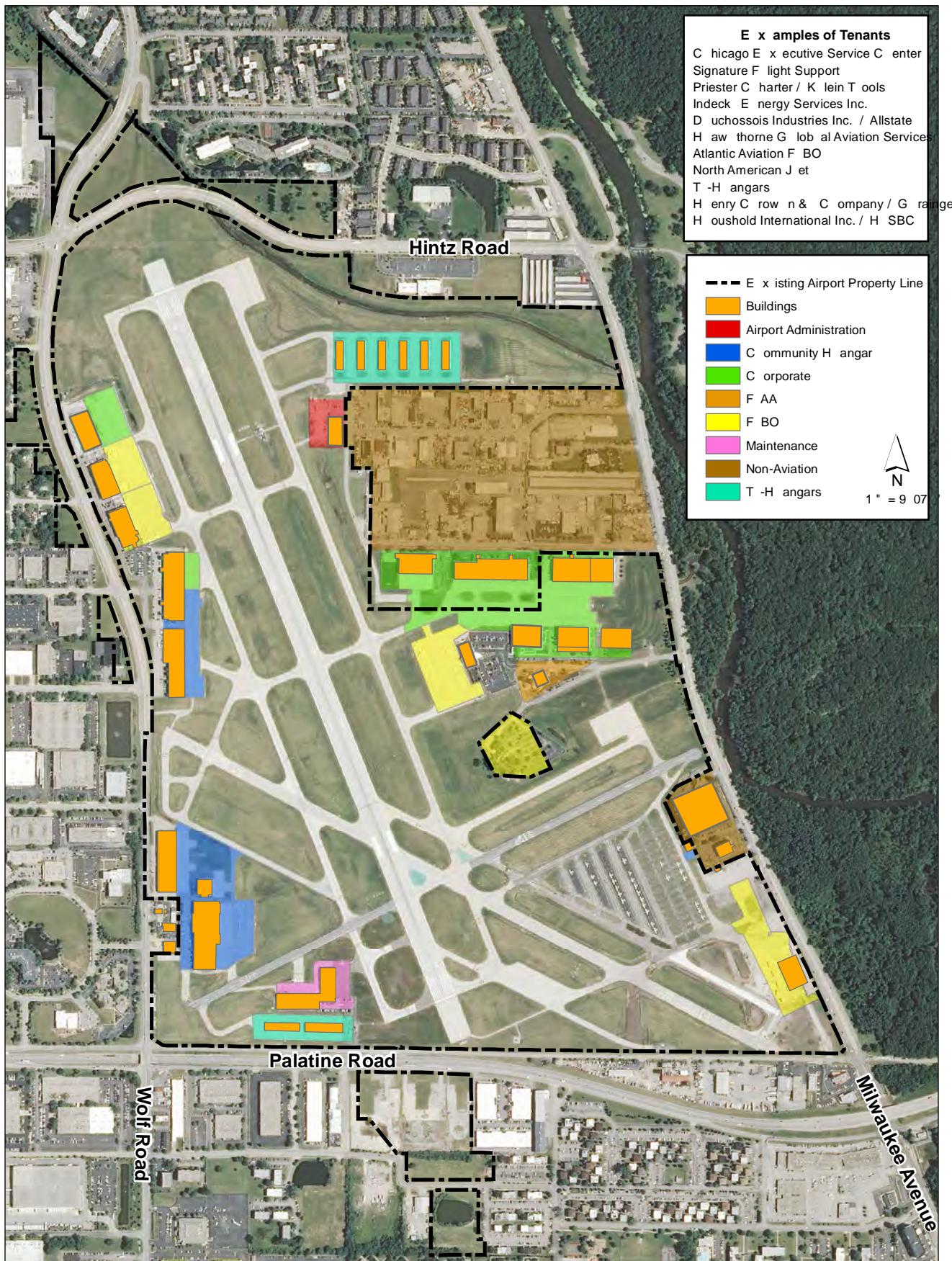
Phase I was conducted following the development of a list of Guiding Principles at the beginning of the study and approved and accepted by the Airport Board, the Prospect Heights City Council, and the Wheeling Board of Trustees. These guiding principles coalesced around four distinct categories, but encompass various points. These main principles are:

- Integrating the Airport within the local communities
- Fulfilling the Airport's role
- Enhancing Airport safety and compatibility
- Maintaining financial viability

Together, these principles serve as the visioning framework for the master plan study. They also served as a lens through which to analyze the Airport today and consider its future. The guiding principles reinforce the vision of the Airport and its value to its various stakeholders.

Chicago Executive Airport

Source: CMT, 2015.



The Context

History

LOCAL COMMUNITIES

The City of Prospect Heights and the Village of Wheeling were established in the early 20th century and late 19th century, respectively. Wheeling formed as a township in 1850, primarily as a result of the Milwaukee Avenue growth that spurred development in the area. Prospect Heights' development did not really take off until the mid-20th century. Both are suburban communities of Chicago, located less than 22 miles from the central business district, or the Loop. Located to the north of Chicago, both communities have been able to take advantage of the strong economic presence of the City of Chicago and other affluent suburban neighbors.

Chicago is the primary driver of the economy in the State of Illinois. A near perfect majority of Fortune 500 companies based within Illinois are in the Chicago metropolitan region. While it is relatively easy to see that corporate offices are concentrated in the area, the concentration of manufacturing and manufacturing jobs is far less visible. **However, according to the United States Bureau of the Census, 75% of all manufacturers in the state are located in and around Chicago, accounting for 71% of all manufacturing jobs in the State.²**

This corporate and manufacturing dominance, along with the work-live trend expressed earlier in this report, has resulted in a remarkable resurgence in people and jobs in Chicago and especially its central business district. The Census Bureau reported that Cook County, in particular the areas surrounding the Loop, saw a population increase between 2010 and 2013 that was greater than the total increase of the six suburban collar counties combined. Cook County gained approximately 50,000 new people in this three year period while the six collar counties gained just 20,000 people combined.³

CHICAGO EXECUTIVE AIRPORT

CEA itself has a long history in the Chicago metropolitan area. Founded in 1925 as the 40-acre Gaultier's Flying Field, the Airport began within years of the famed Wright Brothers flights. In the late 1920s, the Airport was renamed Palwaukee Airport after the major roads of Palatine Road and Milwaukee Avenue. By the 1940s, Palwaukee Airport had nearly tripled in size to 109 acres. In 1953, the Airport was purchased by Priester Aviation Service. Runway lighting, paved surfaces, and additional hangars were added to the airfield resulting in four runways and an instrument approach by 1961. Four years later, in 1965, the primary runway was extended to 5,000' and widened to better serve the aircraft utilizing the Airport. In 1967, the FAA commissioned an air traffic control tower due to the increasing level of activity at CEA and the surrounding airspace. In December of 1986, the Airport was acquired from Priester Aviation Service by the

communities of Prospect Heights and Wheeling. Twenty years later, the Airport was renamed Chicago Executive Airport to reflect the Airport's role as Chicago's reliever airport of choice for business and corporate aviation.

Today, the Airport is the home to more than 181 based aircraft⁴ and is the busiest reliever in the Chicago metropolitan area according to the FAA's National Plan of Integrated Airport Systems (NPIAS). CEA is the third busiest airport in the Chicago area behind Chicago O'Hare International Airport (ORD) and Chicago Midway International Airport (MDW) and is the fifth busiest airport in the state (see table below). It is no surprise, then, that CEA continues to be a major force in the corporate aviation world. The evolution of the Airport coincided with business aviation needs and trends in the Chicago area, providing opportunities for increased economic contribution to both sponsoring communities. The paved and lit runways beginning in the late 1950s and early 1960s were a response to needs of corporate aviation, as was the extended and widened runway. CEA has grown in step with the corporate business economy present in the Chicagoland area and continues to be a vital resource to the local and regional economy.

How CEA has evolved over time

It is important to realize that the Airport has evolved dramatically over time from its beginning as an unpaved landing strip. From the exclusive operation of piston aircraft to the advent and rise of turbine aircraft in the mid-20th century, airport improvements have been made to accommodate the changes in aviation demands. Based on industry data and feedback received at an informal coffee gathering held in February of 2015, costs of operating smaller general aviation aircraft are increasingly difficult to sustain and have contributed to a decline in smaller aircraft operations at CEA and like airports across the nation. Conversely, corporate operations by operators certified to carry passengers for hire has increased substantially reflecting an evolution in the fleet and activity at CEA.

At the time of its public acquisition in 1986, the then-Palwaukee Airport was a leading corporate GA airport in the Chicago metropolitan region. With the decommissioning and conversion of many private airports in the Chicagoland area in the 1960's and 1970's to development property, acquisition of the Airport as a public-use and federally obligated facility was intended by the communities to protect this asset as an economic engine and by the FAA to preserve an aviation port to Chicago and the north suburbs. Considering the momentous regulatory challenges in the divesting of a federally-obligated airport, it would nearly be impossible for CEA to be sold or closed to another entity at this point. Similarly, the federal investment (up to 90% in the airport property and many of the airport facilities) obligates the Sponsors to protect and maintain the Airport in a manner

that will allow the facility to continue to meet demand and promote local compatibility. Given this reality, a thorough understanding of the Airport's current role in the local, regional, and national aviation system is required in order to best leverage the asset currently and in the future.

Chicago Executive Airport's Role Today

While CEA has undoubtedly evolved as a facility since its establishment as Gaultier's Flying Field in the mid-1920s, it is the Airport's role today and into the future which is so critical to the economies of Wheeling and Prospect Heights and the transportation network of Chicago, the Midwest, and the country. Understanding and validating this role was a focus of this study effort.

NATIONAL

CEA plays a nationally significant part in the national aviation system. The FAA classifies civilian airports into the following categories: commercial service, reliever, and general aviation, with CEA being classified as a reliever airport. According to the FAA, "Reliever airports are airports designated by the FAA to relieve congestion at commercial service airports and to provide improved general aviation access to the overall community."⁵ According to an analysis of FAA data, in 2012, CEA was the 33rd busiest general aviation airport in the nation in terms of itinerant operations and the 10th busiest in terms of Instrument Flight Rules (IFR) operations, generally accepted as a

proxy for corporate/business traffic.

Despite operating within a highly constrained environment, CEA functions as the busiest reliever in the Chicago metropolitan area in terms of operations. Given the already high levels of commercial activity at ORD and MDW, CEA serves its general purpose in the national system of airports by relieving general aviation traffic from these large commercial service airports. This is a vital function as corporate jets, while smaller than commercial jets, require the same amount of airspace and time to handle thus having a significant effect on the capacity of commercial airports. Specifically, some operators choose to use CEA over these commercial service airports to access downtown Chicago because of the nature of CEA's function as a corporate airport, despite its highly constrained environment. It is this role that caused the FAA to partner with Wheeling and Prospect Heights in the acquisition and redevelopment of the Airport to meet federal standards and allows CEA to continue capturing federal and state airport funds for its progressive improvement. The role of CEA on a national level is integral to the system of airports in Chicago and as a means of relieving Chicago's commercial service airports of their smaller, non-commercial traffic.

LOCAL

The role of CEA as the premier corporate reliever in the Chicagoland area can be understood both in terms of its level of activity and the markets it serves. Of the Chicago reliever airports that count aircraft via an air traffic control tower, CEA boasts the greatest number of itinerant and total operations in the Chicago metropolitan area. The

Top Corporate Airports

Using IFR itinerant traffic as a proxy for corporate operations. Source: FAA ATADS data, 2013.



Busiest Illinois Airports by Total Operations, 2014

Source: FAA ATADS, 2014.

Airport	Itinerant					Total Local	Total Operation
	Air Carrier	Air Taxi	General Aviation	Military	Total		
O'Hare International	548,253	26,508	6,975	197	881,933	3 N/A	881,933
Chicago Midway	185,632	5,720	6,067	827	24,925	2 N/A	249,252
Saint Louis Downtown	10013	6,332	1,017	583	45,334	28,382	93,714
Southern Illinois	612,419	16,860	2,210	29,353	74,826	3,374	82,680
Chicago Executive*	4112,8724	4,185	98	57,195	69,254	76,476	4,476

* 3rd in State in itinerant operations.

other towered relievers referenced here are Aurora Municipal Airport (ARR), DuPage Airport (DPA), and Waukegan Regional Airport (UGN). Conversely to its dominance in itinerant operations, CEA is outpaced by these others in terms of local operations, which are more indicative of aircraft training activities, usually meaning smaller aircraft. Last and most relevantly, CEA realizes the highest number of air taxi (for-hire flights) operations of any of the reliever airports in the Chicago area.

In addition to its function as a strategic corporate reliever to ORD and MDW, CEA also provides invaluable support to the local economy and communities. Phase I included an employment survey of companies based at the Airport. Out of the 52 companies operating on the Airport, 50 responded providing a snapshot of employment at the Airport and its local economic impact. According to

the results of the survey, 497 jobs are located at CEA. This would consist of jobs whose salaries would reflect the high level of skill and training required of pilots, aviation mechanics, flight department staff, etc. Based on an estimate generated from an economic impact study completed in 2007,⁶ the estimated payroll for these 497 employees is likely within a \$30-\$35 million per year range, a figure which compares very favorably with the largest employers in both Prospect Heights and Wheeling.

