BRAINARD AIRPORT PROPERTY STUDY

2022/2023

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Prepared for:

Connecticut Finance, Revenue and Bonding Committee

And

The Department of Community and Economic Development

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1.0 BACKGROUND

1.1 LEGISLATIVE ACTION

BFJ Planning was awarded a contract under Public Act No. 22-118, Section 426, which mandates the CT Department of Economic and Community Development (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 Hartford-Brainard Airport Property Study is consistent with and supports the bill's stated goals of promoting the health, welfare, and safety of people in Connecticut, increasing their quality of life, boosting tourism, stimulating the economy, and enhancing people's ability to enjoy the Connecticut River.

DECD was required to submit a report of the analysis's findings by October 15, 2023, to the Finance, Revenue, and Bonding Committee. This Final Report synthesizes 1) a decision pathway for continued use or redevelopment of the Airport following Federal and State regulations; 2) a preferred development scenario with a clear regulatory pathway for redevelopment following Federal, State, and Local laws; and 3) a Final Report summarizing the community engagement program, identify impacts and an environmental remediation phasing plan. The report highlights development constraints and provides other recommendations to assist the final decision-making by members of the State Legislature.

Connecticut Public Act No. 22-118, Section 426 states:

"The state shall, consistent with and supportive of the goals of promoting the health, welfare, and safety of the people of the state and increasing their quality of life, boosting tourism, stimulating the economy and enhancing the ability of people to enjoy the Connecticut River, assess the benefits and opportunity costs to the city of Hartford and to the state of the current use and alternative uses of the Hartford-Brainard Airport property."

This legislative act mandates the following study components:

1. To further such assessment and identify the related costs, the Department of Economic and Community Development shall have an analysis conducted that includes, but is not limited to, the following:
2. 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;
3. The economic impact, direct, indirect, quantitative and qualitative, of alternative uses of the property, including commercial, residential and recreational opportunities, to the State and the region surrounding the property;
4. 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;
5. 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
6. 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.

1.2 STUDY PROCESS

1.2.1 CONSULTANTS SEARCH

DECD issued a request for proposals for an entity to oversee the analysis and the production of the report and selected BFJ Planning to lead the project. The legislation required the completion of this report by October 15, 2023. It mandated DECD to submit a report of the analysis findings to the joint standing committee of the General Assembly.

BFJ Planning conducted a Requests for Proposals (RFP) process in accordance with its Brainard Airport contract with the State of Connecticut DECD. BFJ Planning issued separate requests for qualifications/proposals (RFQ/RFP) to engage consultants to undertake (A) economic considerations, (B) environmental components, and (C) analysis of the regulatory components of the requirements stated in the DECD's RFP #22ECD2185. Proposals were submitted to BFJ Planning between December 15, 2022, and December 30, 2022. BFJ Planning hosted an RFP Informational Conference on Friday, December 16, 2022, and began interviews the week of January 16, 2022.

BFJ Planning selected consultants based on documented capabilities, past like or similar project experience, key staff assigned to the project, knowledge of the Airport operations, technical approach to regulatory activities, and proven ability to perform within the project budgets.

To qualify for a contract award, proposers had to meet the following minimum qualifications:

- The firm has over ten years of experience in performing economic analysis.
    - A professional services/consulting entity with experience with Airport operations and preparing an economic analysis for airports.
- Selected contractors will commit to affirmative action, as required by the Regulations of CT State Agencies § 46A-68j-30(10) in selecting subcontractors.
    - Contractors will require the consultants to aggressively solicit the participation of certified minority business enterprises as subcontractors from CT DECD's Connecticut supplier connection, State of CT BIZNET, City of Hartford Small or Minority/Women Businesses portal, CTDOT's consultant listing, and CT Source website.
- References: Firms shall submit at least three references.

The following subconsultants were selected by BFJ Planning: Tighe & Bond, HR&A Advisors, and QED Airport and Aviation Consultants. The work completed by the three sub-consultants assisted BFJ Planning in determining

1.3 BACKGROUND STUDIES AND FINDINGS

1.3.1 INTRODUCTION

The Brainard Airport site has been the focus of various plans and studies, encompassing future Airport operations, site redevelopment, and enhancing waterfront access. These prior planning efforts have laid the foundation for the current study, which delves into the operations of Hartford-Brainard Airport and explores the potential for redevelopment if the Airport were to cease its operations. Considering the insights and recommendations from these earlier plans and studies, the current study aims to comprehensively understand the opportunities and challenges associated with the Hartford-Brainard Airport site.

As the study advances, it seeks to capitalize on the wealth of data and knowledge accumulated from past planning endeavors. This informed approach enables the study to make well-considered decisions that align with the region's evolving needs and aspirations. A thorough examination of the Airport's impact on the local area, along with an exploration of the potential for transformative development and the enhancement of waterfront access, will help shape a holistic vision for the future of the Brainard Airport site.

This study aspires to create a robust and forward-looking strategy that embraces the community's priorities and fosters sustainable growth by incorporating the lessons and insights from previous planning initiatives, considering the economic realities defined by the current market conditions in the region. The study's comprehensive approach will empower decision-makers to consider a wide range of possibilities, ensuring that the final outcomes align with the region's aspirations and positively impact the surrounding community.

1.3.2 NATIONAL AND REGIONAL PLANS

Environmental Due Diligence in the Conduct of FAA Real Property Transactions, US Department of Transportation Federal Aviation Administration (FAA) National Policy (2019)

Order 1050.19C provides a framework for environmental due diligence required during FAA property acquisitions and disposals. The Order includes an Environmental Screening Checklist for real property acquisitions and disposals, which includes a records review and questions regarding potential environmental contamination from equipment and materials.

Advanced Air Mobility Implementation Plan, FAA (2023)

As defined in the Advanced Air Mobility (AAM) Coordination and Leadership Act (P.L. 117-203,136 Stat. 2227), AAM is defined as a transportation system that moves people and property by air between two points in the United States (U.S.) using aircraft with advanced technologies, including electric aircraft, or electric vertical takeoff and landing (eVTOL) aircraft, in both controlled and uncontrolled airspace. This implementation plan specifically examines passenger-carrying or cargo operations with a pilot on board. The plan builds off the Innovate28 (I28) FAA initiative. It aims to integrate AAM operations with OEMs and/or operators flying between multiple origins and destinations in at least one US location by 2028. In the 2025-2028 timeframe, initial AAM operations are expected to commence using existing airports and heliports modified based on the FAA's interim guidance for vertiport design. FAA's Aircraft Certification Service (AIR) is currently in communication with over two dozen manufacturers advancing the technology that underlies the design and operation of AAM aircraft.

Figure 1: Illustration of Advanced Air Mobility

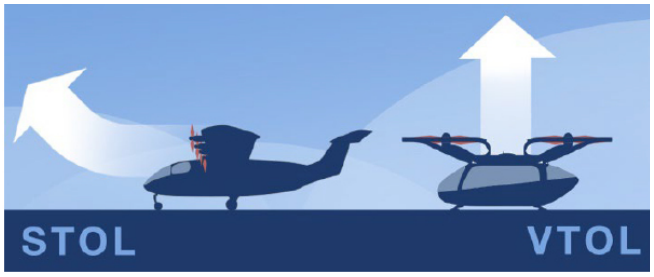
Credit: FAA

Simultaneously, AIR is developing certification requirements for future AAM design, operations, and technologies, such as electric propulsion, large lithium-ion battery arrays, hydrogen fuel cell systems, increased automation, VTOL capability for winged aircraft, and more.

Vertiport Design Standards for eVTOL/UAM Vehicles, FAA (2021)

FAA predicts that Urban Air Mobility (UAM) technologies will revolutionize current transportation systems. The landing sites and facilities to service vertical takeoff and landing (VTOL) aircraft are vital to this advancement. Operational requirements will encompass landing area design and layout/geometry, approach/departure paths, load-bearing requirements, electric propulsion, charging stations, battery safety requirements, other hazardous materials, and noise requirements. Facilities may vary in configuration based on their planned aircraft usage. The FAA published a Request for Information (RFI) in 2019 to gather industry information regarding VTOL aircraft design, concepts, infrastructure, and more.

Figure 2: STOL and VTOL



Credit: FAA

Figure 3: Rendering of Vertiport Facility

Credit: FAA

1.3.3 STATEWIDE PLANS

Connecticut Airport Authority Strategic Plan, Connecticut Airport Authority (CAA) (2016)

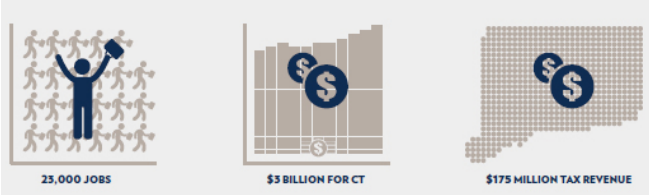
The 2016 strategic plan is a five-year plan that guides the direction of the CAA. The plan identified a few key observations and challenges:

- Bradley's capacity and passenger levels have grown, mirroring economic improvements after the Great Recession. Growing air service helps attract new businesses to the region, and increasing service creates a positive cycle where more service allows for reducing costs to airlines.
- Airport infrastructure is in good condition, but addressing outstanding needs requires substantial capital investment.
- Funding from state and federal sources can be inconsistent or remain flat yearly. State budgets play a particular role in the operation of Brainard and the other General Aviation airports

Strategic Goals and Objectives

- Streamline and improve the home-to-plane experience. Invest in modern facilities and provide amenities and services to meet customer expectations.
- Achieve operating self-sufficiency for General Aviation airports and achieve and maintain the lowest cost per enplanement among regional competitors.
- Encourage a favorable statutory and regulatory environment for better operating conditions.
- Increase the value generated by CAA's airports. Enhance the Authority's economic contribution, implement airport sustainability initiatives, and increase value recognition to customers, neighbors, and other stakeholders.

Figure 4: Regional Economic Value of CAA's Airports



Credit: CAA

Connecticut Statewide Airport System Plan, CAA (2016)

CAA produced this plan to examine aviation infrastructure, activity, and trends statewide to influence resources and policy. The plan aims to identify and address issues related to aviation's impact on the statewide economy.

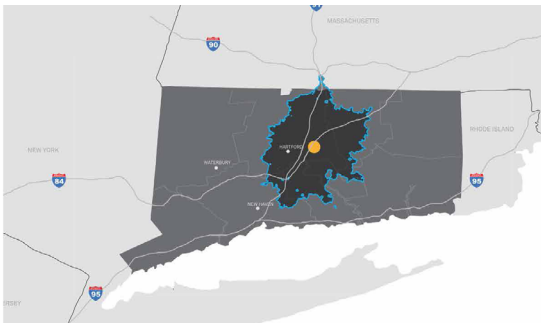
Key Findings

- The plan forecasts modest growth in airport operations, passenger enplanements, and based aircraft between 2015 and 2035.
- The statewide system needs to include increased runway lengths, improved access, and high-end general aviation hangar facilities. Other issues facing airports across the State include obstruction clearance, compliance with FAA standards, streamlining environmental permitting, zoning, and governance/cost structures.

Key Recommendations

- Focus on high-end support at Brainard and other general aviation airports and look for ways to enhance and diversify revenue.
- Continue working to meet FAA standards and ideal runway length.
- Support developing and expanding economic incentive zones near airports and establish airport use compatibility guidelines.
- Pursue safety improvements to runway 2-20.
- Prepare hangar and service development areas.

Figure 5: 30 Minute Drive from HFD



Credit: CAA

1.3.4 LOCAL PLANS

Hartford-Brainard Airport Visioning Plan, City of Hartford (2022)

The City of Hartford created a visioning plan for the future of the Brainard Airport site and analyzed four potential development strategies:

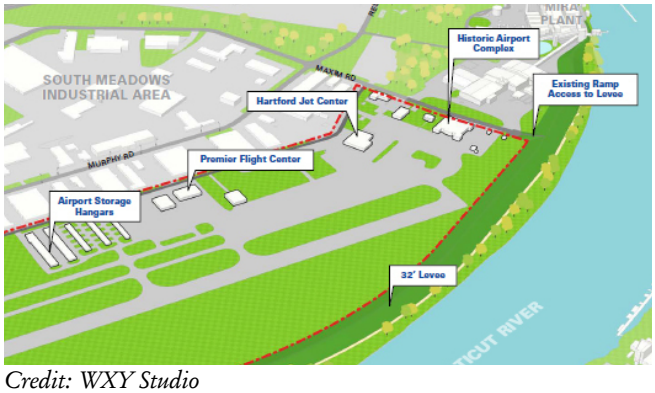
- Continued airport use,
- Logistics and distribution center,
- Mixed-use activity center, and
- Advanced manufacturing, research, and development (R&D), and aviation technology hub.

Study Methodology

The City of Hartford developed these strategies after meeting with the community, public agency, institutional, and real estate development stakeholders. The authors also analyzed the physical conditions of the Brainard site. They noted that it is isolated from the remainder of the City and the Connecticut River by Interstate 91 (I-91), surrounding industrial uses, and the berm that protects the site from flooding. Through public engagement and stakeholder interviews, the authors created four guiding principles for the site:

- Connect the site to the Connecticut River and create recreational opportunities,
- Link the site to neighborhoods, downtown Hartford, and institutions,
- Create jobs and enrich economic opportunity, and
- Bridge to and beyond the region.

Figure 6: Existing Airport Use



Credit: WXY Studio

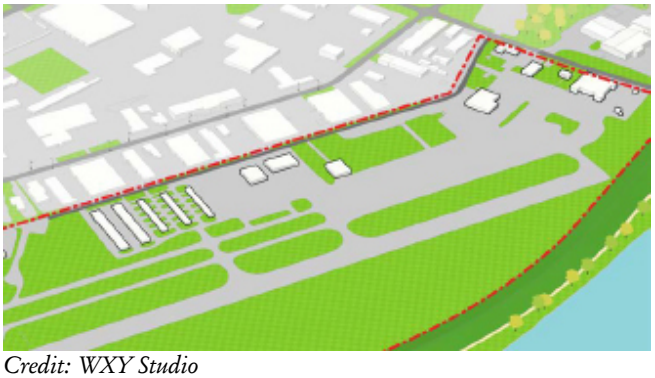
The report's analysis of strengths, weaknesses, opportunities, and threats (SWOT) identified the site's size and unique location as a key strength, the potential for connection to the river and adaptive reuse of industrial sites as an opportunity, the physical barriers and pollution concerns from existing infrastructure and historic industrial use as weaknesses, and the high cost of remediation and development at the site as threats. The four development strategies discussed in the plan were each evaluated through seven criteria: community benefit, transformative potential, market demand, financial feasibility, management and governance viability, economic impact, and environmental justice and community impact.

Development Strategies

Continued Airport Use

The most straightforward development strategy would be to continue to use the Airport as its existing aviation use and to explore opportunities for public access and economic development at the site. The site could be improved with public access to the Connecticut River along the towpath; the site could continue supporting small aviation schools and businesses; and the Airport would continue as an overflow site for Bradley International Airport and other regional airports. This option would continue the Airport's annual operating loss and keep the 200-acre site from being used for something that has a more significant economic and community benefit

Figure 7: Continued Airport Use Scenario

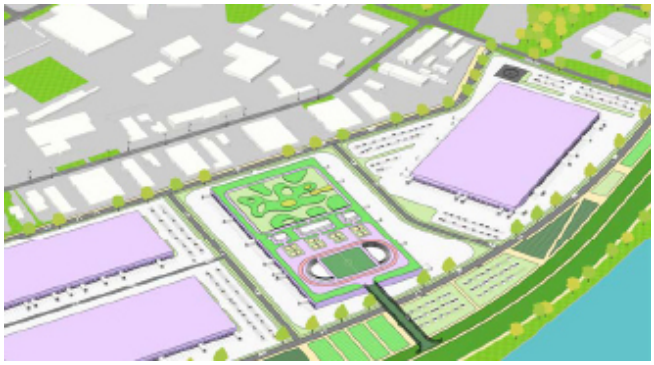


Credit: WXY Studio

Logistics and Distribution Center

There is high demand for logistics and distribution facilities in the Hartford area, and reusing the site as a distribution center would require relatively low infrastructure costs. Distribution centers offer middle-wage jobs, and the use would be compatible with the existing industrial services in the neighborhood. The site could be developed to provide public access to the Connecticut River, and there could be potential recreation or urban agriculture facilities constructed on the roofs of the distribution buildings. This option has the potential to increase truck traffic in the area, worsening traffic bottlenecks and air quality.

Figure 8: Logistics & Distribution Center Scenario



Credit: WXY Studio

Mixed-Use Activity Center

A mixed-use activity center on the site could combine residential development near the river, open space, commercial/office/retail, and event/entertainment and recreation space in a significant effect that brings new residents and economic activity to the area. A large mixed-use development would catalyze the neighborhood and provide context for the redevelopment of the MIRA plant just north of the site. This development scenario would have high community benefits and positive economic and environmental justice impacts.. However, a mixed-use redevelopment on 200 acres may not be financially feasible in the Hartford market and would have a high up-front cost for environmental remediation and infrastructure.

Figure 9: Mixed-Use Activity Center

Credit: WXY Studio

Advanced Manufacturing, Research and development, and Aviation Technology Hub

An advanced manufacturing, R&D, and aviation hub would close the Airport for recreational aviation but would retain the key use of the site while promoting innovation and economic development in Hartford. The site could be used for drone and aviation research, drawing on Hartford's long aviation manufacturing history, and would continue using its FAA designation as an airfield. The site could also be designed to provide public access to the Connecticut River and compatible industrial uses could be developed on portions of the site. The market for an advanced manufacturing, R&D, and aviation technology hub is speculative, and research positions may only employ a small number of nearby working-class communities. Large portions of the site would also need to be more utilized.

Figure 10: Logistics & Distribution Center Scenario

Credit: WXY Studio

Connecticut Regional Market Report, Capital Regional Development Authority (2022)

- The Capital Regional Development Authority proposes reimagining the existing Regional Market north of Brainard Airport for a new aggregation, distribution, and storage facility. The proposal would retain the existing Fresh Point distribution center and restaurant as separate facilities.
- In addition to aggregation, distribution, and storage space, the new market would have new produce and meat processing space.
- The plan notes the site's access to I-91 and I-84 as critical assets. The nearby industrial uses make it an ideal location for truck and space-intensive distribution and production uses.

Figure 11: Regional Market Redevelopment

Credit: Capital Regional Development Authority

City of Hartford 2035 Plan of Conservation and Development (POCD), City of Hartford (2020)

Key Recommendations that Pertain to Brainard Airport

- Reconnecting the City to the Connecticut River.
- Establishing the South Meadows area as one of the ten areas planned for transformative projects.
- Revitalizing the Brainard Airport and Regional Market sites with their highest and best uses while connecting people to the river with trails and infrastructure improvements.

Although Brainard Airport is currently zoned for industrial uses, the POCD's future land use map designates the site as Medium-Density Mixed-Use (3-6 stories).

Figure 12: South Meadows Transformative Project

Credit: City of Hartford

City of Hartford Bicycle Master Plan, City of Hartford (2019)

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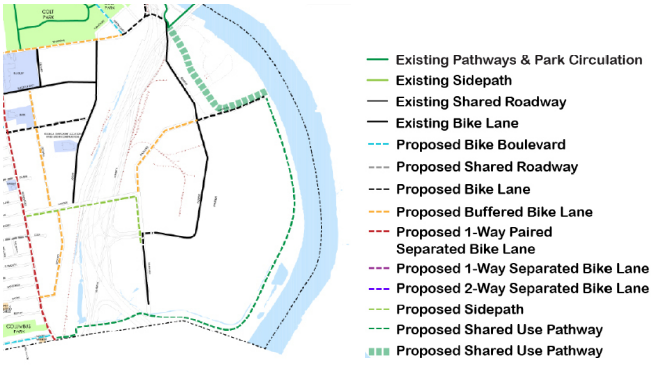
Figure 13: Proposed Bicycle Facilities



Credit: City of Hartford

Connecticut Regional Market Report (2018)

Gorman+York analyzed the Connecticut Regional Market, located at 101 Reserve Road in the South Meadows area of Hartford. Brainard Airport is located to the east of Regional Market via Maxim Road. The Regional Market is a 33-acre facility with 185,000 sf of warehouse space across four buildings, one free-standing restaurant, office space, and a farmer's market pavilion. It is the largest perishable food distribution facility between New York and Boston and a key processing and distribution facility for wholesale products. The report acknowledges the Market's significant role as a major New England distribution hub for produce. It states that actions should be taken to improve and expand facilities, create a marketing plan, expand the farmer's market area, and implement leasing and property management plans.

Environmental Assessment (EA) & Environmental Impact Evaluation (EIE) for Obstruction Removal, Hartford-Brainard Airport (HFD), CAA (2017)

This Environmental Assessment (EA) was prepared to satisfy the requirements of the National Environmental Policy Act (NEPA) and the Connecticut Environmental Policy Act (CEPA) in response to the proposed tree obstruction removal to bring Hartford-Brainard Airport into compliance with FAA design standards and regulations to provide clear airspace. In 2012, the State conducted a study that found that the Airport needs to provide adequate airspace surfaces to its runway based on the FAA design criteria. The EA addressed impact categories, including air quality, floodplains, water quality, wetlands, and endangered and threatened species. The tree obstruction removal was ultimately issued a federal Finding of No Significant Impact (FONSI) with recommendations from the FAA regarding actions to address local concerns and advance the project.

Key Recommendations

- Create additional public outreach activities as part of the design and permitting process
- Work with CTDEEP and local municipalities to prepare a vegetation management plan
- Meet with CTDEEP to discuss required permits and additional environmental evaluation.

Use of Hartford-Brainard Airport's Site, Connecticut General Assembly Legislative Program Review and Investigations Committee (PRI) (2016)

The PRI examined the Brainard Airport to determine whether the Airport use was the best for the site.

Key Findings

- The Airport benefits the local, regional, and state economy; the estimated contribution to the State is $43 million (2016 dollars). Large regional employers stated that closing the Airport would make Hartford a less attractive place for business, and other companies depend on the Airport for business operations.
- The Airport costs the City of Hartford a substantial amount of lost tax revenue.
- Closing the Airport would be difficult and costly. The quickest process for closing the Airport is applying for closure approval from the FAA, but success is unlikely.
- Redevelopment of the site would be costly and require a large public subsidy. The most significant costs would be closing the Airport, remediating the site, and constructing new support infrastructure. Mixed-use development appears infeasible; warehousing and distribution would be the most likely scenario, but those are not high-paying jobs.

Key Recommendations

- Continue operating the site as an airport.
- Maximize the Airport's value. Support the CAA's business plans and encourage the State to increase the payment in lieu of taxes (PILOT) made to Hartford.
- Expand the aviation mechanic school and recruit local students.
- The City of Hartford should request an Airport Development Zone for the site.

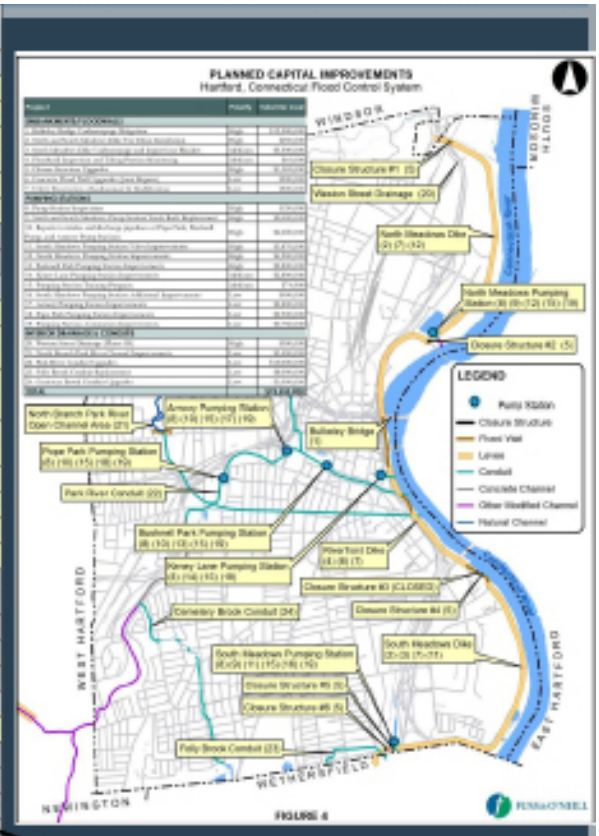
Hartford Flood Control System Overview and Status: Presentation to Mayor Bronin & the US Army Corps of Engineers (USACE) (2016)

The Hartford Flood Control System protects approximately 3,000 acres of developed land. It includes 6.4 miles of earthen dikes, 0.8 miles of concrete floodwalls, six pumping stations, two drainage basins, three pressure conduits, and an auxiliary conduit. The construction of the dikes and floodwall was completed in 1944. One of these dikes is the South Meadows Dike, which protects Hartford-Brainard Airport.

In 2014, several components of the Hartford Flood Control System were deemed "unacceptable" by USACE. The System-Wide Improvement Program (SWIF) was created to address these system deficiencies, including necessary capital improvement projects related to the South Meadows Dike. The cost of planned capital improvements to the system totals $42,000,000.

