

Appendix 0

Physical Closure Analysis

To: Thomas Madden, AICP, BFJ Planning
From: Ron Price, QED Airport & Aviation Consultants
Date: September 22, 2023
RE: Analysis of Airport Closure Options and Steps to Physical Closure

Option Analysis for Airport Closure

Each of the closure options for the Hartford Brainard Airport carries its own set of distinct challenges and benefits. These options have significant implications for factors such as cost, legal complexities, public perception, and compliance with regulatory requirements. Therefore, it is paramount for the State to carefully weigh the feasibility, consequences, and strategic outcomes associated with each option before making a decision on the most suitable approach for the airport's closure.

The closure of an airport, especially one like Hartford Brainard, involves complex considerations and requires a comprehensive assessment of various factors. These factors include the economic, environmental, and social impacts of closure and the potential benefits and drawbacks for the surrounding community and the broader region. Given the multifaceted nature of such a decision, a thorough and strategic evaluation of each closure option is essential to make an informed choice that aligns with the State's goals and priorities.

Option 1: Wait Out Grant Obligations until 2035

Option 1 involves adopting a strategy of waiting out grant obligations until the year 2035. The approach entails waiting until all grant obligations have expired in 2035 and subsequently proceeding with closure, providing a 30-day notice to the FAA, assuming there are no perpetual requirements mandating the airport to remain operational. The challenges to this strategy are multifold. Firstly, there's the issue of costs and liability. Maintaining the airport without the aid of FAA funding would necessitate the incurrence of significant costs, and any deviation from compliance could risk potential liability and repercussions, particularly concerning FAA funding. This strategy also poses the risk of decreased business activity. A reduction in operations and business activities is likely to result in higher operating subsidies needed to keep the airport functional.

Moreover, the time constraint is another critical challenge, given the extensive waiting period required until all obligations are fulfilled. Potential legal constraints compound this waiting period; there may be legal barriers or impediments that could prevent the airport's closure even after the expiration of grant obligations, necessitating careful legal review and consideration.

However, despite the outlined challenges, this strategy also offers significant benefits. The primary benefit is the autonomy it provides; pursuing this approach allows for independent action without the need for federal intervention. This means more control over the entire process, enabling strategic alignment with local needs and priorities, thus ensuring more tailored and context-specific outcomes. Balancing the benefits against the challenges requires meticulous evaluation to determine the viability and appropriateness of this option in meeting the overall objectives for the airport's future.

Option 2: Apply to FAA for Closure

In Option 2, the central strategy revolves around applying to the Federal Aviation Administration (FAA) for airport closure, with the argument that such a closure would ultimately lead to a net benefit for civil aviation. To succeed in this endeavor, providing substantial evidence and rational arguments supporting this claim is crucial.

However, the endeavor to seek approval for closure comes with a significant challenge primarily because of the high likelihood of rejection, given the stringent criteria set by the FAA for approving such closures. These stringent conditions mean that every application facet needs to be meticulously planned and substantiated to stand a chance against the high approval difficulty.

Moreover, this approach carries the potential for considerable costs and intricate legal complications. Potential expenditures related to legal consultations are necessary to navigate the complex legal landscape surrounding airport closures. The option also opens up possibilities for lawsuits from tenants, which could further complicate the process and escalate costs. Additionally, substantial financial obligations may be related to the repayment of unamortized grants, creating another layer of complexity and financial burden to the process.

Despite the manifold challenges, Option 2 does offer a notable benefit in terms of timing flexibility. The application to the FAA for closure can be initiated at any suitable time, allowing a certain degree of adaptability and strategic timing in the execution of this option. This flexibility can be a strategic advantage, allowing for alignment with other concurrent plans or adapting to unforeseen circumstances.

While Option 2 can be complex and fraught with challenges, primarily due to the high likelihood of rejection and potential legal and financial ramifications, the benefit of timing flexibility it provides can be a significant advantage. It is essential, however, to weigh this advantage against the inherent challenges to determine the overall viability and appropriateness of this strategy in achieving the closure of the airport.

Option 3: Secure Passage of Federal Legislation

Option 3 encompasses a strategy of securing the passage of federal legislation, specifically, soliciting an act of Congress to instruct the FAA to authorize the closure of the airport. This option is significant and requires meticulous planning and execution due to the complexity of the legislative process.

The challenges inherent in this option are considerable. One of the primary challenges is support acquisition. The necessity to gather ample support for the proposed legislation is crucial, and achieving this can be complex given the varying interests and priorities of different stakeholders and legislators. The effort to secure sufficient backing requires extensive lobbying, discussions, and negotiations, all of which need to be navigated carefully to garner the requisite support.

In addition to the challenge of acquiring support, there are also substantial costs and legal hurdles to consider. The potential for tenant lawsuits adds a layer of complexity and risk to this option. These legal challenges, coupled with the financial obligations related to grant repayments, can pose substantial barriers to the successful execution of this strategy.

However, Option 3 also brings forth substantial benefits. It offers the possibility of regulatory evasion, meaning there could be an opportunity to bypass some, or potentially all, of the FAA's stringent requirements related to selling the airport. This could significantly simplify the closure process and reduce the constraints and conditions imposed on the closure. Additionally, this option provides timing flexibility, as legislative requests can be initiated at any time, allowing for strategic alignment with optimal timelines and facilitating adaptability to changing circumstances.

In conclusion, Option 3, while presenting substantial challenges related to support acquisition and potential legal and financial complications, offers significant benefits in terms of the possibility of regulatory evasion and timing flexibility. These benefits can be strategically advantageous, allowing for a more streamlined and adaptable approach to achieving the desired airport closure. However, a meticulous evaluation of the challenges and benefits is crucial to determine the feasibility and suitability of this approach in the broader context of the airport's future and its impact on civil aviation and the surrounding community.

Option 4: Destroy Runways without Notice

Option 4 is notably the most drastic and immediate one, involving the crippling of the airport's operational capability by destroying the runways without any prior notice. This strategy is highly unconventional and, as such, involves a host of challenges and considerations that need to be carefully assessed before implementation.

The challenges tied to this approach are significant and varied. Foremost among them are the high costs associated with the destruction of runways and the subsequent repair, if mandated. Furthermore, this approach is almost certain to invoke substantial legal and financial repercussions from the FAA and the airport tenants due to the abruptness and the illegality of the action. Legal sanctions, fines, lawsuits, and reparations could pose severe financial burdens and further complicate matters.

Another crucial challenge is the potentially damaging impact on public image. The perceived irresponsibility and abruptness of such an action could lead to a loss of trust and credibility among the public and other stakeholders. The negative publicity generated could have far-reaching impacts, affecting the airport and the entities or individuals associated with the decision.

However, the approach also offers some strategic benefits. The radical nature of this option provides timing flexibility, allowing for immediate implementation without having to wait for approvals or navigate through bureaucratic processes. This could be advantageous in circumstances where time is of the essence. Additionally, it allows for the avoidance of the often lengthy and intricate process of securing support or approval for closure from various stakeholders and authorities, thus bypassing potential delays and obstacles that other options might encounter.

Option 4 does indeed present certain advantages, most notably the immediacy it brings to the process and the elimination of the need to navigate through extensive bureaucratic processes. This means the typically time-consuming and often cumbersome procedural aspects associated with airport closures can be avoided, affording a degree of timing flexibility which is unparalleled in the other options.

However, the trade-offs are substantial and potentially grave. The inherent risks involved in such a radical approach are significant, with potential legal repercussions looming large. Such an abrupt action would almost inevitably invoke legal action, not only from the FAA but potentially also from aggrieved tenants and other stakeholders. These legal challenges could manifest as hefty fines, sanctions, and potentially protracted legal battles, all of which could have considerable financial implications.

The potential damage to public image is another critical factor to consider. The abrupt and unilateral nature of this approach could lead to a severe erosion of trust and credibility among the public and other stakeholders. The resultant negative publicity could have ramifications far beyond the immediate context of the airport closure, affecting associated entities and individuals and potentially undermining their standing and reputation in broader contexts.

Furthermore, it's crucial to consider the possibility of the FAA responding to such a drastic action by withholding funding for projects at other airports operated by the CAA, such as Bradley International Airport. This could have a cascading effect, impacting operations and development projects across multiple airports and creating operational and financial challenges for an undetermined period, thus exacerbating the overall impact of choosing this option.

STEPS TO PHYSICAL AIRPORT CLOSURE

If Option 2 is considered then CAA would follow these steps. Upon the concurrence of the FAA to close the Airport and release the CAA, as a sponsor of the Airport, from all grant obligations and assurances, several action items are to be completed to permanently close the Airport and obtain the release. These include and may already have been conducted as part of the complementary studies submitted earlier to DCED:

1. Submit the Exhibit A Property Map, updated as necessary, prior to conducting the appraisal (see below) to ensure that all federally obligated Airport property is appraised and part of the release agreement. The appraisal is grant-eligible and not subject to reimbursement to the FAA.
2. The CAA is required to receive fair market value for the Airport property and pay these proceeds to the FAA or its designee. The CAA must obtain a current appraisal of the Airport property acceptable to the FAA. The FAA will provide a scope of work for the appraisal and must be considered an intended user of the appraisal. Fair market value will be based on the highest and best use of the property. If the sale of the property is delayed beyond one year of the date of the appraisal, a new appraisal must be completed.
3. The CAA is responsible for developing a plan for the relocation of the existing Airport tenants to the surrounding airports, which airports may be identified in advance by the FAA. This includes the compensation to be made to based aircraft owners and Airport tenants per existing contractual lease terms and conditions.
4. The CAA has two options to accomplish the transfer of the Airport property. The CAA can transfer existing CAA funds based on the fair market value to the FAA or put the property up for bid and have the buyer deposit the property's fair market value into an

escrow account. The FAA will use these funds for capital improvements at the general aviation airports identified above.

If the CAA elects to conduct a solicitation prior to the transfer of funds to the FAA, it will be responsible for funding the drafting and administration of at least one bid advertisement or formal solicitation for the sale of the Airport property to include the following:

- The bid advertisement must be advertised in a publication generally accepted as a national commercial real estate publication.
- The FAA must review the bid advertisement, associated publications, and documentation, including an updated and accepted Exhibit A Property Map, prior to publication.
- The FAA must review the final bid offers before the CAA enters into a contract.
- The closing costs associated with the Airport land sale are grant-eligible and not subject to reimbursement. The closing costs must be itemized as actual costs shown to be customary, reasonable, and necessary expenses for a landowner's deed transfer to a buyer. Closing costs for the CAA are limited to reasonable broker commissions and other charges prescribed under state law and shown to be customary and usual as seller expenses and should not exceed six percent of the sale price. Buyer's expenses, e.g., due diligence, engineering and survey, land development fees, taxes, title insurance, etc., are not eligible to offset the fair market value proceeds of the Airport land sold. Estimates of closing costs are to be submitted to the FAA for review and then followed with the actual closing statement to document eligible closing costs.

5. The CAA is responsible for transferring to the FAA:

- All Airport and aviation-related equipment determined to be salvageable by the FAA
- An amount equal to the fair market value for the highest and best use of the Airport property
- An amount equal to the unamortized portion of any non-land Federal development grants
- An amount equal to the Airport revenue proceeds in the Airport's account

The FAA will coordinate with the CAA to ensure the agreements for the transfer of funds are properly structured and executed in accordance with federal law.

6. Environmental Requirements – The FAA concurrence for the release of and assurances is considered a federal action subject to the requirements of the National Environmental Policy Act (NEPA) and any other special-purpose environmental laws or permitting requirements that may be triggered by the reasonably foreseeable proposed reuses of the property currently occupied by the Airport.

FAA Order 5050.4B, provides guidance on the FAA's implementation of NEPA. After considering the reasonably foreseeable uses of the Airport property, and whether there are any extraordinary circumstances, the preparation of an Environmental Assessment (EA), at a minimum, will be required.

- The CAA will be responsible for developing the grant-eligible EA, which is not subject to reimbursement to the FAA. Should the EA indicate the potential for significant environmental impacts, then an Environmental Impact Statement (EIS) will be required. The FAA will be responsible for the development of the EIS.
7. Title 49 U.S.C §471078(h)(2) requires the FAA to provide an opportunity for public notice and comment prior to the waiver of the CAA's federal obligation to use Airport land for nonaeronautical purposes. The FAA will provide a 30-day public notice and comment period prior to the closure of the Airport.
 8. A Release Agreement will be the formal agreement that authorizes the FAA's release of the CAA's assurances, permitting the CAA the right to sell the Airport property in exchange for transferring Airport assets. This Agreement will be executed once all the requirements are completed and the funds transferred to the FAA or deposited into an escrow account. The FAA and the CAA will be parties to this Agreement.
 9. Once the Release Agreement is executed, the CAA must file FAA Form 7480-1 with the FAA, with a proposed date for Airport closure. Consistent with 14CFR Part 57, the CAA must file FAA Form 7480-1 at least 90 days prior to closure. The FAA will file a Federal Register notice identifying the closure date.

The preceding action items are based on similar requirements imposed by the FAA on the City of St. Clair, Missouri, in April 2015 for the sale of its airport and release from grant obligations and assurances. This is the last known publicly-owned, grant-obligated airport to successfully close for repurposing of an airport property. It is possible that some of the action items above may be subject to discussion with the FAA and may be modified to accommodate any unique situations at the Hartford-Brainard Airport, provided that they do not violate federal law.

DRAFT REQUEST FOR CLOSURE AND RELEASE FROM GRANT OBLIGATIONS AND ASSURANCES

**HARTFORD-BRAINARD AIRPORT (HFD)
HARTFORD, CONNECTICUT**

Submitted to

**United States Federal Aviation Administration
New England Region Office
Burlington, Massachusetts**



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INTRODUCTION

This report is prepared in support of a petition by the Connecticut Airport Authority as directed by the Connecticut General Assembly to the Federal Aviation Administration for closure of the Hartford-Brainard Airport and release from all applicable grant obligations and assurances. This standalone document is supplemented by other reports prepared for the Connecticut Department of Economic Development (DCED) as authorized by the Connecticut General Assembly that address alternative uses of the Airport property, and the economic, environmental and regulatory aspects of an Airport closure.

BFJ Planning was awarded a contract under Public Act No. 22-118, Section 426, which mandates the DECD on behalf of the state to assess the benefits and opportunity costs to the City of Hartford and the State of Connecticut of the current and alternative uses of the Hartford-Brainard Airport property. The BFJ Planning Team of consultancies includes:

- HR&A Advisors
- QED Airport & Aviation Consultants
- Tighe & Bond

BFJ Planning has submitted to the DECD a Final Report that synthesizes:

1. The economic impact, direct, indirect, quantitative and qualitative, of the current use of the property to the state and to the region surrounding the property;
2. The economic impact, direct, indirect, quantitative and qualitative, of alternative uses of the property, including commercial, residential and recreational opportunities, to the state and to the region surrounding the property;
3. Identification of any environmental or flood control obstacles to the development of alternative uses of the property, including the conducting of any required testing of the site, and the possible avenues and associated costs to render the property environmentally developable;
4. Identification of any federal, state or local governmental obstacles, including existing contractual obligations, to the development of alternative uses of the property, the possible avenues to remove each such obstacle and the associated costs of pursuing each avenue; and
5. The highest and best use of the property if not its current use, taking into consideration the findings of subdivisions (2) to (4), inclusive, of this subsection and the goals set forth in subsection (a) of this section.

A series of four public meetings were advertised and held to convey periodic information on the preliminary findings of the alternative repurposing of the Airport property, and the economic, environmental, and regulatory aspects of Airport closure. The Final Report was presented to the DCED and highlights development constraints and recommendations to assist in the final decision-making by members of the Connecticut General Assembly.

CHAPTER 1: CURRENT AIRPORT STATUS

BACKGROUND AND HISTORY

The Hartford-Brainard Airport (HFD) is located in the City of Hartford, Connecticut about three miles from the downtown business district. The Airport has been owned and operated by the Connecticut Airport Authority (CAA) since July 1, 2013, an agency authorized by the Connecticut General Assembly with concurrence from the Federal Aviation Administration (FAA). The Airport is designated as a reliever airport by the FAA in its National Plan of Integrated Airport Systems (NPIAS), intended to lessen congestion at the commercial service airport (Bradley International Airport -- BDL) located some 12 n.m. to the north. The Connecticut Statewide Airport System Plan also assigns the reliever role to the Airport. Figure 1 illustrates the location of the Airport and Figure 2 is an aerial view of the Airport.

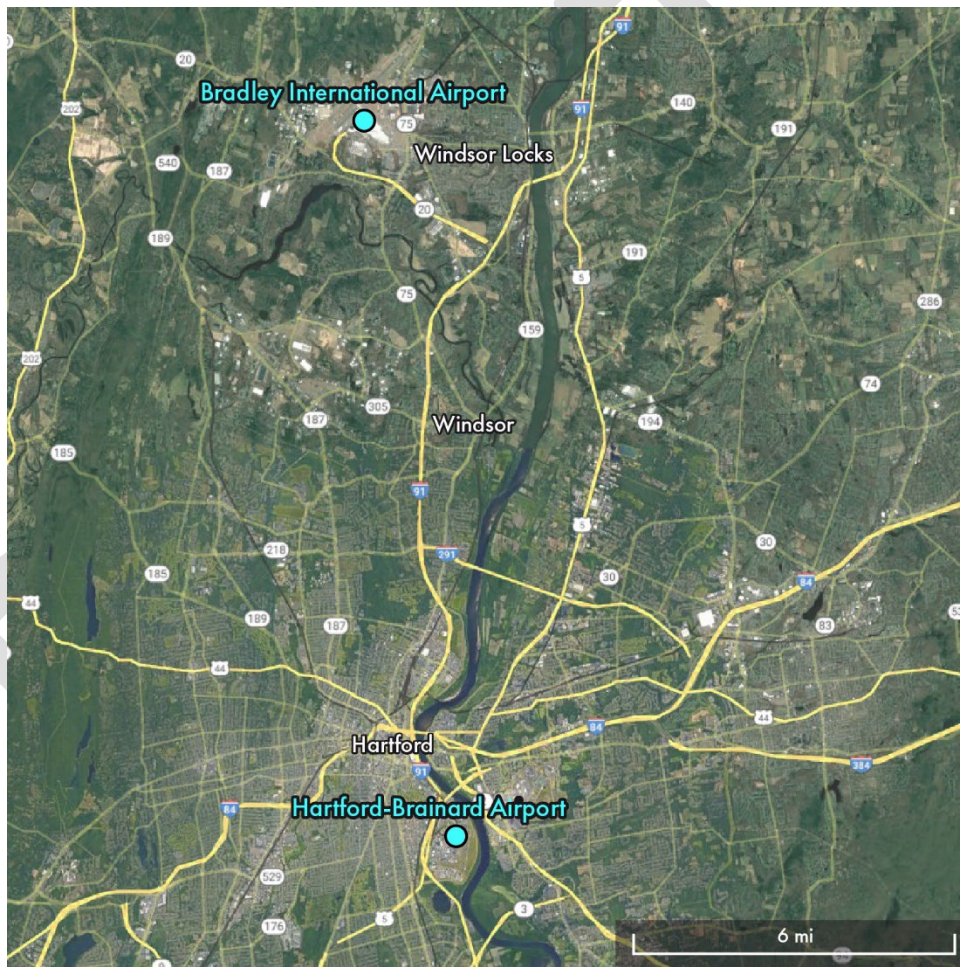


Figure 1: Hartford, Connecticut General Area



Figure 2: Hartford-Brainard Airport Aerial View

The Airport has a long history. The initial 351 acres of land became the site of the Airport named for Hartford Mayor Newton C. Brainard in 1921. During World War II, the Airport was designated Brainard Field and served as training base for the United States Army Air Corps. Ownership of the Airport remained with the City of Hartford until 1959 when control was transferred to the State of Connecticut and administered by the Connecticut Department of Transportation. At that time, 230 acres were transferred for aeronautical use and the remainder set aside for an industrial park. The State then transferred ownership of the 230 acres to the CAA in 2011 together with five other airports (Bradley International Airport, Danielson Field, Groton-New London Airport, Waterbury-Oxford Airport and Windham Airport).