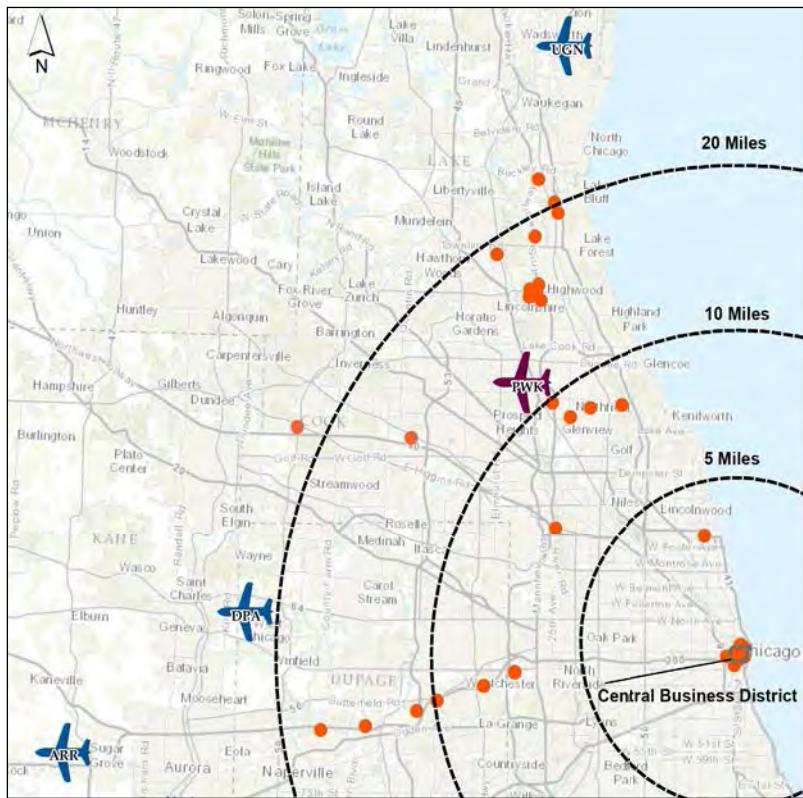
The real impact of a \$30+ million payroll goes beyond just this number. Economists regularly refer to a "multiplier effect," or an estimate of the impact of that money being spent on goods and services. A simplistic example would be an employee at the Airport having a car serviced locally at a cost of \$200. At the end of the transaction, the car is fixed with a value to the owner of \$200. Yet the car mechanic now has \$200 to spend back into the economy for payroll, rent, supplies, or even a profit. The effect of the same \$200 generated by Airport payroll will be multiplied many

times over in this way. The exact multiplier used in an individual situation can vary depending upon a list of factors, but it is common to see multiplier figures in a range of 1.3 to 1.6. Using this conservative range, the payroll generated at CEA has a total impact somewhere within \$40 to \$55 million annually.

Due to CEA's proximity to the Chicago Loop and the business headquarters located in the north suburbs of the city, CEA serves as a port for those seeking to do business within the area and also a gateway for local businesses to access the world. In fact, according to Freedom Investments, 29 of the state's 31 fortune 500 companies are headquartered within the Chicago metropolitan area. **Of these, CEA is the closest general aviation airport to 23 out of the 29.** While it is difficult to fully quantify the impact of this proximity to the

Towered Reliever Proximity to Fortune 500s

Source: Freedom Investments, Google Maps.



Chicagoland Towered Reliever Airports, 2014

Source: FAA ATADS data, 2014.

Airport	I tinerant					Local T otal	Total O peration
	Air C arrier	Air T ax i	G en. Aviation	Military	Total		
C hicago E x ecutive	4 1	12 , 87	2 4 4 , 185	9 8	5 7 , 1	9 10 , 2 54	7 6 , 4 5 0
D uPage	4 6	5, 4 4	2 3 8, 9 83	3 2 1	4 4 , 7	9 23 7 , 086	7 1 , 7 8 9
Aurora Municipal	2 1	9 7 7	2 8, 4 9 8	2 56	2 9 , 7	5 22 9 , 552	5 9 , 3 0 4
Waukegan Regional	2 0	2 , 56	4 19 , 3 8 3	4 3 9	2 3 , 3	5 16 , 59 5	4 0 , 9

residents of Wheeling and Prospect Heights, it is logical that a portion of the residents in Wheeling and Prospect Heights are employed by these large companies, thus benefiting from their presence downtown and in north suburbs.

Lastly, CEA is rare among its peers as a general aviation airport which does not utilize local tax dollars to support airport operation or improvement. For CEA, these funds come from leaseholds on the airport property, fuel sales, and user fees. Due to the scale and cost of improvement projects however, many airports use state and federal airport improvement monies to achieve development goals. CEA is no different in this regard. The development projects are simply too costly to be borne solely by the Airport, though the Airport does provide local contributions to these projects. These federal and state funds are generated from fees to airport users similar to the federal and state gas tax which supports to improvement of roadways, none of which come from individual or corporate income taxes.

Master Plan Process

Planning is critical to development at federally-obligated airports. In order for any new development to take place, proposed projects must be listed as future development on the airport's Airport Layout Plan. As planning work is a precursor to making any changes to an Airport Layout Plan, it provides the required justification and vetting of alternatives for the project which then becomes part of the Airport Layout Plan. As such, planning forms the basis of almost all airport development projects.

The FAA provides guidance on the development of master plans for airports within the aviation system. In the Advisory Circular (AC) 150/5070-6B⁷ *Airport Master Plans*, the FAA states that the "goal of a master plan is to provide the framework needed to guide future airport development that will cost-effectively satisfy aviation demand, while considering potential environmental and socioeconomic impacts" (p. 2). Below are some criteria or objectives which master plans should meet (p. 2):

- Document the issues that any proposed development will address.
- Document policies and future aeronautical demand to support municipal or local deliberations on

spending, debt, land use controls, and other policies necessary to preserve the integrity of the airport and its surroundings.

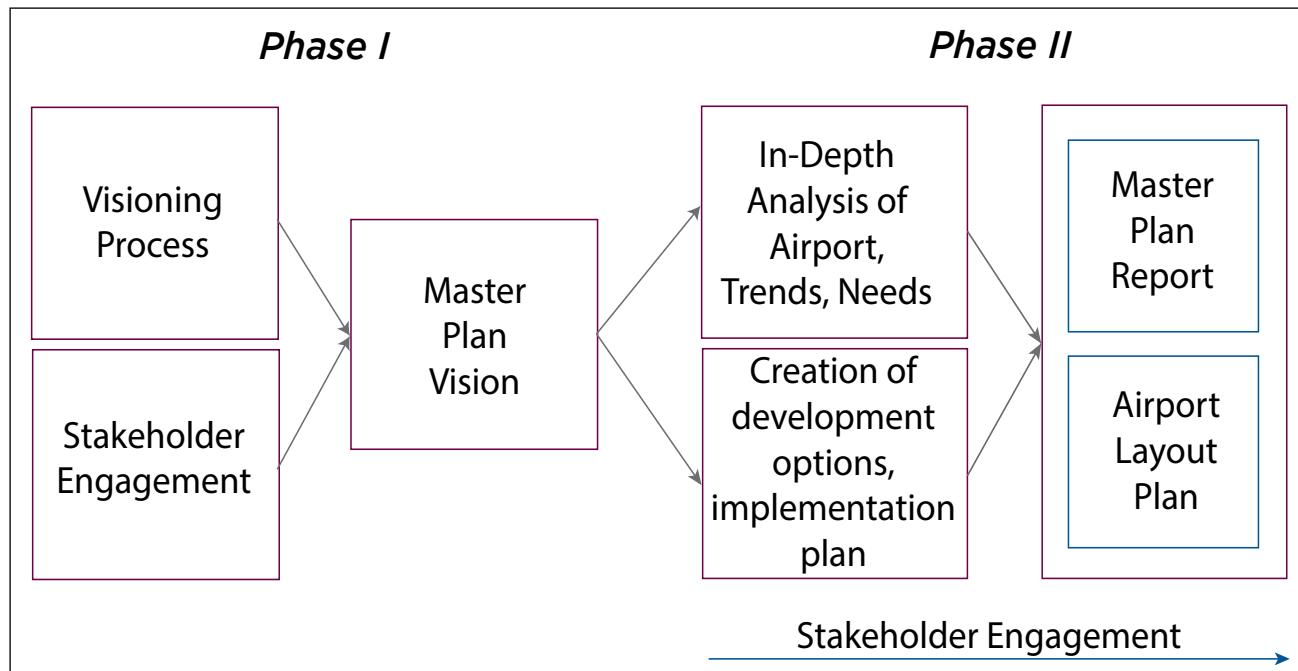
- Justify the proposed development through the technical, economic, and environmental investigation of concepts and alternatives.
- Provide an effective graphic presentation of the development of the airport and anticipated land uses in the vicinity of the airport.
- Present a plan that adequately addresses the issues and satisfies local, state, and federal regulations.
- Establish a realistic schedule for the implementation of the development proposed in the plan, particularly the short-term capital improvement program.
- Propose an achievable financial plan to support the implementation schedule.
- Provide sufficient project definition and detail for subsequent environmental evaluations that may be required before the project is approved.
- Set the stage and establish the framework for a continuing planning process.

These criteria provide airports and their planners with the guidelines to effectively plan for the facility's future. This phase of the Master Plan outlines the primary considerations necessary to develop a fully comprehensive master plan for CEA. By its nature, master planning results in very different documents for different airports as every airport encounters different issues and obstacles to meeting demand. The past 30 years at CEA have focused largely on safety compliance and airfield geometry in order to provide adequate, safe facilities for aviation activity. Given this, the current master planning effort is intended to look at how CEA can meet current and future demand as well as how the Airport can continue to be an economic engine in Wheeling and Prospect Heights.

It is also important to understand that master planning as defined by the FAA is intended to define the facilities needed to accommodate demand during the study planning period of 20 years. More specifically, the FAA mandates planning which considers fully comprehensive facilities – meaning, for planning purposes, disregarding the limitations to development at the airport – and thus, any master planning process should be conducted in a similarly comprehensive manner. The result of this

The Master Plan Process

Source: CMT, 2015.



multi-year process is a list of alternatives which are then evaluated, vetted, and eventually formed into a series of recommendations provided to the Airport Board and Sponsor. A critical distinction to make is that this FAA mandated planning effort does not necessarily translate into future development which disregards existing constraints; it is strictly the framework within which the FAA requires master planning to be done.

While master planning identifies influences, evaluates demand, and considers local decision making, at its core, the result of the master plan are recommendations of new or replacement facilities that support the overall operation and growth of the airport. Additional planning considerations can be added, but are considered supplemental to this basic premise.

As in community planning, airport planning consists of many different processes that include various levels of detail. Like comprehensive planning, airport master planning defines likely changes in future demand, identifies any missing or inadequate facilities necessary to meet that demand, develops a series of potential alternatives, then creates a capital improvement plan to bring the preferred development alternative to fruition. This forward-focused planning is critical for airports to be able to weather various economic and industry changes. Indeed, given the amount of time it can take a project from conception to construction, planning is paramount to the success of airport development programs.

In this particular master plan, the Airport has chosen to divide the process into two phases so as to take advantage of funding opportunities, gather community input, and allow ample time to fully address any development

considerations. Phase I of the Master Plan was a fact-finding mission to identify these considerations, evaluate the current conditions at the Airport, and look at current and projected aviation trends. Future planning will consist of an in-depth study of all these items, but also deliver a detailed aviation demand projection (forecast), a list of facility needs and development options, a financial plan, and implementation strategy among other things. Various forms of public outreach and participation will also be conducted. One of the final products of this Master Plan will be an updated airport layout plan to depict future development as defined by the preferred alternative chosen by the Airport Board and its Sponsors.

Community and user input so far

In February of 2015, CEA held two informal open houses offering the chance for residents, users, airport staff, local officials, and planners to discuss the planning process at the Airport, as well as give stakeholders the opportunity to influence the planning process by listing their concerns and what they believe should be considered major development factors. These informal open houses were intended to be the initial phase of the public involvement process that is planned throughout the Master Planning process. Review of the comments received, conversations had, and participatory activities conducted during these sessions provided the Airport and planning team with a foundation of information regarding how the public perceives and interacts with the Airport. Feedback received over this two-day period ranged from approval of conducting this planning exercise and anticipation of any economic development

February 2015 Informational Coffee

Source: Chicago Executive Airport, February 18, 2015.



recommendations which may be a result of the master plan to stating issues individual residents felt were critical for the planning team to consider going forward. **When asked to identify what they believed should be a top development consideration, a majority of participants responded that aircraft and operational safety, followed by noise and environmental impacts, were most important.** This dialogue provided Airport personnel and planners with the feedback necessary to appropriately contextualize the planning process within the Airport's physical and social environment. It will be used to guide the overall focus of the study effort.

Soon after the beginning of the Phase I effort, the planning team developed a user survey intended to, at a macro-level, illustrate the user experience at CEA. In total, 390 users submitted survey responses. Surveys were provided at the Airport office, various FBO and other businesses on the Airport, as well as at a national industry conference held by the National Business Aviation Association (NBAA) in October 2014. Individual results of this survey effort will be discussed later within this report.

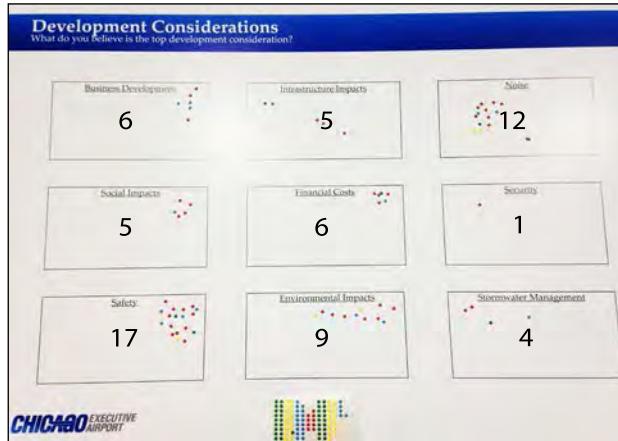
FAA regulations are the standard

When entering into a major airport planning initiative, it is important to recognize that airport development and operation are highly regulated. CEA, along with over 5,100 other public-use airports in the country, are governed by regulations created by the federal government, most directly the FAA. Guidance related to airport design, environmental regulation, aircraft safety, airspace structure and even fiscal responsibility are established by the FAA to ensure responsible and consistent oversight of federally-obligated facilities.