Figure 14: Planned Capital Improvements: Hartford, Connecticut Flood Control System

Project	Priority	Total Est. Cost
EMBANKMENTS/FLOODWALLS		
1. Bulkeley Bridge Underseepage Mitigation	High	$12,500,000
2. North and South Meadows Dike Toe Drain Installation	High	$650,000
3. South Meadows Dike Underseepage and Impervious Blanket	Medium	$5,500,000
4. Floodwall Inspection and Tilting Portion Monitoring	Medium	$10,000
5. Closure Structure Upgrades	High	$1,369,000
6. Concrete Flood Wall Upgrades (Joint Repairs)	Low	$500,000
7. Utility Penetration Abandonment & Modification	Low	$500,000
PUMPING STATIONS		
8. Pump Station Inspections	High	$130,000
9. North and South Meadows Pump Station Trash Rack Replacement	High	$2,000,000
10. Repairs to intake and discharge pipelines at Pope Park, Bushnell Pump, and Armory Pump Stations	High	$6,000,000
11. South Meadows Pumping Station Valve Improvements	High	$3,870,000
12. North Meadows Pumping Station Improvements	High	$4,200,000
13. Bushnell Park Pumping Station Improvements	High	$2,800,000
14. Keney Lane Pumping Station Improvements	Medium	$2,800,000
15. Pumping Station Training Program	Medium	$74,900
16. South Meadows Pumping Station Additional Improvements	Low	$400,000
17. Armory Pumping Station Improvements	Low	$2,800,000
18. Pope Park Pumping Station Improvements	Low	$2,900,000
19. Pumping Station Automation Improvements	Low	$3,750,000
INTERIOR DRAINAGE & CONDUITS		
20. Weston Street Drainage (Phase 1B)	High	$300,000
21. North Branch Park River Channel Improvements	Low	$3,500,000
22. Park River Conduit Upgrades	Low	$10,000,000
23. Folly Brook Conduit Replacement	Low	$8,000,000
24. Cemetery Brook Conduit Upgrades	Low	$1,000,000
TOTAL		**$42,200,000**



Credit: City of Hartford, Fuss & O'Neill

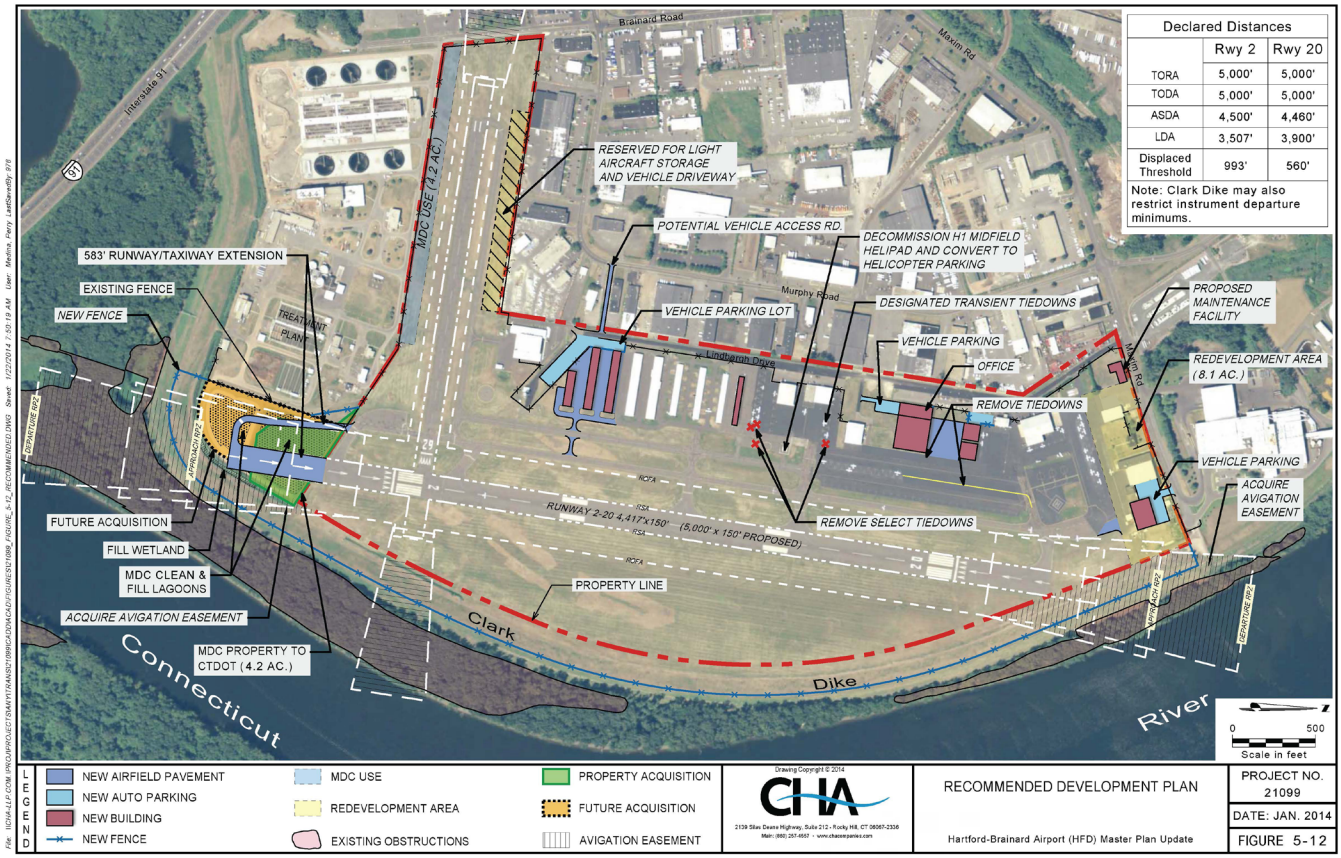
Hartford-Brainard Airport Master Plan Update, Connecticut Airport Authority (2014)

The Master Plan Update studied five development alternatives to improve Brainard Airport. The selected alternative included the following recommendations:

- Improve the safety of Runway 2-20 through a small land swap between Brainard Airport and the MDC wastewater treatment plant south of the Airport.
- Create a new vehicle access road and new hangars along Lindbergh Drive.
- Create a new maintenance facility for airport operations staff and redevelop buildings along Maxim Road as their useful life expires or as market conditions permit.

This alternative would meet FAA design standards, and the property needs of Brainard Airport have a minimal environmental impact with a moderate fiscal cost. Alternatives that were not chosen included making no changes to the Airport, shortening or closing runways, rotating a runway, and making any alterations to the Clark Dike. Modifications to the Dike were infeasible due to environmental impacts, very high costs, and a high level of coordination needed between the United States Army Corps of Engineers (USACE), the Connecticut Department of Energy and Environmental Protection (DEEP), and the City.

Figure 15: Recommended Development Plan



Credit: CAA

Hartford-Brainard Airport Business Plan, Connecticut Department of Transportation and Connecticut Airport Authority (ConnDOT) (2012)

The objective of the Airport Business Plan was to identify opportunities for economic development and operational improvements to optimize the Airport for the community it serves. The plan also seeks to improve the Airport's financial performance and long-term viability as an aviation facility and makes recommendations for the Airport facility and administrative processes.

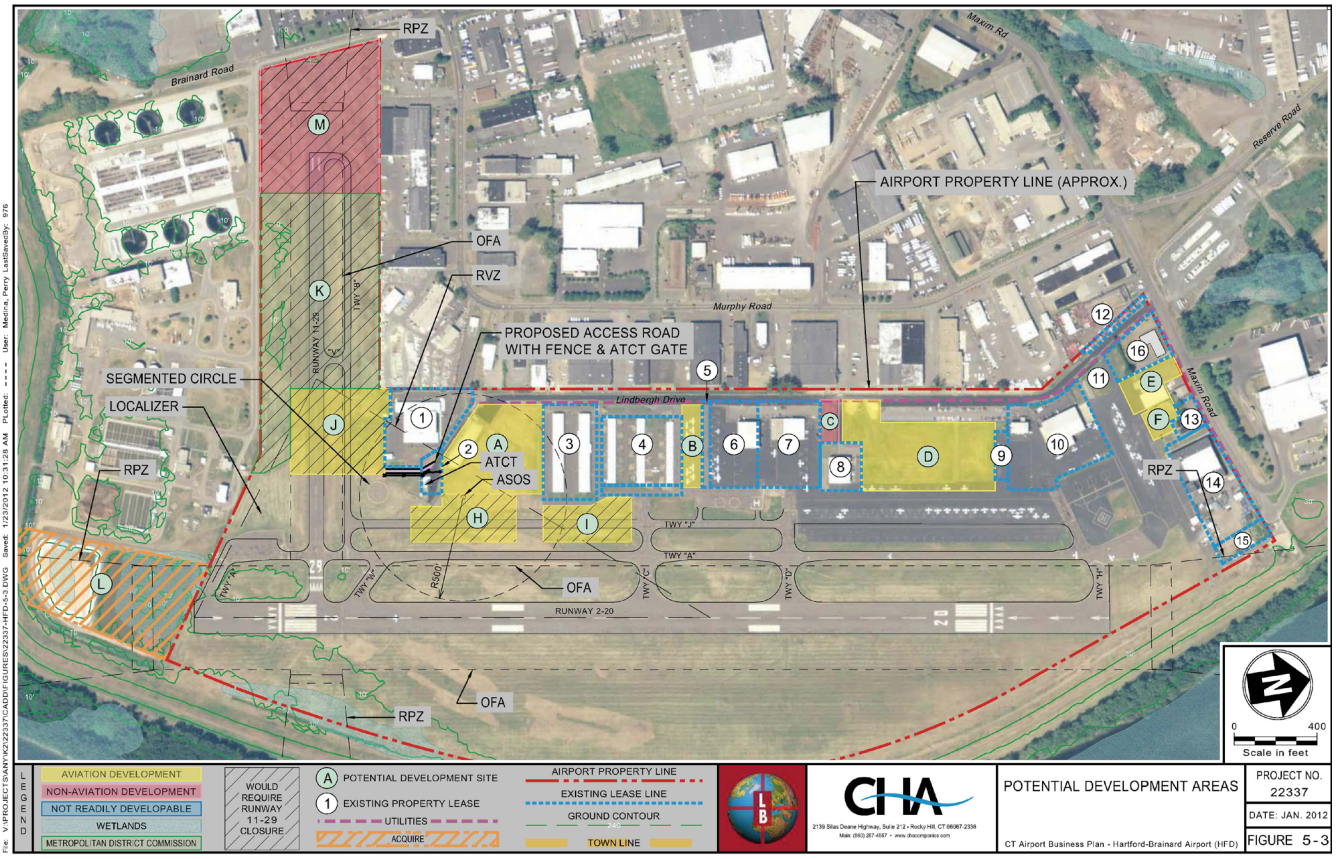
Key Facility Recommendations

- Pursue development on six parcels within the Airport.
- Solicit a request for proposals (RFP) for an additional fixed base operation (FBO).
- Continue active local marketing and outreach.

Key Recommendations

- Complete transition of airports from ConnDOT to CAA.
- Improve and shorten the lease development process.
- Coordinate state economic development initiatives to include airport development zones, promote potential development sites, and actively pursue prospective users and tenants.

Figure 16: Potential Development Areas



Credit: ConnDOT and CAA

Phase I Environmental Assessment Hartford-Brainard Airport, ConnDOT (2012)

TRC Environmental prepared a Phase I Environmental Assessment Report (Phase I ESA) for the Brainard General Aviation Airport property on behalf of ConnDOT. The ESA aims to identify Recognized Environmental Conditions (RECs) and Areas of Concern (AOCs) to determine the presence of any hazardous substances or petroleum products in the Airport site's structures, soil, groundwater, or surface water. TRC Environmental identified 51 REC/AOCs, including the former locations of refueling activities involving petroleum products, oil tanks, hazardous waste storage containers, and more. Additionally, existing aircraft maintenance and repair facilities handle and store petroleum products, solvents, fuels, and lubricants, potentially impacting the environment due to spills and releases.

Riverfront South, Metropolitan District Commission (MDC) Master Plan (2006)

This Master Plan describes MDC's vision for an urban redevelopment initiative, Riverfront South, consisting of an energy-independent community with residential, retail, entertainment, and business uses. Riverfront South would occupy the land currently occupied by Hartford-Brainard Airport. MDC states that Riverfront South is well-positioned due to its existing transportation infrastructure. i.e., I-84 and I-91, proximity to the Connecticut River, and opportunities to expand existing and new businesses.

The Master Plan's proposals for Riverfront South include:

- Energy independence resulting from the construction of a new waste-to-energy facility replacing CRRA's existing MidConnecticut electric facility.
- Below-grade parking garages to accommodate parking needs in mixed-use areas.
- Light rail and connection to exiting regional railways.
- Public access to a modern marina for boating, fishing, and recreation on the Connecticut River.
- A mix of housing options, i.e., single-family homes, garden-style apartments, and high-rise buildings.
- Offices serving industrial, technology, manufacturing, research and development sectors.
- Stores, restaurants, and outdoor festival areas.

Figure 17: Riverfront South Site Plan

Credit: MDC, BL Companies, Red Oak Consulting

Riverfront Guide, Riverfront Recapture, Inc. (1982)

The Riverfront Guide is a foundational plan for how the City of Hartford and East Hartford relate to the Connecticut River. Before 1982, the river was primarily out of reach for urban residents, but the plan's implementation has created a significant waterfront park that has catalyzed commercial and community development.

- The plan proposed a continuous riverfront walkway from the North Meadows of Hartford south into northern Wethersfield.
- The South Meadows was seen as the final "action area," with riverfront access points north of Brainard Airport on Maxim Road and south of the MDC plant on Brainard Road.
- The plan identified the Brainard site as a potential redevelopment area and identified its potential as a new employment center.

02

Community Outreach Strategy

2.0 COMMUNITY OUTREACH STRATEGY

2.1 INTRODUCTION

The objective of community outreach throughout the Hartford-Brainard Airport Property Study was to ensure that all stakeholders have access to opportunities to learn about the study and its intended outcomes, to comment on the process and plan as it moves along, to feel their concerns and ideas have been heard; and to contribute to building a consensus about the vision for the Airport and potential redevelopment scenarios that will provide the highest and best use for the site. Stakeholders include state government, key employers and institutions, residents, business owners, the city of Hartford, East Hartford, Wethersfield, regional economic development groups, stakeholder groups and organizations, and the general public.

BFJ Planning collaborated with Camelo Communications to implement a community engagement strategy to include all stakeholders near or impacted by airport operations. The strategy was built on the following four principles:

- *The public shall have adequate access to information:* A record of all public outreach events and other interim deliverables will be kept and placed in available locations, including the BFJ Planning project website.
- *The public shall have clarity in the information presented:* Technical information and planning concepts will be presented in terms that are understandable to the public, and technical jargon and industry terminology will be avoided.
- *The public shall be able to engage and comment on the plan development as it progresses with a responsive and timely Project Team:* The public will receive sufficient notice of all public meetings to be held at a time and place that is convenient and comfortable. Ample time to review project-related materials will also be provided. All general questions and inquiries will be answered promptly in a manner approved by DECD.
- *The public shall be able to participate in a well-coordinated process:* Good coordination, communication, and collaboration among all concerned entities are critical to providing the public with the most current and correct information and the overall success of the study.

2.2 PUBLIC MEETINGS

The Hartford-Brainard Airport Property Study involved five public meetings/workshops to provide opportunities for members of the public to learn about the process and provide meaningful input. The BFJ Planning team hosted joint public meetings/workshops to meet the FAA requirements and work through the development scenarios required as part of Public Act No. 22-118, Section 426.

BFJ Planning facilitated each workshop using tools, such as large-scale maps, notepads, markers, etc., to engage with members of the public and capture feedback on the process. The five public meetings/workshops designated time for public comments and questions. BFJ Planning provided a summary report for each workshop, including photographs of the meeting and any presented graphic materials on the study's website as appropriate.

All public workshops were held at Metzner Early Learning Center, 680 Franklin Avenue, in Hartford, CT.

- Meeting #1: February 16, 2023 (6:30–8:30 pm): Introduction
- Meeting #2: April 13, 2023 (6:30–8:30 pm): Airport Operations
- Meeting #3: May 18, 2023 (6:30–8:30 pm): Environmental Conditions
- Meeting #4: July 13, 2023 (6:30–8:30 pm): Economic Conditions
- Meeting #5: August 10, 2023 (6:30–8:30 p.m.): Highest and Best Use

Figure 18: Public Workshop at the Metzner Center

Credit: BFJ Planning

Figure 19: Public Workshop at the Metzner Center

Credit: BFJ Planning

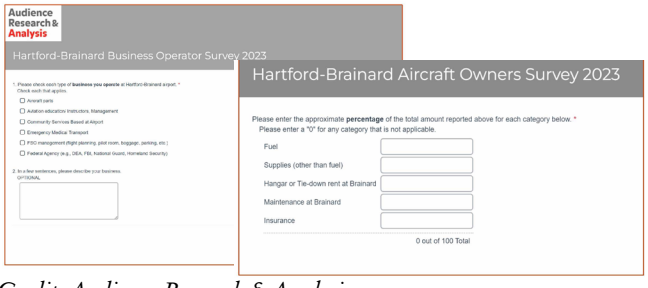
2.3 WEBSITE

BFJ Planning created a project website, which published information on meetings/public workshops and all draft documents approved for public release by DECD's Steering Committee. The website also included a link to a virtual engagement tool, Social Pinpoint, which allowed the public to share ideas, ask questions, express concerns, and respond to recommendations.

2.4 ECONOMIC SURVEY OF PILOTS AND BUSINESSES

HR&A Advisors administered two surveys to inform economic impact analyses. The first survey was distributed to aircraft owners who lease hangar space at Hartford-Brainard Airport, and the second survey was distributed to employers with operations at the Airport. HR&A incorporated the data acquired through these surveys into their economic impacts model, which helped inform an understanding of the economic activity at the Airport and its impacts on the region.

Figure 20: Economic Surveys



Credit: Audience Research & Analysis

2.5 OUTREACH TO MARGINALIZED GROUPS AND INTERESTED PROPERTIES

Stakeholder engagement was executed through various strategies to reach as many residents, businesses, and community groups impacted by the Hartford-Brainard Airport Property Study as possible. The following actions were completed to support the involvement of local environmental justice communities in Hartford:

- Key community leaders and groups were contacted to increase public notification of events and participation of constituent communities.
- Documents, notices, and meetings were concise, jargon-free, and readily available to the public.
- All public events were scheduled at convenient and accessible locations and times.

BFJ Planning worked with Camelo Communications to publicize all public workshops and other significant events in local English and Spanish newspapers and distribute flyers at key public events. BFJ Planning and Camelo Communications sent E-blasts in advance of every workshop to stakeholders, including residents, elected officials, community organizations, regional groups, State agencies, business owners, property owners, developers, and realtors.

Communication and flyers were submitted to HartfordNext Newsletter, Hartford NRZ's, City of Hartford staff and council members, state legislators, OneHartford Newsletter, Hartford News, and several Facebook community groups. Flyers were distributed at the Hartford Caribbean Festival on Saturday, August 5, 2023, and at the Greater Hartford Arts Council Hispanic Heritage Celebration on Sunday, August 6, 2023. Between April and July 2023, Camelo Communications generated 7,567,264 impressions among 30 placements, including broadcast and radio interviews, digital articles, social media, and community calendars. Highlights include securing earned media with Fox61, ABC WTNH, NBC CT, and WTIC-AM. Camelo Communications also secured Spanish-language coverage in Univision CT, Identidad Latina, El Sol News, and La Voz Hispana de CT.

2.6 SWOT ANALYSIS

As part of the community outreach process, the Consultant Team utilized an online engagement tool to gather public feedback on the site's strengths, weaknesses, opportunities, and threats (SWOT). This SWOT analysis was launched in conjunction with Public Workshop #1 and consisted of 742 total visits, 248 unique users, and 180 comments. The highest percentage of comments, 34.4%, were categorized as opportunities, showing an interest in overall site improvement across all potential use scenarios.

The figure below summarizes the public comments received during the SWOT analysis and reflects similar sentiments to those voiced through public workshops and stakeholder meetings.

Figure 21: Summary of SWOT Responses

STRENGTHS

1. Variety of youth programs
2. Centralized location for pilot and mechanic training
3. Vibrant general aviation community with many aerospace industry employees and general aviation pilots
4. Convenient location proximate to the center of Hartford
5. Workforce training related to aviation
6. Only A&P school accessible to students in the area
7. Civil Air Patrol, Urban Search and Rescue, and Life Star base
8. Located near the Health Center
9. Airport is large enough to support a variety of light aircraft
10. Historical significance
11. Convenient highway access
12. Within 300-mile radius of major cities
13. Provides exposure to various STEM disciplines
14. Potential enterprise zone

WEAKNESSES

1. Airport is not used by the larger community of Hartford or Wethersfield
2. Airport does not operate at a surplus; requires subsidy for operating and capital costs
3. Planes emit air pollution in surrounding neighborhoods
4. Destruction of natural habitats
5. Noise pollution in Old Wethersfield impacts tourism and property values
6. Frequent noise affects the quality of life in Old Wethersfield
7. Planes create light pollution in the nighttime
8. Flights over Main Street in Wethersfield disrupt the Old Wethersfield Historic and Cultural District
9. Programming, such as outdoor summer theater performances, in Old Wethersfield are interrupted by noise
10. Flight school activity generates repeated unwanted noise levels throughout the day
11. Noise pollution affects ability for residents to work remotely
12. Low-flying flight traffic has increased over the Green
13. Extending Runway 2-20 to the south would impact the vitality of Wethersfield's businesses underneath the flight path
14. Noise from airplanes shakes historic homes
15. Ariport site is very polluted and would take many years to remediate and build upon, relying on taxpayer support from surrounding communities

OPPORTUNITIES

1. Advances in aircraft powerplant systems including electric-powered aircraft can reduce noise pollution
2. Public has access to on-demand aircraft charter service
3. Protection of riverfront habitat
4. Restaurants, shops, condos, etc. could enhance the desirability of Hartford
5. Redevelopment of the site could include the post secondary CT AERO School, which offers well-paying aviation career paths
6. Expanded aviation education and connections to regional high schools and universities
7. Windsor, Wethersfield and Hartford could connect via trails and cultural activities along the CT River
8. Potential future Advanced Air Mobility site
9. More marketing regarding historical significance of the airport
10. Attract corporate businesses and grow jobs
11. Potential solar farm installation
12. Transportation/cargo hub for the Northeast and/or regional logistics with electric eVTOL platforms
13. Small airshows, tourist flights, floatplanes, and banner towing
14. Recreation center with golf driving range, zip lines, adventure park, zoo, restaurants, stores, Go Kart tracks

THREATS

1. Low-flying aircraft over schools and residential areas cause air pollution
2. Lack of data to support economic benefit from airport
3. Contentious politics
4. Potential motivations for MDC expansion
5. Lack of investment
6. Short-sighted visions
7. Influential lobbying firms
8. Environmental remediation necessary for alternative uses
9. Flood risk
10. Environmental Justice area

This map shows a selection of public comments identified through the SWOT analysis and their geographic context. Many of the strengths, weaknesses, opportunities, and threats coalesce at key areas throughout the site.

Figure 22: SWOT Analysis Responses by Category

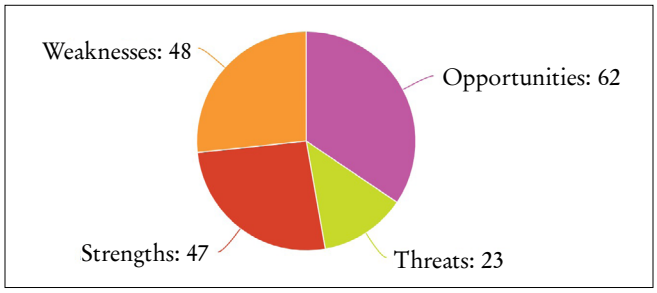


Figure 23: Select SWOT Analysis Responses Mapped

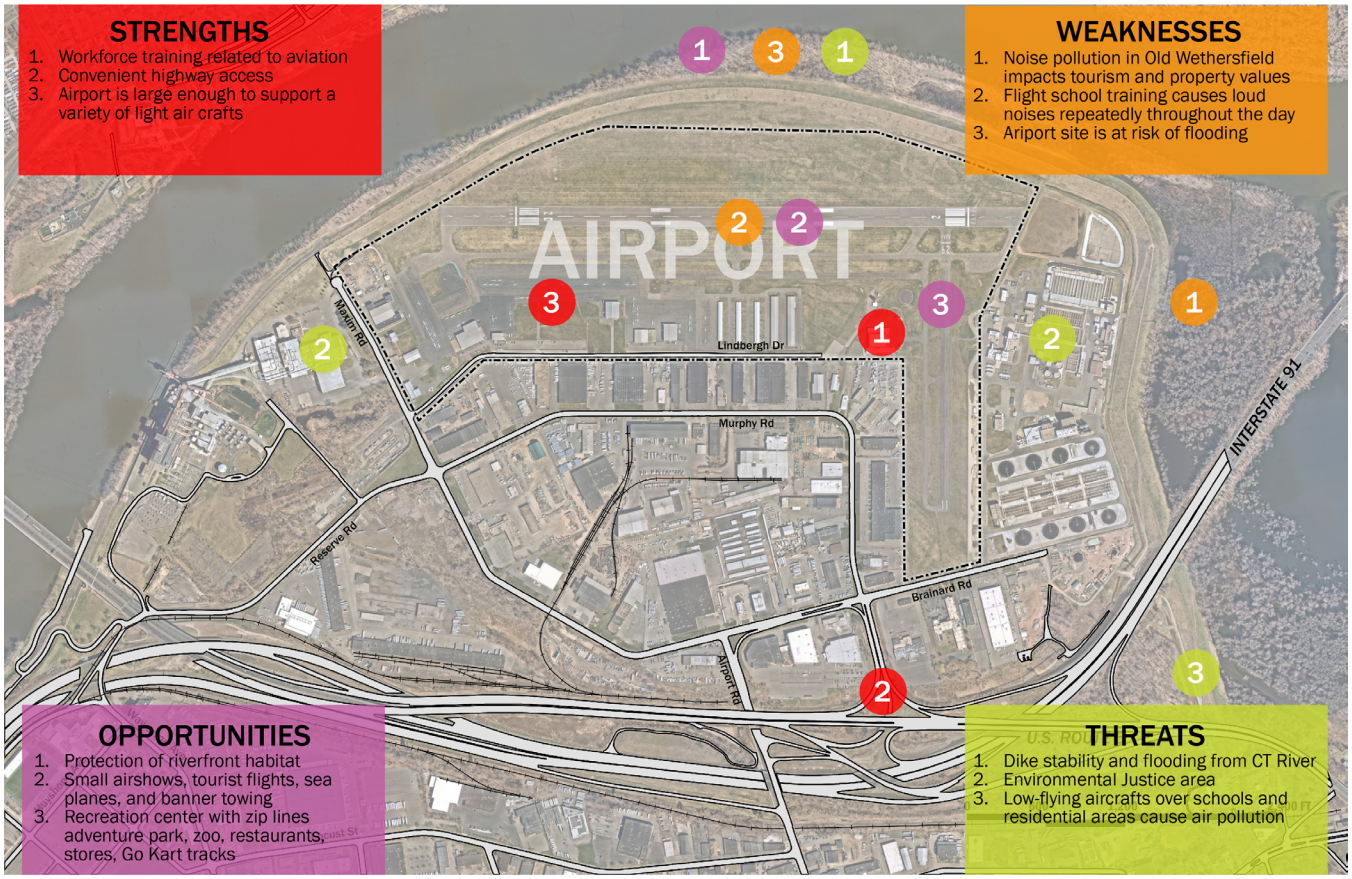


Figure 24: View of Aircraft at Hartford-Brainard Airport

03

Study Area

3.0 STUDY AREA

3.1 OVERVIEW

Hartford - Brainard Airport (KHFD) is a CAA-owned, public-use airport in Hartford, Connecticut, spanning 201 acres. It is a Regional GA Airport and Reliever Airport in the FAA's National Plan of Integrated Airport Systems (NPIAS). The Airport boasts three runways, including a seasonal 2,350-foot turf runway and two asphalt runways measuring 4,400 and 2,300 feet. It features supporting infrastructure, including a lighted helipad, taxiway system, aircraft parking aprons, instrument landing system, air traffic control tower, weather station, vehicle parking, and various airport tenant facilities. The FAA contracts tower operations from 6:00 a.m. to midnight daily. This allows the Airport to ease congestion at nearby commercial service airports like Bradley International Airport and improve general aviation access in the community.