Figure 3, Exhibit A, from the set of Airport Layout Plan drawings, provides graphic and text information describing how the land areas encompassing the Airport were assembled since the Airport was initially constructed. It is noteworthy that no federal funds were utilized for land acquisition. The only parties engaged in land issues were the City of Hartford, State of Connecticut, Metropolitan District Commission and the CAA, which holds title to all land areas used for aeronautical purposes at the Airport.

AIRPORT FACILITIES AND SERVICES

Airside facilities are highlighted in Table 1.

Table 1 AIRSIDE FACILITIES					
Facility	Length	Width	Edge Lighting	Pavement Strength	Instrument Approach
Runway 2-20	4417'	150'	High Intensity	30,000 S	RNAV (GPS) 2
				45,000 D	LDA 2
				70,000 DT	VOR-A
Runway 11-29	2314'	71'	High Intensity	10,000 S	None
NE-SW Turf	2309'	150'	None	NA	None
Helipad 1	70'	77'	Medium Intensity	NA	None
Helipad 2	44	44	Medium Intensity	NA	None
Visual Landing Aids	PAPI-4 and REILS -- Runway 2 and Runway 20				
Weather Reporting Service	Automated Surface Observing Station				
Air Traffic Control Tower	Operates 0600 - 0000, 24/7/365. FAA Contract Tower.				

Landside facilities are presented in Table 2. All aircraft tiedown areas and structures, with the exception of those hangars owned by The Hartford Tees, Inc and Hartford T-Hangar Association that are under a ground lease, are owned by the CAA and leased to the tenants. The administrative building located at the northern end of the Airport is leased to various local, state and federal agencies.

**Table 2
LANDSIDE FACILITIES**

Facility and Service Provider	Services Offered
Hartford Jet Center	Hangar storage, aircraft tiedown for based and transient aircraft, Avgas and Jet-A fuel, aircraft wash and detail, aircraft sales, charter (Pegasus Air Charter), car rental, and restaurant (under renovation)
The Hartford Tees, Inc.	30 T-hangar units
Hartford T-Hangar Association	34 T-hangar units (individually owned)
CT Aero Tech School for Maintenance Technicians	Instruction and certification of aircraft mechanics
Connecticut Airport Authority	Aircraft tiedown for based aircraft
Premier Flight Center*	Flight instruction (private, commercial, air transport, and instructor for single-engine, multi-engine and instrument), ground school
Learn 2 Fly CT*	Flight instruction (private, commercial, single-engine, multi-engine, instrument), aircraft rental, drone pilot certification), ground school
ATP Flight School*	Flight instruction (private, commercial, air transport, and instructor for single-engine, multi-engine and instrument), ground school
VIP Avionics*	Avionics sales, installation and maintenance
Hartford South Hangars, LLC	Undeveloped for hangars (40 total T-hangars and 2, 10,000 s.f. box hangars)
Experimental Aircraft Association	Meets at the Airport on a periodic basis at the Hartford Jet Center facility
Civil Air Patrol	Bases two single-engine aircraft and meets at the Hartford Jet Center facility
* Under sublease to Hartford Jet Center	

BASED AIRCRAFT AND AIRCRAFT OPERATIONS

The Airport currently bases a total of 138 aircraft, the majority of which are single- and multi-engine aircraft. Other aircraft in the based fleet include 1 business jet, and 3 single-engine and 2 rotary wing aircraft assigned to the State Police Department. There are 3 flight schools located at the Airport that own and operate a total of 19 aircraft (3 multi-engine piston and 16 single-engine) and 1 single-engine aircraft that is operated on a leaseback basis from another based aircraft owner. One eVTOL (electric vertical takeoff and landing) aircraft is based at the Airport, but is not yet certified as airworthy and, therefore, not included in the total. Of note is that the FAA Aircraft Registry indicates there are a total of 357 aircraft registered to aircraft owners in Hartford County. This infers that about 37 percent of these pilots/aircraft are using the Airport.

The Airport is served with an air traffic control tower (ATCT) that operates daily between 0600 hours and 0000 hours (midnight). Records of aircraft operations reported by the ATCT have been provided for FY 2019 through FY 2022. The ATCT records include local and itinerant aircraft operations under visual and instrument flight rules (VFR and IFR). The ATCT records were not adjusted for other aircraft operations occurring when the ATCT is closed, as the number of such movements is likely relatively low.

Table 3 and Table 4 provide a record of the number of based aircraft and aircraft operations at the Airport between during the past 10 years.

Table 3						
HISTORICAL BASED AIRCRAFT AND INTINERANT AIRCRAFT OPERATIONS						
Year	Based Aircraft	Itinerant Aircraft Operations				Total
		Air Carrier	Air Taxi and Commuter	General Aviation	Military	
2012	136	0	3,128	34,002	33	37,163
2013	136	0	1,797	30,835	55	32,687
2014	136	0	1,028	32,502	42	33,572
2015	126	0	602	30,292	119	31,013
2016	123	10	509	31,567	104	32,190
2017	107	0	492	25,432	68	25,992
2018	107	4	487	24,693	96	25,280
2019	107	0	568	25,750	101	26,419
2020	59	0	447	24,214	91	24,752
2021	59	0	566	27,094	76	27,736
2022*	62	1	489	32,389	108	32,987
2023*	138	1	517	32,389	108	33,015

Note: * FAA projection

Source: FAA Terminal Area Forecast, FY 2023

Table 4 HISTORICAL LOCAL AND ALL AIRCRAFT OPERATIONS				
Year	Local Aircraft Operations			Grand Total
	Civil	Military	Total	All Aircraft Operations
2012	31,786	170	31,956	69,119
2013	24,718	62	24,780	57,467
2014	24,333	167	24,500	58,072
2015	21,934	516	22,450	53,463
2016	17,899	306	18,205	50,395
2017	15,041	79	15,120	41,112
2018	16,480	164	16,644	41,924
2019	20,837	268	21,105	47,524
2020	23,428	605	24,033	48,785
2021	29,102	222	29,324	57,060
2022*	33,594	590	34,184	67,171
2023*	33,594	590	34,184	67,199
Note: * FAA projection				
Source: FAA Terminal Area Forecast, FY 2023				

Table 3 indicates that the number of based aircraft has generally remained within a range of between 107 and 138. There is no basis for the relatively low number of based aircraft in the years 2020 through 2022. The impact of the COVID pandemic beginning in 2020 is more reflective in the number of aircraft operations. Aircraft activity is classified into two distinct types by type aircraft fleet segment. These are local and itinerant operations. Local operations are aircraft in the local traffic pattern, or in local practice areas, either within sight or at a 20-mile radius of the airport, and that includes touch-and-go landings. Itinerant operations take into account all the other non-local operations. Aircraft based at the Airport and those from other airports can conduct both local and itinerant operations.

- Based aircraft, which may be both local and itinerant
- Airport-based flight school training activity, which may be both local and itinerant
- Training flights generated from flight schools based at other airports, which may be both local and itinerant
- Local, but primarily itinerant personal and business aircraft operations by aircraft not based at the Airport
- Medical-related flights that transport patients and human organs to and from the Hartford area hospitals, which may be both local and itinerant
- Local, state and federal agencies whose operations are generally classified
- Military-related flights that may be both local and itinerant
- Aircraft flown for hire that may be operated by air carrier, air taxi and commuter operators, which are primarily itinerant

It is recognized that the aviation service companies based at the Airport have earned widespread recognition for their services and their clients that arrive and depart at the Airport contribute to the overall aircraft operations activity. A breakdown of each of the types listed above is not available. Although the air traffic control tower staff log all aircraft landings and takeoffs when the facility is open, no distinction is made by flight purpose. The FAA records flight activity through file instrument flight rule (IFR) plans that provide information by type aircraft. However, the type of flight mission is not recorded in this process. The aircraft service companies based at the Airport may or may not retain data on flight purpose by aircraft and the results of a survey of their business operations and financial data may provide such information. In the absence of such recorded data, some inferences may be made based on anecdotal information and financial records.

Table 4 suggests that overall aircraft activity at the Airport has generally increased in the past few years. The growth in local aircraft operations (those conducted primarily for flight training) has experienced a faster growth rate, particularly post-COVID. This is likely due to the increased interest in pilot careers and the consequent activity conducted by the flight schools at the Airport. During the past 10 years, local operations have averaged about 45 percent of total aircraft movements.

AIRPORT DESIGN FACTORS

Critical Design Aircraft

The critical design aircraft is a determinant of the appropriate facility design standards for an airport and has been defined by the FAA as the most demanding aircraft type in terms of approach speed and wingspan that generates at least 500 annual operations. Different airport reference codes may be assigned at airports with more than one runway based on runway length. There are two runways at the Airport with lengths of 4417' (Runway 2-20), and 2,314' (Runway 11-29).

FAA air traffic data for calendar year 2021 indicates that the Airport accommodated a total of 498 operations by aircraft meeting the B-II airport reference code (ARC); in 2022 that level decreased to 362 aircraft operations. These aircraft were assigned to Runway 2-20 due to its runway length and instrument approach capability. Aircraft using Runway 11-29 are those meeting airport reference code A/B-1 Small (less than 12,500 maximum takeoff weight).

ARC B-II aircraft have approach speeds of between 91 knots and 120 knots and wing spans between 49' and 78'. Most light and medium sized business jets are within the ARC B-II airport reference code. Representative aircraft include:

- Cessna Citation Jet series I through VII
- Falcon 900
- Falcon 2000
- King Air 200
- King Air 350

ARC A/B-I Small aircraft have approach speeds less than 91 knots and wing spans of up to 48' and include most light single-engine piston aircraft such as the:

- Beech 55 Baron
- Beech Bonanza
- Cessna 150
- Cessna Centurion
- Piper Cherokee Arrow

Runway Wind Coverage

Wind conditions typically indicate which runway end is favored for use as aircraft can maneuver at slower airspeeds as the wind generates lift. Table 5 presents the crosswind coverage (90°) to the true runway heading when winds are less than 10.5 knots. This crosswind limit is recommended by the FAA for light aircraft, the dominant user of the Airport. Higher crosswind limits are prescribed for heavier and faster aircraft. Because wind velocity is reported in true degrees, the runway wind coverage is based on the true heading of each runway end.

Wind data for the Airport was obtained for the period 2013 through 2022 from records generated by the automated surface observing system (ASOS) and defined for visual (VFR), instrument (IFR) and all-weather (All WX) operating conditions. An FAA-provided program calculates the crosswind coverage limits.

Table 5			
RUNWAY CROSSWIND COVERAGE			
10.5 Knot Crosswind Limit Coverage (%)			
Runway End and Combinations	VFR	IFR	All WX
2	56.43	74.51	60.13
20	54.44	56.39	54.76
2-20	94.72	93.71	94.52
11	53.64	63.33	55.48
29	59.07	59.40	59.27
11-29	92.88	92.19	92.75
2-20 & 11-29	96.18	99.75	94.89
2 & 11 90°	74.99	91.34	81.81
20 & 29 90°	87.42	81.79	86.31

From a practical perspective, Runway 2-20 is the preferred runway at the Airport given its longer runway length and published instrument approach procedures. Runway 2-20 provides 94.52 percent crosswind coverage under all-weather conditions, which very nearly equals the minimum level (95 percent) established by the FAA for a single-runway airport. The crosswind coverage increases to 94.72 under VFR conditions. The addition of Runway 11-29 contributes 0.37 percent and 1.46 percent crosswind coverage under all-weather and VFR conditions, respectively.

As a point of information, the FAA model for crosswind coverage calculations tends to underreport the actual levels. The model assumes that the occurrence of wind speeds within a specific direction is evenly distributed within each speed range. In fact, higher occurrences are found at the lower speeds within a speed range. Thus, it is appropriate to consider that the crosswind coverage levels by runway end and runway end combinations in Table 5 are actually slightly higher than those indicated.

Air traffic controllers at the Airport confirm that Runway 11-29 has the following use characteristics:

- A runway length of 2,314', which is only suitable for the lightest of aircraft
- Used more frequently between late summer to early November
- When winds favor its use, the majority of the pilots, estimated at 80 percent, continue to prefer accepting the crosswinds on Runway 2-20
- Runway 11 is used very infrequently, perhaps less than one percent of the time
- Runway 29 is used much more frequently when peak activity is focused on Runway 20, estimated at 5 percent of the time on an annual basis to enable a dual runway use operation
- The lack of an instrument approach

On an annual basis, both ends of Runway 11-29 may be in operation about 3 percent of the time.

A prepared turf runway generally paralleling Runway 2-20 to the east is used occasionally by light aircraft. The area is reported as being 2300' long and 150' wide. The need for this turf runway is useful for training short field landing and takeoff training, and to relieve the use of Runway 2-20 during peak periods of activity.

Airfield Capacity

Aircraft activity demand levels at the Airport do not exceed the airfield capacity of a single runway (Runway 2-20) with on-site air traffic control of about 220,000 annual aircraft operations. The Airport is operating at about 30 percent of its annual service volume. Hourly capacity during VFR conditions is 90 aircraft operations and during IFR conditions the hourly capacity is 40 aircraft operations. These hourly capacities exceed the current and anticipated demand levels.

Runway Length

The FAA has developed charts for categories of aircraft in its Advisory Circular 150-5325-4B, "Runway Length Requirements for Airport Design" that provide guidance in establishing required runway lengths. A number of factors contribute to the determination of the length of runway for takeoff and landing. Key factors for the Airport include:

- Airport elevation (18.3' MSL)
- Mean maximum temperature during the hottest month of year (83°F)
- Effective runway gradient (Runway 2-20 = 0.17%, Runway 11-29 = 0.08%)
- Runway surface condition (dry or wet/contaminated)
- Zero wind conditions
- Payload of passengers and cargo (industry practice is to use full payload)

A review of these analyses is presented in the sections that follow and addresses those segments of the general aviation fleet currently or are anticipated to operate at the Airport on a frequent basis, which is typically those conducting at least 500 annual itinerant operations or 250 annual departures.

FAA Generalized Charts for Small Aircraft with Fewer Than 10 Passenger Seats

Representative aircraft include single-engine piston aircraft such as the Cessna C-172 and Piper Arrow.

- 95 Percent of the Fleet -- 3,000'
- 100 Percent of the Fleet -- 3550'

FAA Generalized Chart for Small Aircraft with 10 or More Passenger Seats

Representative aircraft include the King Air 200 and Mitsubishi MU-2 -- 4,050'

FAA Generalized Charts for Aircraft with Maximum Takeoff Weights Greater Than 12,500 Pounds and Up to 60,000 Pounds

These FAA charts are developed to consider both takeoff and landing runway lengths and apply to the range of small to medium size business jets such as the Cessna Citation III, Cessna Citation VII, Falcon 900 and Hawker 600.

Adjustments are then made to the results for the runway gradient and surface conditions; the latter apply to turbojet-powered aircraft and incorporate a factor for wet runway surface conditions when landing. These results illustrate a range of results that are dependent on the extent to which the runway is intended to serve a percent of the general aviation fleet and operate at a variable useful load. The useful load is defined as the weight of the passengers, cargo and usable fuel.

- 75% Fleet, 60% Useful Load: 4,600' (takeoff) 5,300' (landing wet)
- 75% Fleet, 90% Useful Load: 6,200' (takeoff) 7,000' (landing wet)

Conclusion

The physical length of Runway 11-29 (2314') is much less than that suggested (3000' to 3550') for the types of aircraft that would likely utilize this runway. Extension of the runway is considered infeasible given the physical constraints and land area available. In particular, extension to the east on the Runway 29 end would result in an unfavorable coupling with the existing Runway 2 threshold and the associated runway safety area for each runway end, which are likely the primary bases for the current placement of the Runway 29 threshold. The 2014 Airport Master Plan considered closure of the runway as an option, although it was ultimately retained in response to pilot requests when westerly winds are gusting, particularly those made by student pilots. The runway pavement condition is good, but over time, the cost to maintain the pavement associated with Runway 11-29 will likely not justify its retention given its limited utility.

Runway 2-20 (4417' full length of available pavement) is assessed as satisfactory to accommodate the range of light piston and turboprop aircraft that use the Airport. However, the runway faces expansion challenges (land area available) to better serve business jet traffic. Operators of these aircraft have opted to use another area airport because of takeoff weight restrictions or when landing on wet runway conditions. Although trees have recently been removed in the approach to Runway 2 and Runway 20, the Clark Dike serves to retain the current 560' displaced landing threshold location. Aircraft departing on Runway 20 have the full 4417' available, but landing aircraft are restricted to a landing length of 4179'. Departures on Runway 2 also have the full 4417' available, but the landing threshold is displaced 411' due to obstructions in its approach path, leaving 4006' for landing. The 2014 Airport Master Plan Update suggests the potential to extend the Runway 2 end by 583' to the south in order to yield a takeoff length of 5000'. This is a desirable outcome, if feasible, as it could adequately serve at least 75 percent of the fleet at a 60 percent useful load for departures. The landing length would remain at 4006'. Such action requires acquisition of the two lagoons owned by the Metropolitan District Commission (MDC) at the Runway 2 end.

Attempts to realign Runway 2-20 within the existing Airport property were found to provide minimal gains in runway length, but had negative impacts on the land area available for terminal area facilities. These options were not considered viable or cost-justifiable.

Instrument Approach Capability

Runway 2 is the only runway at the Airport that is served with a published instrument approach procedure. Two procedures are available to Runway 2 as well as a circling approach to all runway ends as presented in Table 6.

Table 6 INSTRUMENT APPROACH PROCEDURES				
Procedure	Approach Minimums by Aircraft Approach Category (MDA - VIS)			
	A	B	C	D
RNAV (GPS) 2				
LNAV	443 - 1	443 - 1	443 - 1 ³ / ₈	443 - 1 ³ / ₈
Circling	562 - 1	882 - 1 ¹ / ₄	902 - 2 ³ / ₄	902 - 3
LDA 2 without DANNS Fix	663 - 1	663 - 1	663 - 1 ⁷ / ₈	663 - 1 ⁷ / ₈
Circling	662 - 1	882 - 1 ¹ / ₄	902 - 2 ³ / ₄	902 - 3
LDA 2 with DANNS Fix	443 - 1	443 - 1	443 - 1 ³ / ₈	443 - 1 ³ / ₈
Circling	562 - 1	882 - 1 ¹ / ₄	902 - 2 ³ / ₄	902 - 3
VOR - A without ZOFOX Fix	1182 - 1 ¹ / ₄	1182 - 1 ¹ / ₂	1182 - 3	1182 - 3
VOR - A with ZOFOX Fix	562 - 1	882 - 1 ¹ / ₄	902 - 2 ³ / ₄	902 - 3

These categories encompass nearly the full range of aircraft that are used by general aviation, air taxi/commuter and air carrier aircraft. Additionally, the FAA has published a River Visual approach to Runway 2. Runway 11-29 is not of sufficient length to publish an instrument approach procedure.