In addition to the FAA, for Illinois airports, IDA provides oversight and assistance to the FAA in regulation of airports at a state level. In conformance with FAA guidelines, IDA administers several federal functions through the State Block Grant Program. These functions include: airport inspection, environmental review, and

Top Development Considerations

Source: CMT, February 19, 2015.



funding oversight/administration. For CEA, many airport regulatory functions, including review and approval of planning documents, are provided by IDA. Not only is this process required by these agencies, following these regulations as well as some additional follow up procedures renders master planning a reimbursable activity up to 90% of the total cost of the effort. In a spring 2015 letter from the Interim Director of IDA, Steve Young reaffirmed that this effort, provided action is taken by the Airport to begin enacting any recommendations listed in the plan, under IDA rules is eligible for reimbursement.

Applicable federal laws, regulations, and general guidance are the standard to which airports must conform. They are designed to minimize negative impacts while ensuring airports are able to meet demand and most importantly, operate safely.

The Analysis

Integrating the Airport within Local Communities

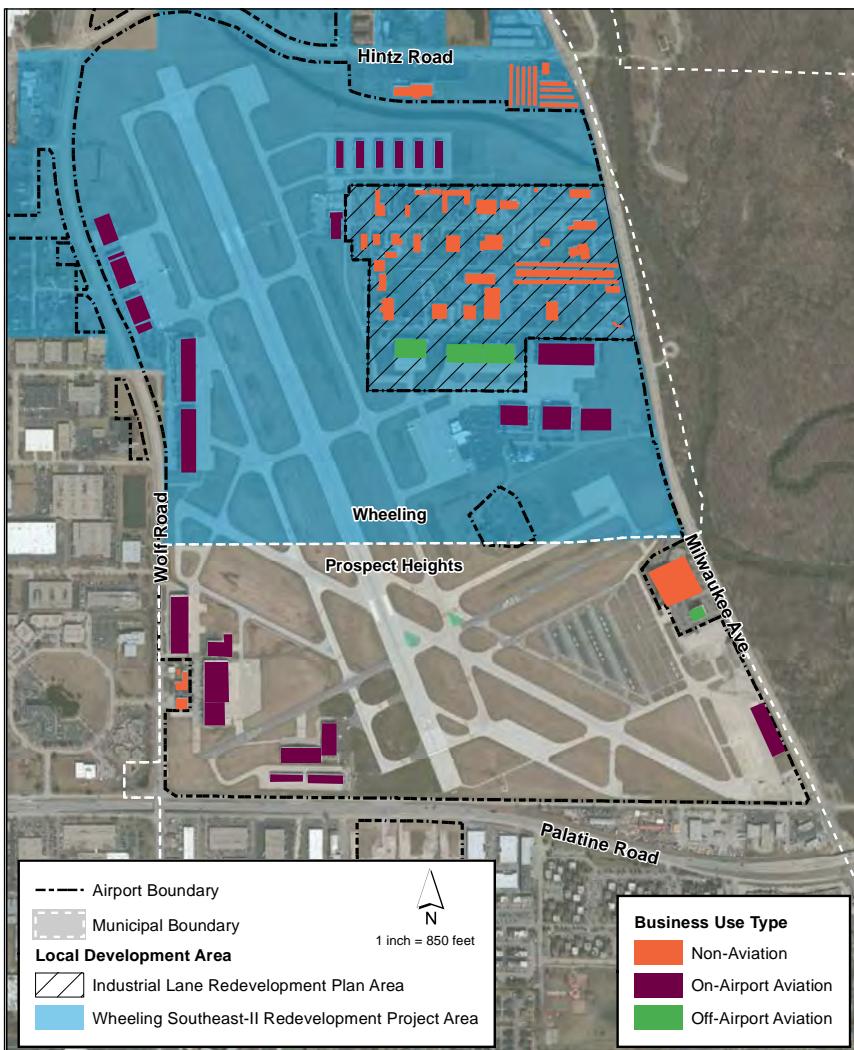
Aside from being a generally prudent practice, airport planning that actively works to integrate the facility into its local community is part of state and federal obligations for aviation planning. Based on an analysis of local plans and current development opportunities, several strategies for development at the Airport have been identified which could translate into development strategies for both Wheeling and Prospect Heights, and are discussed at length below. Working to weave together Airport and community planning would strengthen both and likely amplify the Airport's economic contribution to the community.

INTEGRATE COMMUNITY AND AIRPORT DEVELOPMENT PLANS

The seeds have already been sown to truly integrate the Airport into the development planning of its Sponsors. Wheeling has designated multiple tax increment financing (TIF) districts across the community with one

established in southeast Wheeling, encompassing the Wheeling portion of the Airport itself. This particular TIF will last through the standard 20-year aviation planning period as it currently has 23 years remaining in its productive life. On top of this commitment to development near the Airport, Wheeling has also created a detailed redevelopment plan for the Industrial Lane area, a pocket of various industrial uses located almost immediately east of the airfield, off of Airport-owned property. The Village has expressed their desire to redevelop this area to more economically viable uses that would be compatible with the Airport.

Prospect Heights has also made steps towards integrating the Airport into their own community development plans. In a plan adopted in the fall of 2014, the Prospect Heights comprehensive plan expressed a desire to create an industrial overlay district along Palatine Road, south-adjacent to the Airport as a means of creating jobs and increasing the City's industrial tax base.⁸ During their public participation meetings, community participants stated their desire to better market CEA as a means of attracting hotels, restaurants, entertainment venues, and other businesses near the Airport. Furthermore, the



plan goes into goals of turning vacant or underutilized properties near the Airport to better and more productive industrial uses. The City's newest comprehensive plan is not the first recognition of the value of CEA. In the 1996 comprehensive plan, there is specific language that references leveraging the Airport in future development strategies, specifically "[a]nother key recommendation identified the redevelopment of the parcels adjacent to Pal-Waukee Airport to take advantage of their adjacency to the Milwaukee Avenue corridor and convenient access to I-294."

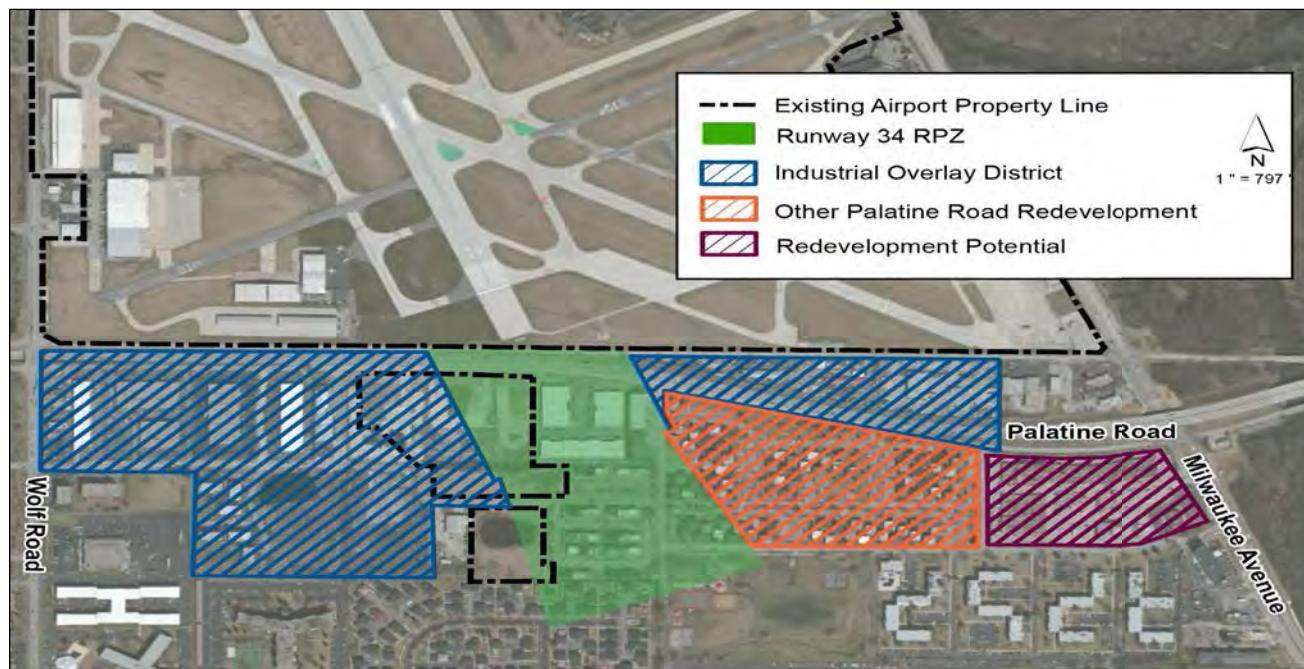
The physical environment of CEA and nearby properties present several opportunities for development and redevelopment within Wheeling and Prospect Heights. First and foremost, there is an inventory of properties available for redevelopment. Aside from the Industrial Lane area, there is a personal storage facility to the north of the Airport, as well as multiple non-Airport owned parcels spread across the area between the four-road boundary made up by Milwaukee Avenue to the east, Hintz Road to the north, Wolf Road to the west and Palatine Road to the south. Additionally, the currently under-utilized southeast quadrant of the existing Airport property offers several opportunities for redevelopment. At this time, two properties off Milwaukee Avenue, a former hotel and an office building, present development opportunities, especially considering the Airport's interest in redeveloping a substantial area of apron known as Area 2 and Area 3. Next, Wheeling's Southeast II TIF district offers a financial incentive for new development to occur with the assistance of TIF funding. The location itself is a strength for development purposes. Aside from the nearby access to I-294, bordering the Milwaukee

Avenue corridor provides ample visibility for any new businesses or industrial enterprises. Finally, to the south of the Airport, Prospect Heights identified the corridor along Palatine Road between Wolf Road and Milwaukee Avenue as an area for Industrial Development. Though the runway protection zone (RPZ) and object-free area off the end of Runway 34 are very limited in terms of development options, there is an ideal opportunity to form a public-private partnership between the Airport, Prospect Heights, and the development community. While construction within this area is prohibited according to the FAA, it could be used as a dry detention area, providing a substantial development incentive and benefit to entities interested in developing 100% of their properties to the east or west of the RPZ since they could take advantage of the existing stormwater management provided by the dry detention area. Through their various commitments and actions up to this point, both sponsoring communities and the Airport itself have proven their motivation to enhance revenue generation capacity and revenue streams. Wheeling, Prospect Heights, and the Airport Board of Trustees have all taken action which show a commitment to development and redevelopment in this area.

Development at the Airport as a result of an integrative master plan could also potentially capture funding from sources other than the FAA or IDA. Of course, these two entities could still be a source of funding for land acquisition purposes, but there are other agencies and funding mechanisms which could be utilized. The Environmental Protection Agency (EPA) offers funds to help remediate brownfield sites, or properties defined as "real property, the expansion, redevelopment, or

Development Potential South of Airport

Source: Prospect Heights Comprehensive Plan, 2014; CMT, 2015.



reuse of which may be complicated by the presence of a hazardous substance, pollutant, or contaminant.”⁹ Any property which utilizes a controlled substance, petroleum, or a petroleum-based product could potentially qualify as a brownfield site according to the EPA. Given the nature of many of the businesses currently located in the area, there may be brownfield remediation needs. Urban development and urban renewal grants are also available through the state and federal governments, depending upon development plans in economically depressed or under-utilized areas.

Within the property owned by the Airport there are additional opportunities for redevelopment. The master planning process as defined by the FAA requires the assessment of existing property and facilities used for aviation facilities to ensure that all federally-obligated land – meaning property purchased using federal funds – is being used for a productive aviation purpose. An example of this would be the former 94th Aero Squadron restaurant, a property where the majority of which was recently sold to the FBO Signature Flight Support in anticipation of building a new corporate hangar. CEA has an obligation to evaluate all existing property, which may or may not call for the redevelopment of particular parcels.

Integrating the Airport within local development plans would create many synergies for aviation and non-aviation development pockets. This report has already mentioned non-Airport land within the four-road boundary, but there are other parcels which could be redeveloped to increase land use compatibilities between the Airport and the sponsor communities, and also increase the Airport’s economic impact. With aircraft-related noise being rated highly on the list of local considerations, **parcels within specific noise contours or runway approach corridors offer the opportunity to reconsider land use around the Airport, which in turn could be reconceived into new development opportunities for both communities.** Arguably, this represents the largest opportunity for redevelopment around the Airport. Land use compatibility strategies will be discussed at length in the “Enhancing Airport Safety and Compatibility” section later.

As CEA is a jointly-owned airport, combined community strategies will likely prove the most effective at fully leveraging the Airport as an asset. With the municipal powers or planning, zoning, and eminent domain, as owners of the Airport Wheeling and Prospect Heights are uniquely suited to realize development goals through the exercise of these municipals powers, an advantage many airport sponsors lack. This combination would function as a significant strength of a joint development strategy and will be a topic of discussion and analysis in Subsequent stages of the master planning process.