The Airport houses several Fixed Base Operators (FBO) businesses that offer concierge services, fueling, ground support, aircraft repair, avionics, and flight school training. Additional onsite amenities include T-hangar and corporate aircraft storage, private air charter, and aircraft sales and rental.

The Airport also plays a role in education and training within the aerospace sector, as it is home to Connecticut Aero Tech School, a part of the State technical high school system, which offers programs in aviation maintenance technology fields.

3.2 HISTORY

Hartford-Brainard Airport, originally a 350-acre cow pasture, holds a significant place in aviation history. In 1921, the site became the first municipal airport in the United States. In 1927, the Airport gained even more prominence when Charles A. Lindbergh made it the first stop on his national victory tour after completing his historic solo transatlantic flight. During World War II, the Airport played a crucial role as a training center for pilots and aircrews of the United States Army Air Forces. However, as the larger Bradley International Airport (BDL) developed in the 1950s, Brainard Airport lost its commercial jets, and by 1958, all commercial carriers had relocated to Bradley.

Figure 25: Opening Day, Brainard Field, 1921

Credit: Connecticut Museum of Culture and History

Figure 26: Aerial of Brainard Field, 1937

Credit: Connecticut Museum of Culture and History

Figure 27: Postcard of Brainard Field, Between 1930 and 1945

Credit: Boston Public Library Tichnor Brothers Collection

Following this transition, an agreement was reached between the State of Connecticut and the city of Hartford in 1958, leading to the State taking control of the Airport while designating the remaining land as an industrial park. In 2013, the FAA approved the transfer of Hartford-Brainard Airport, along with five other airports in the state, from the ConnDOT to CAA.

Throughout the years, there were various considerations for the Airport's future. In 1987, the Mid-Connecticut Resource Recovery Facility (MIRA plant) began operations, and in 2006, there were explorations into converting the site, including the MIRA plant, into a mixed-use center. Recently, the Airport's potential reuse has been a topic of discussion. The State Legislature advocated for the Airport to remain in its current use in 2016. However, the 2020 Hartford's 2035 Plan of Conservation and Development (POCD) recommended the Airport's future conversion and development, as part of the South Meadows area, to be a focus for redevelopment. Subsequent actions were taken to explore airport reuse, including the Hartford City Council passing a resolution in 2021 to investigate possibilities and establishing the SMART task force for this purpose. The Hartford Regional Market also released revitalization recommendations for the site in 2022.

To further advance the Airport's potential reuse, the State passed a bill in 2022 to fund this study, delving into the various possibilities for the site's redevelopment.

Figure 28: The 2007 AOPA Expo at Hartford-Brainard Airport

Credit: AOPA, Chris Rose

3.3 SITE CONTEXT

Hartford-Brainard Airport is situated on the Connecticut River, south of downtown Hartford (see Figure 29).

The site has excellent regional access from I-91 and US-5 and 15 (Berlin Turnpike) to the west.

Figure 29: Hartford-Brainard Airport Location

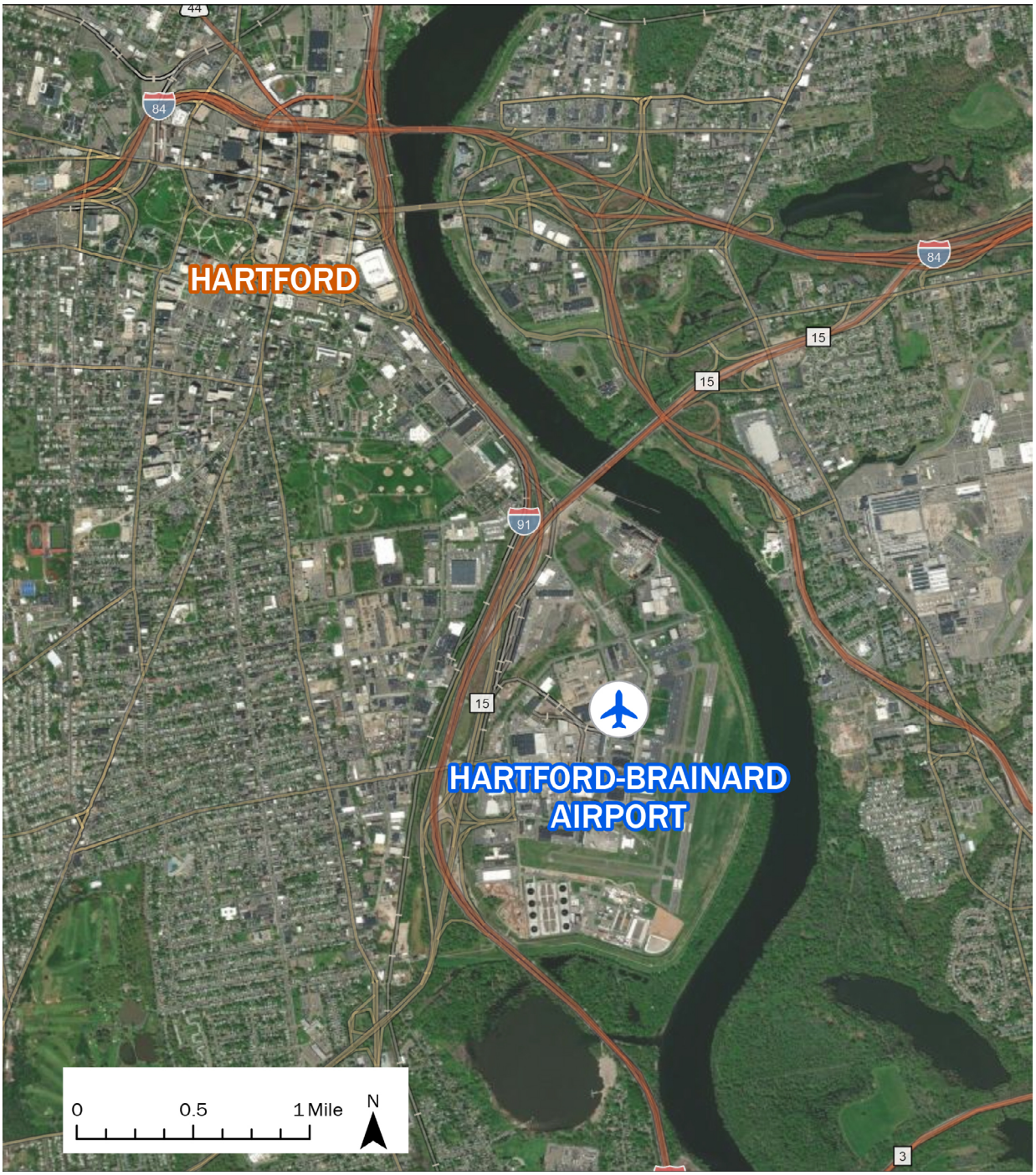
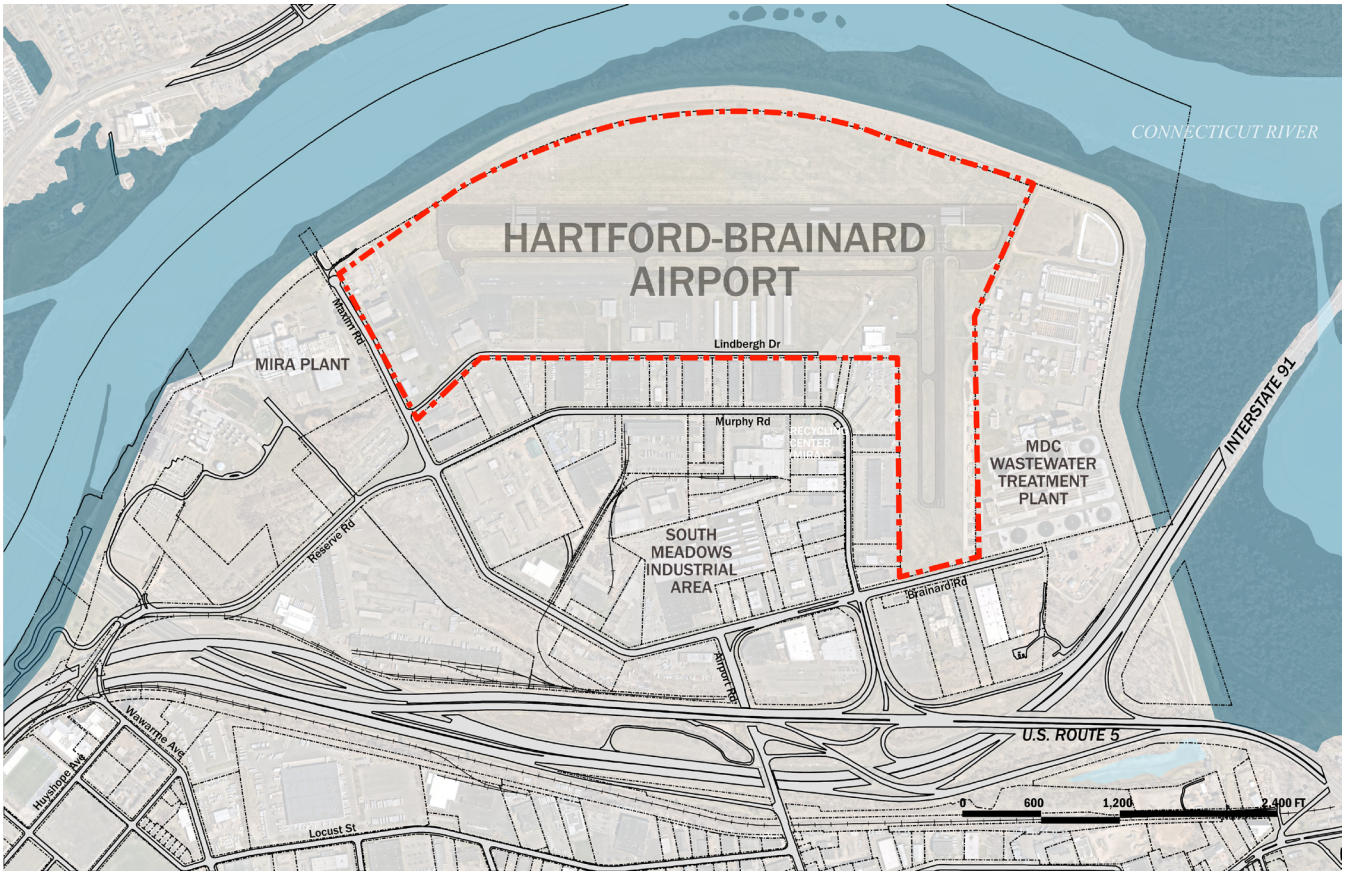


Figure 30: Hartford-Brainard Airport Site



As the site location map shows, the same roads that provide good access to Hartford-Brainard Airport also separate it from the South End of Hartford. To the west of the Airport is a brownfield site (the Materials Innovation and Recycling Center (MIRA) facility), and to the south of the site is the Metropolitan District Commission's (MDC) Wastewater Treatment Plant.

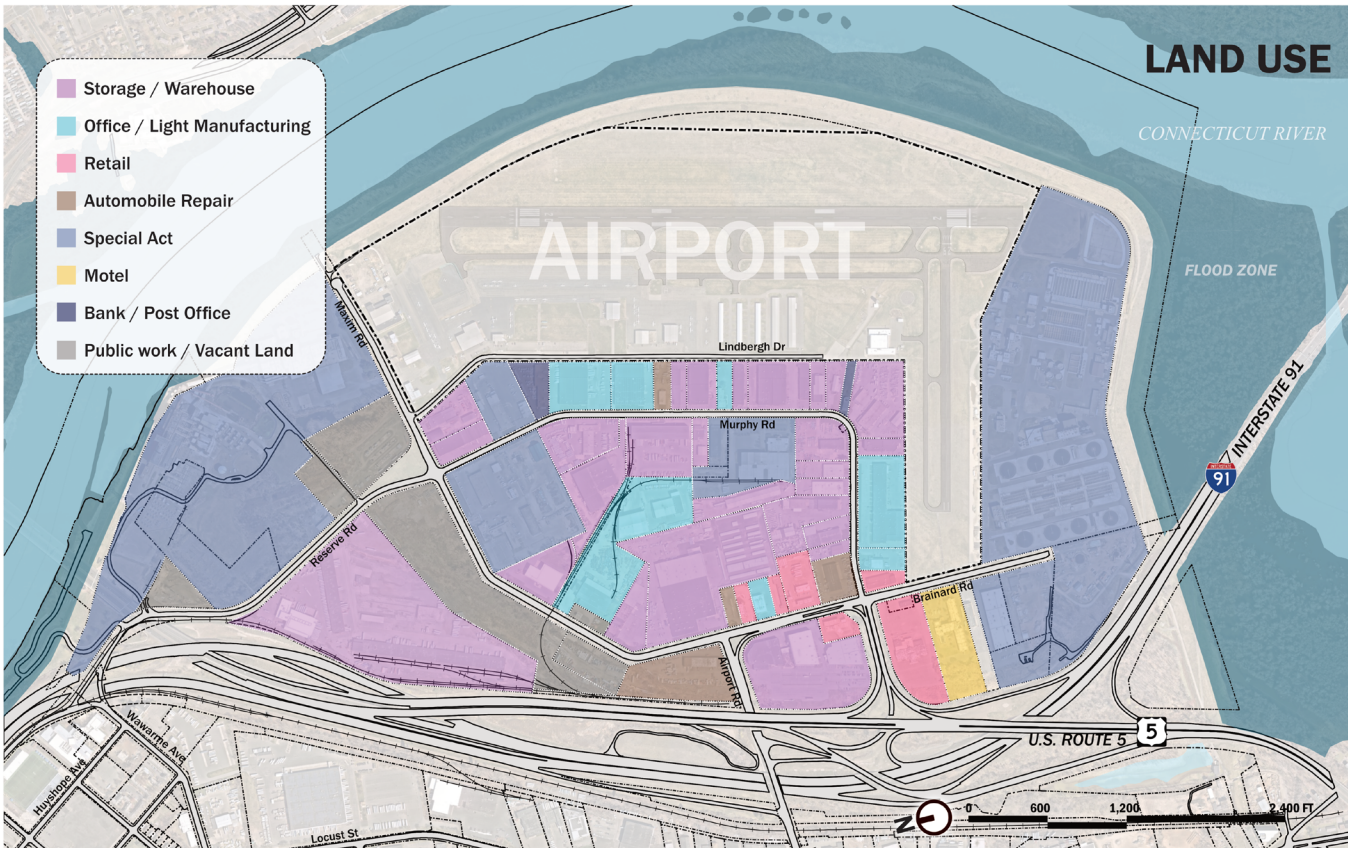
The Airport is separated by a 32-foot levee maintained and operated by the Greater Hartford Flood Control Commission in partnership with the City and the Army Corps of Engineers. It is surrounded by primarily industrial uses, including the recently closed Materials Innovation and Recycling Center (MIRA) trash-to-energy production facility to the north, the Metropolitan District Commission's (MDC) Wastewater Treatment Plant to the south, and the South Meadows Industrial Park to the west.

Located along the west bank of the Connecticut River, the Hartford Local Protection Project provides flood protection to the Airport. The dikes, floodwalls, stop log structures, conduits, and pumping stations protect around 3,000 acres of Hartford's commercial, residential, and industrial land. Extending from Windsor Avenue to the border of Hartford and Wethersfield, six stop long structures protect the area from floodwaters, and six pumping stations discharge storm and sewage. According to the US Army Corps of Engineers, this amounts to approximately 35,000 feet of earthfill dikes and 4,400 feet of concrete floodwall along the Connecticut River. Completed in its entirety in 1981, the Hartford Local Protection Project cost $71.5 million and is presently maintained and operated by the City of Hartford.

In 2014, several components of the Hartford Flood Control System were designated as "unacceptable" by USACE. The System-Wide Improvement Program (SWIF) includes a comprehensive assessment of known and potential improvements to the entire flood control system to address these deficiencies. These planned capital improvements total $42,000,000, including projects related to the South Meadows Dike.

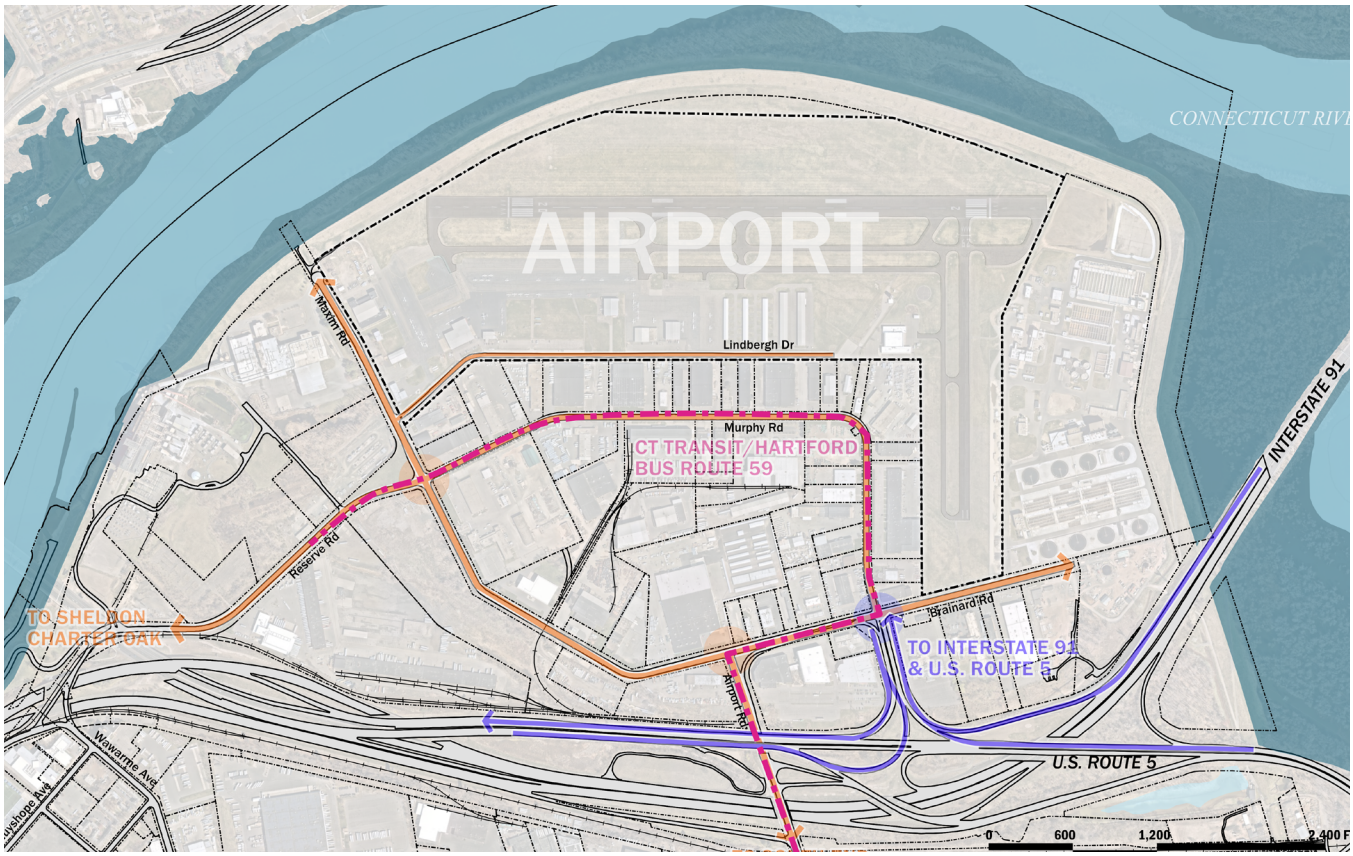
The area immediately surrounding the Airport encompasses primarily industrial uses, with South Meadows Industrial Park to the west. Land uses primarily consist of storage/ warehouse, automobile repair, office/light manufacturing, and more. Significant urban infrastructure surrounds the site, including the Connecticut Regional Market, the recently closed MIRA trash-to-energy production facility to the north, and the MDC Wastewater Treatment Plant to the south.

Figure 31: Land Use



Existing circulation at and around the Airport site is limited due to access points and highway infrastructure. Reserve Road and Airport Road are the only two road connections allowing airport access. The Airport is located conveniently beside Interstate 91 and US Route 5 and 15; however, the highway infrastructure separates the Airport from adjacent Hartford neighborhoods, such as Sheldon-Charter Oak to the north, the South End to the West, Old Wethersfield to the south, and East Hartford to the east. CT Transit offers bus access via Bus Route 59. This route provides services from South Meadows to Downtown Hartford with stops at Regional Market (Reserve Road), Brainard Industrial Park (Brainard & Murphy), Curcombe & Huyshope, Charter Oak & Prospect, and Downtown Hartford (Central South Row).

Figure 32: Existing Circulation



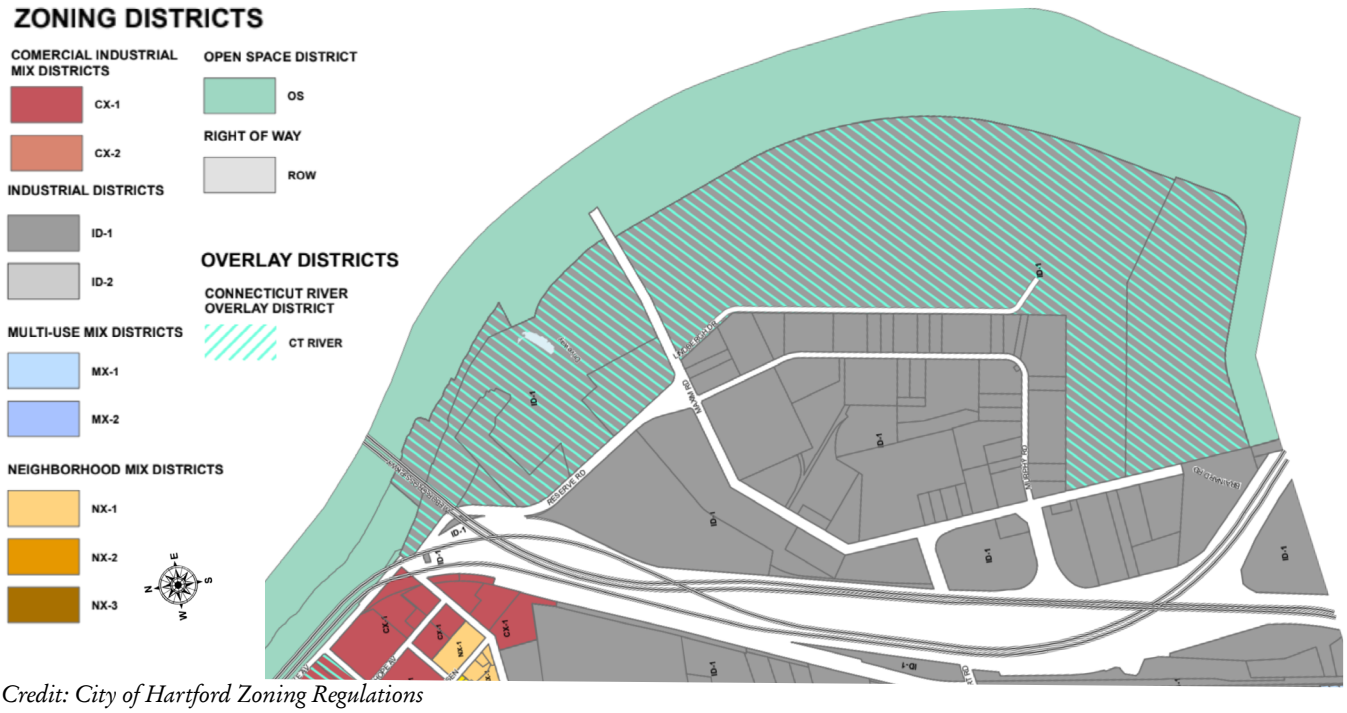
3.4 ZONING

The Hartford-Brainard Airport is zoned as an Industrial District (ID-1) within the Connecticut River Overlay District.