These approach minimums are relatively high when compared to other runway ends located at airports without tall topographic surroundings and are primarily influenced by the location of manmade obstacles in the approach and missed approach segments of the procedures. None of the procedures offer vertical navigation guidance. Restrictions are published for each of the procedures:

- Circling to Runway 2 is not authorized when the PAPI-4 is inoperable
- Circling to Runway 20 is not authorized when the PAPI-4 is inoperable
- Circling to Runway 11 and Runway 29 is not authorized at night
- Helicopter visibility reduction below 1 s.m. is not authorized

Airfield Design Standards

The FAA has established a series of facility design standards to ensure the safety of flight activity as well as its interaction with aircraft ground movements. Chief among these standards are the runway safety area (RSA) and the runway object free area (ROFA) as they pertain to the Airport. These standards vary depending on the types of aircraft in use on a particular airport operating surface.

A review of these standards indicates that the RSA and ROFA for Runway 2-20 is not provided at either end of the runway. The MDC lagoons are located within these applicable design standard dimensions at the south end of the runway (Runway 2 end) and beyond the Airport property boundary. The Clark Dike at the northern end (Runway 20 end) is also outside the Airport limits and restricts the ability to meet the RSA and ROFA design standards. These are major safety considerations inasmuch as the RSA is intended to support the weight of the aircraft in the event it departs the runway surface. The ROFA is to be free of any objects.

Currently, the Airport is utilizing the length of the runway beyond the Runway 2 and Runway 20 ends (the physical length of the runway less the displaced threshold distance) at each end to comply with the applicable RSA and ROFA design standards. Because the runway is now used by a sufficient number of turbine-powered engine aircraft the use of declared distances is required, which will modify the landing length and other operating runway length dimensions. Although there are not similarly stringent operating rules applicable to aircraft powered by piston engines, declared distances are useful as advisory information to all pilots. The application of declared distances is an interim measure ensuring flight safety until the Airport implements improvements to meet the RSA and ROFA standards.

OVERALL AIRPORT FACILITIES CONDITION ASSESSMENT

The overall condition of the pavements in the airfield area is assessed as fair to good and serviceable. The CAA has planned the reconstruction of Runway 2-20 for 2025 and rehabilitation of Taxiway A that parallels Runway 2-20 is targeted for 2028. It is anticipated that crack and seal projects will be implemented to other airfield pavement areas on an as needed basis until such time as their reconstruction is required.

Terminal area facilities are assessed in good condition although the T-hangars owned by the Hartford Tees, Inc. are some 60 years of age and will warrant major upgrades or replacement within the next few years. This initiative, if not implemented, may displace up to 30 aircraft from hangar storage.

FINANCIAL STATUS

Financial records are maintained by the CAA for the Airport and the latest income statements are presented in Table 7.

Table 7			
AIRPORT OPERATING REVENUE AND EXPENSES			
	Fiscal Year (July 1 - June 30) (\$)		
Operating Financials	2021	2022	2023 budget
Revenue			
Land and Facility Rents	545,301	484,809	478,900
Aircraft Tiedown Rents	46,710	44,460	43,200
Aircraft Landing Fees	12,322	17,340	16,333
Share of FBO Rents	30,618	33,048	31,915
Fuel Flowage Fees	23,458	32,958	31,608
Car Rental Fees	517	1,711	1,303
Total	658,926	614,326	603,259
Expenses			
Personnel Costs*	680,933	863,235	908,716
Security Services	16,800	16,800	17,717
Administrative Costs	84,575	63,422	118,329
Repairs and Maintenance	96,197	203,044	186,137
Utilities	64,592	79,393	80,822
Equipment	10,648	42,327	0
Miscellaneous	6,491	8,916	0
Total	960,236	1,277,137	1,311,721
Payment to Connecticut State Employees Retirement System*	227,356	274,468	323,767
Net Operating Income (Loss)	(301,310)	(662,811)	(708,462)
Net-Net Operating Income (Loss)	(73,954)	(388,343)	(384,695)

* Includes payment to Connecticut State Employees Retirement System.

Airport operating revenue, which is comprised of land and facility rents from tenants, fuel flowage and other fees has generally remained constant, but has not exceeded total operating expenses in the past. This is the budgeted outcome for fiscal year 2023. Land and facility rents for most tenants were renegotiated beginning in March 2023, which is the latter quarter of the fiscal year and included in the FY 2023 budget. These include a long-term lease with a primary tenant that extends to the year 2052, which term includes 2, 5-year extension options. Rate adjustments for inflation in accordance with changes in the published consumer price index and/or appraised land value are made on a scheduled basis. Fuel flowage fees, at the rate of \$0.13 per gallon of avgas (100LL) and Jet-A delivered for sale, are currently earned from all aviation fuel and lubricants sold by tenants at the Airport. Landing fees are collected by the fixed base operator from commercial aircraft not based at the Airport and known to be operating for-hire.

The Airport incurs operating expenses for assigned personnel, which includes salaries, wages, fringe benefits, other salary costs, and pension payments. The latter is applicable as a share of the Connecticut State Employees Retirement System (SERS) for all public employees in the State, not just those employed at the Airport. The SERS payments are not been considered applicable when assessing the operating expenses at the Airport. This adjustment is accounted in the net-net operating income (loss) value for each fiscal year. Excluding the SERS payments, personnel costs continue to account for the majority of the Airport operating costs. Repairs and maintenance of the airfield and terminal area pavements and facilities represents the second largest operating expense. Administrative costs include support from the CAA main office staff and related equipment. The Airport can be expected to continue to operate at a net loss and net-net loss for the foreseeable future, depending on the extent of escalations in current lease rates based on consumer price increases and land appraisal values, and potential new tenant leases. The current financial status of the Airport is typical at most general aviation airports across the country, especially those that do not have high use by the relatively more sophisticated aircraft that purchase larger volumes of fuel.

The CAA funds capital projects at the Airport by issuing revenue bonds and may also transfer funds from the operation of the Bradley International Airport given the reliever status assigned to the Hartford-Brainard Airport.

AIRPORT STATUS ASSESSMENT

The Airport is presently limited by its physical features and land area to serve the general aviation market including light business jets. Notwithstanding, the Airport is meeting the needs of those that utilize the facility with the exception of aircraft arrivals and departures by the larger size segment of the business jet fleet. There could be improvements to the instrument approach procedures to provide vertical guidance that may also yield lower approach minimums. This action can enhance the utility and reliability of the Airport.

A major Airport deficiency is its nonstandard condition with respect to ROFA and RSA design standards. This has required the implementation of displaced thresholds and may require the publication of declared distances.

Facilities at the Airport are in good and serviceable condition, although there will likely be a need for the private sector to replace an aging set of 30 T-hangars.

The Airport has operated at a net loss and net-net loss through the long-term.

CHAPTER 2: POTENTIAL FUTURE AIRPORT USE

This chapter presents an independent forecast of key Airport activity measures, runway extension potentials and related capital improvement costs.

AVIATION ACTIVITY DEMAND FORECASTS

The potential demand for aviation activity at Hartford Brainard Airport (Airport) takes into consideration its socioeconomic setting, competitive position with regard to area airports, available activity data, and anticipated national and regional general aviation demand indicators.

Historical aviation activity at the Airport is available from records maintained by the Connecticut Airport Authority (CAA), the owner and designated sponsor of the Airport, and the Federal Aviation Administration (FAA) with respect to the number and type of based aircraft and the air traffic control tower maintains records of aircraft movements on a daily basis during those hours in which it is operating. This data was utilized in generating the forecast of aviation activity demand at the Airport and took into account the considerations mentioned above on a qualitative basis. This enabled a reasoned opinion as to the prospects for the growth in aviation demand at the Airport, whether positive or negative, and presented in a demand forecast.

It is important to recognize that the forecasts of aviation demand are linked to the requirement for additional facilities at the Airport and not the year to which the forecast is presented. Actual aircraft activity will occur prior to or after a projected demand level. Therefore, it is incumbent on the CAA to monitor activity levels and be prepared to implement the associated facilities when the projected demand level are to be reached.

The forecast was prepared after an unprecedented slowdown of economic activity in the United States due to the COVID-19 virus, which peaked during 2020. Aviation activity levels have since recovered to around 2019 levels, which will serve as the base year for the demand forecasts. The forecasts are intended to indicate the need for key Airport airside and terminal area facilities. These include number of runways, runway length and aircraft tiedown and storage requirements through the 20-year forecast horizon. Further, the projections are considered unconstrained by facilities currently available at the Airport.

Socioeconomic Setting

The Airport is located within the limits of the City of Hartford, some two miles from its central business district. The majority of its based tenants are located in the users are located with towns and cities within the Hartford-East Hartford-Middletown Metropolitan Statistical Area (MSA) as defined by the U.S. Census Bureau. Key demographic indicators are highlighted below:

- Between 1990 and 2021 (estimate), the total population has increased slightly from 1,123,678 and 1,211,906, or an average annual growth rate of 0.24 percent. Comparatively, the State of Connecticut experienced an annual growth rate of 0.31 percent and the nation as whole gained at an average rate of 0.91 percent. Population projections for the MSA and the state prepared by Connecticut Data Collaborative indicated that between 2020 and 2040, the average annual growth rate is 0.07 percent and 0.10 percent, respectively. These rates compare to 0.58 percent for the nation as projected by the U.S. Census Bureau. These data suggest that the MSA and, to a lesser

extent the State, have been and are expected to continue to lose population to other areas of the country.

- Eliminating the COVID impact, total civilian employment in the MSA grew at an average rate of 3.07 percent between 2021 through 2022, which compares favorably with that for the state (3.02 percent) and nearly equivalent in the country (3.08 percent). Thus, the MSA is able to generate a positive labor participation rate for its residents.
- Median household income in the MSA is \$82,258 and some 29.4 percent of households have median incomes of between \$100,000 and \$200,000, a level that suggests a potential to use discretionary funds to engage in higher priced activities such as personal aviation. By comparison, this percentage at the state and national levels is 28.0 percent and 24.2 percent, respectively.

Overall, the MSA economy has the potential to maintain a demand for general aviation activity that should be on par with that anticipated in the state, but less than that nationally due to a lower growth rate in population.

Competitive Setting

Aircraft owners and pilots typically base at an airport that is convenient to their residence or business unless that airport lacks the facilities and services available at other airports in the region. Table 8 provides a comparative listing of key features of general aviation airports that may compete for based aircraft with the Airport. Of those, the Danielson and Meriden Markham airports have runway lengths that are less than that available at the Airport. This limits their attractiveness to certain of the larger general aviation aircraft based at the Airport, particularly those that are turbine-powered. Otherwise, the remaining competing airports offer generally comparable basic facilities and services to aircraft based at the Airport. The relatively more active airports offer specialized services such as avionics sales and support, and three other airports have served with a staffed air traffic control tower facility. A key takeaway from Table 7 is that nearly all the airports, including Hartford Brainard, have a waiting list for hangar storage, but all have the ability to construct more facilities, whether by the airport owner or private investment, when the economics of construction and maintenance are favored with sufficient rental revenue and return on investment.

Based Aircraft

The Airport currently bases a total of 138 aircraft, the majority of which are single- and multi-engine aircraft. Other aircraft in the based fleet include 1 business jet, and 3 single-engine and 2 rotary wing aircraft assigned to the State Police Department. There are 3 flight schools located at the Airport that own and operate a total of 19 aircraft (3 multi-engine piston and 16 single-engine) and 1 single-engine aircraft that is operated on a leaseback basis from another based aircraft owner. One eVTOL (electric vertical takeoff and landing) aircraft is based at the Airport, but is not yet certified as airworthy and, therefore, not included in the total. Of note is that the FAA Aircraft Registry indicates there are a total of 357 aircraft registered to aircraft owners in Hartford County. This infers that about 37 percent of these pilots/aircraft are using the Airport.

Insert Table 8 (former Table 1 in White Paper on next page as an insert)

Growth in the number of based aircraft at the Airport will be dependent on increases in the resident population by persons with adequate levels of discretionary income and an imbalance in the demand and capacity for aircraft facilities, primarily hangar storage.

Privately-funded hangar development has been the major source of hangar facilities at the Airport and the competing airports, as the demand is high and weather conditions favor the need for storage. Of the competing airports, only Westfield-Barnes is in the process of implementing new privately-funded hangar projects and, in this case, it is to support entry of another fixed base operator. Land areas are available at all the airports to support new hangar construction, although the extent of such facilities may be limited due to property boundaries and terrain conditions.

A review of FAA projections released in March 2022 related to the national general aviation segment of the air transportation market offers a perspective on future demand levels. Figure 4 and Figure 5 below highlight the anticipated growth in active general aviation aircraft and active pilots between 2020 and 2040. The charts illustrate that the single-engine piston aircraft will continue to dominate the market. However, overall there is a near constant level of activity with changes primarily in the types of aircraft operated, favoring the use of turbine-powered aircraft, and a growing percentage of pilots holding air transport ratings, the highest level that can be held by a pilot. One primary cause for the higher rate of increase in the number of air transport pilots is federal legislation that requires all pilots operating Federal Aviation Regulation Part 121 aircraft (scheduled airline) must hold this rating as opposed to commercial pilot rating. Notwithstanding these statistics and projections, more recently there has been an increased focus on training new pilots as required pilot retirements of those operating aircraft in commercial service are nearing a major threshold. All scheduled airline pilots must retire when reaching the age of 65 years. In response to this pending pilot shortage, several airlines have initiated flight training programs with colleges and universities as a means to ensure an adequate supply of qualified pilots to support their existing and planned fleet programs. Additionally, fixed base operators have strengthened their participation in training new pilots. The longevity of such flight training programs is not certain inasmuch as future pilot retirements should lessen after the current demand scenario is addressed. The likely short-term increase in the number of private pilots is anticipated to maintain the number of pilots in this certificate category in the long-term.

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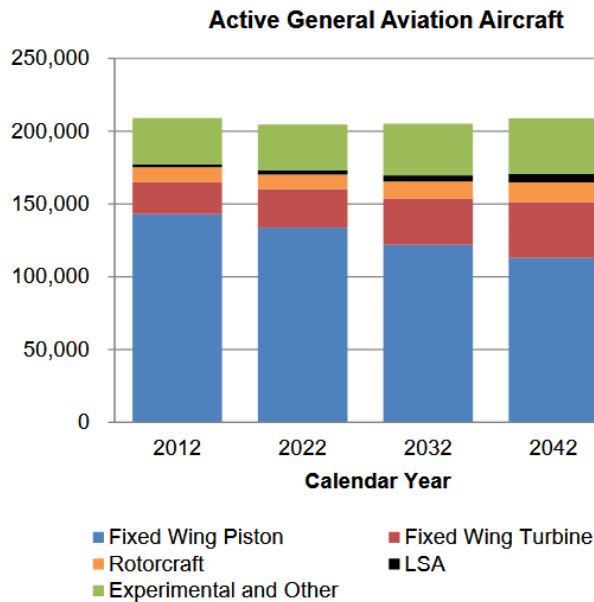


Figure 4

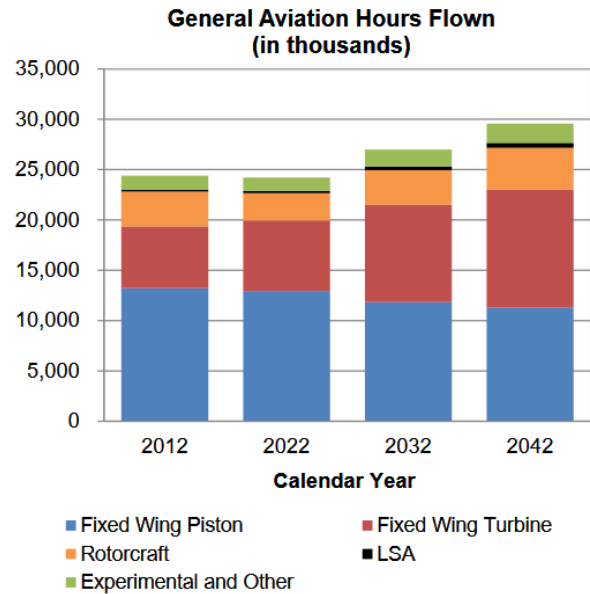


Figure 5

Given the foregoing, a forecast of based aircraft at the Airport is shown in Table 8 below. The growth by category of aircraft type at the Airport follows the national trend, but a lower rate of annual growth reflecting the socioeconomic features of the MSA. Contrary to the FAA projection of a decrease in the number of fixed wing piston aircraft, the forecast reflects a near constant number of these aircraft given the more recently reported industry data related to aircraft deliveries. During the forecast horizon, it is expected that e-VTOL aircraft will enter the market as they become FAA-certified, replacing the light piston and turboprop segments of the general aviation fleet.

The forecast does not provide an allowance for aircraft repositioning to another airport due to the potential closure of the Airport or the availability of terminal area facilities for aircraft tiedown and storage hangars or the available runway lengths. Additionally, new facility development has been postponed, owing in part to the current uncertain future status of the Airport. The forecast presents an unconstrained demand that is to be accommodated at the Airport.

Table 8 BASED AIRCRAFT FORECAST					
Aircraft Type	Year				
	2023	2028	2033	2038	2043
Single-Engine Piston	128	129	130	131	132
Multi-Engine Piston	3	3	3	3	3
Multi-Engine Turboprop	2	2	3	4	5
Jet	1	2	4	6	9
Helicopter	4	4	4	4	4
Total	138	140	144	148	153

These forecasts indicate that the single-engine piston aircraft will comprise the majority of the based fleet at the Airport and account for nearly 93 percent of the total and decreasing to about 86 percent through the forecast horizon. The number of based aircraft fleet shows an increasing trend of nearly 11 percent over the 20-year horizon.

This projection may be compared with others for the Airport. Among these are those provided by the FAA in its 2021 Terminal Area Forecast, the 2014 Airport Master Plan Update and the 2016 Connecticut Statewide Airport System Plan (CSASP). The former has been discounted as reliable given that it is premised on a total of 64 aircraft at the Airport in 2023, or about one-half of the current total, increasing by nearly double to 129 by 2043. No explanation for the base year level or the relatively high rate of growth is provided.

Interpolation of the 2014 Airport Master Plan Update forecast yields 165 based aircraft in 2023 increasing to 172 by 2030; an increase of some 4 percent. The base year for that forecast is 2010 with 154 aircraft, a level that suggests that between 2010 and 2023, the based aircraft count at the Airport remained generally constant. The lower growth rate is consistent with that anticipated nationally at the time these projections were made, particularly in the small general aviation fleet that comprises the majority of the aircraft based at the Airport.

The 2016 CSASP base year for forecasts is 2013 for which the Airport is shown to have a total of 155 based aircraft, increasing to 173 based aircraft by 2035, assuming an extension of Runway 2-20 to 5000'. This represents an increase of nearly 12 percent, which is generally consistent with projections now offered. This suggests that future levels of based aircraft have regained to that experienced during the more robust economy prior to the COVID pandemic.

Taken as a whole, the forecast of based aircraft as presented in Table 8 may be considered appropriate for the purposes of the Hartford Brainard Airport Property Study as it presents a reasoned potential market demand for the facility.

Aircraft Operations

The FAA projects that total general aviation aircraft operations in the country will increase at an average annual rate of about 0.70 percent over the next 20 years. Given the socioeconomic conditions of the MSA, an average annual growth rate of 0.65 percent was applied to generate the forecast of local and itinerant aircraft operations. Over time, the ratio of local to total aircraft operations is anticipated to decrease slightly as the relatively recent spurt in flight training activity tends to subside. Table 9 presents the forecast of general aviation aircraft operations at the Airport.