FOCAL POINT AND CATALYST FOR ECONOMIC OPPORTUNITY

The Airport could be used by both Wheeling and Prospect Heights as a significant catalyst for economic development if fully leveraged by community development plans. **FAA-mandated aviation development at airports, CEA’s access to major ground transit corridors and infrastructure, the significant presence of the Milwaukee Avenue development corridor, and community commitment to redevelopment needs and growth are all reasons why leveraging the aviation industry as an economic development strategy could be used as a focal point for fostering economic opportunities.**

Using aviation development as an economic development strategy could be helpful for the Airport sponsors for many of reasons. First, for federally-obligated airports, airport sponsors are required to first accommodate aviation growth. Once aviation need is met however, sponsors are then obligated to utilize the remainder of the airport property to maximize other revenue-generating sources. In the case of CEA, this sponsor obligation provides an ideal opportunity to meet community development needs in the immediate area surrounding the Airport property. Second, in both communities, aviation development could be used as the spark for new industrial focused development, especially in the Industrial Lane area. There are two significant driving factors for advocating for this type of industrial development. The first of these factors is the environment and regulatory influence of the Airport over the surrounding area can be a significant constraints to certain types of development. The land, to a great degree, may be too confined for non-industrial uses. In addition, FAA regulations limit certain types of development, an example being significant lighting sources that would be seen from the air and potentially cause air traffic issues. The other major factor that supports using aviation development as an economic development strategy is the fact that other development in the area has not historically produced any major growth. The TIF district which encompasses the Wheeling portion of the Airport property is currently in its second iteration. The first TIF for this area did not result in significant development as Wheeling had hoped, leading to the 2013 Wheeling-led plan to redevelop the Industrial Lane area. Aviation development in these pockets would not only be the most compatible type of development with the operations of the Airport, but potentially has the highest probability of success.

The second rationale for using aviation development as an economic development strategy is that CEA is ideally situated to take advantage of various ground transit corridors and existing transportation infrastructure. Milwaukee Avenue and Interstate 294 to the east and US Route 12 and Illinois 53 via Palatine Road would provide

ample access to truck routes and other ground facilities. The infrastructure in the area also allows ease of access for persons working at or utilizing the Airport, regardless of their origination.

Additionally, with the Airport's location on Milwaukee Avenue, there exists a connection to historic growth in the area. Wheeling grew around the services provided along Milwaukee Avenue. Even today, the corridor continues to be the focus of development. This provides an established precedent of development in the area. The Westin Chicago North Shore, a luxury hotel, recently opened in Wheeling, along Milwaukee Avenue, less than three miles north of CEA. Milwaukee Avenue's historic function as a development corridor and its' intersection with Palatine Road create opportunities for synergies of development and redevelopment both on and adjacent to the Airport along these roadway corridors. There are already existing industrial pockets in the area taking advantage of this location, allowing the opportunity to form additional business synergies with any new aviation development. With Milwaukee Avenue's historic and projected growth, redeveloping parcels around the Airport could take advantage of this area.

Finally, both communities have taken pro-development and redevelopment postures in their various planning studies. Together, all these factors point to the use of aviation as a focal point of and strategy for economic development.

WHAT WE FOUND

- While the Airport is addressed by local community planning efforts, the treatment of the Airport as an economic development asset could be expanded
 - The Airport's full economic impact on each community has not been comprehensively documented
- Opportunities exist on Airport property today because the Airport already controls the land
- Additional opportunities exist to address development needs near Airport property using aviation or airport compatibility as a development strategy
- More comprehensive planning and integration of the Airport as an asset into community plans would provide a wider range of funding sources
 - Future planning should seek to identify a detailed network of agencies which could provide diverse funding
- Phase I study clearly identified the need for a more comprehensive and full economic impact study in subsequent phases.

Fulfilling the Airport's Role

ACCOMMODATING DEMAND

If CEA is to continue to fulfill its role as a federally-obligated airport and remain an economic engine, it

should be designed to meet the demands of the aviation users it serves. The corporate aviation industry continues to evolve towards turbine-powered aircraft and as such, the frequency and duration of operations of turbine aircraft is anticipated to rise far more substantially than any other type of general aviation aircraft throughout the 20-year planning period. That being said, existing facilities need to be evaluated and future facilities need to be identified to accommodate all users of the Airport, regardless of aircraft type. This means that CEA needs to provide a diverse set of facilities to accommodate both general and corporate aviation activity both now and as the fleet evolves in the future.

Over the last 20 years, demand at CEA consisted of a 3:1 dominance of itinerant activity (flights arriving or departing over 20 miles from the airport) over local traffic (flights staying within 20 miles of CEA) reflecting the overall business nature of aircraft usage. While overall activity has decreased at CEA and across the nation for general aviation airports, **air charter activity has increased 20-fold over the last 25 years at CEA to become a substantial component of the overall makeup of airport users.¹⁰** In addition, the gauge of aircraft operating at CEA has increased substantially in the last 20 years, reflecting the transition of corporate jet travel as a means for transporting people. **Since the early 1990s, smaller based general aviation aircraft have decreased by over 47%, while based jet aircraft have increased nearly 23% over the same time period at the Airport.¹¹**

Looking forward, additional changes in aircraft type and usage within the general aviation industry are essential to forging a vision for the overall character of activity at CEA and facilities necessary to fulfill its role in the national airspace system. The FAA and industry manufacturers are good sources for understanding aviation trends and their potential impact upon airport facilities. The FAA publishes annually the FAA Aerospace Forecast which provides projections for activity in all areas of aviation including specific categories for general/corporate aviation. The National Business Aviation Association (NBAA) and the General Aviation Manufacturers Association (GAMA) are industry advocate groups which also publish annual reports on activity levels, shipments, and related trends. Engine and aircraft manufacturers Bombardier and Honeywell also provide similar forecasting documents based on trends they experience and parts and aircraft suppliers.

The table provided on the next page illustrates the range of growth scenarios predicted by various entities, both public (the FAA) and private (various industry groups and manufacturers). While some of the figures vary, the overarching theme is the same: both jet traffic and activity are set to grow at a substantially higher rate than other types of general aviation aircraft. While CEA already functions as a corporate airport in high demand,

Industry Growth Projections: 2014-2033/2034

Source: FAA Aerospace Forecast FY 2014-2034; GAMA 2013 General Aviation Statistical Databook & Industry Outlook; Bombardier Market Forecast 2014-2033; Honeywell 2014 Global Business Aviation Outlook.

Source	Total		Turbine/ Jet	
	Active Aircraft	Hours Flown	Active Aircraft	Hours Flown
FAA Aerospace Forecast FY 2014 -2034	0.5%	1.5%	2.6 %	3.2 %
General Aviation Manufacturer's Association	0.5%	1.5%	3.5 %	4.3 %
Honeywell	N/A	N/A	5.0 %	N/A
Bombardier	N/A	N/A	4.1 %	N/A

this trend is only likely to continue through the 20-year planning period.

CONTINUED TREND TOWARD CORPORATE AVIATION

Historically speaking, CEA has experienced an evolution into its vision and role as a business aviation airport and busy reliever for general aviation activity. As the industry experiences financial pressures and economic challenges, the trend toward a more robust presence of corporate aviation activity is expected at CEA. To fulfill its role, CEA should recognize this trend and be prepared to make adjustments as needed to stay relevant with the industry and capitalize on its long-term potential.

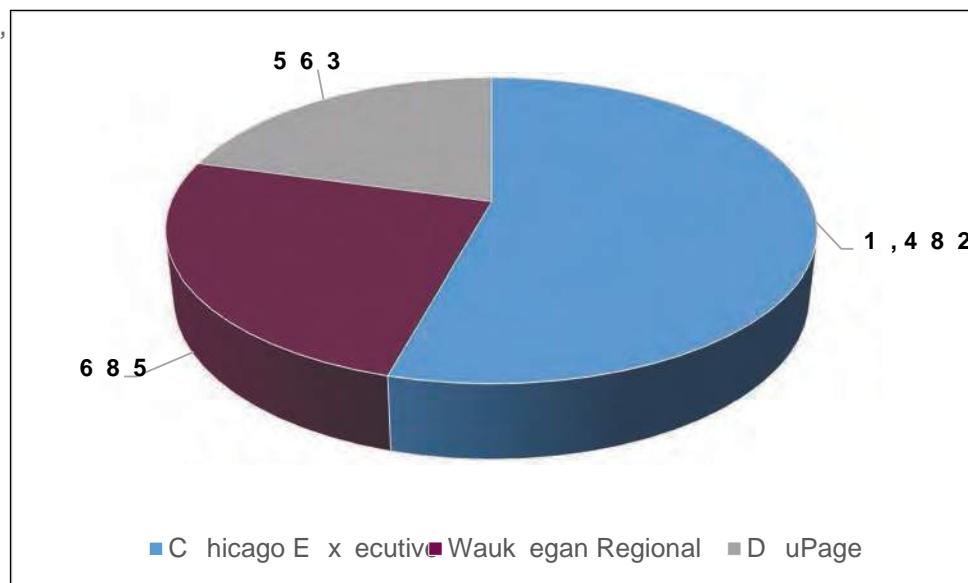
Many observers wonder as to the importance of corporate, or business, aviation. To the casual observer, commercial aviation is the primary users of the aviation network. While commercial scheduled service is indeed a major portion of aviation activity in the United States, business aviation is a significant economic contributor. According to the GAMA, corporate aviation contributes \$150 billion to the U.S. economic output and employs 1.2 million people nationwide. Corporate aviation also functions to relieve congestion off major commercial hubs, providing access to regional, national, and global

destinations. Additionally, in the last year, according to the NBAA, airlines have abandoned over 100 mid-size cities, limiting the opportunities for businesspersons to access air travel. Corporate aviation, and specifically corporate airports, provide safe, fast, and flexible access to their destinations.¹²

CEA has many strengths as a corporate aviation destination. It is uniquely situated in the Chicago metropolitan area to serve a significant amount of the major corporate headquarters in the region. The Airport is also the most closely located reliever airport to the downtown central business district and a majority of business centers of the north and north suburbs. CEA's proximity to major business headquarters, mentioned above, is a factor of vital importance as it illustrates the distinct role and demand potential for CEA. The Airport is also the primary gateway for international customs operations among the Chicago relievers. CEA has consistently processed more than twice as many international flights as its competitors by virtue of being a User Fee Airport as designated by the U.S. Customs and Border Protection, defined as by CBP as "a small airport which has been approved by the Commissioner of the

Customs Operations, October 2011 - October 2014

Source: CEA, 2014.



CBP to receive, for a fee, the services of a CBP officer for the processing of aircraft entering the United States and their passengers and cargo.”

CEA's strength as a strategic corporate facility may only endure for as long as it is maintained and nurtured. Other relievers near CEA, while lacking prime location, in most cases offer additional airfield and landside facilities and a less constrained operating environment. These limitations truncate the full potential of CEA to maintain its elevated role in the Chicagoland system.

Given its location, CEA is the ideal choice for corporate operators, even though other relievers in the Chicago area may provide additional facilities or lower operating costs. Considering the current makeup of users at CEA, it is important to identify all aviation needs and seek to accommodate them, not only to attract new users or additional utilization, but to also fully provide for the existing user base. Airport tenants/users have provided anecdotal evidence of CEA flyovers and loss of CEA-based tenants due to precipitation-impacted pavement concerns, inadequate runway length, and airspace congestion. Precipitation-impacted pavements describes when a runway is covered with some sort of precipitation, either Air charter operators (Federal Aviation Regulation Part 135) are legally obligated to assume the need of an additional 60% of runway length in addition to the existing runway length as a safety precaution to ensure adequate length to land and takeoff. If the runway is determined to be impacted by precipitation, an additional 15% of the new runway length is needed to ensure safe operations; this effectively doubles an aircraft's runway length needs. As one can imagine, this severely limits the ability of many operators to utilize CEA during inclement weather. Many aircraft are unable to take on full passengers, cargo, or fuel at the Airport because of the lack of adequate runway facilities compared to their aircraft's takeoff requirements. Additionally, weather plays a significant role in the safe operation of aircraft. Both high temperatures and precipitation on the runway require additional takeoff and or landing length for an aircraft to operate safely and legally. Finally, the nearby airspace created by O'Hare causes many operators to avoid approaching from the south, increasing operation times as aircraft circle to the north, as well as creating additional noise impacts if the operator flies underneath the O'Hare airspace (additional discussion of the O'Hare airspace is provided in the “Enhancing Airport Safety and Compatibility” section).

According to various long-term businesses on the Airport, over 17 operators have left CEA due to limitations on their operations since the 1980s. To capitalize on the strengths of CEA, consideration should be given to those

Factors Impacting Available Runway Length: An Example of Landing Requirements

Source: CEA, 2015.

Dry Runway - Actual Landing Distance	5,000' <i>This value represents multiple factors such as wind direction and speed, elevation of the airport, the temperature, and the total aircraft weight including fuel, people, and the aircraft itself.</i>
Factored Dry Runway Landing Field Length	5,000' increased by 60% = 8,333' <i>According to federal regulations, all USA registered transport-category aircraft (i.e. charter aircraft) must factor in this additional 60% on top of the actual landing distance, outside of manufacturer estimates of runway requirements.</i>
Factored Wet Runway Landing Field Length	8,333' increased by 15% = 9,583' <i>Using the required landing field length described above, this additional 15% is what accounts for any precipitation on the runway.</i>

operational and fiscal challenges which limit usage and economic return. To not address these issues may induce even more corporate operators to exit CEA.

CRITICAL AIRCRAFT

The airport master planning process as specified by the FAA is focused around the family of aircraft that operate at the airport on a routine basis and exhibit the most demanding requirements for airfield and landside facilities. FAA specifies the threshold for routine operation to be 500 annual itinerant takeoffs and landings by a single aircraft or family of aircraft. Functioning as a corporate reliever airport, CEA currently serves the full fleet of corporate aircraft including the Bombardier Global Express and the Gulfstream 550 and forthcoming 650 aircraft. This family of aircraft provides ultra-long range capabilities combined with loads of 10+ passengers and currently operate at CEA over 500 times per year.

For the purposes of the Phase I planning effort, it is recommended that the Global Express and Gulfstream 550 and 650 be used as the future family of critical aircraft in establishing the general scope and vision for the CEA as they are highly representative of the corporate users which drive development at the Airport. These

Critical Aircraft Family

Source: CMT, 2015.