The Industrial District (ID-1) allows medium to heavy industry characterized by a minimum of noise, odor, glare, and pollution and moderate traffic on public streets. This district encourages the development of compatible relationships between industrial uses and surrounding residential areas.

According to the City of Hartford Zoning Regulations Section 5.4, the purpose of the Connecticut River Overlay is to improve access and enjoyment of the Connecticut River with ecologically sensitive, use-specific development. This special overlay district requires all applicants to file a zoning permit application or obtain a special permit. Special permits are required for all improvements proposed within 75 feet landward from the Connecticut River. All buildings within the Connecticut River Overlay district must adhere to the Building Types permitted by the underlying zoning district, i.e., ID-1 at the Airport site. However, the following exceptions apply to all buildings: minimum overall height shall be 3.5 stories, and maximum overall height shall be 30 percent greater than the underlying Building Type allows. Additionally, sustainable construction methods and building materials may be conditional in the approval process.

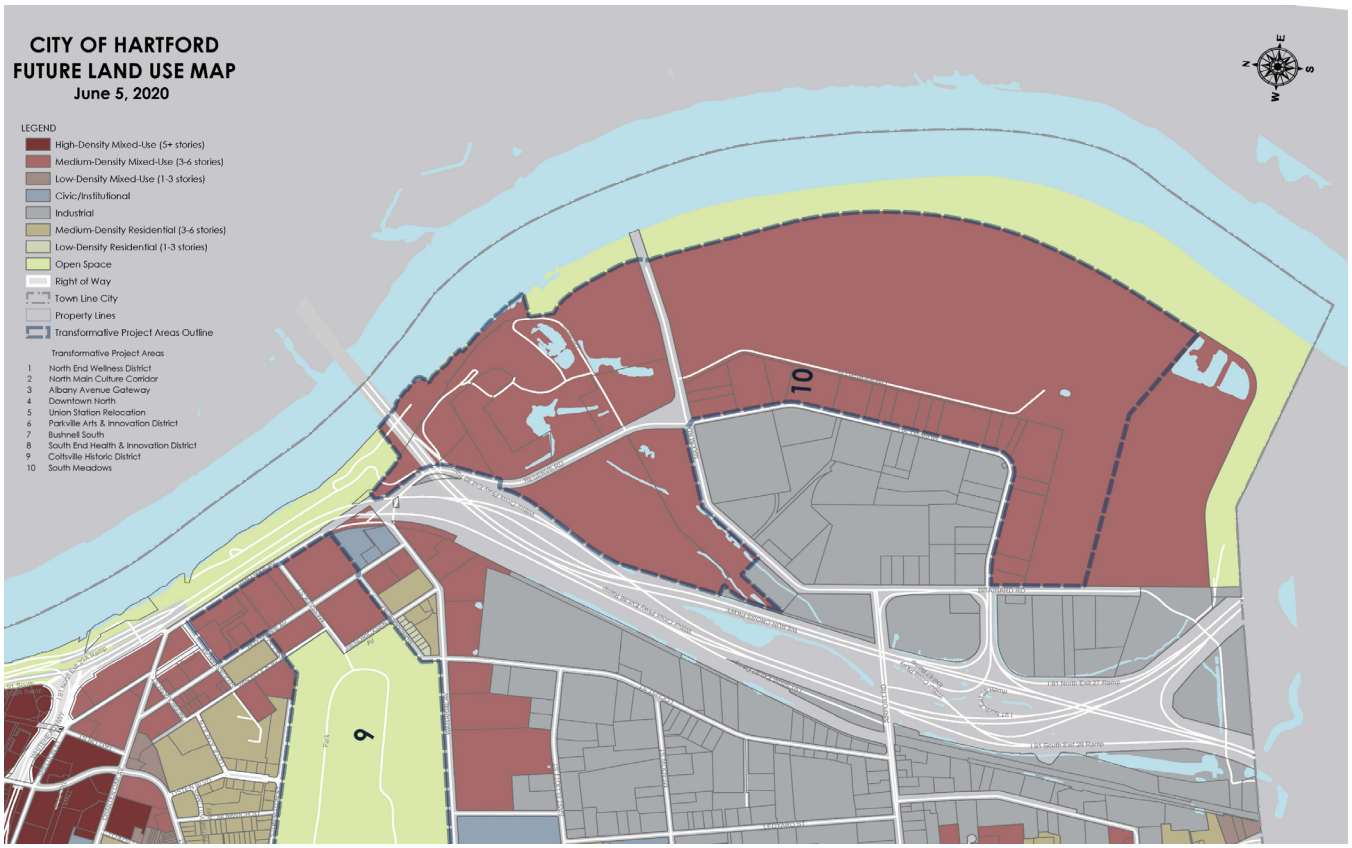
Figure 33: Existing Zoning



Credit: City of Hartford Zoning Regulations

Although Brainard Airport is currently zoned for industrial uses, the 2020 POCD includes a future land use map that designates the site as Medium-Density Mixed-Use (3-6 stories). The POCD also identifies the South Meadows area as one of the ten areas planned for transformative projects, seeking to revitalize the Brainard Airport and Regional Market sites while connecting people to the river with trails and infrastructure improvements. Such projects need to consider the implications of the site's environmental justice designation, described in the next section.

Figure 34: City of Hartford Future Land Use Map



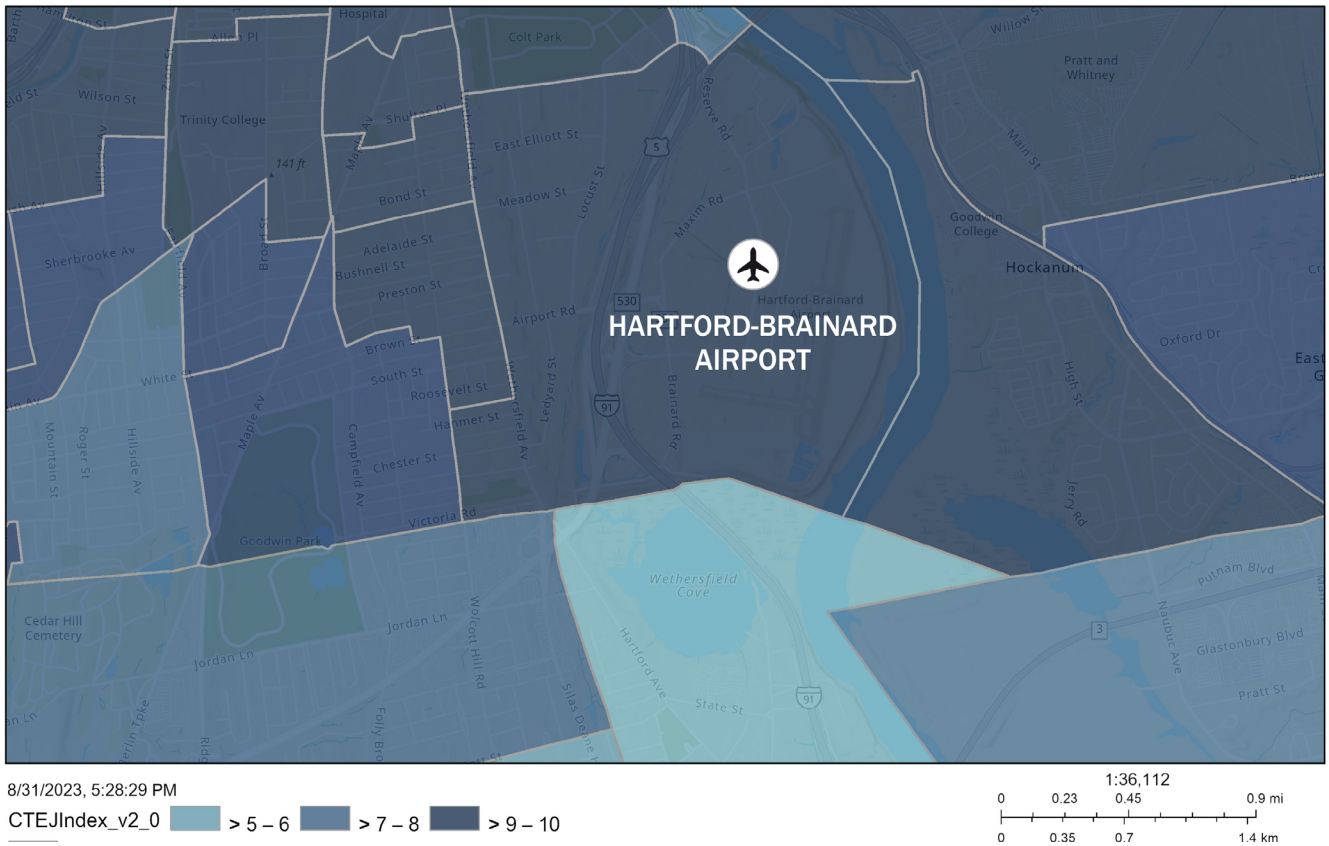
Credit: City of Hartford POCD

3.5 ENVIRONMENTAL JUSTICE

The Connecticut Environmental Justice Screening tool, developed with funding from the Connecticut Department of Energy and Environmental Protection (DEEP), identifies Connecticut communities that experience higher rates of pollution, health concerns, and other social and economic burdens. The Environmental Justice Index shown in this map is a composite of 51 indicators related to Potential Pollution Sources, Potential Pollution Exposure, Socioeconomic Factors, and Health Sensitivity. Nearly all the Brainard Airport study area, except the vacant wetlands on the south, is part of a larger census tract (5025) mapped at a level indicating the highest potential for environmental injustice. This census tract is in the 99.89th percentile and ranked 10 out of 10 statewide regarding the disproportionate potential impact of pollution on vulnerable populations impacted by chronic health conditions and social stressors.

The Connecticut Environmental Justice Screening Tool does not mandate any particular action and does not directly suggest what should happen to the Airport. For the Brainard Airport study area, the Connecticut Environmental Justice Screening Tool does indicate that regardless of the recommended course of action as to the future of the Airport, continued operations, redevelopment, new development, and, in particular, uses that involve increased numbers of people, especially for longer periods of time should all be subject to the assessment of risk, especially if adverse environmental conditions in the study area remain unmitigated.

Figure 35: Connecticut Environmental Justice Mapping Tool: Hartford-Brainard Airport



Credit: Connecticut Environmental Justice Mapping Tool

3.6 ECONOMIC AND POPULATION PROFILE

Hartford's population has declined since 2011, while the CRCOG region grew slightly over the same period, with the latter having a higher median household income and higher educational attainment while also less diverse than the city.

3.6.1 POPULATION

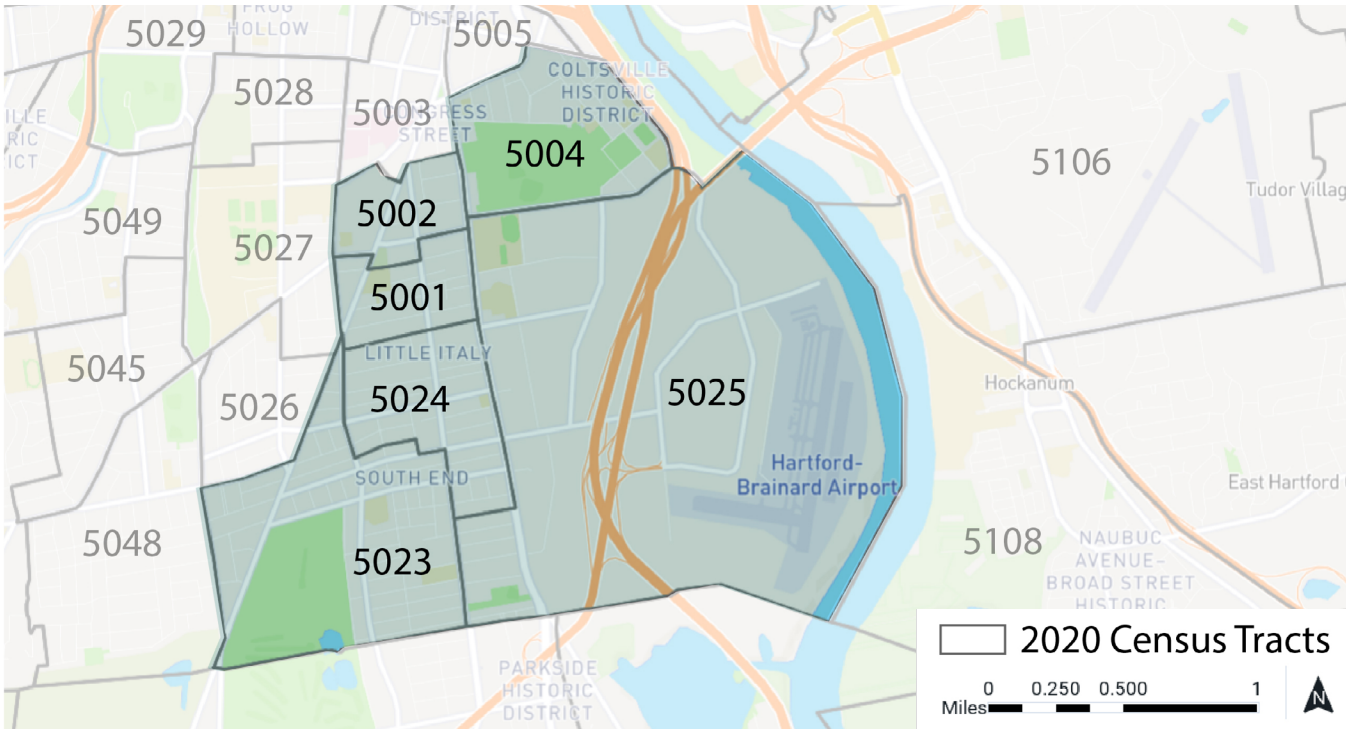
From 2011 to 2021, Hartford's population fell 3% from 124,817 to 121,562 while the CRCOG region grew 1% over the same period. The immediate neighborhood surrounding the HFD site has seen its population increased 6% from 2000 to 2011 before declining 4.9% from 2011 to 2021.6 Today approximately 19,100 people reside in the five Census tracts surrounding the Airport. Recent population decreases in the City and immediate HFD neighborhood suggests a weaker demand for housing than in the rest of the region. The City of Hartford and immediate HFD neighborhood are predominantly renter areas (75% and 70% renter-occupied housing in Hartford and the HFD neighborhood, respectively) while the CRCOG region, which is much more suburban in nature, has a much smaller proportion of renters (35% renter-occupied).

Table 1: Study Area and Surrounding Neighborhood Population

Total Population	2000	2011	2021	2000-11 Change	2011-21 Change
HFD Neighborhood	19,009	20,179	19,190	6.2%	-4.9%
City of Hartford	121,578	124,817	121,562	2.7%	-2.6%
CRCOG Region	922,590	969,550	975,609	5.1%	0.6%

HFD Neighborhood includes Census Tracts 5001, 5004, 5023, 5024 and 5025. Source: U.S. Census Bureau, American Community Survey

Figure 36: HFD Neighborhood Census Tracts



3.6.2 RACE

In 2021, Hartford's population was composed of 28% individuals who identified as White, 36% as Black or African American, 3% as Asian, 1% as American Indian or Alaska Native, 0.1% as Native Hawaiian and other Pacific Islanders, and 21% identified as belonging to some other race while 12% of people identified as belonging to two or more races. These ratios have remained stable since 2000. Hartford's population is largely Hispanic or Latino (46%) and this share represents an 8% increase from 2011. The immediate surrounding neighborhood is as diverse as the rest of the city (only 27% identified as White) but has a lower share of Black or African American residents (22%) than the city; however, the HFD neighborhood is majority Hispanic or Latino (63%).

In contrast, the CRCOG region is predominantly White with a smaller proportion of Black residents and greater representation of individuals identifying as Asian, Native Hawaiian and other Pacific Islander, or some other race. Furthermore, Hispanic or Latino individuals represent 17% of the CRCOG region's population, with almost half of that share living in the City of Hartford.

3.6.3 INCOME AND EDUCATION

Hartford's 2021 median household income was $37,500 or approximately $43,000 less than the CRCOG Region, but both the city and region have seen median household incomes decline in real terms since 2000. The neighborhoods surrounding HFD have consistently had a higher median household income than the city but lower than the region, but from 2011 to 2021 this area has seen its median household income climb faster than the city and CRCOG.

Only 17% of Hartford residents 25+ had earned a bachelor's degree or more by 2021, up slightly from 15% in 2011 with the neighborhoods surrounding HFD having an even lower share with a bachelor's degree or more (11%) and more modest increase between 2011 and 2021. CRCOG residents are much more likely to have higher educational attainment with 41% of residents having bachelor's degrees up from 35% in 2011.

Table 2: Median Household Income (in 2021 dollars)

Median Household Income (In 2021 Dollars)	2000	2011	2021
HFD Neighborhood	$44,957	$39,975	$45,254
Hartford	$40,487	$35,140	$37,477
CRCOG Region	$84,555	$79,695	$80,666

HFD Neighborhood includes Census Tracts 5001, 5004, 5023, 5024 and 5025. Source: U.S. Census Bureau, American Community Survey

Table 3: Educational Attainment for Residents 25 Years or Older

HFD Neighborhood			Hartford		CRCOG Region	
	2011	2021	2011	2021	2011	2021
Less Than High School	34%	31%	32%	26%	12%	9%
High School Graduate	32%	33%	31%	34%	28%	26%
Some College or More	24%	25%	23%	24%	25%	25%
Bachelor's Degree	7%	6%	9%	10%	20%	23%
Above a Bachelor's Degree	3%	5%	6%	7%	15%	18%

Totals may not add to 100% due to rounding. HFD Neighborhood includes Census Tracts 5001, 5004, 5023, 5024 and 5025. Source: U.S. Census Bureau, American Community Survey

04

Current Airport Status

4.0 CURRENT AIRPORT STATUS

4.1 INTRODUCTION

The following section presents an overview of current operations at Hartford-Brainard Airport conducted by QED Airport & Aviation Consultants. To access the full airport operations analysis, see Appendices N and O.

The Hartford-Brainard Airport Master Plan Update, completed in 2014 by CAA, is the most recent study of the facility's planned improvements. The overview below provides summaries and updates to that document to focus on key aspects relevant to addressing the future use of the Hartford-Brainard Airport property.

This section provides an overview of the Airport's infrastructure, including its runways, taxiways, aprons, lighting, and navigational aids. The information presented here is derived from a comprehensive assessment of the Airport's plans and documents, on-site inspections, and consultations with the CAA.

Airport facilities are typically categorized into two main areas: airside and landside. Airside facilities directly support aircraft operations, including runways, taxiways, aprons, lighting, and instrumentation. On the other hand, landside facilities comprise support buildings and structures that may have access to the airside. These landside facilities encompass the terminal, hangars, maintenance buildings, parking lots, and access roads.

4.1.1 AIRSIDE FACILITIES

Runways

Hartford-Brainard Airport features two paved runways, specifically Runway 2-20 and Runway 11-29, and a grass runway referred to as Runway NE/SW. Additionally, there are two helipads designated as H1 and H2.

Runway 2-20

Runway 2-20 is the primary runway at the Airport, with dimensions of 4,417 feet in length and 150 feet in width. However, both ends of this runway have displaced thresholds to adhere to approach clearance requirements. On the Runway 2 end, there is a 411-foot threshold displacement due to obstructions like trees that fall within the Federal Aviation Regulation (FAR) Part 77 approach surface. Meanwhile, the Runway 20 approach end features a threshold displacement of 560 feet, primarily because of obstacles such as trees and a flood control levee.

A displaced threshold is positioned at a point along the runway that is not its designated starting point. When a threshold is displaced, it effectively shortens the usable length of the runway for landings in one specific direction. However, the segment of the runway beyond the displaced threshold remains available for both takeoffs in either direction and landings from the opposite direction.

The need for these displaced thresholds is driven by the presence of the Clark Dike, a flood control barrier standing approximately 35 feet tall, which encloses the runway along the Connecticut River.

Runway 2-20 is well-equipped with essential lighting and navigation aids, including High-Intensity Runway Lights (HIRL), Visual Glide Slope Indicators (VGSI), and Runway End Identifier Lights (REIL). These aids play a crucial role in ensuring the safety and precision of operations on this critical runway.

In terms of approach options, Runway 2 offers a variety of choices. Two non-precision approaches are available: a Localizer Directional Aid approach and a GPS-RNAV approach. Additionally, the Airport provides a VOR approach, which is limited to circling procedures, and a published visual approach primarily designed to reduce noise. While the runway markings are non-precision, they are maintained to support safe and efficient aviation operations.

Runway 11-29

Runway 11-29, the crosswind runway, has more modest dimensions, measuring 2,314 feet in length and 71 feet in width. This runway is primarily utilized by smaller general aviation (GA) aircraft and is equipped with High-Intensity Runway Lights (HIRL). The visual markings on Runway 11-29 are well-maintained to support safe operations.

However, it's important to note that Runway 29 has a notable feature—a displaced threshold of 265 feet. This displacement is due to obstructions, specifically trees, that are situated within the Federal Aviation Regulation (FAR) Part 77 approach surface. This feature is highlighted in Table 1 for a side-by-side comparison with intersecting Runway 2-20.

Turf Runway

The turf runway at HFD, measuring 2,309 feet in length and 150 feet in width, has limited usage, particularly during wet conditions. Notably, it is closed for operations during the winter months and lacks lighting infrastructure. The runway is marked with orange markers and flags to aid visibility, primarily for guiding pilots during daylight operations.

However, its proximity to Runway 2-20 presents a challenge, with only about 300 feet of separation between the turf runway's centerline and that of Runway 2-20, making simultaneous operations unfeasible. Additionally, the turf runway's location is isolated from vehicle access due to the presence of the Clark Dike. It's worth mentioning that this turf runway is the only publicly owned one in the State.

Helipads

There are two helipads at HFD. The Midfield Helipad, H1, situated near Taxiway D, measures 44 feet by 44 feet and is equipped with medium-intensity lights. Adjacent to H1, there are two helicopter parking spaces. The North Helipad, H2, located near the Runway 20 end, measures 70 feet by 77 feet and features medium-intensity lights and three parking spaces nearby.

Taxiways

The Airport features full-length, parallel taxiways on the west side of the airfield, serving both paved runways and providing access for tenants and aircraft storage facilities. These taxiways are equipped with Medium Intensity Taxiway Lights (MITL) and range in width from 25 to 50 feet. Taxiway A serves Runway 2-20 and was last reconstructed in 1995, while Taxiway B serves Runway 11-29 and underwent reconstruction in 1999. Taxiway J is a secondary parallel taxiway for Runway 2-20, enabling bidirectional simultaneous taxi operations between the landside facilities and the two runways; it was also reconstructed in 1999. Additionally, connector taxiways facilitate access to and from the facilities and runways. Notably, there is no airside access to the south and east sides of the airfield, except for the turf runway, which is accessed by crossing Runway 2-20 at Taxiway D.

Air Traffic Control Tower (ATCT)

The Air Traffic Control Tower (ATCT) at HFD is under the ownership and maintenance of the FAA and is operated by contract personnel. It is strategically located on the west side of the airfield at the intersection of Taxiways J and B. This tower stands at an approximate height of 66 feet, with the cab floor situated at an elevation of 34 feet.

The ATCT operates daily, from 0600 to 0000 (Midnight), seven days a week. HFD falls within the jurisdiction of the Boston Air Route Traffic Control Center (ARTCC), which manages air traffic flow at higher altitudes for aircraft approaching and departing from airports in the region. The Bridgeport Flight Service Station (FSS) also provides pilots with critical information before and after their flights, including weather updates and Notices to Airmen (NOTAMS). The FSS also facilitates flight plan filing, opening, and closing processes. However, it's important to note that the FSS does not provide air traffic control services.

During the operational hours of the HFD tower, the ATCT staff are responsible for controlling the lighting system for the runways and taxiways. However, when the tower is closed, pilots have the capability to activate the runway and taxiway lights using the common traffic advisory frequency (CTAF). It's worth mentioning that HFD does not possess its own flight traffic radar, but the HFD ATCT has access to radar data from Bradley International Airport (BDL) for monitoring air traffic in the vicinity.

Automated Surface Observation System (ASOS)

Located north of the ATCT, the ASOS provides pilots with up-to-date meteorological conditions, including wind speed, direction, and cloud ceiling, especially when the ATCT is closed. The ASOS was commissioned in May 1997 and is maintained by the National Weather Service (NWS). The data collected is directly uploaded into the NWS database and is readily accessible for review.

Additional Visual Aids

The Airport's visual aids include a lighted wind cone within a segmented circle, located on the west side of the Airport near the ATCT, to indicate wind direction. Another wind cone is positioned north of Taxiway D. Additionally, the Clark Dike is equipped with obstruction beacons at both ends to assist pilots in their navigation.

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Table 4: Airside Facilities

Airside Facilities					
Facility	Length	Width	Edge Lighting	Pavement Strength	Instrument Approach
Runway 2-20	4417'	150'	High Intensity	30,000 S 45,000 D 70,000 DT	RNAV (GPS) 2 LDA 2 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.				