Table 9					
GENERAL AVIATION AIRCRAFT OPERATIONS FORECAST					
Type	2022	2028	2033	2038	2043
Itinerant	32,111	34,300	36,100	38,100	40,100
Local	35,156	35,600	36,100	36,500	37,000
Total	67,267	69,900	72,200	74,600	77,100

By comparison, the forecasts presented in the 2014 Airport Master Plan Update identified a then current level of aircraft operations of 79,600 increasing to 85,600 over a 20-year period ending in 2030, or an average annual rate of 0.36 percent. The 2016 Connecticut State Airport System Plan presented forecasts of aircraft activity at the Airport increasing from 80,817 in 2015 to 87,660 by 2035; an average annual growth rate of 0.41 percent. Aside from the base year activity level in each projection being much higher than that now experienced at the Airport, the growth rates reflect a period of time during which the smaller aircraft segment of the general aviation fleet was slowing nationally and in Connecticut. Since then, and excluding 2020 during the height of the COVID pandemic, there has been a resurgence in the use of general aviation aircraft, particularly in the medium to large cabin business jet segment and more recently light aircraft flight training. These conditions now favor a higher average annual rate of growth than that applied in earlier forecasts.

Current hourly aircraft demand levels during visual flight rule (VFR) and instrument flight rule (IFR) conditions are estimated at 40 aircraft operations and 20 aircraft operations, respectively. Through the 20-year planning horizon, these activity levels can be expected to remain constant as peak periods of activity tend to spread into other portions of the day.

Aircraft operations may also be classified by mix as highlighted in Table 10 below. Single-engine piston aircraft operations will continue to account for a majority of the activity, decreasing over time as higher performance aircraft enter the Hartford market. Beginning between now and 2028, e-VTOL (electric vertical takeoff and landing) aircraft may be anticipated to operate at the Airport.

Type	2022	2028	2033	2038	2043
Single-engine	59,370	60,800	62,100	62,700	62,400
Multi-engine	6,054	6,300	6,500	6,700	6,900
Jet turbine	498	700	1,400	2,200	3,900
Rotary*	2,054	2,100	2,200	3,000	3,900
Total	67,267	69,900	72,200	74,600	77,100

Critical Design Aircraft

The airport reference codes presented in Chapter 1 are anticipated to remain appropriate for the forecast horizon. These are:

- ARC B-II for Runway 2-20 and all aircraft movement areas that these aircraft are expected to utilize (taxiways, aprons, and related facility design standards)
- ARC A/B-I Small for Runway 11-29 and its associated taxiways and related facility design standards

Implications for Airport Facility Requirements

The aviation demand forecast is an informed opinion as to the potential volume of activity that may be anticipated to occur at the Airport over a 20-year forecast horizon. These forecasts can be compared to existing capacity levels to identify future capital investment program for the airfield, terminal and landside areas. Actual demand levels experienced will likely fall below or rise above the forecast for any given year. Thus, the aviation activity demand forecast is viewed more as a trend and through its linkage to capacity levels, serves to suggest when capital projects should be operational. Some projects require longer lead times than others and this is factored into the capital investment program that is developed and updated on an annual basis.

Additionally, the forecasts can be related to airfield and terminal area design standards that are established by the FAA based on the ARC and other factors as presented in the following sections.

Scheduled and Nonscheduled Airline Service Prospects

The Airport accommodates nonscheduled (charter) aircraft operations on a periodic basis. These are conducted by such operators as NetJets, VistaJet, and Wheels Up Partners, that provide airport-to-airport connectivity based on the travel time demands of their clients. One such operator, Pegasus Air Charter, is based at the Airport through an affiliation with the Hartford Jet Center that operates a multi-engine turboprop aircraft to provide on-demand service. The frequency of such aircraft activity is not monitored by air traffic control or others.

Scheduled airline service such as that offered by such companies as Cape Air, based in Hyannis, that in this region of the Northeast provides seasonal service at airports serving principally resort areas, e.g., Cape Cod, Nantucket, Martha's Vineyard and Provincetown. Tradewind Aviation, based at the Waterbury Oxford Airport provides similar services.

Given the runway length at the Airport and relatively high instrument procedure approach minimums, nonscheduled airline service is generally limited to light business jets and turboprop aircraft. Scheduled airline service has a similar limitation and the Airport lacks a focal point (passenger terminal facility with security screening capability) to provide the services and amenities that passengers expect to be available. The proximity of Bradley International Airport and Tweed-New Haven Airport also deters the introduction of scheduled airline service at the Airport. Additionally, the Airport is not certified under Federal Aviation Regulations Part 139. This regulation requires that the Airport meet certain requirements related to the safety of scheduled and nonscheduled airline operations with aircraft having more than 30 seats and less stringent requirements for scheduled airlines with more than 9 seats but less than 31 seats. FAR Part 139 does not apply to nonscheduled airline service with aircraft having less than 31 seats.

Based on the above factors, the potential for significant levels of scheduled or nonscheduled airline service at the Airport is considered minimal, with the greater opportunity found in the latter.

Advanced Air Mobility and Vertiports

An emerging sector in the aviation market is termed advanced air mobility (AAM) and is premised on the introduction of electric vertical takeoff and landing (eVTOL) aircraft. Several aircraft manufacturers are in varying stages of receiving certification by the Federal Aviation Administration (FAA) to deploy these aircraft throughout the country. Facilities to service these aircraft are referred to as vertiports. The term vertiport may be confused with heliport, but each is different in their design features. Heliport design is based on helicopters with single, tandem (front and rear) or dual (side by side) rotors. The emerging eVTOL aircraft are not proven to perform like conventional helicopters and, consequently, the FAA has issued interim guidance on the design of vertiport facilities. These design standards can likely be accommodated at the Airport.



The demand for a vertiport is primarily envisioned as a means to transport passengers and cargo between city centers or other origin-destinations for which travel time benefits are maximized. Vertiports may also be co-located with existing ground transportation services to facilitate the "last mile" movement of passengers and cargo. Passenger-carrying trips to other areas of high demand such as between airports is also a distinct application of eVTOL aircraft. Flight distances of less than 100 n.m. are particularly applicable based on the electrical power source of the eVTOL aircraft. The Airport is within this range to several airports (Boston Logan, T.F. Green International, Albany, New York LaGuardia, John F. Kennedy International, Newark Liberty International, and Teterboro) as well as seasonal markets (Martha's Vineyard and possibly Nantucket and Provincetown).

The widespread application of AAM at airports across the country is gaining momentum with some vertiports expected to be operational in the next two to three years, such as the facility at Lake Nona near Orlando, Florida. The development of the AAM market is presently focused on partnerships between the eVTOL aircraft manufacturers and private sector land development companies. Public-private partnerships are likely to emerge over time. This opportunity may be realized at the Airport and will require the active participation and engagement of the Connecticut Airport Authority.

AIRFIELD FACILITY REQUIREMENTS

The primary airfield facility requirements focus on the runways in terms of their alignment with prevailing winds and length, airfield design standards and instrument approach capability.

Runway 11-29 Benefit / Cost Analysis

As reviewed in Chapter 1, Runway 2-20 provides nearly 95 percent crosswind coverage for light aircraft, the most critical when assessing this feature of the Airport. This may raise the question as to the need to continue to operate and maintain Runway 11-29 given its limited incremental gain in crosswind coverage and its usage characteristics.

A benefit/cost analysis was prepared related to the retention of Runway 11-29 in the long-term status of the Airport. The runway provides marginal operational benefit in terms of crosswind coverage; however, it is recognized that when the primary runway 2-20 is subject to strong gusty winds the utility of Runway 11-29 is enhanced, particularly for student pilots.

The benefits considers the forecast of annual aircraft landings (one-half of the operations) by all but the jet turbine and rotary aircraft activity presented in Table 5 and the improved safety attributable to landing on either Runway 11 or Runway 29 during those wind conditions that favor their use. Although a strict interpretation of the crosswind data shown in Table 6 suggests that Runway 11-29 offers an additional 1.46 percent wind coverage, this value has been increased to 3 percent to account for the use characteristics described previously. This is a conservative estimate of the 'true' demand for Runway 11-29 and also takes into consideration that most student flights will not depart if excessive crosswind conditions on Runway 2-20 are anticipated at the time of arrival.

The safety operational benefit was based on the unit value developed from FAA-derived estimates for general aviation aircraft and adjusted for inflation since their initial determination and applied to the 20-year forecast horizon. A 7 percent discount factor, as presently recommended by the U.S. Office of Management and Budget for constant dollar benefit/cost analyses, was utilized as this rate approximates the marginal pretax rate of return on an average investment in the private sector in recent years. This yields a net present value benefit of nearly \$1,400,000 when applied to the forecast 20-year period, or about an average of \$70,000 annually.

If the total present value, life-cycle cost for the Airport to continue to maintain Runway 11-29 over a 20-year period does not exceed \$1,400,000, it may be concluded that the expenditure is cost-justified. That is, the life-cycle benefit/cost ratio is at least 1.00. A net present value estimate for routine maintenance of the runway and its parallel taxiway (crack and seal in 2023 and every five years through 2043) and a complete reconstruction in year 2033 is about \$2,700,000. This yields a life-cycle benefit/cost ratio of 0.52, which implies that the long-term retention of Runway 11-29 and its parallel taxiway is not cost justifiable. It may be expected that when a full reconstruction of Runway 11-29 and its parallel taxiway is required, such action will not be undertaken and the facility will be closed to air traffic.

Runway Length

Chapter 1 highlights the runway length capabilities at the Airport and concludes that:

- Runway 2-20 may be extended to the south depending on the closure of one or two lagoons that are in use by the Metropolitan District Commission. This can improve the operational capability of business jet operations
- Runway 11-29 cannot be extended and its length is satisfactory for the aircraft that it serves

Airfield Design Standards

The noncompliance with applicable facility design standards associated with Runway 2-20 is presented in Chapter 1. Absent the ability to assume control of the lagoons and/or relocate the dike, the Airport will be required to implement the concept of declared distances, which serves to reduce the available runway length for landing and takeoff for the existing Runway 2 and Runway 20 ends as indicated in Table 11.

Table 11				
DECLARED DISTANCES - EXISTING 4417' RUNWAY 2 AND RUNWAY 20				
Runway End	TORA	TODA	ASDA	LDA
2	4417	4417	3917	3506
20	4417	4417	4417	3556
TORA -- Takeoff Runway Available				
TODA -- Takeoff Distance Available				
ASDA -- Accelerate Stop Distance Available				
LDA -- Landing Distance Available				

Should Runway 2-20 be extended to a physical length of 5000' adding pavement to the Runway 2 end, there will be a continue need to implement declared distances as a means to comply with the applicable facility design standards as presented in Table 12. The Runway 2 landing threshold would remain in its present position as the Clark Dike controls its location and thus the displacement is 992'. The existing 560' threshold displacement at the Runway 20 will remain in place.

Table 12				
DECLARED DISTANCES - FUTURE 5000' RUNWAY 2 AND RUNWAY 20				
Runway End	TORA	TODA	ASDA	LDA
2	5000	5000	4500	3506
20	5000	5000	4460	3900
TORA -- Takeoff Runway Available				
TODA -- Takeoff Distance Available				
ASDA -- Accelerate Stop Distance Available				
LDA -- Landing Distance Available				

Instrument Approach Capability

The Airport is a designated reliever airport to Bradley International Airport and this service role is especially important during instrument flight rule operations when airfield hourly capacities are reduced at that airport.

To better serve its reliever status, the Airport would be better served with an approach procedure that can achieve lower straight-in approach minimums on Runway 2 and an instrument approach to Runway 20. This may best be accomplished by upgrading the RNAV (GPS) LNAV on Runway 2 procedure to provide LP and LPV minimums. A similar RNAV (GPS) instrument approach to Runway 20 can be similarly implemented so that this runway end may be utilized in IFR conditions. The installation of an approach lighting system at either runway end could lower the visibility minimum by $\frac{1}{4}$ -statute mile; however, this is not considered viable given the location of the Clark Dike.

A preliminary assessment of the potential for an improved instrument approach procedure to Runway 2 indicated that after the ongoing tree clearing and topping in the approach is completed, the opportunity to achieve a lower ceiling minimum may be feasible and would likely be in the range of 300' to 400'; a marginal improvement. An instrument approach to Runway 20 is expected to yield higher approach minimums given the obstruction environment in the final approach segment.

TERMINAL AREA FACILITY REQUIREMENTS

The land area west of Runway 2-20 and north of Runway 11-29 is reserved for terminal area facilities that include tiedowns for based and transient aircraft, hangar storage, and structures used for aircraft maintenance, avionics services, flight instruction and general office activity. Terminal facilities located at the far northern end of the Airport are assigned to state and federal agency activities. There are undeveloped land areas within the terminal area that are reserved to accommodate new tenants. As the based aircraft demand level increases over time, there is more than adequate undeveloped land area to absorb that demand as indicated on the current Airport Layout Plan and reflected in Table 8.

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The Airport has leased the terminal area to a variety of tenants. These include:

- Hartford Jet Center, LLC
 - Several parcels with and without hangars for aircraft tiedown and storage, and office space
 - Lease expires on December 31, 2042 with 2, 5-year extension options
 - Subleases facilities to other aviation service providers



Balance of page intentionally blank

- The Hartford Tees, Inc
 - 30 T-hangar units
 - Lease expires on March 31, 2025



- Hartford T-Hangar Association
 - 34 T-hangars, individually owned
 - Lease expires August 31, 2031, with 2, 5-year options



- CT Aero Tech School for Maintenance Technicians

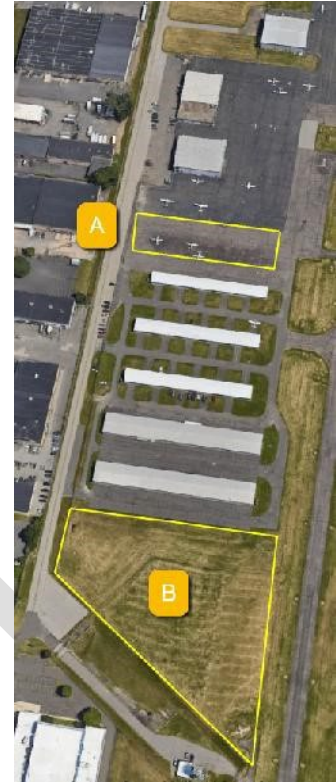


- Federal Aviation Administration
 - Construct and operate an air traffic control tower
 - Lease expires November 30, 2037

- CAA, City, State and Federal Agencies
 - Facilities located at north end of the Airport used by the CAA for maintenance and fire/emergency response, City of Hartford Police Department, Connecticut State Police, Connecticut Department of Management and Homeland Security, Federal Bureau of Investigation, and United States Department of Homeland Security



- Hartford South Hangars, LLC
 - Undeveloped land (A and B) intended to construct 2 sets of T-hangars with 12 units each, 1 set of T-hangars with 16 units, and 2, 10,000 s.f. box hangars
 - Lease expires November 30, 2042 with 2, 5-year extension options
 - Lease may be in default as no construction has been initiated within the required start period for land area A
 - Lease expires August 31, 2031, with 2, 5-year options



- Aircraft Tiedown Positions
 - North End, Midfield and South End Ramps
 - Owned by the CAA



Based Aircraft Facility Requirements

Aircraft based at the Airport are either positioned in tiedown spaces or in hangars. The latter include T-hangars that may be nested or consecutive box structures, and traditional box hangars that house one or more aircraft. As the capital investment in aircraft increases, the demand for hangar storage is greater given the weather conditions in the Hartford region. Over time, aircraft in tiedowns are expected to transition to hangar storage. The allocation of based aircraft to tiedown and hangar storage is presented in Table 13.

Number of Spaces	2022	2028	2033	2038	2043
Tiedown	51	50	48	45	43
Hangar	87	90	96	103	110
Total	138	140	144	148	152
* Note: Includes e-VTOL aircraft beginning in 2028					

Comparison of the based aircraft tiedown and hangar storage demand with the available and planned capacity as presented in Table indicates that the Airport has sufficient land area to accommodate these requirements.

Transient aircraft are positioned nearest to their intended service provider at the Airport and there are some 20 spaces allocated for this purpose. The demand for transient aircraft tiedown is based on the number of itinerant aircraft operations, which are discounted to account for that conducted by aircraft that are based at the Airport. Transient aircraft may remain at the Airport for variable periods of time. Experience at this and other airports suggest that there will be a requirement for nearly 30 tiedown positions. These may be accommodated within the existing terminal apron areas as based aircraft transition to hangar storage. Overnight transient aircraft hangar storage can usually be arranged by the fixed base operator using their own hangar facilities, however, for planning purposes it is useful to allow for the private investment in one such hangar facility.

Condition Assessment

The condition of the terminal area facilities ranges from fair to good and most paved areas will require crack and seal projects on a periodic basis and in later years reconstruction. The 30 T-hangars owned by The Hartford Tees, Inc. are about 60 years old and nearing the end of their useful lives and likely going to remain until the expiration of the lease and its extension option. Should The Hartford Tees opt to construct new hangars, the lease term will likely be extended at that time.

CAPITAL INVESTMENT REQUIREMENTS

Airport facilities are in continuing need of repair, rehabilitation and reconstruction and the Airport is no exception. The CAA prepares and updates capital improvement plans annually and has provided the following input for the Airport (Table 11) to which other projects have been added that could be expected over time. Tenants of structures leased from the CAA are required to maintain those facilities. Federal funds are available through the FAA Airport Improvement Plan and recent legislation such as the Bipartisan Infrastructure Law grants. Hangar facilities are anticipated to be funded by the private sector with some financial support from the CAA. Private investors are expected to be provided with lease terms and conditions that allow for the appropriate amortization of the investments. The projects listed in Table 14 should be considered the minimal requirements to improve the Airport over the next 20 years.

Table 14					
AIRPORT CAPITAL IMPROVEMENT PROGRAM					
Project	Year	Project Cost (\$)			Private Sector
		Total	Federal	CAA	
Obstruction Removal*	2023	1,589,309	1,430,378	158,931	0
Easement Acquisition*	--	347,764	312,988	34,776	0
Reconstruct R/W 2-20*	2025	10,000,000	9,000,000	1,000,000	0
Construct Airfield Vault*	2026	530,000	477,000	53,000	0
Crack and Seal R/W 11-29 and taxiway	2030 - 2043	80,000	72,000	8,000	0
Rehabilitate T/W A South*	2028	2,000,000	1,800,000	200,000	0
Crack and Seal Apron Pavements	2030 - 2043	500,000	450,000	50,000	0
Rehabilitate Airfield Lighting Systems	2030 - 2043	1,500,000	1,350,000	150,000	0
Construct New Based Aircraft Hangars Phase 1 (12 spaces)**	2033	900,000	0	90,000	810,000
Reconstruct R/W 11-29 and taxiway	2033	5,000,000	4,500,000	500,000	0
Construct New Based Aircraft Hangars Phase 2 (20 spaces)**	2043	1,500,000	0	150,000	1,350,000
Total		22,075,073	19,392,366	2,394,707	2,160,000
* Current CAA Program					
** CAA to construct common use taxiway and apron pavements					

FINANCIAL STATUS

As presented in Chapter 1, the Airport has historically operated at a net loss and net-net loss and this trend is expected to continue. The CAA has recently renegotiated the lease to 2042 with 2, 5-year options with its largest tenant, Hartford Jet Center. The lease has provision for rate escalation based on changes in the consumer price index. However, these adjustments effectively serve to maintain the operating revenue on a current dollar basis. A similar outcome is expected for several businesses that operate at the Airport under a sublease agreement with the Hartford Jet Center. Other tenants at the Airport are public entities whose lease terms are subject to the imposition of current market rates. The Airport does not emphasize an operating revenue stream from aircraft landings, fuel flowage fees, or other primary sources of aviation activity. Accordingly, the Airport will continue to rely on subsidy from other revenue sources available to the CAA.