Aircraft	2 0 1 4 O ps	2 0 1 4 of Jet O ps	2 0 1 4 of IF O ps	2 0 1 4 R of Total O ps
Aircraft Design Group III				
G -V / G -550	4 2	41. 6 8%	1. 2	6 %
G lob al E x press	9 6	0. 3 8%	0. 2	9 %
Aircraft Design Group II				
C hallenger 6 00	7 2	02 . 86 %	2	14 %
H aw k er 800X P	2 , 14	08. 50%	6 . 3	7 %
F alcon 9 00	7 9	03 . 14 %	2	3 5%
G -IV	6 56	2 . 6 1%	1. 9	5%
C itation X (7 50)	7 3	62 . 9 2 %	2	19 %
G -2 00 (G alaxy)	6 88	2 . 7 3 %	2	. 05%
C itation V II (6 50)	17 6	0. 7 0%	0. 52	%
F alcon 2 000E X	1, 3 3	45. 3 0%	3 . 9	7 %
F alcon 50	2 9	41. 17 %	0. 87	%
C hallenger 3 00	1, 2 7	45. 06 %	3 . 7	9 %
C itation II (550)	84 4	3 . 3 5%	2	51%
C itation Sovereign (6 80)	2 , 4	029 . 54 %	7	15%
C itation V (56 0)	1, 6 9	06 . 7 1%	5.	03 %
C itation V 2 (56 X)	2 , 4 9	08 . 9 2 %	7	. 4 3 %
Aircraft Design Group I				
Lear 3 5	7 18	2 . 85%	2 .	14 %
Lear 4 5	1, 04	64 . 16 %	3	11%
Lear 6 0	3 7	41. 4 9 %	1.	11%
Beechjet	1, 02	24 . 06 %	3	04 %

aircraft provide an appropriate framework to continuing planning and designing facilities at the Airport which continually improve efficiency, but above all improve safety as demand attempts to overcome issues such as precipitation-impacted pavements. Also, as it is the established role of CEA to function as a corporate and general aviation airport, the master planning process will not include the provision for scheduled passenger or air cargo service that could necessitate the operation of commercial mainline aircraft. The aircraft types which provide scheduled passenger and air cargo service are significantly larger and have additional facility requirements that CEA is not equipped to provide. FAA, IDA, and local investment in this Airport has been

and will continue to be for the accommodation of primarily general aviation traffic in the Chicagoland area and to relieve the congestion these general aviation operations cause at commercial service airports where scheduled passenger and air cargo traffic are intended to occur.

COMPREHENSIVE AIRPORT PLANNING

In addition to the grant assurances which require timely planning at federally-obligated airports, FAA guidance for master planning specifies the need to identify and study potential solutions to accommodate all user types consistent with the Airport's role. An example of this at CEA is issue of runway length. During the Phase I study process, an abbreviated survey was conducted of CEA users and corporate aircraft operators to identify primary facility needs and operational constraints. From that survey, additional runway length and improved airspace access were identified by corporate users as essential facility improvements to improve viability and meet their needs. Following FAA guidance, it is necessary to study these needs fully to determine if solutions exist by which the communities can accommodate the user needs in a manner that is consistent with the overall role for the airport and development goals for the communities. A decision to study these issues is consistent with the FAA planning process but does not commit the Airport Sponsors to a specific outcome. Relative to the need to identify and accommodate demand, **the survey also found that of the over 200 corporate operators surveyed, 50% did not currently use the Airport though 90% of those same users indicated that they would utilize CEA if additional runway facilities were provided.**

In addition to airfield facilities and airspace, the fully considered development of landside uses including hangars, aprons, parking lots, and other aviation commercial and support uses are essential to the realization of the maximized role of CEA. Many times for metropolitan airports, aviation support development simply becomes a function of the land area that is available within the confines of other competing land

Case Study Impacts

Source: CDM Smith and ICF SH&E et al., 2015; CMT, 2015; FAA ATADS, 2014; FAA 5010, March 2015.

Airport Name	Airport Identifier	State	Direct Jobs	Direct Impact	Year of Economic Impact Results
C entennial	APA	C O	2 , 6 2	\$9 2 5, 086 ,	2002 013
Opa-Lock a E xecutive	OPF	F L	1, 7 6	\$6 88, 13 3 ,	2002 012
Addison*	AD S	T X	1, 3 00	\$2 83 , 514 ,	2002 011
Spirit of St Louis*	SU S	MO	1, 6 89	\$2 59 , 89 4 ,	20013
D ek alb -Peachtree	PD K	G A	9 19	\$16 4 , 12 0 ,	2002 013
C hicago E xecutive	PWK	IL	4 9	\$102 , 9 7 1 ,	2002 011

The Power of Planning

2009

- Vacant
- No Jobs
- No Taxes Paid
- No Contribution to the Economy



TODAY

- 14 Excellent Jobs
- Generates over \$165,000/year in revenue
- Plans to expand

Hangar 1 to Hawthorne Global Aviation Services

Source: CEA 2015, Google Maps.

uses. This is also true for CEA, which is bound by the four roadways, but could legitimately envision the full absorption of that land area for aviation uses only. As a part of the master planning process, it will also be important to identify outdated or obsolete facilities that require replacement or the land area be reused for another purpose. An example of this would be the removal of Hangar 1, previously located along Milwaukee Avenue, allowing for the construction of the new Hawthorne Global Aviation Services complex.

Airport development that may be contemplated outside of the four roadways should consider the existing land uses, social and environmental impacts, and development costs necessary to accommodate the envisioned facilities. As CEA is located in a developed area, development costs are expected to be higher when compared to less constrained airports to facilitate necessary property acquisition and relocation and replacement costs for existing infrastructure. Also, impacts to residential and commercial land uses as well as the Cook County Forest

Preserve are all examples of impact categories that should be considered when looking at possible solutions. To ensure wise expenditure of tax payer monies, it will be a prudent exercise to evaluate both development costs and benefits and also social and environmental impacts as a part of future planning efforts.

FULLY-UTILIZED FACILITY

A fully-utilized, fully realized facility would achieve the benefit of CEA providing maximum contribution to the communities, while fulfilling its role within the national airspace system. Current operations and demand suggest that CEA has the potential to grow its capability within the Chicago system of airports, over and above its' current top Chicago reliever status. To aid in the vision of what CEA could become, a series of case studies were developed to illustrate the level of airport activity and economic return that generally occurs at top-tier relievers in other large metropolitan areas similar in character to Chicago. Specific case studies were conducted for DeKalb-Peachtree Airport in Atlanta, Georgia, Centennial Airport in Denver, Colorado, Spirit of St Louis Airport in St Louis, Missouri, Addison Airport in Dallas, Texas, and Opa-Locka Executive Airport in Miami, Florida. In all cases, these airports exhibited less constrained airfield than CEA, which has allowed them to evolve over time as the premier corporate reliever

Based Jets**	% of PWK	IF R Itinerant Operations ***	% o f PWK
137	44	2 %	7272, 385%
74	23	9 %	412, 99% *9
195	62	9 %	3604052
110	355%	34	, 580%
46	148%	6	110476%
31	-	34	, 586 -

*9The available economic impact reports for Addison and Spirit of Saint Louis Airports do not provide details on direct economic impacts, so these numbers were approximated from the total impacts using ratios from past economic impact studies.

** Based jet information was taken directly from March 2015 5010 form Airport Master Records and Reports.

*** Operations data was taken directly from 2014 FAA Tower Operations (ATADS) data.

airports to their respective metropolitan areas.

When looking at some metrics for usage potential, **the subject airports ranged from 50% to 400% more based aircraft and 25% to 300% more activity than CEA.**¹³ Additionally, individual direct economic outputs of each of these other airports were as much as nine-fold with Centennial Airport achieving nearly \$1 billion in economic output on an annual basis. While this analysis was not exhaustive, it does provide a realistic perspective of the potential of CEA if were to develop in a similar manner.

WHAT WE FOUND

- CEA continues to be one of the premier corporate airports in the country and the busiest reliever in the Chicago region in terms of aircraft and customs operations
- Corporate operators are critical to CEA's financial viability
 - Based upon all projected growth trends, business aviation will continue to be the rising force within general aviation and at CEA
- Meeting the needs of our corporate aviation users would create the maximum potential for revenue generation.
- Continued planning allows for the ability to address future development needs

Enhancing Airport Safety and Compatibility

As with any airport, safety and compatibility are essential considerations for the continued development and operation of CEA. Since its public acquisition, the focus of development at the Airport has been primarily on standards compliance. **Between 1989 and 2009, an estimated \$74.8 million has been invested in the Airport in land and infrastructure improvements, many of which were standards-related. Of this amount, state and federal participation – meaning the funding amount provided by state or federal agencies – totaled approximately 92.4%.**¹⁴ The Airport contributed the remaining 7.6%, roughly \$5.7 million. This effort recently culminated with the installation of EMAS beds off each end of Runway 16/34. Likewise, multiple properties have been purchased in the southerly approach to Runway 16/34 to comply with federal land use standards and promote compatibility. Enhancing safety and compatibility, however, is an ongoing commitment. To that end, a focal point of Phase I was to identify both safety and compatibility priorities and establish strategies for improvement as a part of the airport vision.

OPERATIONAL SAFETY AND EFFICIENCY

The safe and efficient operation of aircraft is a consideration for both on-airport areas and land uses

that are in proximity to the airport or aircraft flight paths. On-airport facilities are generally specified by the FAA through airport development standards intended to promote both safety and efficiency. Being a federally-obligated airport, CEA has a strong track record of airport improvements to enhance compliance with federal standards. While much improvement has been made, standards compliance will always be a top priority for airport improvement and associated federal funding assistance.

Impacts or safety concerns relative to off-airport areas is a much more complex issue. As aircraft safety is a top priority for the FAA, it is also a top priority for obligated airports. Primary consideration for compatible off-airport land uses is focused on the areas beyond the ends of the runways. FAA specifies the control and even acquisition of these areas to ensure the safe ingress and egress of aircraft over many times unowned land uses. **Emphasis on control and ownership of these areas will be an elevated priority in future planning efforts following FAA guidelines.** Beyond the immediate ends of the runways, approach/departure and aircraft maneuvering flight paths are of imminent priority by local residents that are concerned with aircraft safety or annoyance from overflights.

Air traffic patterns and established approach/departure corridors factor into the safe and efficient operations at the Airport. Primary and preferred approach and departure corridors exist for each of the runways at CEA, even though the dominant runway is 16/34. Based on FAA guidance, there are standards for air traffic patterns and airspace control surfaces (the three-dimensional surfaces used to protect the airspace for safety purposes) to ensure the safe operation of aircraft through the airspace and over developed urban areas. Established air traffic patterns govern aircraft on how to move safely through shared airspace.

CEA is just outside of the O'Hare Class B airspace. This significantly influences the way aircraft operate in and out of CEA and requires some non-standard means to the basic straight-in/out approach/departure corridors typical to many airports. At CEA, approaches from and departures to the south (off Runway End 34) are generally constrained by the boundary of the Class B airspace at O'Hare, causing operators to either avoid it entirely by approaching from or departing to the north (off Runway End 16), or by flying under the airspace, which impacts land uses below it.

In the past, the Airport has considered and even tendered concepts to the FAA for study of modified air access to the CEA in proximity to O'Hare airspace. Specifically, the Airport worked with the FAA to seek a revised departure procedure for aircraft departing to the south and then flying more west based upon revised O'Hare airspace limits. Another submittal involved a review by the FAA related to adjusting the CEA airfield (and subsequent

airspace) closer to the O'Hare Class B Airspace and thus understanding the potential challenges to airspace modification for the individual concept. Based upon their review, the FAA identified challenges in extending the current air traffic structure toward the south, which would impact O'Hare airspace. Numerous changes are expected to occur at O'Hare, including runway realignments, which have and will continue to change the form of their protective airspace, potentially relieving the airspace constraints to the south and west of CEA. It is also recognized that there are a multitude of airfield and airspace configurations that may create new opportunities for approaches from the south and fostering straight-in approaches from the south. This approach type is desired by pilots to simplify landing procedures and taking advantage of a more direct route into CEA thus minimizing overflight of developed areas. **In fact, the FAA is studying new methods to develop a straight-in approach from the south on Runway 34.** As it is the FAA's mission to continually evaluate and improve the safety and efficiency of aircraft movements within controlled airspace, this culture coupled with changes at O'Hare may create new opportunities for arrival and departure procedures that were not previously possible. More comprehensive planning at CEA provides the opportunity to partner with the FAA and leverage regulatory opportunities provided by that agency.

Pilot training activities are another type of airspace use at CEA. Many of these associated flight activities are accomplished via visual flight rules, which provide more reliance on visual wayfinding as opposed to instrument guidance. These aspects of piloting can create more variance in the standard aircraft operating areas and can result in additional concern by local residents. The FAA, Airport, and flight trainers at CEA work together closely to educate and enforce compliance with FAA safety regulations for pilot training.