4.1.2 LANDSLIDE FACILITIES

Landside facilities are presented in Table 2. All aircraft tie-down 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 Airport's northern end is leased to various local, State, and Federal agencies.

Hangars

There are numerous hangars at the Airport. The CAA owns all of the property and buildings and leases them to tenants. Most of the structures are considered to be in good condition. Buildings 24 and 25 could use some upgrades during a future renovation project.

Aprons

There are four main aprons at HFD. Most of the tie-downs on the South Ramp, Midfield Ramp, and North Ramp are owned by the CAA and leased directly to aircraft owners; a few spaces are leased to the Fixed Based Operator (FBO). Additionally, several hangars have tie-down locations in front or side of their buildings that are typically used for their business aircraft, customers, or itinerant aircraft.

Perimeter Fence

A perimeter fence is situated along much of the border of the airport property. There is currently no fence to the east of the Airport along the Clark Dike. This lack of fencing allows animals and the occasional person or vehicle to access the airfield.

Table 5: Landside Facilities

Landside Facilities	
Facility and Service Provider	Services Offered
Hartford Jet Center	Hangar storage, aircraft tie-down 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 tie-down 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	

4.2 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 one business jet, three single-engine, and two 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 one 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 a total of 357 aircraft registered to owners in Hartford County. This infers that about 37 percent of these pilots/aircraft use the Airport.

Table 3 and Table 4 record the number of based aircraft and aircraft operations at the Airport over the past ten years

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 from 2020 through 2022. The impact of the COVID pandemic beginning in 2020 is more reflective in the number of aircraft operations.

Table 6: Landside Facilities

Historical-Based Aircraft and Itinerant Aircraft Operations

		Itinerant Aircraft Operations				
Year	Based Aircraft	Air Carrier	Air Taxi and Commuter	General Aviation	Military	Total
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 7: Historical Local and All Aircraft Operations

Historical Local and All Aircraft Operations				
	Local Aircraft Operations			Grand Total
Year	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				

The table above shows the aircraft activity over the last ten years. These operations are classified into two distinct types by type of 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, including 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 carriers, air taxi, and commuter operators, which are primarily itinerant

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 aircraft type. 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 survey results of their business operations and financial data may provide such information. Some inferences may be made based on anecdotal information and financial records without such recorded data.

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 ten years, local operations have averaged about 45 percent of total aircraft movements.

4.3 AIRPORT DESIGN FACTORS

4.3.1 CRITICAL DESIGN AIRCRAFT

The critical design aircraft plays a crucial role in determining the appropriate design standards for various airport facilities, ensuring that they can accommodate specific operational requirements. According to the Federal Aviation Administration (FAA), it is characterized as the aircraft type with the most exacting demands regarding approach speed and wingspan. Furthermore, this aircraft type should generate a minimum of 500 annual operations. It's important to note that airports with multiple runways may be subject to different airport reference codes based on the length of each runway. In the case of the Hartford-Brainard Airport, there are two runways: Runway 2-20, which spans a length of 4,417 feet, and Runway 11-29, with a shorter length of 2,314 feet.

FAA air traffic data for the 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 of 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

4.3.2 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 (90º) 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 8: Runway Crosswind Coverage

Runway Crosswind Coverage Runway End and Combinations	10.5 Knot Crosswind Limit Coverage (%) 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' is only suitable for the lightest of aircraft.
- Used more frequently between late summer to early November.
- When winds favor its use, most pilots, estimated at 80 percent, 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 annually, 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. This turf runway is useful for short-field landing and takeoff training and relieving the use of Runway 2-20 during peak periods of activity.

4.3.3 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; during IFR conditions, the hourly capacity is 40. These hourly capacities exceed the current and anticipated demand levels.

4.3.4 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. Several factors contribute to the determination of the length of the runway for takeoff and landing. Key factors for the Airport include:

- Airport elevation (18.3' MSL)
- Mean maximum temperature during the hottest month of the year (83ºF)
- 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 following sections and addresses those segments of the general aviation fleet currently or are anticipated to operate at the Airport frequently, 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 Ten 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-sized 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 applies to turbojet-powered aircraft and incorporates 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)

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 the closure of the runway as an option. However, 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 serve business jet traffic better. 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 to yield a takeoff length of 5000'. If feasible, this is a desirable outcome, 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 the 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 provided minimal gains in runway length. However, the realignment negatively impacted the land area available for terminal area facilities. These options were not considered viable or cost-justifiable.

4.3.5 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 for Runway 2, as well as a circling approach to all runway ends, as presented in the table below.

Table 9: Instrument Approach Procedures

Instrument Approach Procedures	Approach Minimums by Aircraft Approach Category (MDA - VIS)			
Procedure	A	B	C	D
RNAV (GPS) 2				
LNAV	443 - 1	443 - 1	443 - 13/8	443 - 13/8
Circling	562 - 1	882 - 1¼	902 - 2¾	902 - 3
LDA 2 without DANNS Fix	663 -1	663 - 1	663 - 17/8	663 - 17/8
Circling	662 - 1	882 - 1¼	902 - 2¾	902 - 3
LDA 2 with DANNS Fix	443 - 1	443 - 1	443 - 13/8	443 - 13/8
Circling	562 - 1	882 - 1¼	902 - 2¾	902 - 3
VOR - A without ZOFOX Fix	1182 -1¼	1182 - 1½	1182 - 3	1182 - 3
VOR - A with ZOFOX Fix	562 - 1	882 - 1¼	902 - 2¾	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. They 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

4.3.6 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 are 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 since 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.

4.3.7 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 the 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 may displace up to 30 aircraft from hangar storage if not implemented.

4.4 FINANCIAL STATUS

The CAA maintains the Airport's financial records; the latest income statements are presented in the table below.

Airport operating revenue, 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 extending to the year 2052, which 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. The fixed base operator collects landing fees 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.

Table 10: Runway Crosswind Coverage

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 Tie-down 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.

The SERS payments are not being considered applicable when assessing the operating expenses at the Airport. This adjustment is accounted for in each fiscal year's net-net operating income (loss) value. 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 represent 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 operating 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, 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.

4.4.1 AIRPORT STATUS ASSESSMENT

The Airport has operated at a net loss and net-net loss through the long term. Its physical features and land area presently limit the Airport 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.

4.4.2 AIRPORT CLOSURE IMPACTS

As part of this analysis, we considered three types of benefits from ongoing operations of HFD:

1. Operations benefits driven by spending directly tied to use of the site including onsite spending by pilots using HFD and employers with operations at, and contingent upon, HFD, spending by visitors using HFD, and capital maintenance spending on the site.
2. Workforce development benefits driven by the number of pilots and mechanics and technicians trained at flight schools and CT Aero Tech School at HFD.
3. Economic development and competitiveness benefits driven by qualitative factors of having a general aviation airport operating near Hartford's downtown core and separate from the region's primary commercial airport, Bradley International Airport.

These benefits were captured in three ways:

1. Quantifiable, modeled economic benefits including total employment, wages and income from related labor, and economic output measured in gross regional product (or gross state product in the case of Connecticut).
2. Quantifiable benefits not monetized including workers trained and total potential incremental lifetime earnings.
3. Qualitative benefits related to regional competitiveness.

The economic subconsultants relied on findings from surveys of HFD aircraft owners and HFD employers to develop spending data, as well as other third-party data and economic and fiscal studies to inform this analysis. To model economic benefits this analysis relied on IMPLAN, a widely used economic tool that enables analysis of the economic effects of changes in various economic sectors.

HFD operations supports up to 360 direct and indirect jobs, $26 million in labor income, and $57 million in gross state product (GSP) in Connecticut. The vast majority of these benefits accrue to the CRCOG region (350 jobs, $24 million in labor income, and $54 million in gross regional product (GRP)), with a significant share benefiting Hartford (230 jobs, $16 million in labor income, and $32 million in GRP).

Employer spending at HFD (53%) and annual capital maintenance investments by CAA at HFD (14%) drive two-thirds of total economic benefits in terms of economic output from ongoing operations at HFD. In addition, spending by aircraft owners generates another fifth of total economic output, with the vast majority of this driven by expenditures onsite as opposed to offsite at nearby retailers and restaurants. Visitor spending accounts for the remaining 13% of total economic output from offsite purchases.

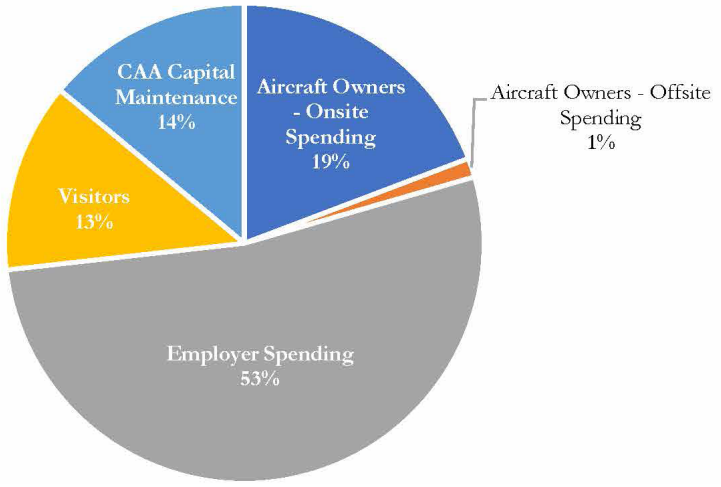
Ongoing operations at HFD and the workforce development activity that the airport facilitates the training of approximately 25 new pilots and 57 aircraft technicians annually. Both fields currently face a shortage of qualified workers, which has resulted in high placement rates. While graduates may not stay in the region, average salaries in these fields would result in up to $2.6 million annually in incremental labor income.

HFD generates additional economic benefits that are not quantified but more difficult to quantify but no less tangible to airport users and beneficiaries. For example, aviation-related industries such as Vertical Takeoff and Landing (VToL) and drone industries can benefit from use of HFD where busier commercial airports may not be able to accommodate their use. Private and corporate use may also attract businesses and key executives, who desire an airport close-in to downtown Hartford. Lastly, the city, region, and state all benefit from public services that use HFD including Public Safety, Civil Air Patrol, and Medflight use.

Table 11: Direct and Indirect Economic Impacts

	Hartford		CRCOG Region		Connecticut	
Direct and Indirect Economic Impacts	Low	High	Low	High	Low	High
Employment (Jobs)	125	230	190	350	190	360
Labor Income ($M)	$8.7	$16.1	$13.0	$24.2	$13.9	$25.8
Economic Output ($M)	$17	$32	$29	$54	$31	$57
Employer spending at HFD (53%) and annual capital maintenance investments by CAA at HFD (14%)						

Figure 37: Share of Economic Output of Existing Operations by Driver



State and local governments derive $3.6 million annually in fiscal benefits including sales, income, and property taxes owing to economic activity at HFD. This includes a share of the State PILOT to the City of Hartford for the Connecticut Airports Authority-owned (CAA) airport property.

More than 70% of economic benefits generated by operations at HFD would be lost to the state if the airport closed. This share is even greater in terms of loss of benefits to the CRCOG region (82%) and Hartford (87%) and is a result of HFD employers closing or relocating, HFD aircraft relocating to other airfields in the region and state, and other aircraft moving out of state. If HFD closed, sales and income taxes from HFD operations would be halved but depending on the nature of the closure and disposition of the site, Hartford property taxes may increase if the site were taxed as private property. Any residual benefits are a result of activity moving to other airports in the region and state, and the continued visitation to Hartford using airports and modes.

Table 12: Fiscal Benefits

Fiscal Benefits	City of Hartford	State of Connecticut	Other Local Governments	Total
Sales Taxes	-	$333,600	-	$333,600
Individual Income Taxes	-	$643,400	-	$643,400
Corporate Income Taxes	-	$122,000	-	$122,000
Property Taxes*	$668,700	-	$1,772,000	$2,440,700
Other Fiscal Benefits*	$25,200	$59,100	-	$84,300
Total	**$693,900**	**$1,158,100**	**$1,772,000**	**$3,624,000**

*Property Taxes includes State PILOT attributed to HFD. Other Fiscal Benefits include registration fees and gross earnings tax.

4.5 CLOSURE IMPACTS ANALYSIS

In addition to analyzing the economic and fiscal impacts from continued general aviation operations at HFD, this analysis also explores changes in those impacts based on a conceptual closure of the Airport. This considers what activity would continue to occur in Hartford, the CRCOG region, and the state versus what activity would either cease or leave the state and any related economic and fiscal impacts.

The scenario outlined in this section assumes full closure of HFD as a general aviation airport. This means that all flight activity would cease; however, some other related activities may continue to occur onsite. HR&A developed this scenario in coordination with QED based on responses from aircraft owner and employer surveys. For example, aircraft owners were asked what they would do if HFD closed, including the option to cease flying and sell their airplane or re-base their aircraft at another airport, either within or outside the state. Likewise, surveys asked employers whether they would continue to operate either at HFD's site or at another airport within the state. Lastly, HR&A and QED made assumptions about continuing visitation and what shares of this economic activity might occur at other regional and state airports.

This section was divided into a discussion of inputs, how this analysis derives adjusted inputs for the closure scenario, and a discussion of the quantitative economic impacts, other quantitative and qualitative impacts, and fiscal impacts resulting from a conceptual closure.

4.5.1 OPERATIONS INPUTS

Aircraft Owners

Aircraft owners drive a sizable portion (20%) of the overall economic activity at HFD directly through expenditures at HFD and offsite at nearby busines4ses, and through patronage of other onsite employers whose spending makes up the majority of economic activity at HFD. According to survey responses, the closure of HFD would significantly impact aircraft owners' willingness and ability to continue flying. Of surveyed aircraft owners, 54% said they would use another airport, 40% would sell their plane, and 6% would stop flying. Respondents who said they would use another airport were asked to identify and rank, in order of preference, the airport they would choose to re-base their aircraft.

The table below shows the overall rank of respondents to this question. Meriden Markham Municipal Airport garnered the most first-choice votes (8) and had the most respondents choosing it as a top-three relocation airport (22). Robertson Field represented a second preference in both first-choice votes (6) and top-three choices (18). Other airports receiving top-choice votes included Simsbury Airport (5), Windham Airport (5), Waterbury-Oxford Airport (3), Bradley International Airport (2), Skylark Airport (2), and Barnes Municipal Airport (1).

The economic subconsultants assumed that all respondents would re-base their aircraft and all related expenditures to their first-choice Airport. This was confirmed with QED,

Table 13: Direct and Indirect Economic Impacts

Alternative Airport	First-choice Respondents	Top-three Choice Respondents	In CRCOG Region?	In State of Connecticut?
Meriden Markham Municipal Airport, CT (MMK)	8	22	No	Yes
Robertson Field, CT (4B8)	6	18	Yes	Yes
Simsbury Airport, CT (4B9)	5	9	Yes	Yes
Windham Airport, CT (IJD)	5	8	No	Yes
Waterbury-Oxford Airport, CT (OXC)	3	6	No	Yes
Bradley International Airport, CT (BDL)	2	12	Yes	Yes
Skylark Airport, CT (7B6)	2	4	Yes	Yes
Barnes Municipal Airport, MA (BAF)	1	2	No	No
Chester Airport, CT (SNC)	0	5	No	Yes
Ellington Airport, CT (7B9)	0	4	Yes	Yes
Danielson Airport, CT (LZD)	0	2	No	Yes
Goodspeed Airport, CT (42B)	0	2	No	Yes
Tweed-New Haven Airport, CT (HVN)	0	1	No	Yes
Westover Metropolitan Airport, MA (CEF)	0	1	No	No

N = 36 respondents

Four respondents selected "Other" as their first-choice alternative Airport.

Source: Survey of Expenditures and Preferences Among Aircraft Owners and Business Operators at Hartford Brainard

indicating that the corresponding airports would have the space and infrastructure to house this aircraft. The result was the shifting of 30 of 132 aircraft to other airports in the CRCOG region and 32 of 132 aircraft to other airports in Connecticut.

Of the 40% that would sell their plane, HR&A, and QED estimated half of those planes would stay in the state and continue to drive economic activity in Connecticut.

The subconsultants assumed the remaining 6% who would stop flying would not sell their plan, and all related economic activity from flying would cease.

Based on these data and assumptions, in the analysis of the closure scenario, two-thirds of aircraft owner expenditures would continue to occur in the state, and 23% would continue to occur in the CRCOG region.

Employers

Seven of the nine HFD employers who responded to the survey would close, while two said they would move operations elsewhere. Relocating employers include CT Aero Tech School, which would not be required to leave if HFD no longer operated as a general aviation airport but indicated they would likely relocate to another airport.

For this analysis, the economic subconsultants assumed that all employers indicating they would close would do so under the closure scenario. Based on survey responses, one of the relocating employers would move out of state while the other would move out of the CRCOG region. While employment and expenditures related to public sector use of the Airport would likely continue within the state, its impacts are not quantified as part of this closure scenario.

Visitation

Visitation to the region was likely not driven by the Airport, but rather the proximity to existing assets. As this is the case, HR&A assumed all visitation would continue to occur in Hartford even in a closure scenario.

4.5.2 QUANTITATIVE ECONOMIC IMPACTS

Jobs

The annual jobs supported by the relocated aircraft and visitation are estimated to be between 13 and 24 in Hartford, between 19 and 35 in the CRCOG, and 36 and 66 in Connecticut. Most of the direct jobs that would continue to exist are supported by the continued full visitation to Connecticut. Still, the direct job variation is mainly driven by aircraft owners relocating to other airports in the CRCOG and Connecticut. Additional jobs would continue to be supported by the relocated aircraft operations to other airports in the CRCOG and Connecticut.

Table 14: Jobs Supported in Closure Scenario

	Hartford		CRCOG Region		Connecticut
Jobs	**Low**	**High**	**Low**	**High**	**Low**
Direct	13	24	19	35	36
Indirect	<1	1	4	7	6
Induced	<1	<1	7	14	14
Total	**14**	**25**	**30**	**56**	**56**

Source: IMPLAN, HR&A Analysis

Labor Income

The labor income supported by the relocated aircraft and visitation would be between $0.6 million and $1.2 million in Hartford, $2.5 million and $4.6 million in the CRCOG region, and between $4.7 million and $9.3 million in Connecticut (see table below). A much smaller ongoing impact in Hartford will be driven by visitation. The only labor income supported in Hartford will be generated by visitation. Labor income in the CRCOG and Connecticut is evenly split between visitor impacts and continued aircraft operations, with very little labor income being continued to be generated by relocated businesses.

Economic Output

As with labor income, economic output under the closure scenario will be very low for the city of Hartford, driven entirely by continued visitation to the city. In the CRCOG region and the state of Connecticut, ongoing economic activity will be generated by continued aircraft usage but based out of different airports in Connecticut. In the CRCOG region, there will be between $7.0 million and $12 million of ongoing annual activity, and in Connecticut, there will be between a total of $14 million and $25 million.

Broadly speaking, closing HFD reduces ongoing economic impacts significantly. There is little opportunity to keep this economic activity within the city limits, and there are substantial challenges in keeping the activity within the CRCOG region based on those airport facilities that can accommodate additional aircraft and are appealing to owners. Total employment in the city, region, and state is expected to decrease by 89%, 84%, and 71%, respectively.

Though this analysis does not seek to calculate other benefits accruing to businesses at alternative airports seeing new aircraft, the share of total aircraft that are expected to leave the state or no longer fly altogether means total economic activity will go down in any scenario.

Table 15: Labor Income Supported in Closure Scenario

	Hartford		CRCOG		Connecticut	
Impact ($000,000)	**Low**	**High**	**Low**	**High**	**Low**	**High**
Direct	$0.6	$1.1	$1.7	$3.2	$3.2	$5.2
Indirect	<$0.1	<$0.1	$0.3	$0.5	$0.5	$1.4
Induced	<$0.1	<$0.1	$0.5	$0.9	$1.0	$2.6
Total	**$0.6**	**$1.2**	**$2.5**	**$4.6**	**$4.7**	**$9.3**

Source: IMPLAN, HR&A Analysis

Table 16: Economic Output in Closure Scenario

	Hartford		CRCOG		Connecticut	
Impact ($000,000)	**Low**	**High**	**Low**	**High**	**Low**	**High**
Direct	$2.1	$3.9	$2.8	$5.2	$4.7	$8.7
Indirect	$0.1	$0.1	$0.8	$1.4	$1.4	$2.5
Induced	<$0.1	$0.1	$1.4	$2.6	$2.7	$5.0
Total	**$2.2**	**$4.0**	**$5.0**	**$9.3**	**$8.7**	**$16.2**

Source: IMPLAN, HR&A Analysis

4.5.3 OTHER QUANTITATIVE AND QUALITATIVE ECONOMIC IMPACTS

The other benefits of HFD, such as corporate use, training and workforce development, and public service usage, would disappear from HFD but would likely be relocated elsewhere in the region out of necessity. Emergency services and public use will likely continue nearby as they are needed in the region and cannot be replaced elsewhere. The workforce development uses would likely be replaced elsewhere in the state but would not benefit Hartford similarly. Corporate use is likely diverted to Bradley or another nearby airport.

4.5.4 FISCAL IMPACTS

For analysis of potential fiscal impacts, the economic subconsultants assumed that closure of HFD would result in it being purchased by a private owner thus returning it to the property tax roll. Under this scenario, we assumed the land would be taxed at the City of Hartford rate but that the improvements would be removed from the site. As part of the closure analysis, we do not assume any redevelopment of the site, nor did we assume that any tax abatement is placed on the property. As a result, the approximately $668,900 State PILOT attributed to HFD would be replaced by an annual property tax payment of $2.1 million. (see table below).

Fiscal benefits to the State and other local governments would drop dramatically under a closure scenario. Total State fiscal benefits would fall from $1.1 million to $413,000 (64%), and other local governments could expect to see property taxes fall from nearly $1.8 million under an HFD operating scenario to $652,000 under a closure scenario (63%).

Table 17: HFD Closure Scenario Fiscal Benefits Summary

	City of Hartford	State of Connecticut	Other Local Governments	Total
Sales Taxes	-	$113,300	-	$113,300
Individual Income Taxes	-	$218,600	-	$218,600
Corporate Income Taxes	-	$41,500	-	$41,500
Property Taxes*	$2,074,200	-	$652,000	$2,726,200
Other Fiscal Benefits*	-	$39,600	-	$39,600
Total	**$2,074,200**	**$413,000**	**$652,000**	**$3,139,200**

Values for State sales, individual income, corporate income taxes, and Other Local Governments property taxes rely on the midpoint of elasticity related to labor income and economic output.

** - Property Taxes for the City of Hartford assumes private ownership of the HFD site and tax assessed only on the land portion of the assessment. Other Fiscal Benefits include Gross Earnings Tax on Petroleum Products Sales, of which two-thirds is still expected to occur in the state.*

4.5.5 CONCLUSION

Since the development of Bradley in the 1950s, HFD's importance as a center of economic activity in the city, region, and state has shifted. Today ongoing operations at the general aviation airport are estimated to support between 120 and 225 direct jobs and up to 230, 350, and 360 total jobs in Hartford, the CRCOG region, and the state of Connecticut, respectively. HFD generates up to $26 million in labor income for the state of Connecticut from direct, indirect, and induced impacts, as well as $57 million in economic output in the state measured in Gross State Product.

Though these impacts are relatively modest, the Airport also plays a critical role as a regional workforce development asset. For one, it hosts flight schools that train approximately 160 pilots, with 25 in any given graduating class going on to become commercial pilots. In addition, CT Aero Tech School provides training programs for Aviation Maintenance Technicians, graduating and placing more than 55 students annually who enter this high-demand field.

Fiscal benefits for the City and State are modest. As CAA-owned property, HFD's property tax liability – if it were not tax exempt – contributes to the State's PILOT to the City, which has been recalculated by the legislature this year and should result in approximately $670,000 annually in payments to the City.

In addition, economic activity generated by HFD operations results in an estimated $1.2 million in sales, personal income, and corporate income taxes, as well as fuel tax fees and nearly $1.8 million in local property taxes across the state.

Ceasing aviation operations at HFD substantially affects economic impacts measured as part of operations. All employers surveyed indicated they would close or relocate outside the region. While two-thirds of aircraft owners and their related expenditures are estimated to remain in the state, only 22.5% of total expenditures are expected to remain in the CRCOG region, and none in the city of Hartford. The result is reduced economic impacts between 60% and 90%. Fiscal impacts to the state and other local governments would also be expected to decrease by similar amounts; however, assuming the Airport was transferred from the state and taxed as private property, it is expected that local property tax to the City of Hartford would increase, resulting in a net decrease in fiscal benefits of only 13%.

The quantitative and qualitative impacts included in this report are one way to assess the potential costs of closing the Airport; however, other considerations, such as HFD's future use and the economics and tax environment behind that use, are necessary to consider when developing a set of recommendations for HFD's future.

05

Potential Airport Future Use

5.0 POTENTIAL FUTURE AIRPORT USE

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

5.1 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 analysis 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 in 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 demand 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 the number of runways, runway length, and aircraft tie-down and storage requirements through the 20-year forecast horizon. Further, the projections are considered unconstrained by facilities currently available at the Airport.

5.1.1 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 a 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 losing 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 and 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.

5.1.2 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 18 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 runway length limits their attractiveness to certain of the larger general aviation aircraft based at the Airport, particularly turbine-powered aircraft. 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 is that nearly all the airports, including Hartford-Brainard, have a waiting list for hangar storage, but all the airports 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.

5.1.3 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 one business jet, three single-engine, and two 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 one 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 a total of 357 aircraft registered to owners in Hartford County. This infers that about 37 percent of these pilots/aircraft use the Airport.

Growth in the number of aircraft based at the Airport will depend 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.