OVERALL CONCLUSIONS -- HARTFORD-BRAINARD AIRPORT AT PRESENT AND FUTURE

Based on the above evaluations, it may be concluded that:

1. The Airport is anticipated to experience moderate growth in the number of based aircraft and aircraft operations.
2. The airfield area provides adequate capacity for aircraft operations, with or without the availability of Runway 11-29.
3. Runway 2-20, the primary runway, does not meet current airfield design standards for the aircraft that frequently use the facility due to Clark Dike at each runway end and lagoons at its southern end. Consequently, displaced landing thresholds are required that shorten the physical length of the runway for such operations.
4. Runway 2-20 can offer a higher level of service to higher performance aircraft such as business jets if its length was longer. The maximum potential runway length is 5,000' should the lagoons at the Runway 2 end be acquired and declared distances are implemented.
5. Runway 11-29 provides limited operational utility and its continued availability will likely be discontinued at such time as full reconstruction of the pavement is required.
6. Future based aircraft and aircraft activity will require additional investment in hangar facilities, and there is adequate open land resource available to meet these demand levels. Some existing terminal area facilities will reach the end of their useful lives during the forecast horizon and will be replaced by private sector investment.
7. Over a 20-year period, the Airport is expected to require a total investment of about \$22 million, of which some \$2.2 million will be funded by the CAA and about \$2.16 million from the private sector. CAA funding requirements may increase depending on the extent of federal grant funding available in any year.
8. Financial self-sustainability is not anticipated at the Airport over the long-term.
9. Continuation of nonscheduled (charter) is expected using aircraft that can operate without restriction on the available and potential longer Runway 2-20 length.

10. The introduction of scheduled airline service at the Airport is not anticipated given nearby air carrier airports that currently provide and are expected to continue to offer this services.
11. There is a potential to establish a vertiport facility in concert with industry initiatives to develop and expand the AAM concept. Service to major city centers and airports within a 100 n.m. range of the Airport can be targeted. The introduction of a vertiport can involve public-private partnerships to include the CAA.

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CHAPTER 3: EFFECT OF AIRPORT CLOSURE

This chapter reviews the impact of closure of the Hartford-Brainard Airport on the regional airport system in terms of the ability accommodate the aircraft to be repositioned and businesses operating at the Airport.

AIRCRAFT REPOSITIONING POTENTIAL

In the event the decision is made to close the Airport, the 138 total aircraft based at the field will need to reposition to other area airports. Aircraft owned and operated by the Hartford Jet Center (1), three flight schools (19 fixed wing aircraft), Civil Air Patrol (2 fixed wing aircraft) and Connecticut State Police (3 fixed wing and 2 rotary wing aircraft) can reposition to other area airports to continue to fulfill their flight missions. Relocation of the 19 flight school aircraft is expected to be based on market demand, competitive factors, and a host of other matters taken into consideration by their owners. Due to the wide variability in outcomes, these 19 flight training aircraft have not been allocated to other area airports. The repositioning of the Connecticut State Police air mission fleet is particularly noteworthy. The airspace operating environment at the Airport (Class D) and the State-central location of the Airport favored its earlier selection to meet State Police rapid response requirements. This decision suggests that the repositioning of these aircraft would likely be to either the Windham Airport (IJD) or Robertson Field (4B8) may be appropriate. Of the two, Windham Airport may be preferred due to its two-runway system. Nonetheless, depending on how the Airport land resource is repurposed, it may be possible to retain rotary wing aircraft operated by the Connecticut State Police and other government agencies that utilize such aircraft for emergency response and other mission needs. Lastly, it is possible that some of the private aircraft owners will opt not to reposition for any number of reasons -- owner's age, health, financial status; unwillingness to reposition and take action to sell their aircraft; cost of hangar space at the area airports; decision to move out of the area; sale of their aircraft; or just lose interest in flying, among others. A survey of the based aircraft owners conducted in a complementary study presented to the DCED indicated that 53 percent of those responding would relocate to another area airport. The remainder would either sell their aircraft (40 percent), which could be to others that would reposition to an area airport, or stop flying (7 percent). Thus, the need to reposition all based aircraft is considered a conservative approach.

Figure 6 highlights the density location of the aircraft owners based on addresses provided by those receiving rent payments. Aircraft owners as far north as Enfield and Somers, as east as Lebanon and Mansfield, as south as Stratford and as west as Roxbury choose to base at the Airport. Driving times and distances from these cities and towns to the Airport are presented in Table 15 as an indication of the Airport's service area. The area airports are denoted with a green pin icon and its FAA identifier code. The location of based aircraft owners are shown by a yellow pin icon identifying the city or town name followed by the number of owners at that location. Hartford Brainard Airport is assigned a red pin icon and there are 8 aircraft, excluding the 19 owned by the 3 flight schools, based at the Airport for reasons of flight mission. The airport identifier codes are as follows:

- 4B8 Robertson Field (Plainville)
- BAF Westfield Barnes Regional Airport
- BDR Bridgeport Sikorsky Airport
- BDL Bradley International Airport
- DXR Danbury Municipal Airport
- GON Groton New London Airport
- HFD Hartford Brainard Airport
- HVN Tweed New Haven Airport
- IJD Windham Airport
- LZD Danielson Airport
- MMK Meriden-Markham Municipal Airport
- OXC Waterbury Oxford Airport

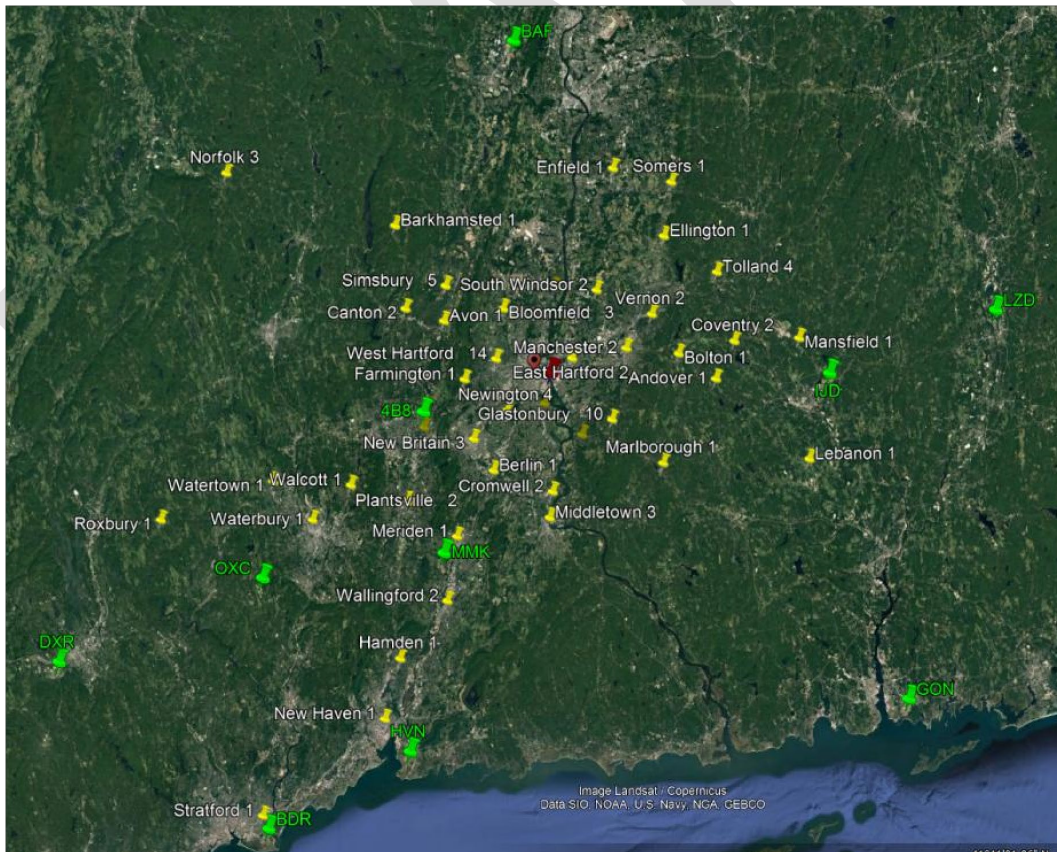


Figure 6: Aircraft Owner Locations

**Table 15
BASED AIRCRAFT OWNER DRIVING DISTANCES AND TIMES**

From Listed City/Town to Airport (HFD)	Shortest Distance (miles)	Peak-Hour Drive Time (minutes)	Off-Peak-Hour Drive Time (minutes)
Enfield	22	32	27
Somers	25	35	33
Lebanon	32	39	37
Mansfield	26	36	34
Norfolk	39	73	58
Stratford	52	54	51
Roxbury	52	60	56

Table 15 suggests that based aircraft owners are willing to drive some 50 miles for almost an hour during peak travel periods to the Airport. Their choice of the Airport may be due to the facilities and services at the Airport and otherwise unavailable at an airport located more in proximity to their point of origin. Notwithstanding, Figure 3 highlights that the majority of the based aircraft owners are located within a 30-minute drive of the Airport, which user characteristic is shared by most general aviation airports located in an urban setting in the country.

The allocation of aircraft currently based at the Airport to each of the area airports was unconstrained by the extent of airfield or terminal area facilities available. If a sufficient demand for basing at an area airport could be demonstrated, the ability of that airport to accommodate that demand was evaluated and the requisite improvements noted including an estimated implementation cost. No based aircraft were allocated to Bradley International Airport (BDL) because of its airline service role in the region and its defined requirement for a general aviation reliever airport. Additionally, only those area airports owned by a public entity were considered to accommodate the repositioned aircraft. Each of these airports are grant-obligated to remain open for considerable periods of time, most about 20 years. Conversely, the longevity of privately-owned airports cannot be assured. Nonetheless, it is possible that some of the owners of the repositioned aircraft may choose to base at a privately-owned airport.

Nearly all of the aircraft based at the Airport have runway length requirements that can be met at any of the area airports with the possible exception of Danielson Airport, which would be chosen for repositioning only by the lightest category of aircraft. However, given its location within the region with respect to that of the based aircraft owners, the Danielson Airport is not expected to be a target for aircraft repositioning. It is unlikely that based aircraft would reposition to Danbury Municipal Airport (DXR) and Groton New London Airport (GON) given their distances from the points of origin. Notwithstanding the above factors, based business jets and multi-engine aircraft can be expected to prefer to reposition to Waterbury Oxford Airport (OXC), Groton New London Airport (GON), or Westfield Barnes Regional Airport (BAF) regardless of the driving distance and time requirements for reasons of runway length and instrument approach procedure availability.

Figure 7 illustrates a possible repositioning of the aircraft based at the Airport to the area airports. Figure 8 through Figure 14 present these allocations by individual airport. These are not definitive allocations as there are many reasons why an aircraft owner may choose one airport over another. However, it presents a reasonable allocation of based aircraft for planning purposes. The 5 Connecticut State Police helicopters and fixed wing aircraft could reposition to Robertson Field (4B8), Windham Airport (IJD) or Bradley International Airport (BDL) given their more central Connecticut locations. Windham and Bradley International provide aeronautical use advantages because they offer a dual runway system, although the Class C airspace environment and use of the Airport by scheduled airline aircraft may present challenges when responding to emergency situations. The 2 Civil Air Patrol aircraft could reposition to most any airport and are assigned to the Windham Airport (IJD) in this allocation scenario.

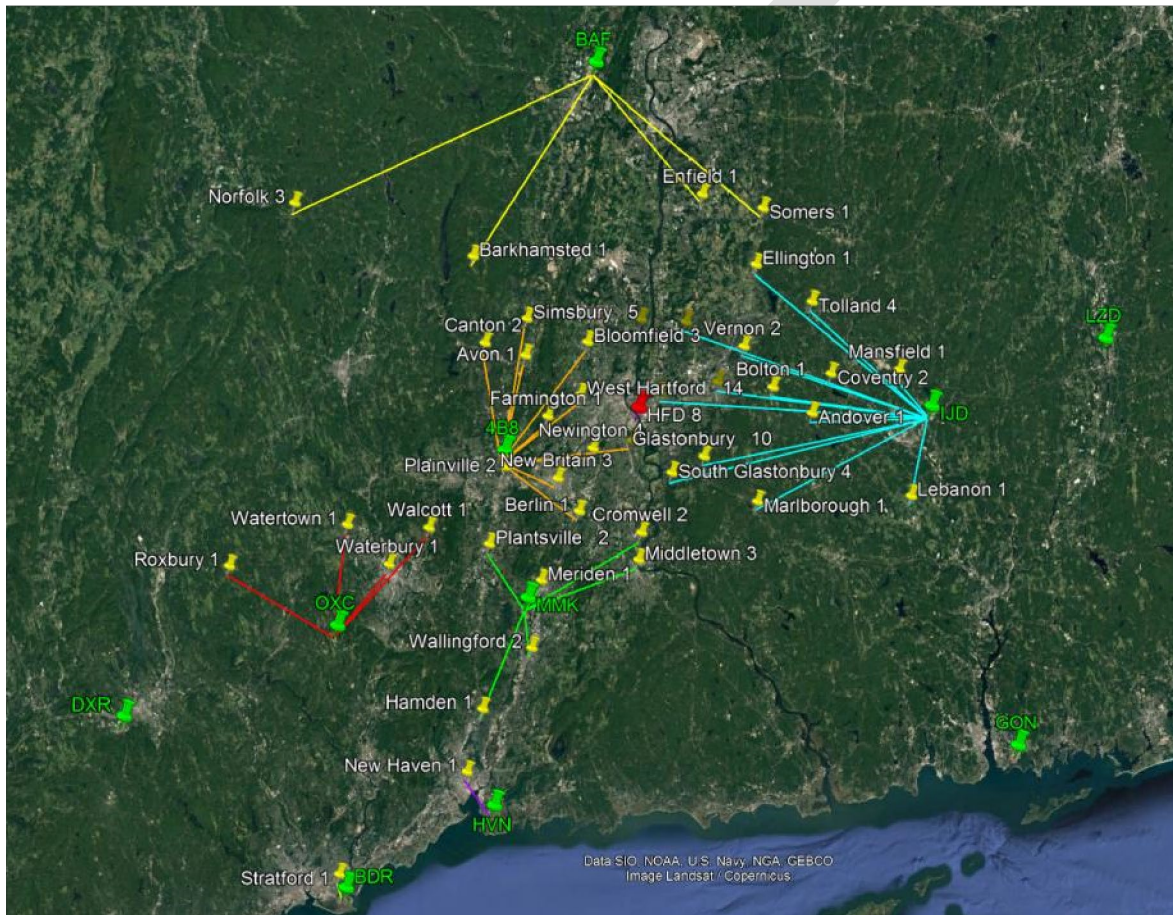


Figure 7: HFD Based Aircraft Allocation to Area Airports

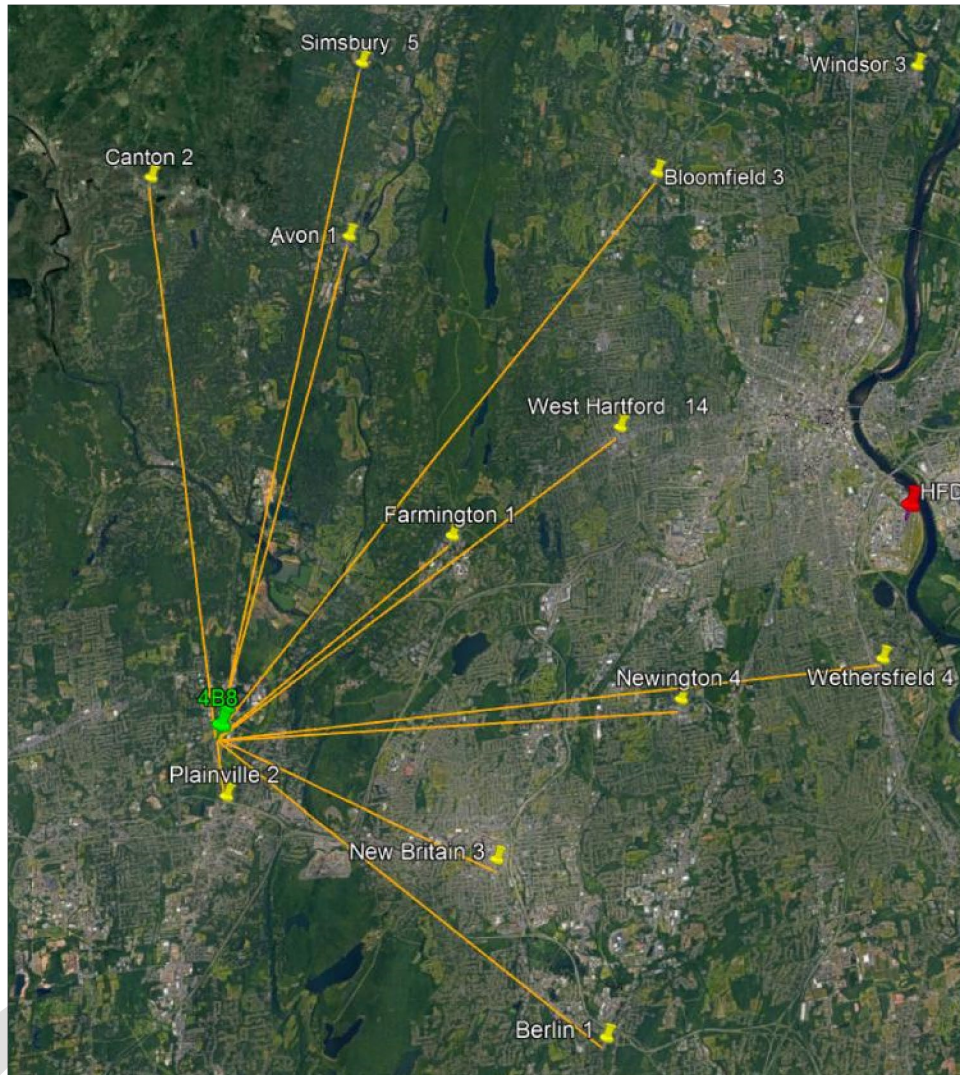


Figure 8: Aircraft Allocation to Robertson Field (4B8)