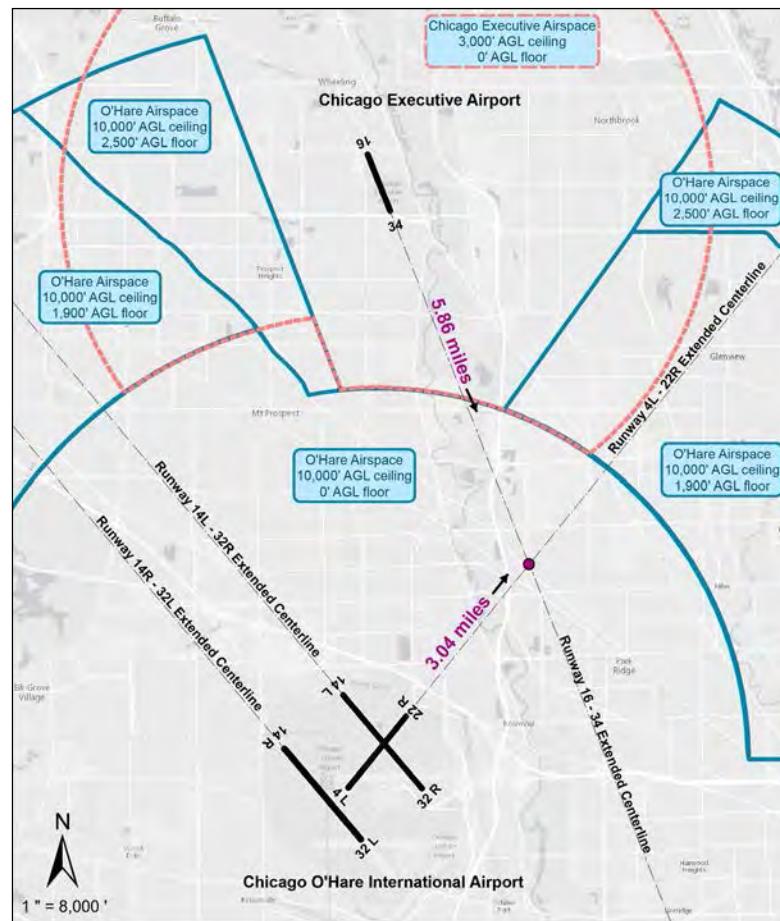
Additionally, the increased presence of corporate aviation at CEA should provide a more consistent experience related to aircraft maneuvering and approach/departure procedures. Their reliance on instrument aids further refines the aircraft departure/landing process and aids in operational safety even during poor weather conditions.

NOISE COMPATIBILITY BETWEEN THE AIRPORT AND LOCAL COMMUNITIES

In a perfect world, all land uses would be compatible with one another. However, incompatible land uses are common in many communities including highway and rail

CEA and O'Hare (ORD) Airspace

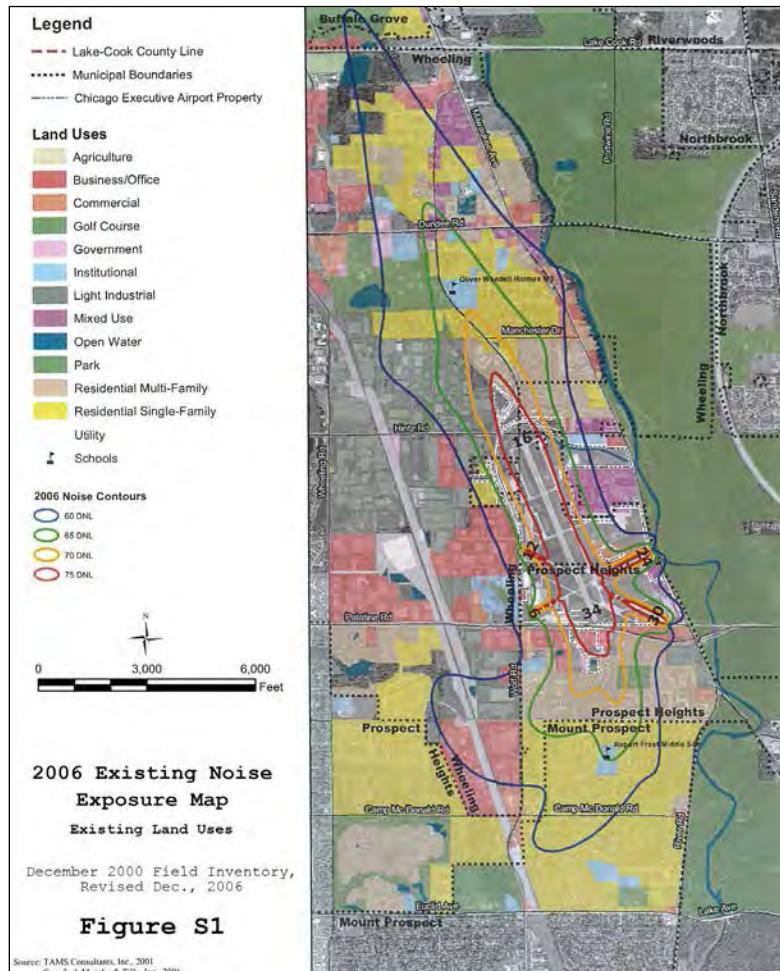
Source: CMT, 2014.



corridors, airports, and other land uses such as industrial and commercial businesses. These facilities are already integrated within their communities and coexist with housing and other noise sensitive development, despite their inherent incompatibility. CEA is no exception to that condition as aircraft noise is incompatible with numerous properties and land uses on virtually all four sides of the Airport.

When the Airport was first established in the 1920s, much of the surrounding area was undeveloped. Residential development did not occur in Prospect Heights until 1935 along Elmhurst and Willow Roads,¹⁵ almost 10 years after the Airport began. In Wheeling, it was not until the 1950s through 1970s that the Village's population exploded from less than 1,000 to almost 15,000¹⁶. As expected during that time period, a vast majority of the residential development of both communities occurred after the development of the Airport. **Though the Airport and aircraft have evolved significantly over that same time period, aircraft noise emanating from CEA has remained largely unchanged over the last 30 years.**

Being a reliever airport, CEA accommodates the full range of general aviation and corporate aircraft from small single engine trainers and light sport aircraft,



to large business jets. These differing types of aircraft also have very different noise profiles which should be considered when contemplating overall impacts. Corporate aircraft have very different noise profiles than the piston aircraft as jets produce sustained noise for the period of time it takes to approach and takeoff (at a faster speed) while smaller general aviation aircraft tend to have prolonged noise impacts due to their lesser speed. **For example, according to the FAA a Cessna 172, first developed in the 1950s, generates on average approximately 74 decibels of sound, while a Cessna Citation X, a larger aircraft first introduced in the mid-1990s, generates approximately 72 decibels on takeoff on average.** Indeed, even within the jet aircraft family, significant strides have been made in terms of noise reduction. For instance, a Learjet 23, first manufactured in 1964, produced on average over 88 decibels of sound on approach. A Learjet 60, introduced almost 30 years later, produces under 71 decibels on approach on average.¹⁷ Technologies within new generation turbine aircraft have considerably reduced the measured noise levels during both landing and takeoff.

With the acceptance of federal funds, CEA is obligated to work with the local communities to promote and enhance compatibility between aircraft and noise sensitive land uses. This is challenging where property owners have the right to the free use of their property, yet aircraft are afforded access to the airspace above. True compatibility between the aviation and noise sensitive uses would mean eliminating one of the two conflicting uses in its entirety. Since divestiture of the

2006 Noise Contours and Local Land Use

Source: CMT, 2015.

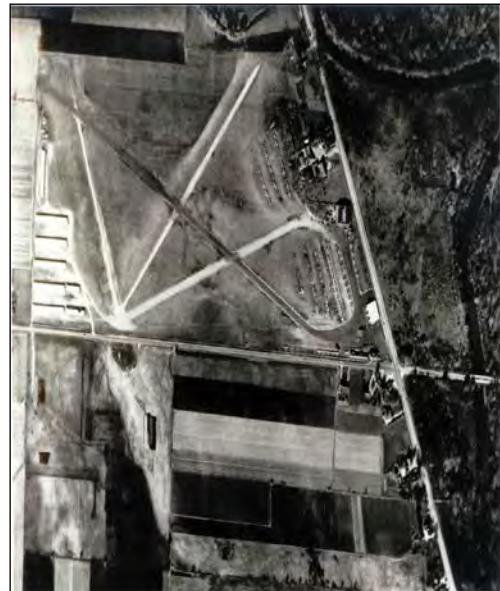
Airport is not feasible due to FAA grant obligations to repay public investment in the event of a closure, options should be explored to mitigate these noise impacts on surrounding land uses.

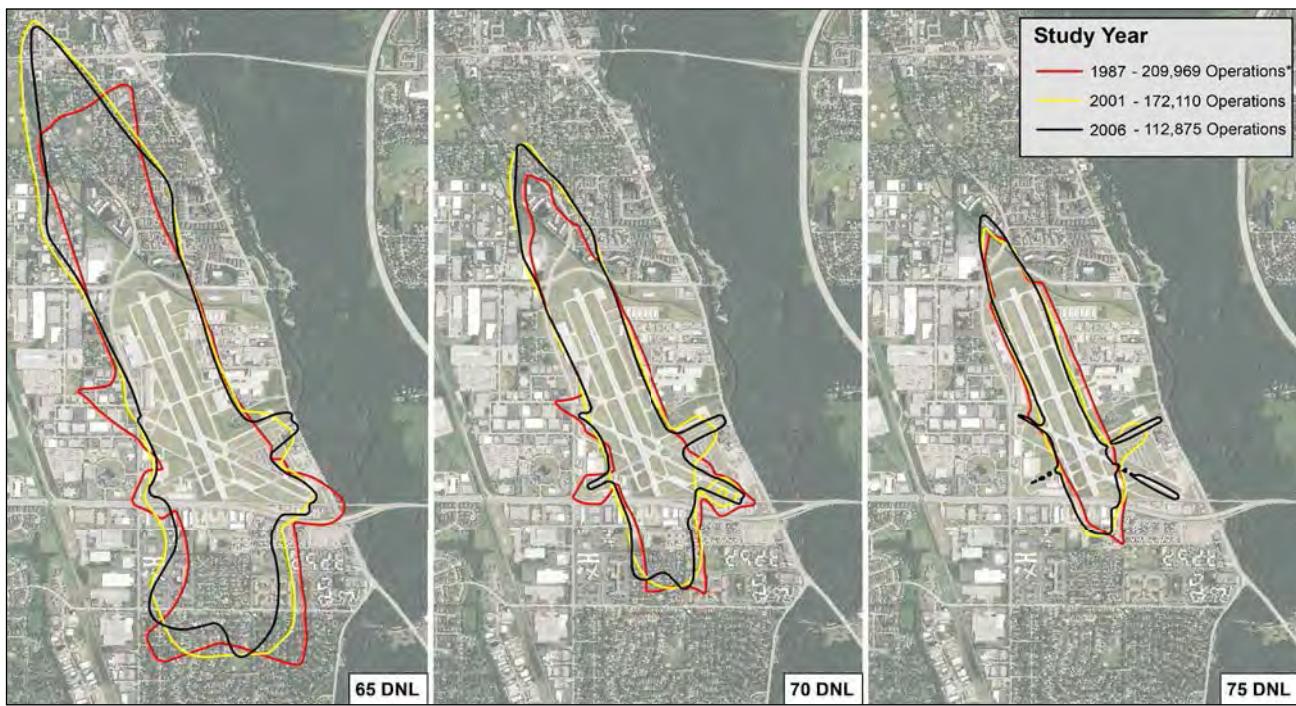
There are various strategies to address existing incompatibilities including sound-proofing of eligible properties affected by aircraft noise, and voluntary property acquisition and retention or redevelopment as a compatible land use. Proactive measures to ensure future compatibility include the use of government controls, such as zoning or amended building codes and advanced purchases of vacant land that can be encumbered with restrictive covenants and resold on the open market as available property for development purposes. Airport actions have historically included specified noise-abatement procedures for pilots and a voluntary "fly-quiet" program.

The FAA maintains set-aside funds for eligible noise mitigation projects that are identified in an approved FAR Part 150 Noise Compatibility Program (NCP). As a part of future planning efforts it is recommended that opportunities be explored whereby FAA noise monies could be used to enhance or ensure compatibility through approved measures outlined in the 2008 NCP while also

Palwaukee Airport, 1954

Source: Michael Haupt, 2015.





1987, 2001, and 2006 Noise Contours

Source: PWK 1987 Part 150, PWK 2001 Part 150, 2006 PWK Part 150.

accomplishing redevelopment goals of the communities simultaneously. According to the FAA, "the NCP serves as the primary vehicle for guiding and coordinating the efforts and actions of all the agencies and individuals whose combined efforts are essential to achieving the maximum degree of noise compatibility between an airport and its neighbors while taking into account the requirements of the national aviation system."¹⁸ The most recent Part 150 noise study was completed and approved in 2008, providing a list of measures to explore as a means of increasing compatibility between the Airport and nearby properties.

ENVIRONMENTAL STEWARDSHIP

Within their ability to control, CEA has made it a goal to seek environmentally responsible solutions related to development and operation of the Airport. Ensuring land use sensitivity includes the recognition that the Airport's operations and development minimize negative impact to the environment. While the majority of the airport area is urbanized, there are credible environmental resources in proximity namely the Cook County Forest Preserve and Des Plaines River. In spite of loss of operational capability, the CEA has reduced the landing length of Runway 6/24 to eliminate the need for tree removal and associated habitat impact in the Forest Preserve.

Related to aircraft noise, the Airport has already established voluntary aircraft departure and engine "run-up" procedures as an effort to mitigate impacts on noise sensitive land uses. Also, CEA has leveraged development projects to not only meet regulatory requirements but to implement solutions to improve the

environment. An example of this would be the relocation of the Wheeling Drainage Ditch.