Table 18: Based Aircraft Forecast

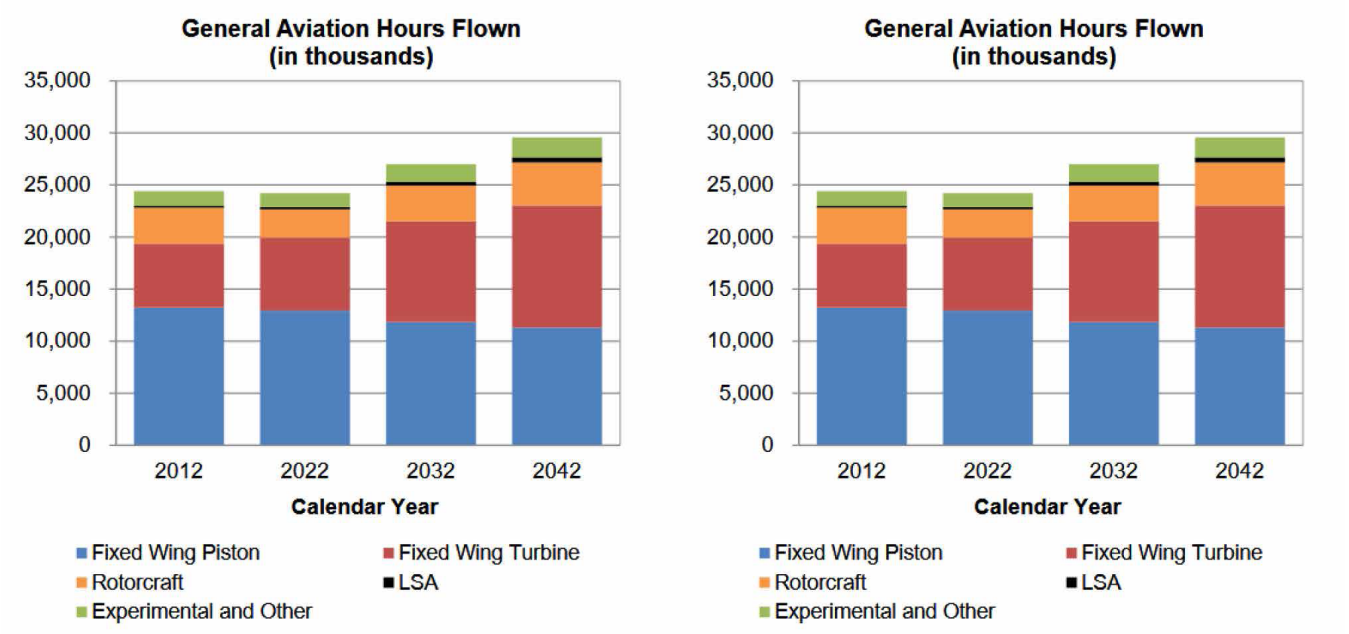
Based Aircraft Forecast	Year				
Aircraft Type	2023	2028	2033	2038	2043
Single-Engine Piston	128	129	130	131	132
Multi-Engine Piston	3	3	3	3	3
Multi-Engine Turboprop	2	2	3	4	5
Jet	1	2	4	6	9
Helicopter	4	4	4	4	4
Total	**138**	**140**	**144**	**148**	**153**

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 the 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 a pilot can hold. 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.

Figure 38: Estimated Future Demand



Given the preceding, a forecast of based aircraft at the Airport is shown in Table 19. The growth by category of aircraft type at the Airport follows the national trend, but a lower annual growth rate reflects the MSA's socioeconomic features. 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, e-VTOL aircraft are expected to enter the market as they become FAA-certified, replacing the light piston and turboprop segments of the general aviation fleet.

The forecast does not factor in the possibility of aircraft being relocated to another airport in the event of the Airport's potential closure. It also does not account for the availability of terminal area facilities for aircraft tie-down and storage hangars, or the lengths of available runways. Furthermore, the development of new facilities has been put on hold, partially due to the current uncertainty surrounding the Airport's future status. Essentially, the forecast presents a demand that assumes no limitations or constraints, and it is expected to be managed solely at the Airport without considering alternative arrangements or factors that may impact operations.

The forecasts show that single-engine piston aircraft will comprise the largest portion of the based fleet at the Airport, representing nearly 93 percent of the total fleet. However, this percentage is expected to decrease to about 86 percent over the forecast period gradually. Additionally, the number of based aircraft in the fleet is projected to increase by approximately 11 percent over the 20-year horizon.

This projection may be compared with others for the Airport. Among these are the FAA's 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 growth rate 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, which 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 those levels experienced during the more robust economy before the COVID-19 pandemic.

Taken as a whole, the forecast of based aircraft, as presented in Table 19, 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.

5.1.4 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. The table below presents the forecast of general aviation aircraft operations at the Airport.

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 growth rate 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 20 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.

Table 19: General Aviation Aircraft Operations Forecast

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**

Table 20: Mix Of General Aviation Aircraft Operations Forecast

Mix Of General Aviation Aircraft Operations Forecast					
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**

5.1.5 CRITICAL DESIGN AIRCRAFT

The airport reference codes 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

5.1.6 IMPLICATIONS FOR AIRPORT FACILITY REQUIREMENTS

The aviation demand forecast is an informed opinion on the potential volume of activity that may be anticipated 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, which is factored into the capital investment program that is developed and updated annually. 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.

5.1.7 SCHEDULED AND NONSCHEDULED AIRLINE SERVICE PROSPECTS

The Airport accommodates nonscheduled (charter) aircraft operations periodically. These are conducted by such operators as NetJets, VistaJet, and Wheels Up Partners, which 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 and 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 nine 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.

5.2 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

Runway 2-20 provides nearly 95 percent crosswind coverage for light aircraft, the most critical when assessing this feature of the Airport. Given its limited incremental gain in crosswind coverage and usage characteristics, this may raise the question of the need to continue operating and maintaining Runway 11-29.

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 consider the forecast of annual aircraft landings (one-half of the operations) by all but the jet turbine and rotary aircraft activity presented in Table 20 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 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 considers 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 calculated using a unit value derived from FAA estimates for general aviation aircraft, with adjustments made for inflation since the initial determination. A 7 percent discount factor was applied in line with the U.S. Office of Management and Budget's recommendations for constant-dollar benefit/cost analyses. This discount rate roughly mirrors the marginal pretax rate of return on an average private sector investment in recent years. As a result, the net present value benefit for the 20-year forecast period amounts to nearly $1,400,000, averaging about $70,000 annually.

To assess the cost justification of maintaining Runway 11-29 over the next 20 years, it can be determined that the total present value and life-cycle cost must not exceed $1,400,000. If this condition is met, it indicates that the expenditure is justified, resulting in a life-cycle benefit/cost ratio of at least 1.00. However, the estimated net present value for the routine maintenance of the runway and its parallel taxiway, which includes crack and seal work in 2023 and every five years through 2043, along with a complete reconstruction in 2033, totals approximately $2,700,000. This yields a life-cycle benefit/cost ratio of 0.52, suggesting that the long-term retention of Runway 11-29 and its parallel taxiway may not be justifiable in terms of cost. Consequently, it may be expected that when a full reconstruction of Runway 11-29 and its parallel taxiway becomes necessary, such a measure may not be undertaken, and the facility could potentially be closed to air traffic.

Figure 39: Runway 11-29

Runway Length

Section 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 sewage lagoons used 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.

5.2.1 AIRFIELD DESIGN STANDARDS

The noncompliance with applicable facility design standards is associated with Runway 2-20. 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 the table below.

Should Runway 2-20 be extended to a physical length of 5000', adding pavement to the Runway 2 end, there will be a continued need to implement declared distances to comply with the applicable facility design standards, as presented in Table 22. 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 Runway 20 will remain in place.

Table 21: Declared Distances - Existing 4417' Runway 2 and Runway 20

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				

Table 22: Declared Distances - Future 5000' Runway 2 and Runway 20

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				

5.3 INSTRUMENT APPROACH CAPABILITY

The Airport plays a vital role as a reliever airport for Bradley International Airport, particularly during instrument flight rule (IFR) operations when airfield hourly capacities at Bradley International Airport are reduced. Certain improvements in approach procedures are being considered to enhance its effectiveness in this reliever role.

One potential improvement involves achieving lower straight-in approach minimums for Runway 2 and implementing an instrument approach to Runway 20. This could be achieved by upgrading the RNAV (GPS) LNAV procedure on Runway 2 to provide LP (Localizer Performance) and LPV (Localizer Performance with Vertical Guidance) minimums. A similar RNAV (GPS) instrument approach procedure could be implemented for Runway 20, allowing for its use in IFR conditions. However, it's important to note that the installation of an approach lighting system at either runway end could lower visibility minimums by ¼-statute mile. Unfortunately, this option is not considered feasible due to the presence of the Clark Dike in the vicinity.

A preliminary assessment suggests that after the ongoing tree clearing and topping work in the approach area for Runway 2 is completed, there may be an opportunity to achieve a modest improvement in ceiling minimums, potentially in the 300 to 400-foot range. However, higher approach minimums are anticipated for an instrument approach to Runway 20 due to the obstruction environment in the final approach segment.

5.4 TERMINAL AREA FACILITY REQUIREMENTS

The land area west of Runway 2-20 and north of Runway 11-29 is reserved for terminal area facilities, including tie-downs 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. Undeveloped land areas within the terminal area are reserved to accommodate new tenants. As the based aircraft demand level increases over time, there is more than adequate undeveloped land to absorb that demand, as indicated on the current Airport Layout Plan and as reflected in Table 8.

5.4.1 BASED AIRCRAFT FACILITY REQUIREMENTS

Aircraft based at the Airport are positioned in tie-down spaces or 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 tie-downs are expected to transition to hangar storage. The allocation of based aircraft to tie-down and hangar storage is presented in the table below.

A comparison of the based aircraft tie-down and hangar storage demand with the available and planned capacity, as presented in the table below, indicates that the Airport has sufficient land area to accommodate these requirements.

Table 23: Based Aircraft Tie-Down and Hangar Storage Requirements

Based Aircraft Tie-Down and Hangar Storage Requirements					
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					

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 tie-down 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 suggests that there will be a requirement for nearly 30 tie-down 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.

5.4.2 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.

5.5 CAPITAL INVESTMENT REQUIREMENTS

The Airport's facilities need repair, rehabilitation, and reconstruction, a common challenge many airports face. The Connecticut Airport Authority (CAA) takes an annual approach to prepare and update capital improvement plans, which are crucial for maintaining and upgrading the Airport's infrastructure. Table 24 outlines the CAA's capital improvement plans, and additional projects that may become necessary over time have been incorporated. Notably, tenants who lease structures from the CAA are obligated to maintain those facilities, contributing to their upkeep and ensuring they remain in optimal condition.

Federal funding is accessible through programs like the FAA Airport Improvement Plan and grants from recent legislation such as the Bipartisan Infrastructure Law. These funding sources can be instrumental in supporting critical infrastructure projects at the Airport. For hangar facilities, the expectation is that private-sector investors will primarily fund them. The CAA may offer financial support to facilitate these developments. Private investors will likely be provided with lease terms and conditions that allow them to recoup their investments over time.

The projects listed in the Table 24 should be considered as the minimum requirements necessary to enhance and improve the Airport over the next two decades. Ensuring the Airport's infrastructure is robust and up to date is vital for its continued safe and efficient operation.

5.6 FINANCIAL STATUS

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.

Table 24: Airport Capital Improvement Program

Airport Capital Improvement Program		Project Cost ($)			
Project	Year	Total	Federal	CAA	Private Sector
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 taxilane and apron pavements					

5.7 CONCLUSIONS: HARTFORD-BRAINARD AIRPORT AT PRESENT AND FUTURE

Based on the evaluations provided, several key conclusions can be drawn regarding the Hartford-Brainard Airport:

1. **Moderate Growth Expected:** The Airport is projected to experience moderate growth in both the number of based aircraft and aircraft operations.
2. **Adequate Airfield Capacity:** The airfield area currently possesses sufficient capacity for aircraft operations, regardless of the availability of Runway 11-29.
3. **Runway 2-20 Constraints:** Runway 2-20, the primary runway, does not meet current airfield design standards for aircraft that frequently use the facility. Displaced landing thresholds are required due to obstacles like the Clark Dike at each end and lagoons at its southern end.
4. **Potential for Runway Extension:** Extending the Runway 2-20's length could enhance its capability to serve higher-performance aircraft like business jets. If the lagoons at the Runway 2 end were acquired, the maximum potential runway length could reach 5,000 feet with the implementation of declared distances.
5. **Limited Utility of Runway 11-29:** Runway 11-29 offers limited operational utility and may be discontinued when full pavement reconstruction is needed.
6. **Future Investment in Hangar Facilities:** Anticipated growth in based aircraft and aircraft activity will necessitate additional investment in hangar facilities. Adequate open land resources are available to meet this demand, and private sector investment is expected to replace some aging terminal area facilities.
7. **Financial Investment Requirements:** Over a 20-year period, the Airport is expected to require a total investment of approximately $22 million. The CAA will contribute about $2.2 million, with approximately $2.16 million coming from the private sector. CAA funding requirements may vary based on the availability of federal grant funding.
8. **Financial Self-Sustainability:** The Airport is not expected to achieve financial self-sustainability over the long term, indicating a need for continued financial support
9. **Continuation of Nonscheduled (Charter) Service:** Nonscheduled (charter) service is expected to continue, utilizing aircraft that can operate without restrictions on the available and potentially longer Runway 2-20 length.
10. **Scheduled Airline Service Unlikely:** The introduction of scheduled airline service at the Airport is not anticipated, as nearby air carrier airports already provide and are expected to continue offering such services.
11. **Potential for Vertiport Facility:** There is potential to establish a vertiport facility in line with the development and expansion of Advanced Air Mobility (AAM) initiatives. This could involve public-private partnerships, including the CAA, to offer service to major city centers and airports within a 100-nautical-mile range of the Airport.

Figure 40: View of Flight School at Hartford-Brainard Airport

06

Effects of Aiport Closure

6.0 EFFECTS OF AIRPORT CLOSURE

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

6.1 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 be repositioned 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 be repositioned 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.

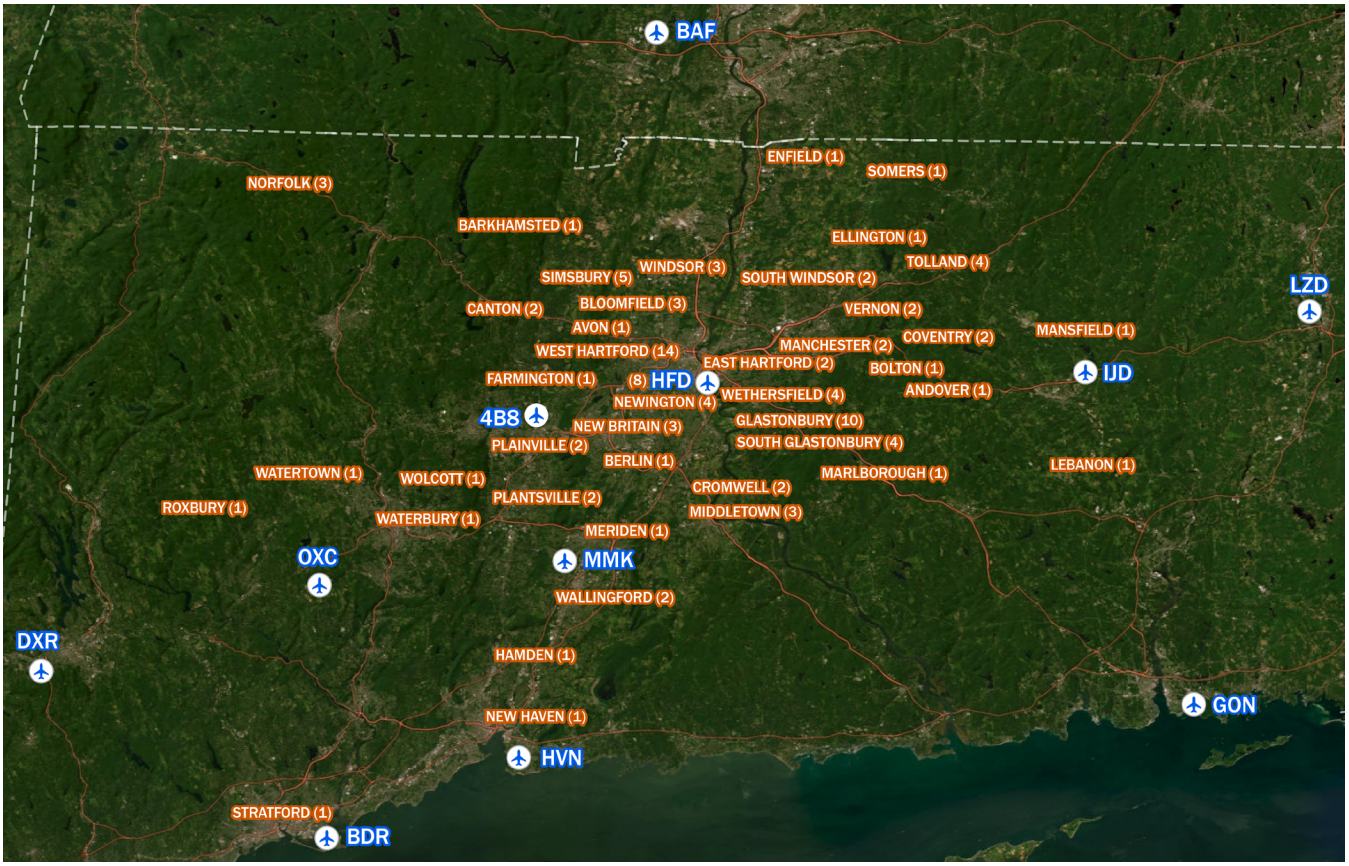
The repositioning of the Connecticut State Police air mission fleet is particularly noteworthy. The airspace operating environment at the Airport (Class D) and the State-central location of the Airport favored its earlier selection to meet State Police rapid response requirements. This decision suggests that the repositioning of these aircraft would likely be to either the Windam 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, some of the private aircraft owners may 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 41 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, east as Lebanon and Mansfield, south as Stratford, and 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 25 as an indication of the Airport's service area. The area airports are denoted with a blue icon and its FAA identifier code. The location of based aircraft owners are shown by in orange identifying the city or town name followed by the number of owners at that location. At Hartford-Brainard Airport, 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 41: Density and Location of Hartford-Brainard Aircraft Owners



The table below 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 41 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.

Table 25: Based Aircraft Owner Driving Distances and Times

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

The allocation of aircraft currently based at the Airport to each of the area airports was unconstrained by the extent of the airfield or terminal area facilities available. If 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 were 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. Given their distances from the points of origin, it is unlikely that based aircraft would reposition to Danbury Municipal Airport (DXR) and Groton New London Airport (GON). 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 43 illustrates a possible repositioning of the aircraft based at the Airport to the area airports. Figure 8 through Figure 49 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 be repositioned 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. In this allocation scenario, the 2 Civil Air Patrol aircraft could be repositioned to most any airport and could be assigned to the Windham Airport (IJD).

Figure 42: Possible Repositioning of the Aircraft Based at Hartford-Brainard Airport to the Area Airports

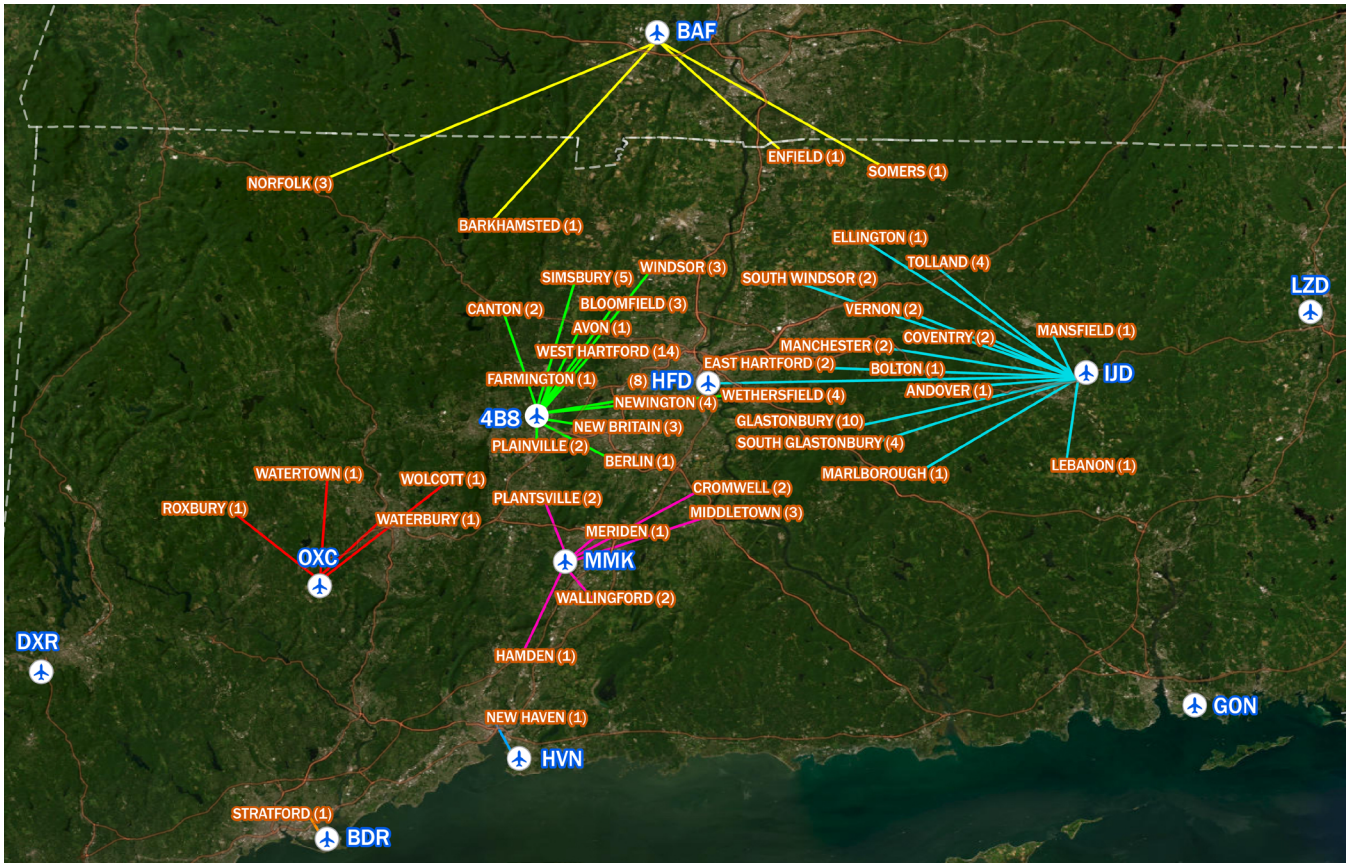


Figure 43: Possible Repositioning of the Aircraft Based at Hartford-Brainard Airport to BAF

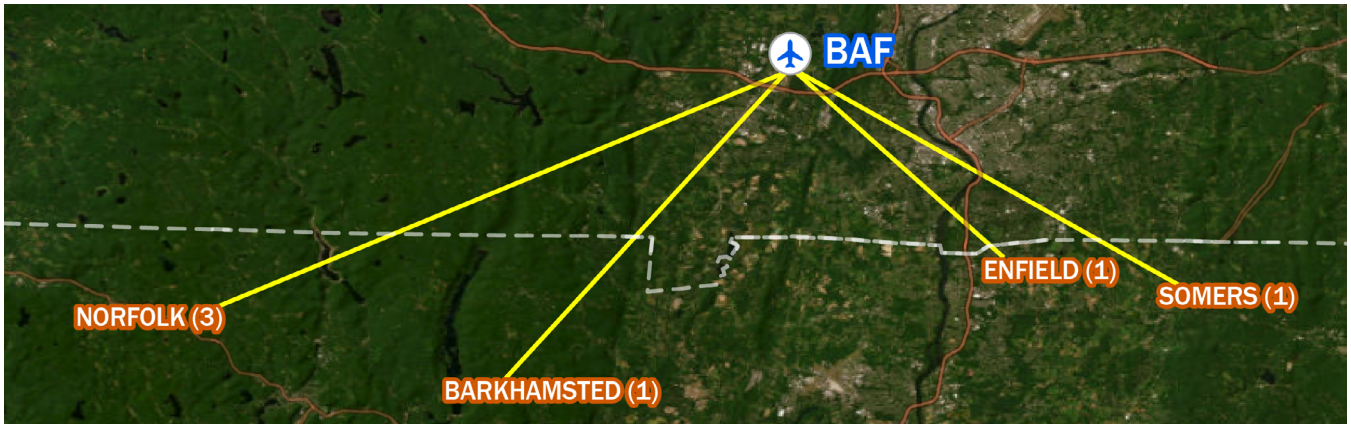


Figure 44: Possible Repositioning of the Aircraft Based at Hartford-Brainard Airport to 4B8

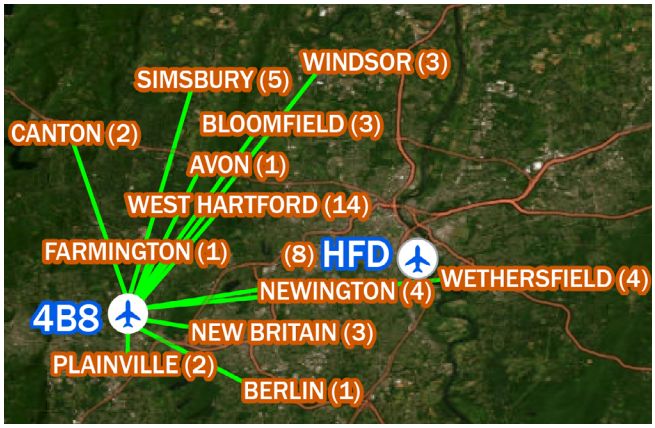


Figure 45: Possible Repositioning of the Aircraft Based at Hartford-Brainard Airport to IJD

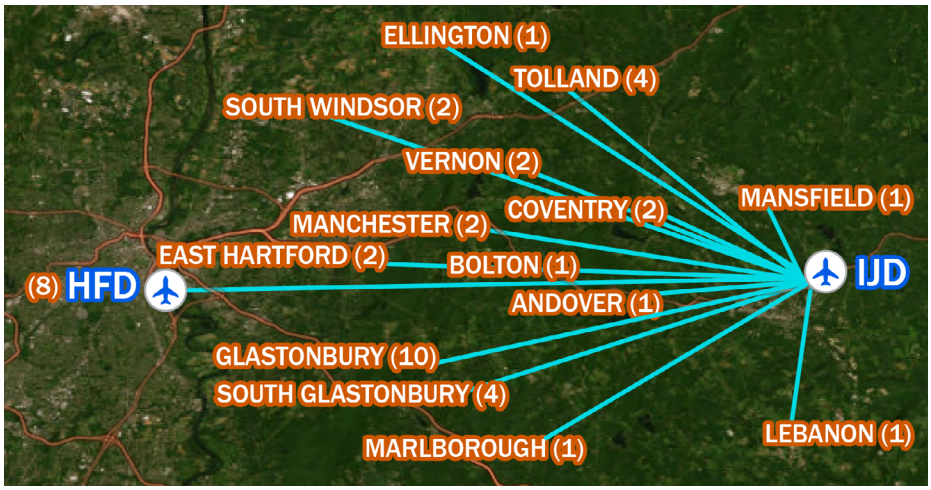


Figure 46: Possible Repositioning of the Aircraft Based at Hartford-Brainard Airport to OXC

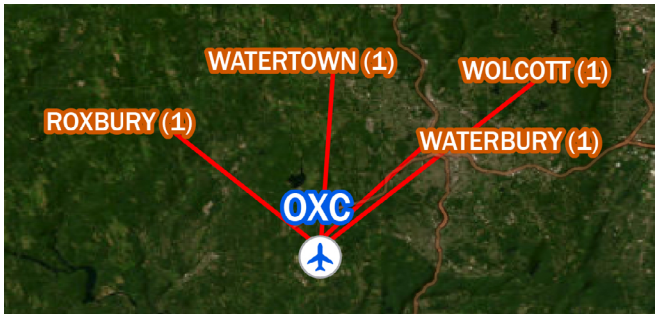


Figure 47: Possible Repositioning of the Aircraft Based at Hartford-Brainard Airport to MMK

Figure 48: Possible Repositioning of the Aircraft Based at BDR

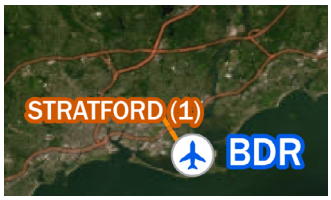
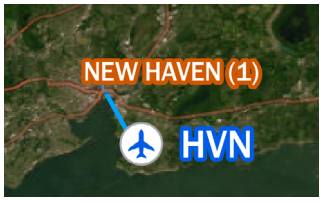


Figure 49: Possible Repositioning of the Aircraft Based at HVN



The table below 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 26 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.