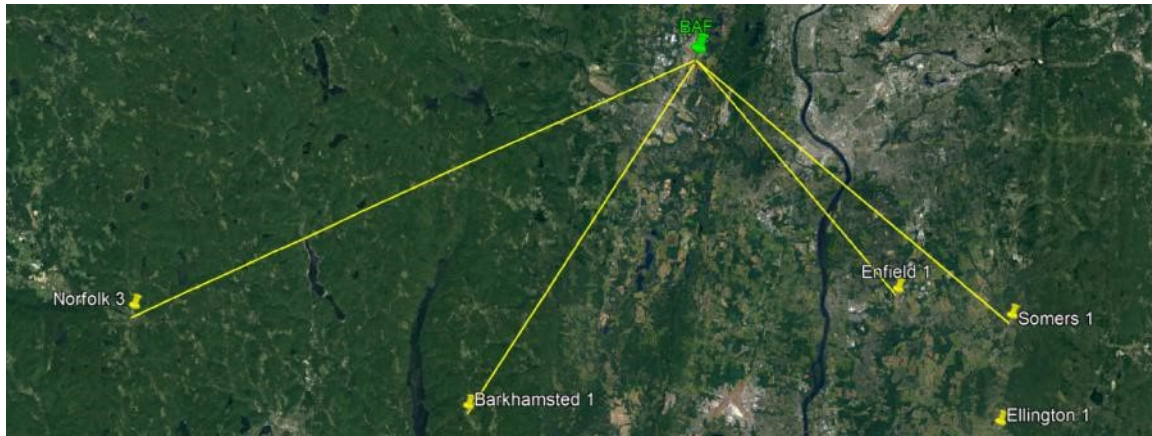


Figure 9: Aircraft Allocation to Westfield Barnes Airport (BAF)

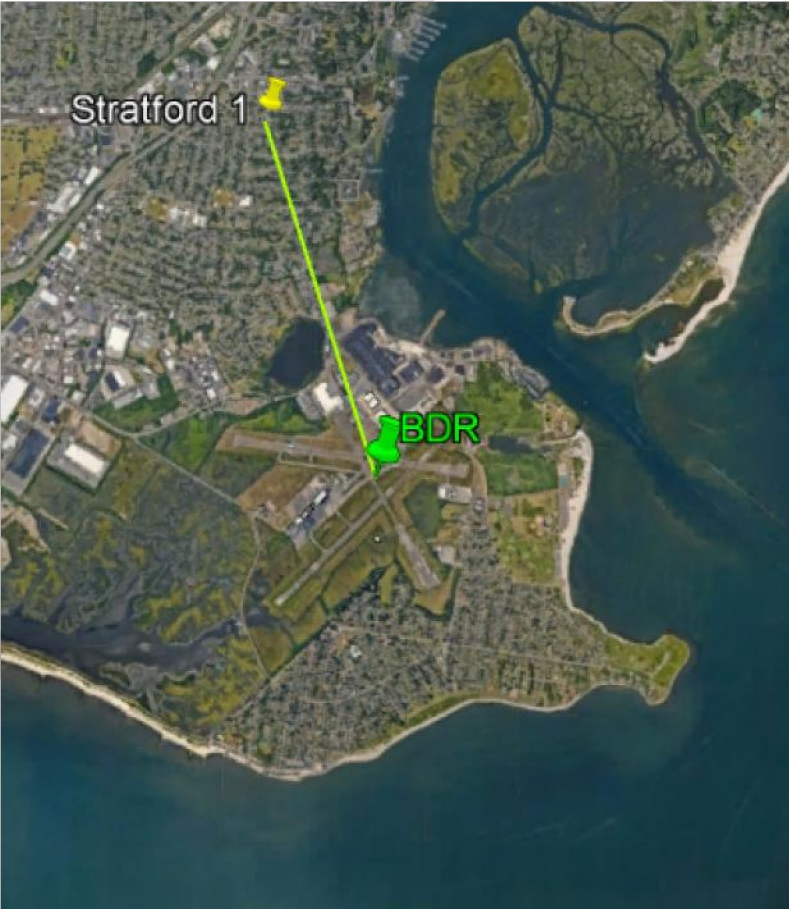


Figure 10: Aircraft Allocation to Bridgeport Sikorsky Airport (BDR)

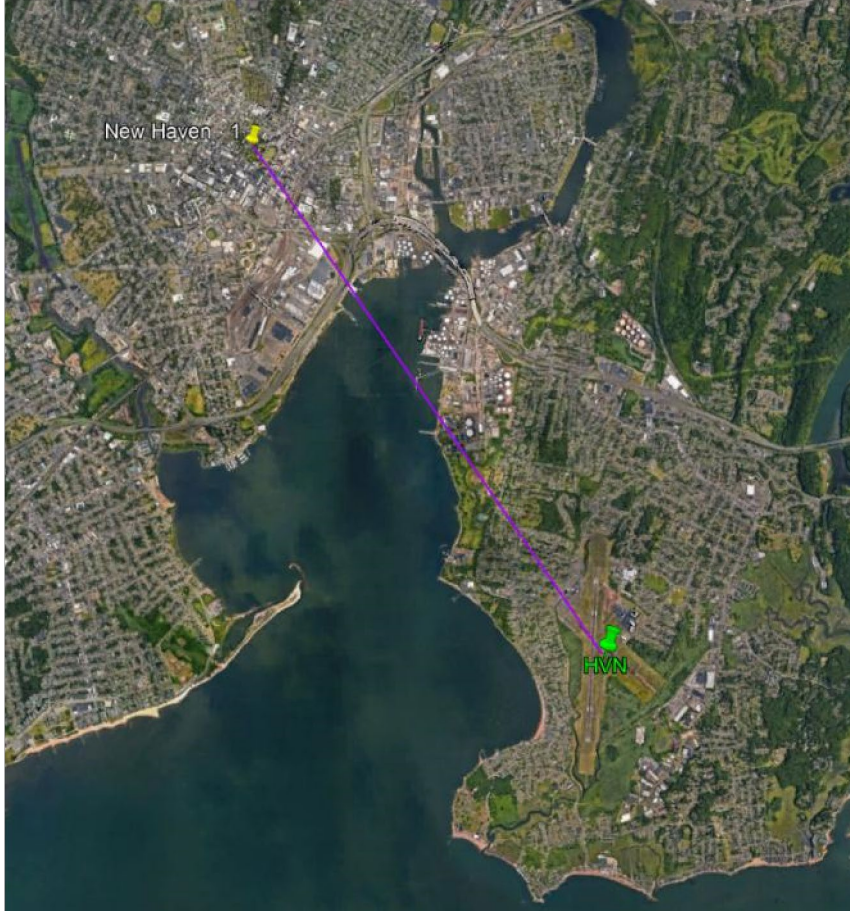


Figure 11: Aircraft Allocation to Tweed New Haven Airport (HVN)

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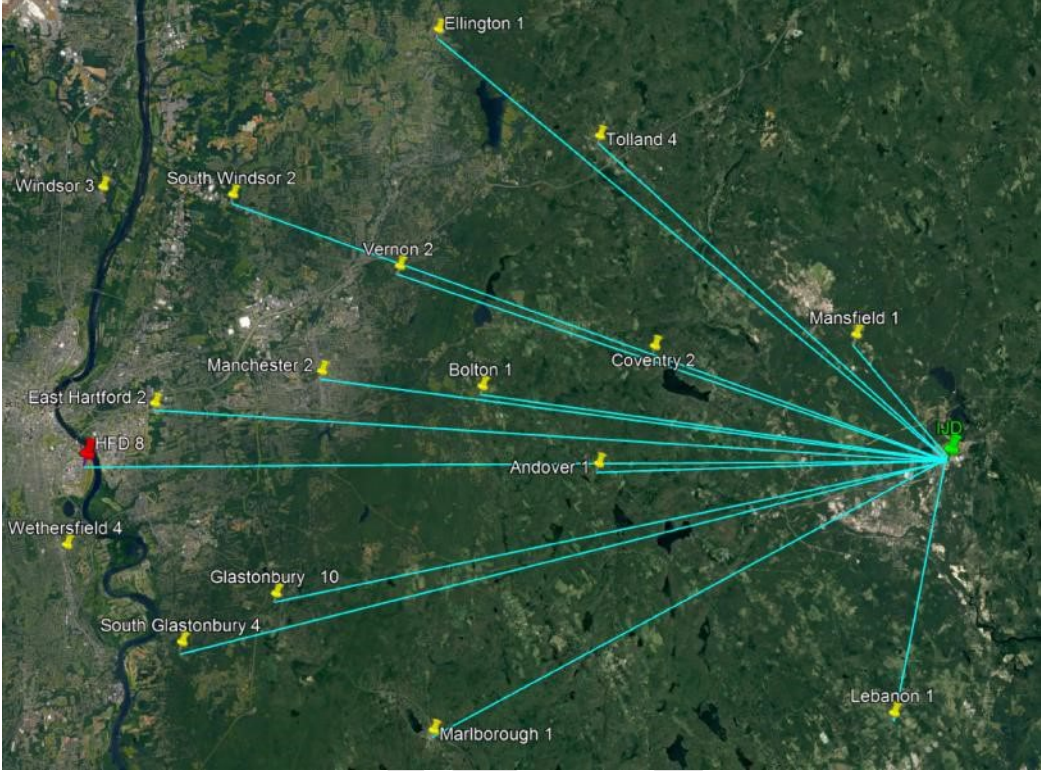


Figure 12: Aircraft Allocation to Windham Airport (IJD)

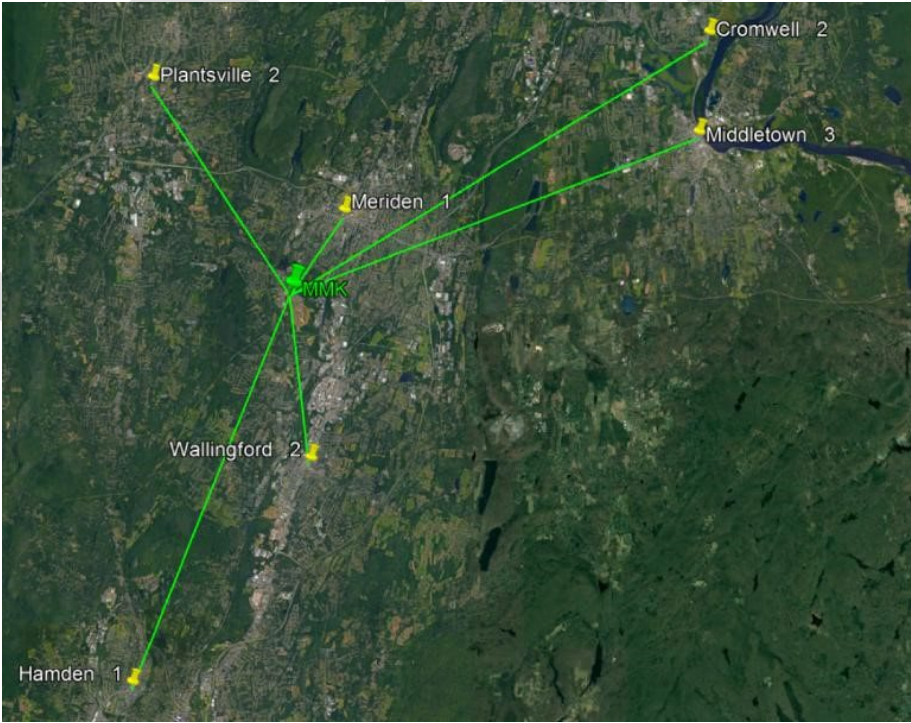


Figure 13: Aircraft Allocation to Meriden Markham Airport (MMK)

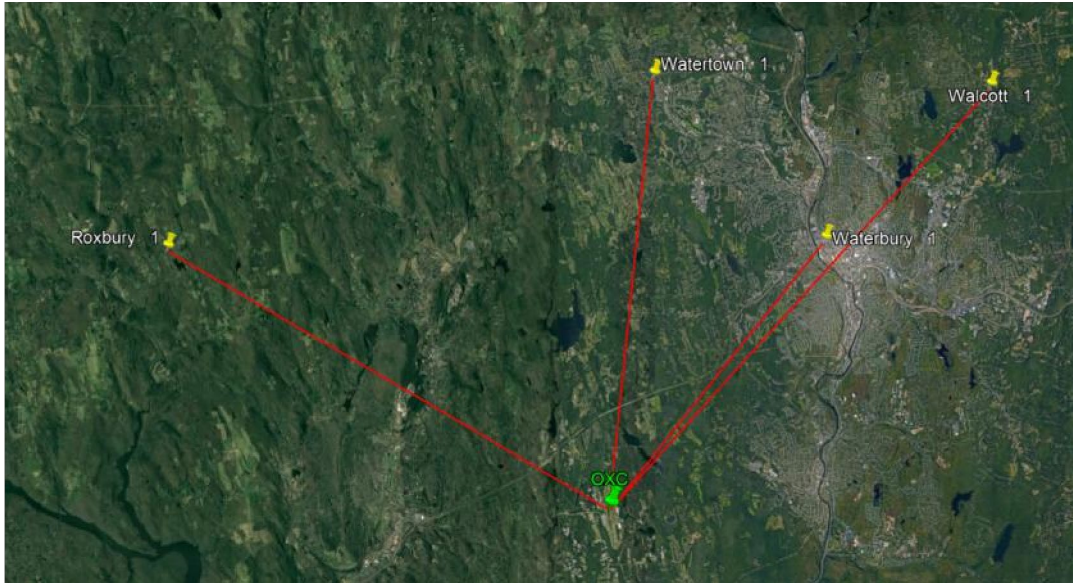


Figure 14: Aircraft Allocation to Waterbury Oxford Airport (OXC)

Table 16 presents the potential number of aircraft that could be repositioned to each of the area airports and the planned capacity for based aircraft at those airports. An assumption is made that all repositioned aircraft will require hangar storage to the extent possible within the planned capacity of each area airport.

Table 16 POTENTIAL ALLOCATION OF REPOSITIONED AIRCRAFT BASED AT HARTFORD BRAINARD							
Receiving Airport	Based Aircraft (Tiedown / Hangar)						Shortfall
	Current Based Aircraft*		Repositioned Aircraft Demand*		Planned Capacity		
Robertson Field (4B8)	28	34	0	40	46	74	None
Westfield Barnes (BAF)	18	88	0	6	20	108	None
Bridgeport Sikorsky (BDR)	56	55	0	1	66	110	None
Tweed New Haven (HVN)	15	12	0	1	35	60	None
Windham (IJD)	47	14	30***	12***	50	26	12 tiedowns****
Meriden Markham (MMK)	21	50	0	11	62	80	None
Waterbury Oxford (OXC)	31	95	0	4	60	117	None
* Excludes 19 flight school aircraft							
** All existing hangar spaces are filled							
*** Includes 8 aircraft to be repositioned from Hartford Brainard							
**** Of the 27 tiedown spaces required, 15 spaces are currently vacant							

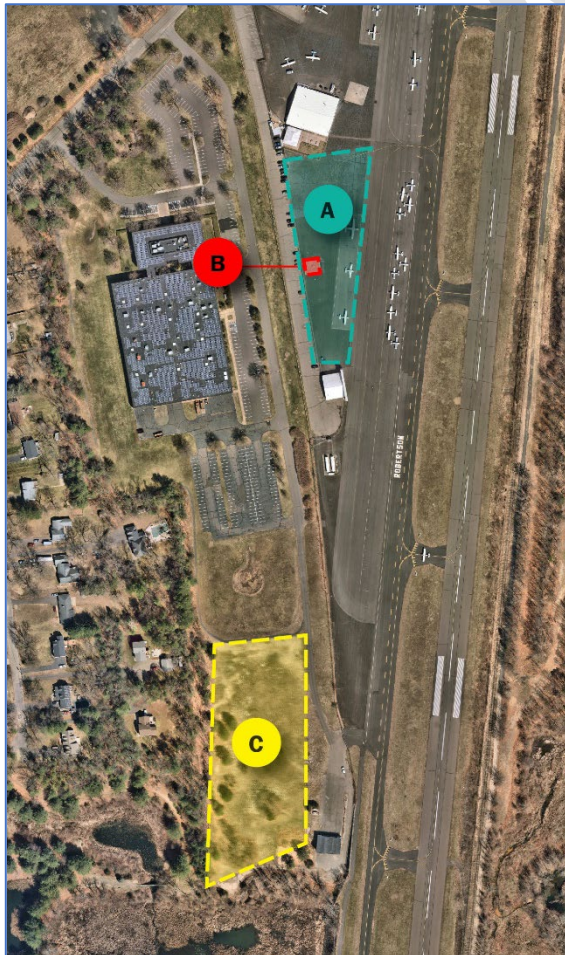
Table 14 also highlights that the repositioning of based aircraft to the Windham Airport (IJD) will require the use of tiedown spaces because the airport is physically unable to meet the total hangar space demand. The remaining airports have excess planned capacity to meet the repositioning aircraft demand, and some have unused tiedown spaces currently available. This demand/supply situation should self-regulate as some aircraft owners may accept to use another area airport

other than the one presented in this allocation scenario. One or more of these airports may be found to be suitable for the flight schools to re-establish their businesses.

AREA AIRPORT CAPITAL IMPROVEMENTS AND DEVELOPMENT COSTS

As presented in Table 14, there will be a need to allocate a total of 75 new hangar and 12 tiedown spaces at the area airports. There are various hangar types that can be constructed to accommodate this demand and the final type is governed by the available open space and its integration with the existing terminal area facilities and aircraft ground movement flows.

With the exception of the Windham Airport, the remaining area airports have expansion plans to accommodate the repositioned demand. Because Windham Airport can only accommodate a maximum of 26 hangar spaces, 30 of the repositioned aircraft will need to be in tiedowns, for which there is currently 15 vacant tiedown positions available. The inability to meet the total hangar space demand may 'invite' aircraft owners to consider a different airport to which they reposition their aircraft, and the associated development costs would be assigned to that airport. Although the majority of the airports have the planned capacity to accommodate these aircraft as noted above, the cost to do so as a result of the closure of the Hartford Brainard Airport should be absorbed. Land areas for development of the terminal area facilities at Robertson Field, Windham Airport and Meriden Markham Airport are presented in Figure 12 through Figure 14 as these facilities are to receive relatively more of the repositioned aircraft than the remaining airports, each of which have existing and vacant land areas readily available.



As illustrated in Figure 15, some 4.7 acres of Town-owned land adjacent to Robertson Field can be developed to meet the increased demand for hangar storage as indicated in Area C.

Area B provides an expanded terminal area for aircraft tiedowns and possible additional T-hangar units. Development of Area A is best facilitated by relocating the planned AWOS installation (Area B) to a more appropriate location.

Figure 15: Development Areas at Robertson Field (4B8)

Figure 16 indicates that additional T-hangars (12 units) may be constructed in Area A that is adjacent to a set of similar facilities.