As a functioning tributary to the Des Plaines River, the Wheeling Draining Ditch provides critical stormwater management control to Wheeling. The Airport not only realigned and widened the ditch to improve stormwater flows, but also converted areas of the airfield to provide additional stormwater storage. In flood events, the airfield itself functions as dry detention, while leaving the runways safe and accessible to aircraft. Similar strategies should be sought during the planning process to benefit the area and the environment such as the remediation and redevelopment of any potential brownfield sites located along Industrial Lane, and the runway protection zone south of Runway 34 mentioned previously

WHAT WE FOUND

- CEA has repeatedly evidenced its commitment to operational safety
- Future planning should identify ways to implement the 2008 NCP recommendations
- Additionally, future planning should explore financial priorities for noise funds and a NCP implementation plan
- Nearby parcels have historically consisted of incompatible land uses
 - Past planning, or lack thereof, caused these incompatible land uses and as such, new planning could help remedy existing incompatibilities
- Addressing land use incompatibilities in the future could easily translate into environmental remediation and economic development strategies

Context

Analysis

Impact

Conclusions

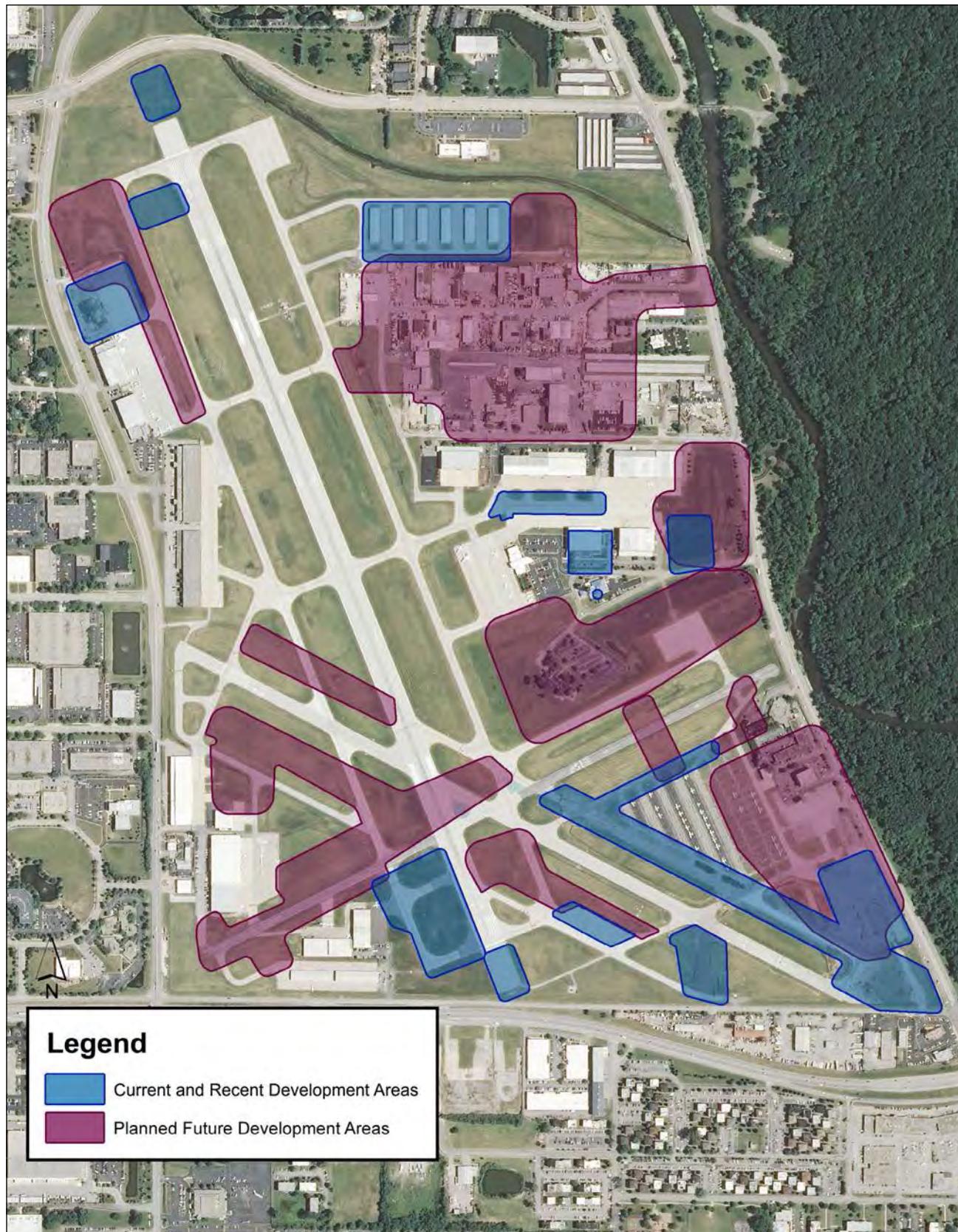
Regional Flood Storage Provided On-Airport

Source: CMT, 2013.



Last 5 Years of Development & Planned Development

Source: CEA, 2015; PWK ALP, 2009.



Legend

- Current and Recent Development Areas
- Planned Future Development Areas

Maintaining Financial Viability

It is difficult to talk about CEA without repeatedly discussing the Airport's unique fiscal status. This particular guiding principle was developed around maximizing public funding opportunities for facility improvements as well as maintaining financial self-sufficiency and growing revenue production at the Airport.

MAXIMIZED FUNDING OPPORTUNITIES FOR AIRPORT IMPROVEMENTS

Over the life of CEA, there has been a consistent track record of facility improvements to accommodate demand and enhance safety through standards compliance. As an example, over the last five years (2009/2010-2015), the federal and state governments along with CEA have invested \$30.1 million towards both airfield and landside improvements. This emphasis on improvement requires significant financial resources that go beyond local funding avenues.

While CEA does not use local tax revenues to support its daily operational or development needs, the Airport does rely on FAA and state funding for many of its development projects. Similar to local funding at CEA, FAA and state airport development funding is also generated through aviation user fees including taxes on passenger tickets and aviation fuel sales. Achieving improvement projects on the scale necessary at CEA requires a substantial amount of federal and state funding in order to realize capital improvement projects. Historically at CEA, federal and state funding needs for capital improvements has always outpaced receipts.

FAA funding is available for a wide variety of projects including airfield needs such as pavements, navigational aids, and approach protection and landside needs including non-exclusive use aprons, air traffic control towers, and even equipment such as snow removal devices. The FAA utilizes a priority system for the distribution of airport improvement funding. This system places emphasis on standards related improvements that enhance the overall safety and security of an airport. CEA is eligible to receive three separate divisions of funding from the FAA: 1) non-primary entitlement funds, 2) noise-set aside funds, and 3) general discretionary funds.

Maximizing FAA entitlement and discretionary monies would consist of pursuing high priority projects as classified by the FAA. Gearing development programs to capitalize on FAA safety, security, and standards projects would increase the likelihood of capturing FAA funding. Boosting individual year requests enhances the Airport's opportunity for receiving increased discretionary funds as well, but requires increased state and local funding matches. Another aviation-related avenue for funding would be taking advantage of noise mitigation monies. These funds could be used for sound-proofing nearby

properties, as well as for voluntary land acquisition of property owners wishing to sell their property as long as they are within one of the designated noise contours eligible for acquisition. In the former, revenues generated on-airport which are ineligible for diversion off the Airport, such as flowage fees, could be used as the local share to sound-proof nearby properties adversely affected by operational noise. In the latter case, were the Airport to use FAA monies to voluntarily acquire properties due to noise mitigation, **the Airport would then be federally obligated to use the land for aviation purposes or sell the properties back to the communities, where additional development opportunities with covenants promoting Airport-compatible and economically beneficial land uses could occur.** In terms of non-aviation related funding, a development condition consisting of Airport and municipal partners may be able to secure economic development funding from State agencies for projects related to addressing urban blight, jobs creation, and revitalizing economically depressed areas within the area.

In order to ensure funding opportunities are fully captured, there are three primary areas in which to continue focusing: emphasis on maximizing entitlement and discretionary monies, investigating options for noise monies, and investigating options for State of Illinois economic development grants or public-private partnerships.

PROMOTING FINANCIAL SELF-SUFFICIENCY AND ECONOMIC CONTRIBUTION

In order to support CEA's continuing ability to be operationally self-sufficient, the Airport and its Sponsors need to take steps to increase financial potential. A financially viable airport ensures continued contribution to the local communities. While the FAA requires the reinvestment of airport-generated user fees for airport development projects, the Communities do collect sales taxes on fuel, aircraft, parts and services as well as real estate taxes on leases and improvements built by lessees. While the Airport collects revenues from land and owned improvements, similar to other public buildings and property, CEA itself does not pay real estate taxes on those improvements. Rather, local taxing districts collect real estate taxes for the structures and improvements that have been built by the businesses leasing parcels of land from the Airport as well as improvements built by the Airport but leased to other businesses. In addition, there are businesses that own both their buildings and land. These "through-the-fence" operators pay real estate taxes on both. Sales taxes, however, are collected from a wide variety of activities that take place on the Airport and at through-the-fence operations. The fact that the Airport is in two municipalities, and each with a different tax rate, created a situation incompatible with the spirit of joint ownership, thus creating the possibility of one competing against the other for development within

the Airport. Within the amended intergovernmental agreement between Wheeling and Prospect Heights, both communities agreed to share the sales tax revenue generated by the Airport at the lower of the two communities' sales tax rates, making the sales tax at the Airport the Prospect Heights rate of 1.5%. In 2014, the Airport generated approximately \$450,000 in sales tax revenue, though this estimate does not include sales taxes generated by the newest FBO at CEA, Hawthorne Global Aviation Services. Additionally, it is estimated that in 2013, the Airport generated at least \$2.7 million in real estate tax revenues to various taxing districts in both Wheeling and Prospect Heights. It should be noted that these amounts are approximations of tax revenues generated by CEA determined based on information various entities were authorized to share, rendering the estimates likely conservative in nature.

As previously stated, the Airport generates 497 jobs and most likely somewhere between \$30-\$35 million in direct salaries and economic output of which a portion goes to support the Sponsor communities. In many ways, the Airport can be viewed as an employment center for the two communities and is in the top five employers for Prospect Heights and top five employers for Wheeling, according to the Comprehensive Annual Financial Report of the City of Prospect Heights, Illinois¹⁹ and Wheeling's 2013 Comprehensive Financial Report,²⁰ respectively. In addition to direct salaries and tax revenues generated at

the Airport, there is a synergistic affect in that many of those employed at the Airport live in the area and will reinvest those monies in the purchase of housing, goods and services. While it is difficult to quantify the full financial impact to the two communities alone, it is commonly projected that for roughly every dollar generated by direct financial impacts, there is an additional residual, or indirect, impact described above in Local section of "Chicago Executive Airport's Role Today."

Growth in aviation activity is the most direct way to realize growth in tax revenues and jobs for the communities. With essential assets in place, including multiple runways and taxiways, increasing aviation flights and supporting services should provide an increasing return on investment for the communities. It should also be recognized that such increasing operations of general aviation and corporate aircraft will result in maximized income potential for the Airport. For instance, a typical corporate jet such as the Gulfstream V is limited in the number of gallons of fuel it can take on when carrying multiple passengers on a hot summer day. Operating in a full fueling scenario, this aircraft could increase its fuel sales by 2,000 gallons and thus generate an additional \$172 in sales tax revenues to the local communities, per trip. Given the amount of departures of this aircraft from CEA in 2014, additional fuel demand of this nature could result in over \$29,000 per year for this aircraft alone.



Foreign Trade Zone 22 Chicago Metropolitan Area

Source: Illinois International Port District, 2015.

Foreign Trade Zone 22: Operators

Source: Illinois International Port District, 2015.

Aeroterm	KTR Capital
California Cartage Co.	Michael Lewis Co.
Kinder Morgan	Noramco-Chicago
LG Electronics	North America Stevedoring
The Sweets Mix Co.	ProLogis
Meiko America, Inc.	Rock Run
S.H. Bell Co.	Telefonika Cable Americas
Windy City Warehouse	Agility Logistics
Abbott Laboratories	CBI Distributing Corp.
AbbVie	Customs Air Warehouse, Inc.
Allsaints USA Ltd.	DHL Global Forwarding
Crate & Barrel	Electrolux
Expeditors Int'l of Washington, Inc.	Midwest Warehouse and Distribution
Medline Industries, Inc.	Panasonic Corp. of N.A.
Michelin	Premier Distribution Management
Sony Electronics, Inc.	
Baxter Healthcare Corp.	
Boilingbrook Distribution Center	
Centerpoint Properties	
CEVA	
Heartland Corporate Center	
Kinder Morgan	

According to traffic counts recorded by the FAA, in 2014, it is estimated that 39% of corporate jet aircraft operating at CEA are doing so in a constrained (see Precipitation-Impacted Pavements in "Continued Trend Toward Corporate Aviation") manner at least a portion of the time.²¹ Additional fuel sales are only one example of ways for the Airport to generate more revenue. This loss of potential usage may be a significant source for increase airport and community revenues. Quantifying this overall revenue potential should be a key focal point of future planning to ascertain the full financial benefit of an fully-realized airport.

Of course, an additional way to grow financial viability is to maximize opportunities for development and redevelopment on Airport property through the establishment of aviation support facilities and even non-aviation uses. This would include repurposing unused or underutilized areas on the property or the acquisition of nearby properties of a similar nature. Additionally, a review should be conducted of rates and charges to ensure that all fall within market rents.

With the industrial climate that exists adjacent to portions of the Airport, the creation of special designations within the Illinois International Port District - Foreign Trade Zone (FTZ) #22 would capitalize upon the synergies created between Airport activity and the business makeup of the communities. An FTZ is a special district created by the federal government that allows foreign goods and services to be performed with duties being charged as an import to the US. FTZ #22 includes participating businesses in Cook, Lake, McHenry, Kane, DeKalb, DuPage, Will, Kendall, and Grundy counties (see previous page). Participation in the FTZ provides supporting services and warehousing capacity to store or process foreign goods brought into the country. CEA is currently designated as a User Fee Airport and can accept and process flights from international origins which can then benefit from the presence of the FTZ. This is but one example of additional ways that the communities can maximize the financial capability of the CEA and should be fully explored in subsequent stages.