6.2 AREA AIRPORT CAPITAL IMPROVEMENTS AND DEVELOPMENT COSTS

As presented in Table 26, there will be a need to allocate a total of 75 new hangar and 12 tiedown spaces at the area airports. Various hangar types can be constructed to accommodate this demand. The final type is governed by the available open space and its integration with the existing terminal area facilities and aircraft ground movement flows.

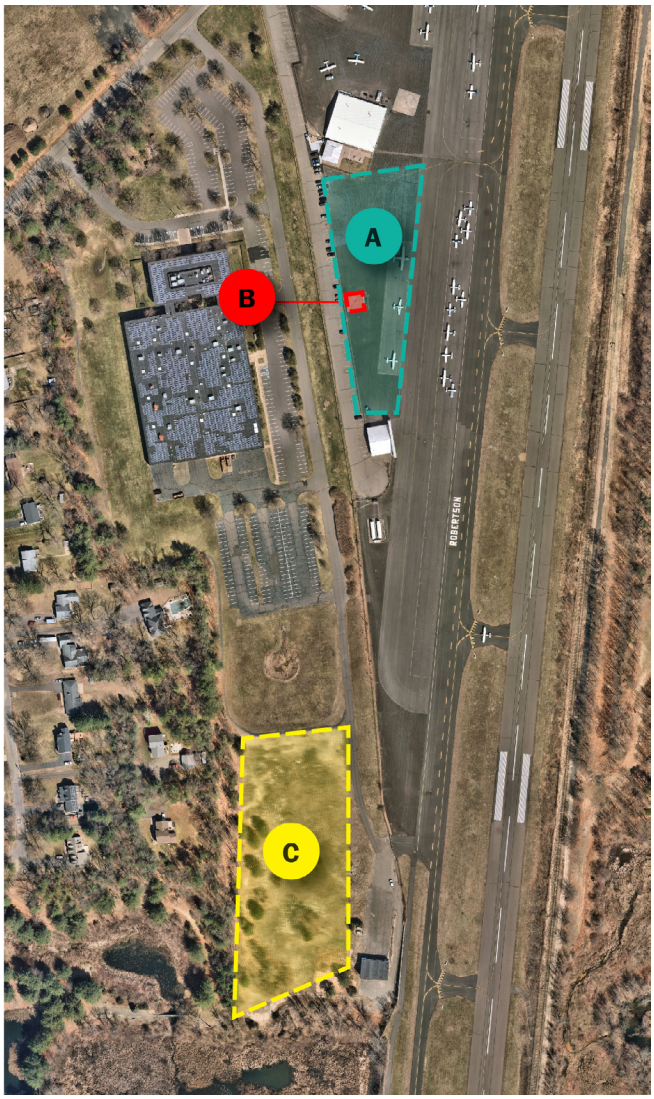
With the exception of the Windham Airport, the remaining area airports have expansion plans to accommodate the repositioned demand. Because Windham Airport can only accommodate a maximum of 26 hangar spaces, 30 of the repositioned aircraft will need to be in tie-downs, for which 15 vacant tiedown positions are currently 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 50 through Figure 52 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.

Table 26: Potential Allocation Of Repositioned Aircraft Based at Hartford-Brainard

Potential Allocation of Repositioned Aircraft Based at Hartford Brainard							
	Based Aircraft (Tiedown/Hangar**)						
Receiving Airport	Current Based Aircraft*		Repositioned Aircraft Demand*		Planned Capacity		Shortfall
Robertson Field (4B8)	28	34	0	43	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 tie-downs****
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							

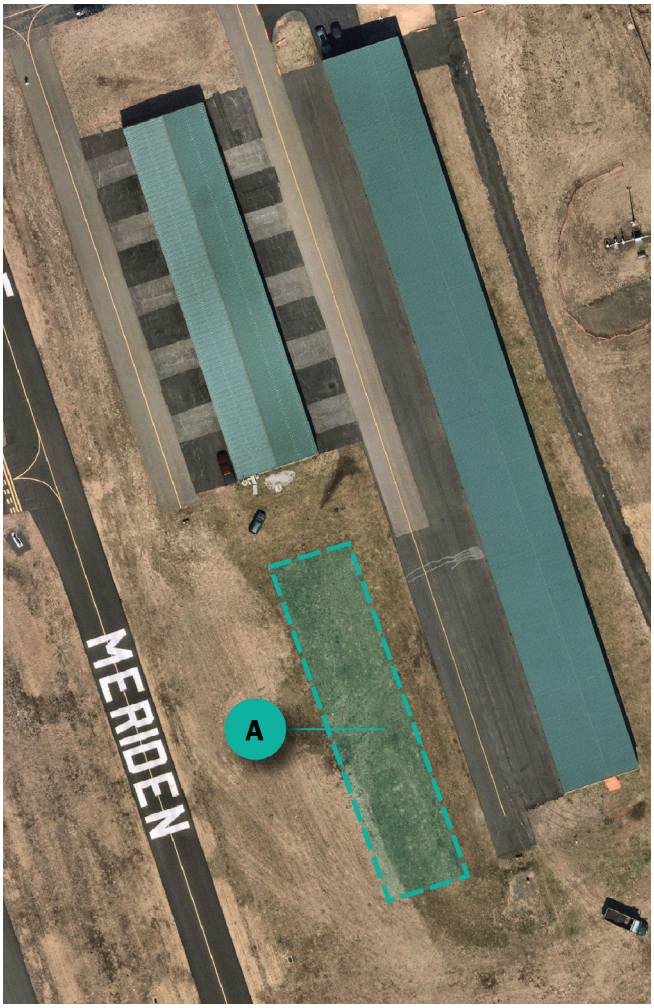
Figure 50: Development Areas at 4B8



As illustrated in the figure above 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 tie-downs 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 51: Development Area at MMK

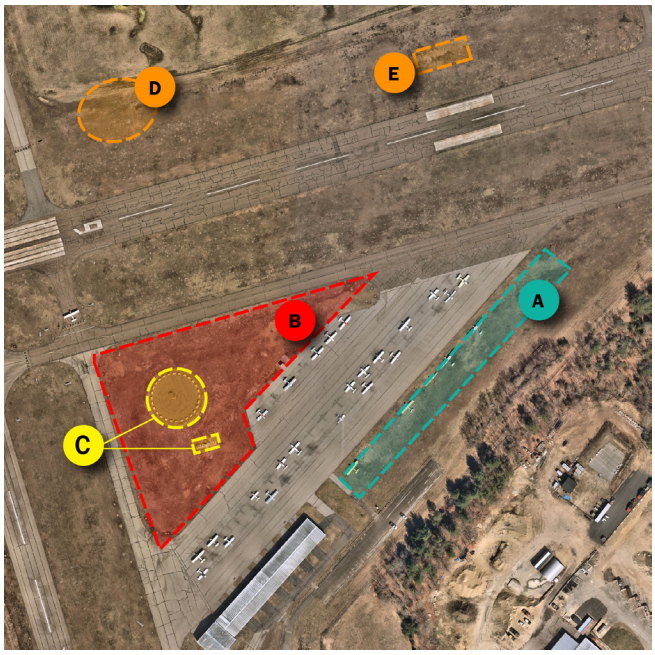


The figure above indicates that additional T-hangars (12 units) may be constructed in Area A, which is adjacent to a set of similar facilities.

The figure below 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 52: Development Areas 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 since the existing hangar storage status is essentially full.

Table 27 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.

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 Federal Grant History). Depending 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.

Table 27: Terminal Area Development Requirements and Costs to Accommodate Repositioned Aircraft

Terminal Area Development Requirements and Costs to Accommodate Repositioned Aircraft			
	Required Additional Spaces		
Receiving Airport	Tiedown	Hangars	Total Development Cost ($)
Robertson Field (4B8)	0	43	3,710,000
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**	**78**	**7,570,000**

6.3 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 quieter. 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, a conservative allocation at Windham Airport with a two-runway system. Application of the AEM model yielded the results presented in the table below.

The data indicates 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 does 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; thus, a large portion of the 65 Ldn contours overlays 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 has generated noise complaints from residents in these areas.

Table 28: Aircraft Noise Impacts Review

	Contour and Airport Property Area (square miles)			
Airport	Current 65 Ldn	Future 65 Ldn	Increase (%)*	Airport Property
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				

Air Quality

Connecticut has 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 the transport of pollutants from the New York metropolitan area reacting to form ozone as they travel to and across Connecticut. CT DEEP 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 is 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 the 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 will have an equivalent impact on surface water runoff volumes. Construction contract specifications can effectively ensure that impacts on water resource areas are mitigated.

6.4 FINDINGS AND CONCLUSIONS: CLOSURE OF THE AIRPORT

In the event of the Airport closure, several key considerations and plans have been outlined:

1. **Aircraft Repositioning:** There is a need to reposition 138-based aircraft and relocate businesses that provide aeronautical services. These aircraft and businesses can potentially be accommodated at several publicly-owned area airports, including Robertson Field, Windham Airport, and Meriden Markham Municipal Airport. For Robertson Field, it's important to note that approximately 4.7 acres of undeveloped adjacent land owned by the Town of Plainville may need to be repurposed to provide the necessary terminal area facilities, such as aircraft hangars and tie-down spaces.
2. **Aircraft Owners' Decisions:** The repositioning of aircraft will ultimately be the decision of their owners. The scenario presented should be considered as an initial planning determination for reference.
3. **Economic and Financial Impacts:** Tenants displaced from the Hartford-Brainard Airport will bear significant economic and financial impacts. These costs, along with others, will be covered through the sale and disposition of the Airport's assets, adhering to federal guidelines related to grant-obligated airports. The estimated cost for developing new terminal area facilities at the area airports receiving the repositioned aircraft is $7.3 million.
4. **Environmental Impacts:** The environmental impacts associated with increased air traffic levels at the receiving area airports are assessed as minimal. This includes considerations related to aircraft noise, particularly because the majority of the repositioned aircraft fall into the small, single-engine category.
5. **Retaining Helicopter Operations and AAM Initiatives:** Depending on how the Airport's land resources are repurposed, there is potential to maintain helicopter operations and introduce AAM initiatives, including the establishment of vertiport facilities. This opens up opportunities for enhanced transportation services and infrastructure utilization.

These plans and considerations provide a structured approach to managing the potential closure of the Hartford-Brainard Airport, aiming to minimize disruptions and optimize the utilization of resources at other regional airports while also exploring innovative aviation initiatives like AAM.

Figure 53: View from Runway 2-20

07

Regulatory Elements for Airport Closure

7.0 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.

7.1 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 the development of airports, each of which is 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 the 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.

The table below presents the history of grants awarded to the 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 29: Federal Grant History

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

7.1.1 RELEASE FROM GRANT OBLIGATIONS AND ASSURANCES

The term "release" in the context of airport management and FAA regulations refers to a formal, written authorization that relieves the FAA) from its right to enforce an airport's contractual obligations, specifically those related to federal funding and grants. In some cases, a release may be limited to freeing the airport sponsor from specific assurances or federal obligations, typically tied to specific grant improvements or projects. When the physical useful life of a particular improvement or facility, funded through federal grants, comes to an end, the airport sponsor is automatically released from its federal obligations related to that particular grant. This release occurs without requiring any formal action from the FAA. The useful life of a facility extends as long as it remains serviceable and usable with routine day-to-day maintenance.

However, in the scenario where the entire airport is to be closed, the CAA, as the airport sponsor, would seek a release from all obligations associated with the airport's federal grants and agreements. This is done to enable the CAA to repurpose the airport land for other uses.

From the FAA's perspective, their primary concern is to support and promote civil aviation through various programs and regulations. When addressing requests for a release from obligations, the FAA typically evaluates the specific circumstances, impact on civil aviation, and any necessary conditions or considerations to ensure the transition or closure aligns with their mission and guidelines. This process is part of the FAA's oversight and regulatory role in managing the nation's airports.

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.

7.2 FUTURE GROWTH IN OPERATIONS

This section outlines the expected growth in aviation activity at the Airport. The key points regarding this growth are as follows:

1. **Moderate Increases:** The forecast anticipates moderate increases in both the number of based aircraft and aircraft operations over the 20-year forecast horizon.
2. **General Aviation Reliever Status:** The Airport is projected to maintain its status as a general aviation reliever airport. This means it will continue to play a role in relieving congestion at larger, nearby airports by catering to general aviation traffic.
3. **Distribution of Aircraft Users:** The distribution of aircraft users, including various types of operators and aircraft, is expected to remain similar to the current setup. This suggests that the mix of private, corporate, and other general aviation users will continue to be a characteristic of the Airport's aviation activity.

The Airport's growth outlook suggests a steady and moderate increase in aviation activity while retaining its role as a general aviation reliever airport with a familiar mix of aircraft users and operations. This information is valuable for planning and development efforts at the Airport.

7.3 CAPACITY OF THE AIRPORT

This section provides an overview of the capacities of the airfield and terminal area facilities at the Airport. Here are the key points related to these capacities:

1. Adequate Capacity for Projected Aircraft Activity: The analysis indicates that the current airfield and terminal area facilities have sufficient capacity to meet the projected levels of aircraft activity. This suggests that, for the foreseeable future, the existing infrastructure can effectively handle the anticipated aviation operations.

2. Potential Improvements for Business Jet Fleet: Future improvements to the airfield component are proposed, which could make the Airport more attractive to a larger segment of the general aviation business jet fleet. These potential enhancements include the extension of Runway 2-20 to achieve a 5,000-foot runway length and upgrades to instrument approach procedures to provide vertical navigation guidance.

3. Noncompliance with Facility Design Standards: It's noted that the Airport will continue to be in noncompliance with certain facility design standards, particularly those related to Runway Object-Free Area (ROFA) and Runway Safety Area (RSA) for Runway 2-20. This noncompliance would require the application of declared distances should the runway be extended.

4. Physical Constraints and Expansion Limitations: Overall, the Airport is described as being physically constrained and nearing its expansion potential. This limitation could potentially redirect future growth to other airports or lead to considerations by the CAA or another entity for the construction of a reliever airport with significantly greater operational capability, possibly at a new location, even in a different state.

These findings highlight the importance of long-term planning and potential challenges associated with the physical constraints of the Airport. Decisions regarding infrastructure improvements and expansion will play a crucial role in shaping its future role in the aviation network.

7.4 INTERESTS OF AERONAUTICAL USERS AND SERVICE PROVIDERS

Opportunity for Airport users and service providers was provided through a series of public meetings, publication of reports addressing the current and future aeronautical use of the Airport, receipt and review of 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 in maintaining and improving the Airport, both verbally and in written form. The Airport 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 and 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 supported the Airport and its direct link to the services they provide to its users. Closure of the Airport could result in selling their business and/or inventory to others or relocating 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 airfield access could continue operating 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.

7.5 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 the 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 rely more on larger fixed-wing aircraft 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 of three rotary-wing aircraft. One helicopter is based at the Midstate Medical Center in Meriden and 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.

7.6 THE REASONABLENESS AND PRACTICALITY OF THE SPONSOR'S REQUEST

An assessment of the reasonableness and practicality of the 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, 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 the runway, taxiway, apron pavements, lighting systems, and structures will rely on continued federal and/or state funding assistance or 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.

7.7 EFFECT OF THE REQUEST ON NEEDED AERONAUTICAL FACILITIES

The closure of the Airport and its subsequent release from federal obligations are not expected to have an adverse impact on the availability of necessary aeronautical facilities. Several factors support this conclusion:

1. **Existing Capacity at Area Airports:** Nearby area airports have sufficient capacity to accommodate the users and levels of aviation activity currently experienced at the Airport and any anticipated growth in the future.
2. **Absorption of Users and Activity:** These area airports can readily absorb the users and aviation activities that the Airport currently serves, ensuring a smooth transition for the aviation community.
3. **Hangar Storage and Terminal Facilities:** Regional demand for hangar storage and other terminal area facilities can be adequately met at these area airports. This means that the need for such facilities will continue to be satisfied in the region.
4. **Repositioning of Terminal and Visual Landing Aids:** Terminal and visual landing aids currently present at the Airport can be repositioned and relocated to the area airports. This ensures that critical navigation and safety infrastructure remains accessible to the aviation community in the region.

The existing capacity and resources at nearby area airports are well-equipped to accommodate the aviation community's needs, both in terms of current levels of activity and any potential future growth.

7.8 NET BENEFIT TO CIVIL AVIATION

Addressing the subject of net benefit to civil aviation necessitates a 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 and maintain and that have the least environmental impacts?

Each of these questions gives 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 most efficiently and effectively.

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 these businesses to relocate to other areas in the state or adjacent states, making their resources available within a larger geographic area and more convenient to new entrants.

Closure of the Airport and the sale of its facility and 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 and 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 with the capacity and whose ownership is willing to step up to the opportunity.

The sale of the Airport may yield 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 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 development needs that are not eligible for grant funding, such as hangars, or for projects with low priority rankings.

7.9 COMPATIBILITY OF THE PROPOSAL WITH THE NEEDS OF CIVIL AVIATION

The Airport provides benefits to the local civil aviation market and 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 CAA, as the sponsor of the Hartford-Brainard Airport, would need to seek a total release from all ongoing obligations pursuant to grants made by the FAA for capital improvements at the Airport. 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 avigation 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, have realized that the current Airport location is physically constrained and will reach a build-out condition over time. 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. As determined by the FAA, Salvageable Airport-owned facilities will be transferred to other airports. 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. The Airport land resource is anticipated to 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 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 regional aviation facilities that can serve the general aviation air transportation needs of the residents and businesses in the greater Hartford area. As presented in other sections of this report, the Airport will reach its build-out capacity over time with no potential for expansion. Some facilities at the Airport are reaching the limit of their useful lives. Action now allows the region to 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 with 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 an 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, except for a series of T-hangars 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 to be in good and usable condition. One set of privately owned T-hangars is near the end of its useful life and is expected to be replaced depending on the financial capability of its owner.

Figure 54: View of Signage at Hartford-Brainard Airport

08

Steps to Physical Closure

8.0 STEPS TO PHYSICAL CLOSURE CLOSURE

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 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 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.
5. 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:
    a. The bid advertisement must be advertised in a publication generally accepted as a national commercial real estate publication.
    b. The FAA must review the bid advertisement, associated publications, and documentation, including an updated and accepted Exhibit A Property Map, prior to publication.
    c. The FAA must review the final bid offers before the CAA enters into a contract.
    d. 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 that are 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.
6. The CAA is responsible to transfer to the FAA:
    g. All Airport and aviation-related equipment determined to be salvageable by the FAA.
    h. An amount equal to the fair market value for the highest and best use of the Airport property.
    i. An amount equal to the unamortized portion of any non-land Federal development grants.
    j. An amount equal to the Airport revenue proceeds in the Airport's account.

7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.

8.1 FINDINGS AND CONCLUSIONS: CLOSURE OF RUNWAY 11-29 AND CONTINUED OPERATION OF THE HARTFORD-BRAINARD AIRPORT

As presented in the preceding sections, the utilization of the short, crosswind Runway 11-29 is considered marginal, and its contribution to providing additional wind coverage from that offered by the primary Runway 2-20 is minimal. Over the next 20 years, the CAA has budgeted $5.08 million for continued maintenance and eventual reconstruction of the runway. A life-cycle, benefit/cost analysis yields a ratio of 0.52, implying that the long-term retention of Runway 11-29 and its parallel taxiway is not cost justifiable.

Rather than continue to invest in the continued operation and maintenance of Runway 11-29, there is sufficient justification to close the runway and repurpose the land area for other uses. Such uses could include nonaeronautical activities that can contribute to offsetting the continued expected net and net-net operating loss incurred by the Airport. There is also the potential to allocate a portion of the land, about one acre, near the airfield area for an e-VTOL terminal facility.

This option to close Runway 11-29 represents a solution that offers the potential to put a portion of the Airport land resource to a potentially higher and better use. It maintains a functional and viable Airport operation that includes space for expanding terminal area facilities and extending Runway 2-20 to better accommodate the operational requirements of aircraft typically utilized for business and corporate flights.

8.2 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. As determined by the FAA, Salvageable Airport-owned facilities will be transferred to other airports. 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. The Airport land resource is anticipated to 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 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.

09

Environmental Findings

9.0 ENVIRONMENTAL FINDINGS

9.1 INTRODUCTION

Under Public Act No. 22-118, Section 426, the Connecticut Department of Economic and Community Development (DECD) is responsible for evaluating the Hartford-Brainard Airport property. This assessment aims to improve public welfare, enhance the quality of life, stimulate economic growth, and maximize the enjoyment of the Connecticut River. The project's core involves crafting four unique development scenarios, eventually culminating in selecting a preferred redevelopment plan that fully complies with federal, state, and local regulations.

A central part of this assessment is the multi-phase Environmental Due Diligence Assessment, designed to provide a comprehensive understanding of existing conditions, associated risks, potential impacts, and strategies for mitigation. This assessment assumes particular importance if any development scenario involves closing and redeveloping the Airport. The comprehensive environmental report is a collaborative effort involving environmental and regulatory consultants, each responsible for ensuring strict compliance with federal and state laws.

In the event that the Finance, Revenue, and Bonding Committee decides to proceed with initiating an airport closure, the Federal Aviation Administration (FAA) will review this assessment to determine the subsequent steps in the environmental review process. These steps may range from issuing a Finding of No Significant Impact (FONSI) to commencing a more comprehensive Environmental Impact Statement (EIS), depending on their evaluation of the project's environmental implications.

9.1.1 METHODOLOGY

The approach to the environmental review is comprehensive and carefully designed to align with the mandates outlined in Public Act No. 22-118, Section 426. We build upon the foundational work of the Phase I Environmental Site Assessment (ESA) prepared by TRC Environmental Corporation on September 4, 2012.

The review process is divided into distinct phases, each incorporating a multifaceted methodology. These methods include archival research, on-site inspections, interviews with key personnel, targeted sampling, and laboratory analysis. It's worth noting that all these methodologies are comprehensive and rigorously adhere to the standards set by reputable organizations such as the American Society for Testing and Materials (ASTM), the Environmental Protection Agency (EPA), and the Connecticut Department of Energy and Environmental Protection (CT DEEP). Through this integrated and stringent approach, we aim to deliver an exhaustive environmental review that meets the Public Act's specific requirements and general best practices in environmental assessment.

9.1.2 PREPARE PHASE I ESA

The study focused on updating the existing Phase I ESA originally conducted by TRC Environmental Corporation on September 4, 2012. This updated ESA aims to identify and catalog both Areas of Concern (AOCs) and Recognized Environmental Conditions (RECs) related to the current and historical use of the Airport site.