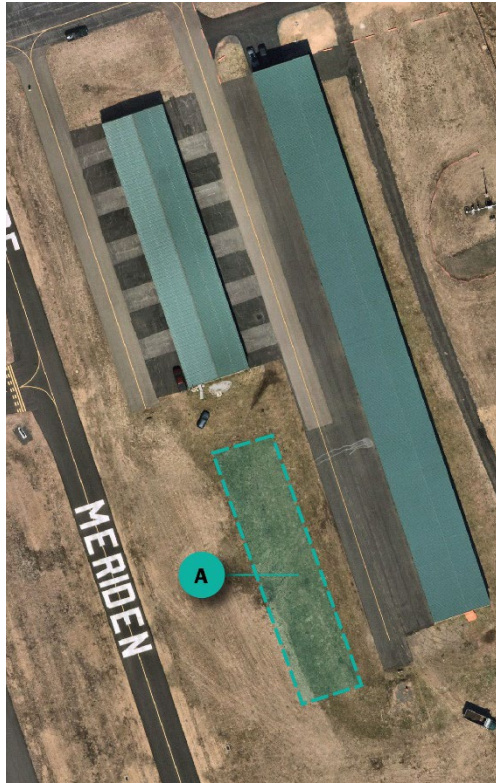


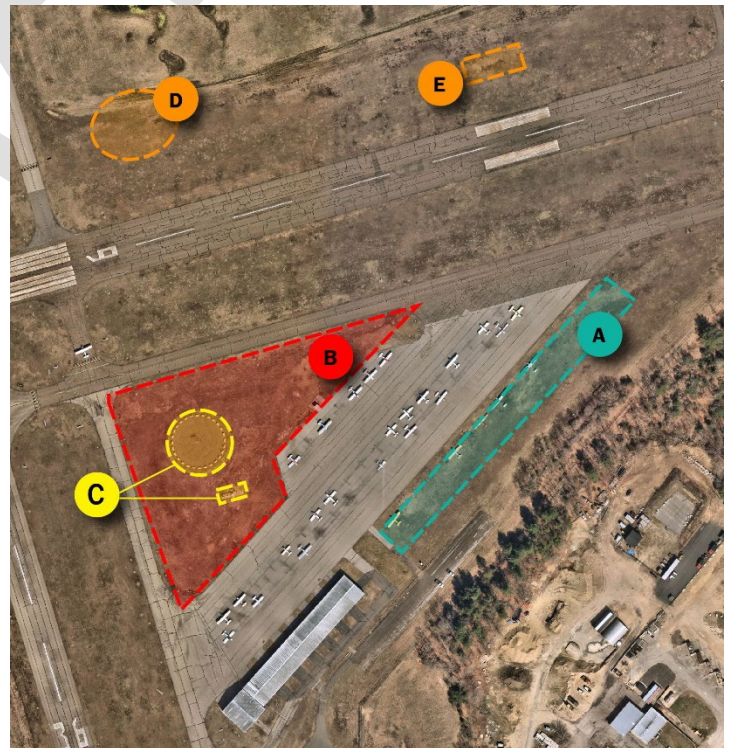
Figure 16: Development Area at Meriden Markham Airport (MMK)

Figure 17 highlights the land areas available for T-hangar and aircraft tiedown spaces at the Windham Airport.

Area A may be developed for T-hangars (26 units)

Area B is reserved for new aircraft tiedown spaces to complement those in similar use. This will require the relocation of the segmented circle and wind sock and AWOS that are presently located in Area C to Area D and Area E, respectively on the north side of Runway 9-27.

Figure 17: Development Areas at Windham Airport (IJD)



On a conservative basis, the development costs assume that new tiedown spaces (pavement) will be required even if existing open space is available or to allow for the possible need to rehabilitate those pavements. Each airport will, however, require new hangar units to store the allocated repositioned aircraft inasmuch as the existing hangar storage status is essentially full.

Table 17 presents the development costs for each of the area airports to receive a portion of the repositioned aircraft. The costs to accommodate the repositioned aircraft are to be paid through the sale of the Hartford-Brainard Airport and its physical assets and will not require local matching funds.

Receiving Airport	Required Additional Spaces		Total Development Cost (\$)
	Tiedown	Hangars	
Robertson Field (4B8)	0	40	3,450,000
Westfield Barnes (BAF)	0	6	520,000
Bridgeport Sikorsky (BDR)	0	1	90,000
Tweed New Haven (HVN)	0	1	90,000
Windham (IJD)	15	12	1,860,000
Meriden Markham (MMK)	0	11	950,000
Waterbury Oxford (OXC)	0	4	350,000
Total	15	75	7,310,000

There are other costs associated with the repositioning of the aircraft based at the Airport. The FAA will require repayment of the unamortized value of past federal grants from capital projects (refer to Table 19). Dependent on the terms of the lease agreements with Airport tenants and the unamortized status of their capital project investments, there may be costs associated with terminating existing leases, business interruption costs, reimbursement of repositioning costs incurred by aircraft owners, and others that may arise. All such costs are also to be paid through the sale of the Airport land resource and its physical assets.

ENVIRONMENTAL IMPACT CONSIDERATIONS

Aircraft Noise

The repositioning of aircraft to the area airports can introduce environmental impacts on land uses on and in the vicinity of those airports. The primary impact is associated with potentially increased levels of aircraft noise. Those area airports that may see a relatively large influx of repositioned aircraft include Robertson Field (4B8), Meriden Markham Airport (MMK) and Windham Airport (IJD). When the increase in based aircraft is less than 10 percent, environmental impacts are regarded as de minimis.

Aircraft noise impacts were evaluated using the FAA Area Equivalent Method (AEM). The AEM is a screening tool that identifies the change in the area of an aircraft noise contour due to a change in the number of aircraft operations as defined by a landing-takeoff-cycle (two aircraft operations equals one cycle). The annual 65Ldn (day-night average sound level) contour was

evaluated in the analysis, which is the industry-recognized threshold for residential land use. The contour considers daytime and nighttime levels of activity (landing and takeoff cycles -one cycle equals one landing and one takeoff) by aircraft type to account for receivers' reaction to noise during those periods of the day that are relatively more quiet. Nighttime is defined as between 10:00 p.m. and 7:00 a.m.

Research by the FAA and the scientific industry has shown that increases to the area of the contour in excess of 17 percent may be considered to represent an annoyance to people on the ground in residential land use. Inputs to the AEM model included the number of landing and takeoff cycles by a mix of single-engine piston aircraft and an allowance for 10 percent of the flight activity to occur during nighttime hours. All aircraft operations were assigned to the primary runway at each airport, which is conservative allocation at Windham Airport that has a two-runway system. Application of the AEM model yielded the results presented in Table 18.

Table 18 AIRCRAFT NOISE IMPACTS REVIEW				
Airport	Contour and Airport Property Area (square miles)			Airport Property
	Current 65 Ldn	Future 65 Ldn	Increase (%)*	
Robertson Field	0.068	0.076	12.33	0.06
Windham Airport	0.044	0.067	54.04	0.44
Meriden Markham Airport	0.094	0.103	9.57	0.25
* Percentage values are as generated by the model and may not be equivalent to a strict calculation result				

The data indicate that Windham Airport will exceed an increase in the area of the 65 Ldn contour in excess of 17 percent. Given the area occupied by Windham Airport, the existing and future noise contours are within the property line. Notwithstanding, land uses to the east and west of the primary Runway 9-27 are in open space and industrial use, respectively. The increase in the 65 Ldn contour areas at Robertson Field and the Meriden Markham Airport do not exceed the 17 percent threshold, in addition to being nearly within their property boundaries. As a point of comparison, the current aircraft activity at the Hartford Brainard Airport generates a 65 Ldn contour of some 1.53 square miles, when all the landings are made on either Runway 2 or Runway 20. At the 20-year level of aircraft activity, the 65 Ldn contour increases to encompass about 2.41 acres. The Airport has an area of 0.31 square miles, and thus a large portion of the 65 Ldn contours overly areas adjacent to the Airport in the flight path. Of those areas, residential land uses are concentrated to the northeast and southwest of the Airport, which have generated noise complaints from residents in these areas.

Air Quality

Connecticut has persistently been designated nonattainment for national ambient air quality standards (NAAQS) for ozone. Currently each county in the state does not meet the 8-hour standard for ozone. Nonattainment is mainly due to transport of pollutants from the New York metropolitan area reacting to form ozone as they travel to and across Connecticut. Connecticut

Department of Energy and Environmental Protection has been working with neighboring states and the U.S. Environmental Protection Agency to reduce local and regional emissions that cause ozone.

The far majority of the aircraft operating at the Hartford Brainard Airport are piston engine driven and fly at low altitudes where their impact on ozone levels are less pronounced than those generated by jet engine aircraft that operate at higher altitudes, typically between 26,000' above mean sea level to 43,000' above mean sea level. It is at these higher altitudes where emission of ozone gases can have an impact on global warming.

The repositioning of aircraft to the area airports in the event that the Hartford Brainard Airport closes is essentially a status quo outcome given that the entire state is classified as nonattainment for ozone.

Water Quality

As aircraft reposition from the Hartford Brainard Airport to the area airports, there will be an increase in impervious ground areas associated with the construction of hangars and tiedown pavements. Should the Airport remain open, expansion of these terminal area facilities have an equivalent impact on surface water runoff volumes. Construction contract specifications can be effective in assuring that impacts to water resource areas are mitigated.

ADVANCED AIR MOBILITY AND VERTIPOINT DEVELOPMENT

Closure of the Airport does not preclude the establishment of a vertiport facility in conjunction with industry initiatives to develop the advanced air mobility (AAM) concept. The siting of the vertiport can be integrated with other uses of the Airport land resource. Similarly, maintaining a helicopter operation in support of emergency response by units of the local, state and federal agencies may also be retained.

FINDINGS AND CONCLUSIONS -- CLOSURE OF THE HARTFORD BRAINARD AIRPORT

In the event that the Hartford Brainard Airport closes, there is a need to reposition 138 based aircraft and relocation of businesses providing aeronautical services. There are several publicly-owned area airports that can accommodate these aircraft and potentially the service providers based on the planned long-term development programs at these airports. In one instance, Robertson Field, there will be need to repurpose some 4.7 acres of undeveloped adjacent land owned by the Town of Plainville, which is also the owner of the Field, to provide the requisite terminal area facilities (aircraft hangar and tiedown spaces).

The aircraft repositioning scenario places the majority at the Robertson Field, Windham Airport and Meriden Markham Municipal Airport. It is recognized that aircraft owners have the ultimate decision making in the repositioning of their aircraft and, thus, the repositioning scenario should be considered as an initial determination for planning purposes.

Major economic and financial impacts will be borne by tenants displaced from the Hartford Brainard Airport. These and other costs will be absorbed through the sale and disposition of the assets of the Airport in accordance with federal guidelines related to grant-obligated airports. The costs for developing new terminal area facilities at the area airports and those receiving a relatively smaller number of repositioned aircraft is estimated at \$7.3 million.

Environmental impacts associated with increased air traffic levels at the receiving area airports are assessed as minimal, including that associated with aircraft noise given that the majority of the repositioned aircraft are in the small, single-engine category.

Depending on how the Airport land resource is repurposed, the ability to maintain helicopter operations as well as introduce AAM and vertiport initiatives can be retained.

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CHAPTER 4 -- REGULATORY ELEMENTS FOR AIRPORT CLOSURE

This chapter addresses the issues associated with removing the Hartford-Brainard Airport from the National Plan of Integrated Airport Systems (NPIAS) and releasing the CAA from obligations associated with previous federal funding for planning and capital improvement grants. Findings and conclusions are presented that provide a rationale basis for such actions and which also support and benefit aviation in the community.

PAST GRANT HISTORY

The federal grant to airports program began in 1946 and has evolved over time to meet the changing dynamics of the industry. However, each federal grant funding program has common features with respect to the use of the funds and the obligations of the grant recipient (airport sponsor.) FAA Order 5190.6B, FAA Airport Compliance Manual, provides a review of issues associated with the current and past grant programs and the potential release of sponsors from grant obligations and assurances, which is the key matter of interest in this chapter. Pertinent sections from this source document are presented in the sections that follow.

Under the various federal grant programs, the sponsor of a project agrees to assume certain federal obligations pertaining to the operation and use of the airport. These federal obligations are embodied in the application for federal assistance as sponsor assurances. The federal obligations become a part of the grant offer, binding the grant recipient when it accepts federal funds for airport development. Since 1946, the FAA has administered three grant programs for development of airports, each of which are applicable to grants awarded to the then applicable sponsor of the Airport:

- The Federal Aid to Airports Program (FAAP) pursuant to the Federal Airport Act of 1946, as amended, until repealed in 1970.
- The Airport Development Aid Program (ADAP) pursuant to the Airport and Airway Development Act of 1970 (1970 Airport Act), as amended, until repealed in 1982.
- The Airport Improvement Program (AIP) pursuant to the Airport and Airway Improvement Act of 1982 (AAIA), as amended. (See Title 49 U.S.C. § 47101, et seq.). Grants issued to airports under Public Law 117-58-Infrastructure Investment and Jobs Act referred to as the Bipartisan Infrastructure Law (BIL) contained the same sponsor assurances as the AIP program.

Occasionally, there are time-limited special funding programs authorized by Congress to provide federal grants to airports for a specific purpose such as economic development or recovery. These have included: American Recovery and Reinvestment Act of 2009 (ARRA) (Public Law 111-5); Coronavirus Aid, Relief, and Economic Security (CARES) Act (H.R. 748, Public Law 116-136), Coronavirus Response and Relief Supplemental Appropriation Act (CRRSAA) (Public Law 116-260), American Rescue Plan Act of 2021 (ARPA) (H.R. 1319, Public Law 117-2). These grants were generally time limited and the specific grant agreement should be reviewed to determine the federal obligations associated with the grant.

In addition, the FAA has on occasion issued additional grant programs. These were primarily focused national economic recovery (e.g., Coronavirus Aid, Relief, and Economic Security Act (CARES Act), American Recovery and Reinvestment Act (ARRA), Coronavirus Response and

Relief Supplemental Appropriations (CRRSA)) and contained certain federal obligations for the life of the grant.

The Airport has received federal grant funding only from the AIP program, which is either awarded as entitlements or discretionary grants. Federal obligations of the airport sponsor relating to the use, operation, and maintenance of the airport remain in effect throughout the useful life of the facilities developed under the project, but not to exceed 20 years, unless otherwise defined in the grant assurances or special conditions of the grant. That is, the airport sponsor is obligated to operate and maintain the airport for this time period and comply with all applicable grant assurances. Grants awarded for planning and environmental assessment projects are not subject to these requirements. Table 19 presents the history of grants awarded to the then Airport sponsor in the past 20 years. In the event of Airport closure, the CAA is obligated to return the unamortized value of any grant to the FAA as provided in the grant agreement, which currently totals nearly \$1.9 million.

Table 19 FEDERAL GRANT HISTORY				
Grant Number	Project	Grant Award (\$)	Grant Period	Unamortized Grant Value (\$)
011-2003	Rehabilitate apron	1,050,424	20 years	52,521
002-2006	Update State Airport System Plan	162,165	Not applicable	0
012-2006	Rehabilitate apron	1,389,832	20 years	277,966
003-2007	Remove obstructions	1,332,549	Not applicable	Not applicable*
004-2009	Crack sealing	100,178	Not applicable	Not applicable*
005-2010	Airport Business / Development Plan	285,000	Not applicable	0
006-2010	Crack sealing	95,000	Not applicable	Not applicable*
015-2011	Update Airport Master Plan	628,520	Not applicable	0
014-2011	Acquire snow removal equipment	470,250	10 years	0
016-2012	Construct maintenance building	2,004,490	40 years	1,503,368
009-2014	Update miscellaneous studies**	139,910	Not applicable	0
010-2014	Environmental studies**	536,481	Not available	0
011-2015	EA perimeter fencing	66,426	20 years	43,177
007-2020	Obstruction analysis update	101,000	Not applicable	0
Total		8,362,225		1,877,032
* Not applicable per grant agreement				
** For the CAA general aviation airports				
Source: CAA and FAA				

RELEASE FROM GRANT OBLIGATIONS AND ASSURANCES

A “release” is defined as the formal, written authorization discharging and relinquishing the FAA’s right to enforce an airport’s contractual obligations. In some cases, the release is limited to releasing the sponsor from a particular assurance or federal obligation. When the duration of the physical useful life of a specific grant improvement ends, the sponsor is automatically released

from its federal obligations for that grant without any formal action from the FAA. The physical useful life of such a facility extends to the time it is serviceable and useable with ordinary day-to-day maintenance.

In the event that the Airport is to close in its entirety, the CAA as airport sponsor would be seeking a release from all obligations in order to utilize the Airport land resource for other use. From the perspective of the FAA, its primary concern is to engage in programs that benefit civil aviation, and when addressing requests for a release from obligations. In this regard, the major considerations address:

- The future growth in operations
- Capacity of the Airport
- Interests of aeronautical users and service providers
- Local, regional and national interests of the Airport
- The reasonableness and practicality of the sponsor's request
- The effect of the request on needed aeronautical facilities
- The net benefit to civil aviation
- The compatibility of the proposal with the needs of civil aviation

These issues and considerations are addressed in the sections that follow.

Future Growth in Operations

Chapter 3 presents the anticipated growth in aviation activity at the Airport. Moderate increases in the number of based aircraft and aircraft operations are anticipated during the 20-year forecast horizon. The Airport is anticipated to maintain its general aviation reliever status with a similar distribution of aircraft users and types of aircraft operations.

Capacity of the Airport

Chapter 4 highlights the airfield and terminal area facility capacities and these are shown to be adequate to meet the projections of aircraft activity. Future improvements to the airfield component could yield a more attractive facility for the larger segment of the general aviation business jet fleet. These include a possible extension of Runway 2-20 to achieve a 5000' runway length and upgrades to the instrument approach procedures to provide for vertical navigation guidance. However, the Airport will continue to be in noncompliance with applicable facility design standards, notably the ROFA and RSA associated with Runway 2-20. This will necessitate the application of declared distances should the runway be extended.

Overall, the Airport is considered physically constrained and has nearly reached the limit of its expansion potential. This could drive future growth to other airports or establish the need for the CAA or another entity to consider constructing a reliever airport with substantially more operational capability at a new location, which could be in another state.

Interests of Aeronautical Users and Service Providers

Opportunity for Airport users and service providers was provided through a series of public information meetings, publication of various reports addressing the current and future aeronautical use of the Airport, receipt and review of unsolicited written public input, and distribution and review of airport user and service provider surveys.

Aeronautical Users

Pilots and aircraft owners that base at the Airport have expressed great interest, both verbally and in written form, to maintain and improve the Airport. The Airport is has operated and improved over time at the current site over the past 102 years and was the training facility for many of the current based pilots. These aeronautical users emphasized the continued need for the Airport to be available for training new pilots and aircraft mechanics, particularly given the publicly announced national shortage of persons with these skills, as well as to meet their current flight activity requirements. They stressed the convenience of the Airport to the Hartford business center, its reliever status to Bradley International Airport, and the availability of an air traffic control tower. Additional support for the Airport was presented with regard to the businesses that operate at the Airport and provide a wide range of services to the aviation public.

Service Providers

Businesses based at the Airport and providing aeronautical services were supportive of the Airport and its direct link to the services that they provide to aeronautical users. Closure of the Airport could result in the sale of their business and/or inventory to others or possible relocation to another airport where they may already have a presence. Such actions are dependent on their competitive assessment of the market for the services they provide. It is possible that some businesses would opt to relocate out of the state. Those businesses not requiring access to the airfield could continue to operate at the Airport. This may apply, for example, to the activity conducted at the CT Aero Tech School for Maintenance Technicians, provided that they have access to conduct aircraft ground runup and taxi operations.

Local, Regional and National Interests of the Airport

The Airport provides access to the air transportation system for the aircraft users based at the Airport, some of which have air missions that require emergency response. General aviation aircraft operators have reasonable driving time access to a number of area airports that offer comparable and in some cases better facilities and amenities.

Several city, state and federal agencies operate at the Airport and are housed in the facilities at the north end of the Airport. These agencies are grouped in the same building structure that provides office space and hangar storage for reasons of their collective missions and the synergies that exist among their operations. Those with an air mission include Connecticut State Police, Civil Air Patrol, City of Hartford Police Department (drones), and possibly the Federal Bureau of Investigation and United States Department of Homeland Security.

The aircraft based at the Airport can operate without restriction in terms of their runway length requirements. The Connecticut State Police is transitioning to place more reliance on larger fixed wing aircraft that are capable of using the available runway length without restriction.

Users at the facility have expressed some concern that the design of the structure is somewhat inefficient and that the shared use of the hangar space among aircraft and ground vehicles presents a higher than acceptable potential for damage as these assets are moved in and out of the hangar. Their operations may be better suited at a new facility that offers an air transportation capability.