WHAT WE FOUND

- CEA is a major economic contributor within Wheeling and Prospect Heights
- It is a self-supportive tax revenue generator and significant employer, with nearly 500 people employed by the Airport and its various aviation-related businesses
- Development and redevelopment opportunities exist as a means of diversifying and increasing revenue generation on current Airport property
- Meeting the needs of our corporate aviation users would create the maximum potential for revenue generation.
- Operational and development growth at and around

CEA would not only protect CEA's self-sufficiency, but also increase its ability to generate revenue for both communities

The Economic Impact to Wheeling and Prospect Heights

There are three broad measures of activity that are used to determine economic impact:

Direct impacts include spending on or near the Airport that is directly related to the business of the Airport. Payroll amounts, capital investments, and operation expenses for the Airport itself and for the users of the Airport are among the items in this category.

Indirect impacts include spending by the users of the Airport in the nearby area. Hotel expenses, catering, professional fees, and dining are all examples of this category.

Multiplier impacts are applied to both direct and indirect impacts. The basic principle of this calculation is that money spent locally is likely to be spent again by those who provided the goods and services to the Airport and to its users.

One of the goals of this study is to identify ways in which the economic contributions of the Airport to our local communities can be increased. That means one must have a good idea of the current direct economic impacts of the airport. Indirect impacts and the multiplier will increase in proportion to the increase direct impacts.

A detailed economic impact study was last done in 2007. At that time the consultant, Wilber Smith Associates, estimated the following direct impacts for 2007:

Payroll	\$33,000,000
Capital Investment	\$19,300,000
Operations Expenses	<u>\$75,400,000</u>
Total Direct Impacts	\$128,075,000

There have been a number of changes since 2007 when this impact study was conducted. Existing FBOs have expanded; a new FBO has been opened and businesses have come and gone. To appropriately adjust for these changes, it is a strong recommendation that a new economic impact study be done as part of the upcoming Phase II of the Master Plan, as mentioned earlier.

Since certain categories within direct impacts are of immediate interest to the Airport's owning municipalities, below are updated estimates for three of them mentioned previously in this report. They are:

Revenue to the Airport	\$4,000,000
Real Estate Taxes	\$2,300,000
Sales Taxes	<u>\$450,000</u>
Total	\$6,750,000

Revenue to the Airport is included since the municipalities are the owners of the Airport and as such it is paid to

them, although with restricted use on how specific revenue categories can be used by either Sponsor.

As for real estate taxes, though Wheeling portion of this tax is small and Prospect Heights does not levy a real estate tax, the entire amount of real estate taxes should be considered as a significant boon to the local communities. If the Airport did not exist or not generate this level of economic activity, local property owners would be charged higher taxes. For example, the largest portion of taxes generated at the Airport goes to the school district with the added bonus that the Airport does not produce any students, meaning while the Airport helps fund the school district, it does not use any school district resources. Were the Airport to not provide this source of revenue, the schools would continue to levy the tax rate they need to appropriately serve their communities, and tax rates would rise for local property owners. Of course, the revenue generated by the Airport affects far more than just local schools. In Wheeling for example, in 2011 this included the school district (receiving 68.65% of all property tax revenues), the park district (6.84%), the county (5.7%), the village (10.5%), and a list of others like police, fire, and public works (totaling 8.31%).²² The impact of Airport-generated revenues is such that a lack of development, stagnant growth, or the outright loss of revenue would place a substantial additional burden on the remaining properties owners just to maintain current services, let alone the increase in services.

It is clear that the Airport as it stands today is a generator of economic revenues for the municipalities and various taxing districts. One question the Phase I study asked was how the Airport could increase its economic potential in the future. The ongoing master planning effort has identified scenarios wherein were the Airport to more fully realize its development potential as a result of Phase II, the Airport could potentially increase its economic contributions substantially, both in terms of tax revenues and various usage fees.

The potential scale of a redevelopment strategy was conceptualized during this Phase I study effort to provide emphasis for the aviation opportunities that may be realized by virtue of the presence of the Airport. Considering the nature of and existing aviation uses at the Airport, three types of potential aviation redevelopments were identified: 1) additional hangars, apron and support facilities to serve new corporate operators or flight departments, 2) additional general full-service or niche services that are geared toward corporate aircraft needs, or 3) comprehensive corporate aircraft service center that provides all elements of aircraft servicing and refurbishment in a single location (see page 28). These types of aviation uses are in demand nationwide as corporate aviation usage and subsequent services continue to grow. To estimate the potential economic contribution applied to the Industrial Lane area, the above aviation uses were quantified in terms of land

Increased Economic Return Scenarios

New Corporate Flight Department

- Real Estate Tax
- Jobs

The Impact

Real Estate Tax Revenue Generated: ~\$165,000
 Payroll Generated: ~\$865,000

= \$1,030,000/year

The addition of a new corporate flight department at CEA is a potential benefit of the development of additional facilities such as hangars and apron. Based on a new hangar, housing 2-3 corporate aircraft plus necessary office space, the Sponsors could expect approximately 24,000 additional square feet which would be subject to real estate taxes. With the operation of a corporate flight department, the Airport could expect to add another 8-10 professional positions. Land leased, fuel purchased and sales taxes generated would be based on the type and frequency of operations by the corporate entity and would result in an increase of this estimate.

Additional FBO Services

- Fuel Sales
- Real Estate Tax
- Sales Tax
- Jobs

The Impact

Real Estate Tax Revenue Generated: ~\$165,000
 Land Lease: ~ \$24,000
 Fuel Sales: ~\$1,500,000
 Sales Tax Revenue Generated: ~ \$140,000
 Payroll Generated: ~\$1,670,000

= \$3,474,400/year

Additional FBO services would provide robust annual economic return. Tax revenues from sales and real estate, fuel sales, and jobs would be increased dramatically on the Airport. Additional operations of this sort would require more than 18 qualified employees and more than 26,000 sqft. of building improvements.

Aircraft Service Center

- Sales Tax
- Real Estate Tax
- Jobs

The Impact

Real Estate Tax Revenue Generated: ~\$288,000
 Sales Tax Revenue Generated: ~ \$600,000
 Payroll Generated: ~\$24,000,000

= \$24,888,000/year

Neither the Chicagoland relievers nor CEA currently host any sort of corporate aircraft service center, or maintenance and repair operation. Were this service to be added to those already offered by various enterprises on the Airport, the increase in direct economic impact would be substantial. This type of business would require approximately 350 additional qualified, professional employees and more than 68,000 sqft. of taxable building improvements. The payroll and tax revenue impacts alone are staggering.

requirements and facility needs. Assuming full absorption of the Industrial Lane area by new development, it is estimated that development area alone could potentially generate 375 jobs and as much as \$1.36 million in new local real estate and sales taxes.

With competing industrial properties surrounding CEA, the redevelopment of Industrial Lane, the Prospect Heights Industrial Overlay District, and various other properties with aviation uses would leverage the presence of the Airport and increase the economic return to the communities.

The Conclusions

Maximizing Development Opportunities

The major theme, which became ever-present during Phase I of this Master Plan, is this simple fact: **airport development at CEA is economic development for Wheeling and Prospect Heights.** Repeatedly, we have seen that some areas near or adjacent to the Airport are in desperate need of redevelopment. The Airport itself is poised to become the premier corporate airport in the Chicago metropolitan area based upon its location and latent demand for access to downtown and north business centers. By its nature, CEA offers a vital link to regional, national, and global economies. When the needs of the Airport are transected with the needs of its sponsoring communities, what emerges is a blight-to-boon scenario where aviation development can repurpose underutilized, less economically viable urban areas while growing the aviation activity and the direct and indirect revenues that benefit the communities. CEA has evolved with the changing needs of the local economy, transforming into a major corporate airport from its humble beginnings as a grassy flying enthusiasts' facility in the 1920s. Planning would not only assist the Airport in meeting its obligation of accommodating future demand, but would also preserve the strong economic generator the Airport has been for many years.

Living up to the guiding principles set forth by the Airport Board of Trustees means fully exploring, vetting, and planning around the key takeaways discussed in each of the individual principles below:

Integrating within local communities

- The Airport is a community asset which will benefit from a coordinated approach with the sponsor communities
- Opportunities exist today on and near the Airport for development and economic return
- Development coalitions could open a wide variety of funding opportunities outside of traditional airport development funds from the FAA
- A comprehensive economic impact study of the Airport should be conducted in the subsequent phase of the planning process

Fulfilling the Airport's role

- CEA is a top corporate airport in the United States
- Corporate aviation is critical to CEA's past, current, and future success
- The same development opportunities which would keep the Airport financially viable and increase contributions to municipal coffers, would enable the Airport in becoming a dominant reliever in Chicago, the epitome of its role within the national aviation system

Enhancing Airport safety and compliance

- CEA has repeatedly demonstrated its commitment to aircraft and operational safety, as well as its desire to increase compatibility amongst land uses in its immediate vicinity
- CEA has also repeatedly complied with state and federal regulations regarding the mitigation of environmental impacts and plans to continue this trend
- Local land uses are not as compatible as they could be, offering a chance to increase the development and redevelopment potential of not only the Airport, but also both Wheeling and Prospect Heights

Maintaining financial viability

- CEA is a self-supportive revenue generator which creates hundreds of jobs
- Development and redevelopment opportunities exist that would increase the Airport's ability to diversify its revenue generation
- Federal regulations exist which govern how revenues may be used, on and off the Airport
- A well-thought out development plan has a higher probability of garnering additional state and federal funding

All of these assertions beg for further research and analysis in a second phase of this master plan. These findings also reinforce the vision for the Airport going into the future. CEA is an important fixture in the Chicagoland and national aviation system, but is also a robust economic development generator for its Sponsors, Wheeling and Prospect Heights.

Future Planning

Moving to a master plan Phase II would mean conducting a series of truly deep dives and developing a list of topics that would be motivated by the desire to grow the outputs of the airport for the direct and indirect benefits of the sponsoring communities.

Phase II is the substantive, detailed majority of the planning process. For CEA, Phase II will be accomplished incrementally. This is primarily to take advantage of funding opportunities as they present themselves and to ensure that each increment is tailored to best suit the objectives of that sub-phase.

The general structure of an airport master planning document contains the following: an in-depth user study and interviews, an inventory, a series of tailored forecasts, a list of necessary facility requirements, a list of development options based on facility needs, an implementation and financial plan, all the while including various forms of public outreach and input. Additional studies and deliverables are created based on the depth

of the project scope, but can include updated aerial mapping and property surveys, pavement condition reports, land use studies, market feasibility studies, and so on. The culmination of the master planning process will be a list of detailed recommendations delivered to the Airport Board of Trustees and sponsoring communities of Wheeling and Prospect Heights for consideration. The ultimate deliverables of the Phase II Master Plan effort will be a Master Plan report (which will likely be a series of reports) and a set of Airport Layout Plan drawings. The ALP is the official document used by the FAA for determining eligibility for federal funding on individual projects.

The first sub-phase of Phase II will be the endeavor immediately following Phase I. At this time, it is likely that it will include an in-depth user survey and interviews with past, current, and potential operators, an aviation demand forecast and projected critical aircraft that meets FAA requirements, and a property inventory of current Airport property which could be used for economic development and redevelopment purposes. Public involvement will also be sought in this phase through public meetings, community presentations, and the establishment of a planning advisory team.

Planning for the future of CEA and its sponsoring communities may take time, but the ultimate benefit and impacts of appropriately planning for the Airport's future will be felt by its sponsors for years to come.

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Glossary

AC	Advisory Circular. These publications from the FAA provide guidance for compliance with airworthiness regulations.
ALP	Airport Layout Plan. A series of drawings which depict all aspects of an airport as it currently exists and how it will be developed in the future.
APAT	Airport Planning Advisory Team. A group of stakeholders appointed by their local communities to provide insight on the master planning process.
ARR	Aurora Municipal Airport. The FAA and aviation industry use this acronym to identify this particular airport.
CBP	United States Customs and Border Protection.
CEA	Chicago Executive Airport. A common acronym used for the airport by the local communities.
DPA	DuPage Airport. The FAA and aviation industry use this acronym to identify this particular airport.
EMAS	Engineered Materials Arrestor System. This is a safety feature where a bed of engineered material is built at the end of a runway designed to stop an aircraft overrun with no injury to pilot, passenger, or bystander as well as minimal damage to the aircraft itself.
EPA	Environmental Protection Agency.
FAA	Federal Aviation Administration.
FBO	Fixed Base Operator. A commercial business granted the right by an airport to operate on the airport and provide aeronautical services such as fueling, aircraft maintenance, tie-down and parking, etc.
FTZ	Foreign Trade Zone. A geographical area in or adjacent to a United States Port of Entry, where commercial merchandise, both domestic and foreign receives the same Customs treatment it would if it were outside the commerce of the United States.
GAMA	General Aviation Manufacturer's Association. An industry group devoted to fostering and advancing the general welfare, safety, interests and activities of general aviation.
IDA	Illinois Department of Transportation, Division of Aeronautics.
MDW	Chicago Midway International Airport. The FAA and aviation industry use this acronym to identify this particular airport.
NBAA	National Business Aviation Association. An industry group dedicated to fostering an environment that allows business aviation to thrive in the United States and around the world.
NCP	Noise Compatibility Program. Federal Aviation Regulation, Part 150, Airport Noise Compatibility Planning, is the primary Federal regulation guiding and controlling planning for aviation noise compatibility on and around airports; the noise compatibility program is the tool through which this is accomplished.
ORD	O'Hare International Airport. The FAA and aviation industry use this acronym to identify this particular airport.
PWK	Chicago Executive Airport. The FAA and aviation industry use this acronym to identify this particular airport.
RPZ	Runway Protection Zone. This is a two-dimensional trapezoidal area centered along the extended runway centerline whose function is to enhance the protection of people and property on the ground along the approach and departure paths of that particular runway.
TIF	Tax Increment Financing. A TIF is a public financing method used as a subsidy for redevelopment, infrastructure, and other community-improvement projects.
UGN	Waukegan Regional Airport. The FAA and aviation industry use this acronym to identify this particular airport.

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