Emergency transport of patients and human organs (medevac) is primarily provided by Life Star using a total three rotary wing aircraft. One helicopter is based at the Midstate Medical Center in

Meriden and at The William W. Backus Hospital in Norwich. The third helicopter is based at the Westfield Barnes Airport. Their use of the Hartford-Brainard Airport is primarily to refuel as that capability is available at the two hospitals at which they are based.

The Reasonableness and Practicality of the Sponsor's Request

An assessment of the reasonableness and practicality of closure of the Airport and the concurrent release from federal obligations must consider the following key facts:

1. The Airport is located in a region served by other publicly-owned, general aviation airports that offer comparable services or whose facilities and land area could be expanded to meet increased demand levels consistent with their airport master and layout plans. Some of the area airports offer improved aircraft operational capability and are owned and operated by the CAA.
2. The facilities, services, and rates and charges at the area airports are competitive and comparable to those offered at the Airport.
3. The CAA is obligated under the applicable grant agreements to operate the aeronautical and common use areas of the Airport. That obligation does not extend to providing services or facilities not established with federal grant funds such as aircraft maintenance, flight training, for-hire air transport, fuel and hangar storage.
4. Current based aircraft owners are located within NPIAS criteria driving distances (20 s.m.) or travel times (up to 30 minutes) to other area airports.
5. The Airport is designated as a reliever airport to Bradley International Airport (BDL) in the NPIAS, as is Robertson Field (4B8), which can be improved and expanded in physical area to accommodate a good percentage of the repositioned aircraft.
6. The area airports can absorb the loss of services and facilities at the Airport with primary capital investments in hangar storage facilities, which may be funded through public financing and offset by rental income and increased fuel and other servicing fees, or by the private sector.
7. The sale and closure of the Airport can realize an influx of funds that can be redistributed to other airports in the region, state or nation as determined by the FAA for needed capital improvements. Funds from the sale of the Airport may be allocated to the area airports to construct hangar facilities, which typically are low priority projects in the allocation of FAA Airport Improvement Program grant funds. This represents a more effective use of monies to support and foster airport and aviation growth.
8. The Airport has not been able to operate financially on a self-sustaining basis and this is expected to continue in the future. Capital improvements to maintain runway, taxiway, apron pavements and lighting systems, and structures will rely on continued federal and/or state funding assistance, or from other CAA revenue-generating sources
9. Environmental impacts (aircraft noise and air and water quality) are not anticipated to significantly change the character of those area airports that receive a portion of the repositioned based aircraft.

Effect of the Request on Needed Aeronautical Facilities

The closure of the Airport and its release from federal obligations will not generate an adverse impact on needed aeronautical facilities. Area airports have existing capacity to absorb the user and activity levels experienced at the Airport now or anticipated in the future. The regional demand for hangar storage and other terminal area facilities can be provided at these area airports. Terminal and visual landing aids at the Airport can be repositioned at the area airports.

Net Benefit to Civil Aviation

Addressing the subject of net benefit to civil aviation necessitates reflection on the role of airports on a local, regional and state basis. The FAA has promoted the development of airport plans at these three levels for many years. These plans roll up to a national plan termed the National Plan of Integrated Airport Systems (NPIAS.) When aviation was in a growth mode, especially the general aviation segment, the FAA anticipated large investments in capital projects to keep pace with the demand. However, Congressional appropriations have historically not met these levels, nor are future funding programs currently under discussion able to fill the gap. Although the FAA has done an excellent job in managing the allocation of the grant funding appropriation to general aviation airports by state, some of which is based on formula, it is clear that not all justified and needed projects can be funded in any year. In fact, many projects are funded over a series of years, which delays realization of the full benefit of the new facilities and equipment that are provided. FAA officials, and recently some members of Congress, have expressed that the agency lacks a strategic way to address general aviation. The civil aviation system could benefit from a national strategic and funding program that allocates the limited grant resources on a benefit/cost basis that includes a fewer number of airports. It has been expressed over the past many years by those in the industry that it is better to fund one airport's justified development needs adequately and appropriately rather than to spread the funds to many airports to undertake projects on a piecemeal basis.

In recent years, airport system planning that addresses meeting air transportation needs at a regional or state basis has raised such questions as:

- Is there an excess of general aviation airports in the system?
- Can state, local and federal governments afford to invest and maintain all the public airports in the general aviation system? Are they sustainable?
- Should the NPIAS parameters be reconsidered in assessing the airport system?
- Are there better objective criteria and guidance to help assess and balance the general aviation system?
- Is a demand management approach relevant in attracting general aviation to airports that are less expensive to improve, maintain and that have the least environmental impacts?

Each of these questions give credence to the realization that whether economic conditions are good or bad, there is an underlying theme to reconsider how best to strategically manage limited resources to yield the most effective general aviation system of airports. There is merit in focusing attention (funding) on those airports that now provide and can be expected to continue to provide the most benefit to the most users at the least capital and environmental costs and whose use complements local community goals and objectives. This is made all the more relevant when the

sponsor of the Airport, CAA, owns and operates four other general aviation area airports. The CAA is in a strong position to better utilize its limited funding resources for capital improvements and maintenance in the most efficient and effective manner.

The Airport has a concentration of aviation service providers (flight and mechanic training, and avionics). This requires potential new entrants to the aviation industry to be located within a reasonable driving time and distance to the Airport. Closure of the Airport can allow for these businesses to relocate to other areas in the state or adjacent states, thereby making their resources available within a larger geographic area and more convenient to new entrants.

Closure of the Airport and the sale of its and facility assets can generate an influx of funds that can be immediately allocated to other airports, particularly for projects that have a low priority status for grant funding, as well as those that address needed safety improvements regardless of their priority status.

The longevity of the Airport and its ability to be improved to meet the demands of higher capability aircraft is challenged by its physical attributes. At some point in time, the Airport will reach its build-out capacity and no longer be able to meet aviation demand levels. Its announced closure can be the impetus for the FAA, Connecticut Department of Transportation and the CAA to consider a new airport at a site that can more effectively serve as a reliever to Bradley International Airport as well as accommodate a greater share of the general aviation market. Funds derived from the closure of the Airport can be allocated to a new and better reliever airport, or possibly to an existing airport that has the capacity and whose ownership has the willingness to step up to the opportunity.

The sale of the Airport may yield some \$ XXX million, a portion of which will be applied to closure costs and the balance distributed to other airports in the region or nationally at the discretion of the FAA with likely input from the Connecticut Department of Transportation. The FAA National Plan of Integrated Airport Systems (NPIAS) identifies a five-year development estimate for all airports listed in the NPIAS. The general aviation area airports in the Greater Hartford region have the following development estimates as shown in Table 20 and totals some \$145 million. Bradley International Airport and Tweed New Haven Airport are excluded from Table 20 as a large portion of their development estimate is associated with passenger terminal facilities, although those development estimates could be funded from the sale proceeds of the Airport.

The State of Connecticut has received an average of nearly \$4.5 million annually over the past five years from the FAA Airport Improvement Program for capital improvement and planning grants for airports in the general aviation and reliever categories. This sum pales when compared to the identified \$145 million development estimate total, and underscores how the distribution of funds from the sale of the Airport can make a dramatic increase in meeting the development needs at the area general aviation airports. In particular, the funds from the sale of the Airport may be better allocated to those development needs that are not eligible for grant funding, such as hangars, or for those projects that have low priority rankings.

Table 20	
AREA GENERAL AVIATION AIRPORTS NPIAS FUNDING REQUIREMENTS	
Airport	Five-Year Development Estimate (\$)
Bridgeport Sikorsky	54,569,058
Danbury Municipal	15,261,900
Danielson	1,706,667
Groton-New London	18,694,446
Meriden Markham Municipal	2,678,111
Waterbury Oxford	39,281,285
Robertson Field	1,861,111
Windham	11,353,333
Total	145,405,911
Source: National Plan of Integrated Airport Systems (2023 - 2027), FAA	

Compatibility of the Proposal with the Needs of Civil Aviation

The Airport provides benefits to the local civil aviation market as well as the public-at-large through its aeronautical facilities and employment at the tenants located at the Airport. The use of the Airport by City, state and federal agencies with air missions contributes to the safety and well being of the communities in the vicinity of the Airport.

Should the Airport close, the civilian aircraft users have reasonable access to area airports offering comparable, and in some instances, better facility capabilities and services. The general public-at-large can continue to receive the benefits of an airport facility noted above, and the distribution of the repositioned aircraft among other area airports serves to decentralize those benefits.

FAA ORDER 5190.6B REQUIREMENTS

The FAA Airport Compliance Manual, FAA Order 5190.6B, also lists a series of questions that are to be addressed by sponsors seeking a release from federal obligations. These are contained in Chapter 22, Section 25 of the Order. Each of these questions is addressed below and has been covered in the preceding sections of this report. Where appropriate, the reader is referred to those sections.

Type of Release or Modification Requested

The Connecticut Airport Authority (CAA) as the sponsor of the Hartford-Brainard Airport is seeking a total release from all on-going obligations pursuant to grants made by the Federal Aviation Administration for capital improvements at the Airport as presented in Table 19. Grant obligations and assurances linked to earlier grants that provided funding for other capital projects linked to a 20-year or shorter or longer time frames have since been met and exceeded. No federal grants have been awarded for land or aviation easements since the Airport was first established as a smaller facility in 1921.

Reasons for Requesting the Release, Modification, Reformation or Amendment

The CAA and its authorizing agency, the Connecticut General Assembly, has realized that the current Airport location is physically constrained and will overtime reach a build-out condition. This limits its ability to grow to meet higher aeronautical use demands. Area general aviation airports, including four others owned by the CAA, are available to accommodate the based aircraft as well as the businesses providing aeronautical facilities and services at the Airport. Bradley International Airport has vacant on-airport and adjacent land areas that can be improved to provide direct access to the airfield and these can also serve all or a portion of the repositioned users as well as the city, state and federal agencies that have air missions.

Expected Use or Disposition of the Property or Facilities

The entire Airport land resource will be sold to the most qualified bidder on the basis of a request for bid to be issued by the CAA. Salvageable Airport-owned facilities will be transferred to other airports as determined by the FAA. The CT Aero Tech School for Maintenance Technicians facility can continue in operations provided that all or a portion of the taxiway paralleling Runway 11-29 is retained. The School will, however, be unable to accommodate aircraft that have in the past been flown to the Airport for scheduled or routine maintenance service at its facility.

Existing structures will be retained, improved or razed in accordance with the plans of the selected bidder. It is anticipated that the Airport land resource will be best repurposed for industrial purposes reflecting market conditions in the greater Hartford region. This favors manufacturing, which is a top priority goal for the State of Connecticut. These repurposing opportunities are compatible with the industrial and utility land uses surrounding the Airport. An industrial character would serve to limit the Airport's attractiveness for retail land use, and the Airport infrastructure does not lend support for commercial office development. These detract from the Airport land resource being adapted to such uses. The planned Riverfront Recapture Trail could be routed between the east boundary of the Airport land resource (Clark Dike) and the Connecticut River, which offers a link to the Wethersfield Cove to the south.

Site conditions may limit the extent of construction given that the Airport is located in a designated floodplain and previous uses of the land have indicated various releases of contaminants at multiple locations. The former will necessitate the use of construction piling and the latter may be mitigated through cleanup and capping solutions.

Depending on the selected bidder's plans and compatibility with the intent and desires of the local community, a small portion of the Airport land resource may be reserved for the establishment of a vertiport serving e-VTOL aircraft that can utilized to provide air transportation to major airports and city centers within a 100 n.m. radius. Such action will be coordinated with the selected bidder.

The Facts and Circumstances that Justify the Request

The Airport is one of several aviation facilities in the region that can serve the general aviation air transportation needs of the residents and businesses located in the greater Hartford area. As presented in other sections of this report, the Airport will over time reach its build-out capacity with no potential for expansion. Some facilities at the Airport are reaching the limit of their useful lives. Action now serves to allow the region to better improve its existing airport infrastructure and potentially construct a more capable reliever airport for the Hartford region.

Other responsible parties, including state and federal agencies and the private sector within this industry, are questioning the need to spread limited financial resources to a much too large population of general aviation airports, some of which overlap desired NPIAS population coverage criteria. The return on investment is greatly enhanced when funding is provided to those airports that are best suited to meet future demand levels with minimal environmental impact and at attractive cost. This is the best means to protect, advance and benefit the public interest in civil aviation.

The Requirements of State or Local Law, which the ADO or Regional Office will Include in the Language of the Approval Document if It Consents to, or Grants, the Request

Simply stated, the approval document if granted should identify that a net benefit is to be derived by civil aviation through the release of the CAA from all grant assurances and obligations linked to the Airport. The approval document should state that the proposal for release from obligations is compatible with the needs of civil aviation and balances the benefits to aeronautical users relative to the public-at-large.

Further, the document should require that the net proceeds from the sale of the Airport land resource and assets be returned to the Federal Aviation Administration for deployment to meet the civil aviation needs at those airports as the agency may determine in its sole discretion.

The Involved Property or Facilities

The property or facilities are all those associated with the Airport including all airfield and terminal area facilities, with the possible exception of the CT Aero Tech School for Maintenance Technicians, which can continue to operate at a slightly diminished level. Principal Airport airfield assets include the runway and taxiway edge lighting systems and electrical vaults, aboveground fuel storage tanks and associated dispensing systems, and the PAPI-4 and REILS units serving Runway 2 and Runway 20. Facilities owned by the FAA that can be repositioned at other airports include the localizer directional aid, automated surface observing system, and equipment associated with the air traffic control tower. The privately-owned T-hangars may possibly be dismantled and reconstructed at another airport.

A Description of How the Sponsor Acquired or Obtained the Property

The CAA owns the land area encompassing the Airport as a result of legislation passed by the Connecticut General Assembly in 2011. All facilities at the Airport, with the exception of a series of T-hangars that are owned by private entities, are under CAA ownership and were acquired through grants from the FAA or direct investment by the current or past Airport sponsors. The CAA assumed all the grant obligations and assurances from previous airport sponsors for past grant-eligible capital projects.

The Present Condition and Present Use of Any Property or Facilities Involved

As presented in other sections of this report, the present condition of the airfield area is good, although Runway 11-29 is now being considered for pavement condition improvement. The terminal area facilities are also considered in good and usable condition. One set of privately-owned T-hangars is near the end of its useful life is expected to be replaced depending on the financial capability of its owner.

CHAPTER 5 -- STEPS TO PHYSICAL CLOSURE

Upon the concurrence of the FAA to close the Airport and release the CAA, as sponsor of the Airport, from all grant obligations and assurances, there are several action items that are to be completed in order to permanently close the Airport and obtain the release. These include and may already have been conducted as part of the complementary studies submitted earlier to DCED:

1. Submit the Exhibit A Property Map, updated as necessary, prior to conducting the appraisal (see below) to ensure that all federally obligated Airport property is appraised and part of the release agreement. The appraisal is grant-eligible and not subject to reimbursement to the FAA.
2. The CAA is required to receive fair market value for the Airport property and pay these proceeds to the FAA or its designee. The CAA must obtain a current appraisal of the Airport property acceptable to the FAA. The FAA will provide a scope of work for the appraisal and must be considered an intended user of the appraisal. Fair market value will be based upon the highest and best use of the property. If the sale of the property is delayed beyond one year of the date of the appraisal, a new appraisal must be completed.
3. The CAA is responsible to develop a plan for the relocation of the existing Airport tenants to the surrounding airports, which airports may be identified in advance by the FAA. This is to include the compensation to be made to based aircraft owners and Airport tenants in accordance with existing contractual lease terms and conditions.
4. The CAA has two options to accomplish the transfer of the Airport property. The CAA can transfer existing CAA funds based on the fair market value to the FAA or put the property up for bid and have the buyer deposit the fair market value of the property into an escrow account. These funds will be used by the FAA for capital improvements at the general aviation airports identified above.

If the CAA elects to conduct a solicitation prior to the transfer of funds to the FAA, it will be responsible for funding the drafting and administration of at least one bid advertisement or formal solicitation for the sale of the Airport property to include the following:

- The bid advertisement must be advertised in a publication generally accepted as a national commercial real estate publication.
- The FAA must review the bid advertisement, associated publications and documentation, including an updated and accepted Exhibit A Property Map prior to publication.
- The FAA must review the final bid offers before the CAA enters into a contract.
- The closing costs associated with the Airport land sale are grant-eligible and not subject to reimbursement. The closing costs must be itemized actual costs that are shown to be customary, reasonable, and necessary expenses for a land owner's deed transfer to a buyer. Closing costs for the CAA are limited to reasonable broker commissions and other charges prescribed under state law and shown to be customary and usual as seller expenses and should not exceed six percent of the sale price. Buyer's expenses, e.g. due diligence, engineering and survey, land development fees, taxes, title insurance, etc. are not eligible to offset the fair market value proceeds of the Airport land sold. Estimates of closing

costs are to be submitted to the FAA for review and then followed with the actual closing statement to document eligible closing costs.

5. The CAA is responsible to transfer to the FAA:

- All Airport and aviation-related equipment determined to be salvageable by the FAA
- An amount equal to the fair market value for the highest and best use of the Airport property
- An amount equal to the unamortized portion of any non-land Federal development grants
- An amount equal to the Airport revenue proceeds in the Airport's account

The FAA will coordinate with the CAA to ensure the agreements for the transfer of funds are properly structured and executed in accordance with federal law.

6. Environmental Requirements -- The FAA concurrence for the release of and assurances is considered a federal action subject to the requirements of the National Environmental Policy Act (NEPA) and any other special-purpose environmental laws or permitting requirements that may be triggered by the reasonably foreseeable proposed reuses of the property currently occupied by the Airport.

FAA Order 5050.4B, provides guidance on the FAA's implementation of NEPA. After considering the reasonably foreseeable uses of the Airport property, and whether there are any extraordinary circumstances, the preparation of an Environmental Assessment, (EA) at a minimum, will be required.

The CAA will be responsible for the development of the EA, which is grant-eligible and not subject to reimbursement to the FAA. Should the EA indicate the potential for significant environmental impacts, then an Environmental Impact Statement (EIS) will be required. The FAA will be responsible for the development of the EIS.

7. Title 49 U.S.C §471078(h)(2) requires the FAA to provide an opportunity for public notice and comment prior to the waiver of the CAA's federal obligation to use Airport land for nonaeronautical purposes. The FAA will provide a 30-day public notice and comment period prior to closure of the Airport.

8. A Release Agreement will be the formal agreement that authorizes the FAA's release of the CAA's assurances, permitting the CAA the right to sell the Airport property in exchange for the transfer of Airport assets. This Agreement will be executed once all the requirements are completed and the funds transferred to the FAA or deposited into an escrow account. The FAA and the CAA will be parties to this Agreement.

9. Once the Release Agreement is executed, the CAA must file FAA Form 7480-1 with the FAA, with a proposed date for Airport closure. Consistent with 14CFR Part 57, the CAA must file FAA Form 7480-1 at least 90 days prior to closure. The FAA will file a Federal Register notice identifying the closure date.

The preceding action items are based on similar requirements imposed by the FAA on the City of St. Clair, Missouri in April 2015 for the sale of its airport and release from grant obligations and assurances. This is the last known publicly-owned, grant-obligated airport to successfully close

for repurposing of an airport property. It is possible that some of the action items above may be subject to discussion with the FAA and may be modified to accommodate any unique situations at the Hartford-Brainard Airport, provided that they do not violate federal law.

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