Firstly, archival research was undertaken to examine historical land and facility usage. This involved scrutinizing past records, plans, and documents to understand the site's evolution over time. Secondly, site inspections were carried out, where detailed walkthroughs aimed to identify the site's current conditions, with particular attention to Recognized Environmental Conditions (RECs) and Areas of Concern (AOCs). In addition to these evaluations, interviews with key personnel were conducted. This step aimed to collect background information that may not be readily available in written records. Staff, management, and other relevant stakeholders provided insights into the site's history and current operations.

Lastly, a Preliminary Conceptual Site Model (CSM) was developed. This model amalgamated all the collected data into an initial framework, offering both a visual and descriptive snapshot of the site's environmental conditions. This preliminary CSM will serve as the foundation for any further investigative phases that may be required.

9.1.3 PREPARE PHASE II/III ESA

The Phase II/III ESA plays a crucial role in evaluating the state of the Hartford-Brainard Airport property. In this phase, the goal is to thoroughly investigate and characterize Recognized Environmental Conditions (RECs) and/or Areas of Concern (AOCs) that were identified during the Phase I ESA. The activities carried out in Phase II/III adhere to relevant environmental standards, such as ASTM E1527-21, FAA Order 1050.19C, and the guidance provided by the Connecticut Department of Energy and Environmental Protection (CT DEEP) in their Site Characterization Guidance Document (SCGD).

The Phase II/III ESA process is designed to provide a comprehensive understanding of the environmental conditions at the site, with a specific focus on identifying any potential contamination and determining its extent. This information is vital for making well-informed decisions related to remediation efforts, mitigation measures, or future land use planning. The key components of Phase II/III ESA include:

- Subsurface Investigation: This phase will include a combination of activities such as ground-penetrating radar (GPR) to assess potential subsurface utilities and anomalies, geoprobe direct push drilling for soil sample collection within RECs and/or AOCs, soil sampling from various locations, concrete coring through building slabs, geotechnical and environmental logging, installation of groundwater monitoring wells, and laboratory analysis of soil and groundwater samples for contaminants of concern (COCs).
- Data Collection on REC/AOC Releases: The primary objective is to gather sufficient data to determine if there have been any releases of hazardous substances or pollutants at each REC and/or AOC identified during the Phase I ESA.
- Nature, Degree, and Extent of Releases: If any releases are identified, the nature (type of substance), degree (concentration), and spatial extent (area affected) will be characterized. This involves targeted sampling and subsequent laboratory analyses.
- Conceptual Site Model (CSM) Completion and Reporting: As data is collected and analyzed, the preliminary CSM developed during the Phase I ESA will be updated to include new findings. The aim is to complete the CSM with no significant data gaps. A comprehensive Phase II/III ESA report will be prepared, summarizing all findings, data analyses, and the updated CSM.
- Preparation of Report: Following the subsurface investigation, a detailed report will be prepared. This report will document the findings of the investigation, including the presence or absence of releases, the nature and extent of contamination, and the characterization of the subsurface conditions. It will also include the results of laboratory analyses for COCs.

The contaminants of concern to be analyzed in soil and groundwater samples include petroleum and hazardous substances, such as extractable total petroleum hydrocarbons (ETPH), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs)/polycyclic aromatic hydrocarbons (PAHs), Resource Conservation and Recovery Act (RCRA) 8/Remediation Standard Regulation (RSR) metals, lead (Pb), arsenic (As), and polychlorinated biphenyls (PCBs). Leachability analysis may be completed for certain COCs, and emergent contaminants like 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS) will also be evaluated.

9.1.4 REMEDIAL ACTION PLAN AND OPINION OF PROBABLE REMEDIATION COST

The environmental assessment process involves the development of a preliminary Remedial Action Plan (RAP) in accordance with the requirements set forth by the Connecticut Department of Energy and Environmental Protection (CT DEEP). This phase aims to outline proposed remedial options that prioritize the protection of human health and the environment while achieving compliance with the Remediation Standard Regulations (RSR) cleanup criteria for residential use. This plan will provide a comprehensive strategy for addressing Recognized Environmental Conditions (RECs) and Areas of Concern (AOCs) identified during Phases I and II/III. It is important to note that this preliminary RAP will be provided in draft form for review and comment before the final report is prepared.

As part of the environmental review work, developing a validated Conceptual Site Model (CSM) to offer a clear and logical interpretation of the environmental data amassed during the Phase I ESA and Phase II/III ESA will be completed. This CSM will function as the foundational framework for comprehending the site's condition as well as the risks involved.

The Subconsultant performed a Determination of Release and Fate/Transport Analysis for every Recognized Environmental Condition/Area of Concern (REC/AOC) identified. This involved assessing whether hazardous substances have been released and detailing the fate and transport of these substances within each release area. The evaluation focused on the data's compliance with the Connecticut Department of Energy and Environmental Protection's Remediation Standard Regulations (CT DEEP RSR), particularly in the context of residential use.

Appendix C contains an in-depth analysis of the details of boring completion and well construction, the rationale behind sampling decisions, field measurements, and a summary of groundwater elevation measurements. There is also an "Opinion of Probable Remediation Cost Estimate".

9.1.5 FLOODPLAIN

Our analysis of the Hartford-Brainard Airport encompasses a comprehensive review of historical flooding events within the site. Understanding these vulnerabilities and environmental challenges is essential for informed planning These evaluations form a critical aspect of our rigorous environmental review process, which is designed to mitigate negative environmental consequences.

Following this, potential redevelopment scenarios will be formulated, each adhering to the guidelines established by the State of Connecticut's Department of Energy and Environmental Protection (CT DEEP) and the Department of Transportation (DOT) as a minimum requirement. To facilitate the implementation of these recommendations, we will provide a detailed summary of all State permits that may be necessary for each proposed course of action. This information is consolidated along with other key findings, into a comprehensive report in the Appendix. These reports include various maps to provide a clear visual representation of the recommendations. This analysis ensures that any future development will not only be sustainable but also in full compliance with both state and federal regulations.

9.2 ENVIRONMENTAL FINDINGS OF HARTFORD-BRAINARD AIRPORT

9.2.1 PHASE I ESA FINDINGS

The objective of the Phase I ESA was to discern, as feasibly as possible, Recognized Environmental Conditions (RECs), Controlled RECs (CRECs), Historical RECs (HRECs), and Areas of Concern (AOCs). This entailed a physical site inspection, complemented by research, and interviews with the report's User, site occupants, and relevant regulatory bodies. An evaluation is also presented regarding whether the site might be considered an "Establishment" per the stipulations of the Connecticut Property Transfer Act (Sections 22a-134 through 22a-134e of the Connecticut General Statutes).

While the report offers insight into potential environmental risks from both historical and contemporary perspectives, the conclusions drawn are contingent on the information accessible at the assessment's time. It's worth noting that there might be undiscovered environmental impairments stemming from unreported waste disposal or unlawful actions, that weren't detected.

The recommendations and conclusions drawn in this report are rooted in a client-authorized scope of work. Nonetheless, it's imperative to recognize that no scope, regardless of its depth, can pinpoint every contaminant or ascertain every subsurface and surface condition.

Site Conditions

Originally spanning 351 acres with four landing strips, the Airport has since been reduced to 200 acres, featuring one existing runway (2-20) acquired by the State of Connecticut in 1959. A crosswind runway, 11-29, was added in 1966 to accommodate landings in extreme east/west wind conditions. Currently, the site hosts 20 structures mainly situated along its northern and western perimeters. These include maintenance garages, the FAA control tower, various offices, classrooms, and two fuel farms. Paved parking spaces, vehicle access routes, or turf areas complement each building. Two helicopter pads are also present; the primary pad lies east of Building H1 (20 Lindbergh Drive) while a smaller one is east of Building H4. A chain-link fence encloses a majority of the entire property. The Airport has three designated runways: 2-20, 11-29, and a turf runway, each bordered by turf areas and limited paved access roads or taxiways.

The Hartford Jet Center, acting as the First Base Operator (FBO), operates one fuel farm. This facility includes a 12,000-gallon Jet-A Aboveground Storage Tank (AST), a 12,000-gallon Aviation Gas 100 Low-Lead (AvGas 100LL) AST, along with smaller 275-gallon gasoline and diesel ASTs. These are accompanied by associated piping and dispensing equipment and are located about 180 feet northwest of Building H1. Additionally, the fuel farm contains two catch basins reportedly connected to a holding tank in the fuel dispensing area.

A separate fuel farm run by the CAA houses a compartmentalized 1,000-gallon diesel and 1,000-gallon gasoline double-walled steel/concrete containment AST (ConVault tank). Situated approximately 80 feet south of the CAA ARFF Building (4 Maxim Road), this farm also includes associated piping and fuel dispensing equipment. A Site plan showing current structures in the Phase I ESA.

Utilities Provided to Site

Eversource provides electricity via underground cables from street utility poles. Each building is currently heated by gas provided by the Connecticut Natural Gas Company (CNG) through four- and six-inch mains located beneath Maxim Road and Lindbergh Drive. Service laterals then connect respective buildings to the gas mains. The MDC provides water to the site through an eight-inch main located east of Lindbergh Drive and south of Maxim Road. Service laterals then connect respective buildings to the water main. Sanitary sewer provided by the MDC services the site. According to DPW, multiple pump stations service the site. Historically, three pump stations were referenced to serve buildings situated along Lindbergh Drive. Buildings along the northern property boundary connect to the sanitary sewer via laterals off Maxim Road.

Topography and Groundwater Flow

According to the Connecticut Environmental Conditions Online (CTECO), the site's surface elevation ranges from approximately 13 to 16 feet above the National Geodetic Vertical Datum (NGVD). The topography is generally flat, with a gentle eastward slope toward the man-made Clark Dike situated along the site's eastern property boundary. The elevation of the dike is reported to be 32 feet above NGVD. Surrounding the site, the regional topography is likewise flat and developed, featuring buildings, roads, and paved surfaces like parking lots.

Informed by the site's topographical features and historical groundwater data, overburdened groundwater flow is expected to be directed southeast and southwest, ultimately leading toward the Connecticut River, which flows east and south of the site. As the Connecticut River's tides reach up to Windsor Locks, CT, the site's groundwater is susceptible

to regional tidal influences. Previous reports have indicated groundwater on the site is found at depths ranging between 4.5 and 7 feet below the ground surface (ftbgs).

Soil Information

According to the National Resources Conservation Service (NRCS) Web Soil Survey (WSS) for Connecticut, as of 2009, the soil composition on the eastern part of the site is identified as Winooski silt loam. The rest of the site is classified under the general category of Urban Land. These details are illustrated in a soil map of the site. Additionally, Metropolitan District Commission (MDC) records describe the soil in the area as a mixture of sand and clay.

Geology

According to the 1992 Surficial Materials Map of Connecticut by the U.S. Geological Survey, the site is underlain by alluvium over fines. Alluvium, typically found in floodplains of large river systems like the Connecticut River, can be up to 25 feet thick in some areas. Previous site investigations have revealed that the subsurface soils consist of a layer of reddish-brown sand, gravel, and silt, under which lies greyish-brown to reddish-brown clay. Due to historical industrial activities in the area, parts of the site may also contain urban fill or dumped materials. This information is graphically represented in a surficial materials map of the site.

Additionally, the Bedrock Geologic Map of Connecticut from the U.S. Geological Survey (1985) indicates that the site's bedrock is primarily composed of the Portland Arkose (JP) formation, characterized by its reddish-brown arkose or sandstone. Based on prior investigations, bedrock was not encountered in the top 20 feet of the soil layer. This bedrock information is presented in a bedrock geology map of the site.

Groundwater and Surface Water Quality

CTDEEP Bureau of Water Protection and Land Reuse classifies the site's groundwater as "GB." This classification indicates that the groundwater is presumed to be degraded and not suitable for human consumption. The nearest surface water body is the Connecticut River, which generally flows along the east and south boundaries of the property, separated by the Clark Dike. Another nearby water feature is an unnamed pond located approximately 400 feet north of the site at 300 Maxim Road. The Connecticut River holds a CTDEEP classification of "SB," signifying its designated uses as a habitat for marine fish, aquatic life, and wildlife, as well as for commercial shellfish harvesting, recreation, industrial water supply, and navigation. According to a Pollutant Loading Report sourced from Environmental Data Resources (EDR), the Connecticut River is listed as impaired due to the presence of pathogens and polychlorinated biphenyls (PCBs).

Flood Plain, Wetlands, Aquifer Protection Area, and Natural Diversity Information

A review of the area's Federal Emergency Management Agency (FEMA) Flood Insurance Map reveals that the site benefits from reduced flood risk due to the presence of the Clark Dike along its eastern boundary. However, the Connecticut River, which flows on the other side of this dike, is designated as a special flood hazard area.

The site also partially lies within a Natural Diversity Database Area (NDDB) defined by the Connecticut Department of Energy and Environmental Protection (CTDEEP). NDDB maps indicate approximate locations for endangered, threatened, and special concern species and significant natural communities within the state. Notably, a bald eagle was observed during site reconnaissance along the Clark Dike.

According to the National Wetland Inventory, no wetlands exist directly on the site. The nearest identified wetlands are a freshwater forested/shrub area situated to the east of the Clark Dike. During the site survey, a small detention area populated with phragmites was noted northwest of the engine test cell building associated with the CT Aero Tech School. Additionally, CTDEEP GIS data confirms that the site is not situated within an Aquifer Protection Area (APA).

Flood Plains, Wetlands, Aquifer Protection areas, and Natural Diversity areas are provided as in the Environmental Resources Map.

Environmental Justice

The fact that the Hartford-Brainard Airport site is located within an Environmental Justice (EJ) area designated by the Connecticut Department of Economic and Community Development (CTDECD) has important implications for any redevelopment or expansion efforts. Specifically, this designation necessitates additional layers of community engagement and public input before proceeding with any actions that could impact the environment.

CTDEEP has set forth stringent guidelines for permitting in areas designated for environmental justice (EJ). First and foremost among these is the Public Participation Plan. Prior to the submission of any permit application, it's mandatory to develop a "meaningful" environmental justice Public Participation Plan that receives tentative approval. This plan is intended to detail the strategies for engaging the community and the mechanisms through which their feedback will be incorporated into the project's planning and decision-making processes.

Additionally, applicants are obligated to consult with the chief elected officials of the municipality where the proposed facility is slated for construction. The purpose of this consultation is to discuss the terms of a Community Environmental Benefit Agreement. The agreement becomes a compulsory element if there are currently five or more facilities in the municipality that impact the environment when the permit application is filed.

By adhering to these requirements, CTDEEP aims to ensure that development projects are not only environmentally responsible but also equitable, particularly in areas where communities are disproportionately affected by environmental hazards. This structured approach ensures that community involvement is not just tokenistic but meaningful, fostering a more inclusive and accountable development process.

The Connecticut Environmental Justice Mapping Tool adds another layer of data-driven understanding to this. It is designed to identify communities that may be disproportionately affected by environmental hazards, incorporating variables like proximity to pollution sources, socio-economic conditions, and health indicators. This GIS tool helps in evaluating the cumulative potential risks and benefits of a given project in specific geographic areas within Connecticut.

In the case of Brainard Airport, nearly all of the study area (except for the vacant wetlands to the south) falls within a census tract that has the highest potential for environmental injustice, according to this mapping tool. This underscores the imperative for comprehensive and inclusive planning to meet regulatory requirements and responsibly address potential social and environmental impacts. Therefore, any redevelopment scenarios must be carefully designed with these constraints in mind, ensuring that the vulnerable populations are not adversely affected and that their input is meaningfully incorporated into the planning process.

Recognized Environmental Conditions (RECs) and/or Areas of Concern (AOCs)

Tighe & Bond identified 5 RECs and/or 23 AOCs for the site during the performance of this Phase I ESA. Based on current and historical Site conditions, environmental impacts to The underlying soil and/or groundwater are likely present. Tighe & Bond recommended completing a Phase II ESA to evaluate previously identified impacts to soil and groundwater and to evaluate impacts to the environment associated with RECs/AOCs that have not previously been investigated. Also, as detailed in Section 8.2 of the Phase I ESA (see Appendix B), the site appears to meet the definition of an "Establishment" as defined in the Connecticut Property Transfer Act. Whether the Transfer Act applies to the sale of a property or a business is a legal issue; therefore, it is recommended that environmental legal counsel be consulted before the transfer of the property or business.

9.2.2 PHASE II/III ESA

The purpose of the Phase II/III ESA was to collect sufficient information to determine whether or not a release has occurred in connection with the Recognized Environmental Conditions (RECs) and/or Areas of Concern (AOCs) identified during the completion of Tighe & Bond's April 21, 2023 Phase I ESA for the Site (Appendix C). During the completion of the Phase II/III ESA, an additional AOC was identified that was also evaluated. All RECs/AOCs are shown in Figures 3, 3-1, and 3-2 of the Phase II/III ESA report (Appendix C). A release is considered to have occurred if concentrations of constituents of concern (COCs) inW soil are detected above the analytical reporting limit unless such detections can be shown to be attributable solely to naturally occurring or background conditions. Most AOCs/RECs were either directly or indirectly investigated as part of the Phase II/III ESA.

Remediation Criteria

Connecticut's Remediation Standard Regulations (RSRs) provide detailed guidance and standards that may be used at any site to determine whether or not remediation of contamination is necessary to protect human health and the environment. Generally, the RSRs apply to any action taken to remediate polluted soil, surface water, or a groundwater plume at or emanating from a release area, provided the remedial action is required pursuant to Chapter 445 or 446k of the CGS, or Section 22a-208a(c)(2) of the CGS.

Under specific circumstances, an Environmental Use Restriction (EUR) (Section 22a-133q-1 through 22a-133q-9 of the RCSA) may be considered as an alternative to remediating contamination to a concentration consistent with the RSRs' specific criteria. The purpose of an EUR is to prevent certain types of uses of a property, or to limit or require specific activities on a contaminated property, or to minimize the risk of exposure to the pollutants. There are two types of EURs, an Environmental Land Use Restriction (ELUR) and a Notice of Activity and Use Limitation (NAUL). Both EURs are recorded on the municipal land records.

Environmental Investigations

Phase II/III ESA activities were conducted between April and August 2023 and included the collection and analysis of subsurface and surface soil samples and groundwater. Investigation activities were conducted to determine whether releases occurred to the environment associated with the identified RECs and/or AOCs at the Site and, in certain instances, to delineate the nature, degree, and extent of any identified release areas. Phase II/III ESA activities are summarized in the following sections. Sampling locations are shown in Figures 4, 4-1, and 4-2 of the Phase II/III ESA report (Appendix C).

Soil Borings

Between April 27 and May 22, 2023 Tighe & Bond supervised advancement of 133 soil borings (B-1 through B-10, B-13 through B-23, B-25 through B-45, B-49 through B-86, B-88 through 102, B-105 through B-127, B-129 through B-131, B-133, B-135 through B-138, and B-140 through B-146) and the installation of 24 groundwater monitoring wells (TMW-1 through TMW-21 and TMW-23 through TMW-25) at the Site using direct push drilling techniques. Drilling services were provided by Cisco Geotechnical LLC of Glastonbury, Connecticut.

At most soil boring and monitoring well locations, soil samples were collected continuously using a 2-inch diameter, 5-foot long MacroCore and direct push drilling techniques. At four soil boring locations within the northernmost T-Hangar, soil samples were collected using a core-drill to drill through the concrete slab, followed by a manually driven 1.5-inch diameter, 2-foot long MacroCore sampler. Immediately upon opening, each acetate sleeve was screened in the field with a photoionization detector (PID) for the presence of measurable VOCs. Soils in each acetate sleeve were then evaluated for physical characteristics and inspected for visual and/or olfactory evidence of contamination. Observations for each boring were recorded on boring/well construction log forms included as part of the Phase II/III ESA report (Appendix C).

Surface Soil Samples

Forty-nine surface soil samples (HA-1 through HA-11, HA-12A, HA-12B, HA-13 through HA-32, HA-34 through HA-36, HA-38 through HA-47, B-132, and B-134) were initially collected at locations across the Site during the investigation activities. These surface soil samples were collected between May 3 and June 20, 2023 using hand sampling equipment that was decontaminated in-between sampling locations. As part of the evaluation of leaching of potentially hazardous exterior building components (AOC 19), Tighe & Bond collected surface samples from along the exterior of the Site buildings, generally beneath materials that could contain PCBs (caulks, glazing, and seams) and painted surfaces that may consist of lead-based-paint. With respect to sampling for PFAS, laboratory field sampling guidelines were followed that included use of appropriate clothing, field equipment (decontaminated with PFAS free water and alconox), and nitrile gloves and avoiding cosmetics, moisturizes, hand cream, sunscreen, insect repellants, or other related products the day of sampling.

Based on discussions with the CTDEEP, additional surficial sampling was completed on August 10, 2023 that included the collection of 12 additional surface soil samples (HA-48 though HA-59). The purpose of this sampling was to further evaluate potential PFAS, PAHs, ETPH, and metals impacts associated with airborne deposition, fill materials, and/or other airport related releases.

Groundwater Monitoring Well Installation and Sampling

Between June 1 and June 7, 2023, Tighe & Bond collected groundwater samples from each of the 24 groundwater monitoring wells installed during the Phase II/III ESA as well as from two existing monitoring wells (MW-1 and MW-2) and an oil/water separator observation well (OW- 1) that were identified during the Phase I ESA. Groundwater samples were collected using low-flow sampling techniques. A handheld multiparameter instrument equipped with a flowthrough cell was used to field measure the following parameters: pH, oxidation/reduction potential (ORP), conductivity, temperature, and dissolved oxygen. A turbidity meter was used to measure turbidity in the groundwater samples prior to the flow-through cell. Several monitoring wells (TMW-3, TMW-6, TMW-15, TMW-18, TMW-19, TMW-23, and TMW-25) were sampled as part of the evaluation of PFAS at the Site. These wells were sampled on June 1, 2023 using laboratory field sampling guidelines that also included the use of HDPE sample tubing.

Existing and newly installed monitoring wells were surveyed in place by Pereira Engineering, LLC on June 20, 2023. A round of groundwater monitoring well gauging was also completed at this time and the depth to water measurements used in connection with well elevation survey data to determine approximate shallow groundwater flow direction. The monitoring well locations and shallow groundwater flow direction are shown in Figure 5 (Appendix XX).

Phase II/III ESA Results

As documented in the draft Phase II/III ESA (Appendix C), a total of 30 release areas (RAs) were identified among 12 RECs/AOCs. The detected concentrations of ETPH, VOCs, several individual SVOCs, lead, and/or PFAS within 11 RAs were above the RSR residential direct exposure criteria (RES DEC), industrial/commercial direct exposure criteria (I/C DEC), and/or the GB pollutant mobility criteria (GB PMC). Release areas and RSR exceedances are shown in Figures 6, 6-1, and 6-2 (Appendix C).

Based on the results of this Phase II/III ESA, continued use of the site as an airport or potential future use as residential, recreational, commercial, or industrial is not precluded. Remediation or installation of institutional controls would be required as part of any future redevelopment. This would include the removal of soil impacts above RSR criteria (hot spot removal) and/or capping in place in accordance with the provisions of the RSRs. Depending on the redevelopment plan, impacted soil could be capped under proposed buildings. Additionally, soil and groundwater management would be required during construction activities under a Soils and Materials Management Plan if disturbed during construction.

Based on investigation activities and findings obtained to date, a preliminary remedial scenario for soil and groundwater would likely include a conventional approach consisting of remediation by excavation and off-site disposal (removal of hot spots). A similar approach could be used for the fill material and/or surficial soil with potential airborne impacts (RA-12 and RA-30, respectively); however, if additional assessment and/or hot spot removal was completed and enough, suitable data was obtained, compliance with the RSRs could be demonstrated using statistical analysis (i.e., calculation of the 95% upper confidence limit).

Depending on the proposed redevelopment scenario, the identified impact could be capped, making it inaccessible as allowed by the CTDEEP RSRs as a mechanism for DEC compliance. GB PMC exceedances have been identified; however, in accordance with the RSRs, these exceedances could be rendered environmentally isolated based on the proposed redevelopment of the site.

As RES DEC and I/C DEC exceedances have been identified in most samples, compliance using an Environmental Use Restriction (EUR) restricting residential use does not appear to be an appropriate approach for remediation.

At this time, groundwater does not appear to be significantly impacted by the releases identified at the site. Although arsenic and acenaphthylene were detected above the SWPC, compliance could be demonstrated using downgradient monitoring wells (upgradient of the ultimate surface water discharge) and/or the calculation of an alternative SWPC. However, PFAS were detected in most groundwater samples analyzed. The groundwater sample collected from monitoring well TMW-18, which is a downgradient monitoring well, contained a concentration of PFAS that was more than 12 times the next highest concentration. Although there are no established criteria for groundwater in GB groundwater areas, PFAS is an emerging contaminant and future regulatory changes may impose remedial obligations for the site.

Based on the findings of the Phase II/III ESA and in accordance with the assessment of the current and potential alternative uses of the site, a Conceptual Preliminary Remedial Action Plan (RAP) with an evaluation of remedial alternatives will be developed that will discuss strategies for remediation based on the data obtained to date.

9.3 REMEDIAL ACTION PLAN

Site investigations were previously completed as part of an assessment of the site's current and potential alternative uses. As documented in Tighe & Bond's draft Phase II/ ESA dated August 2023, environmental impacts were identified that would require remediation if the site, or portions thereof, were redeveloped.

As discussed in Tighe & Bond's draft Preliminary RAP (Appendix D), several different remedial techniques were evaluated that could be used at the site to achieve compliance with the RSRs. As the Site is only moderately impacted based on the data obtained and to provide flexibility in evaluating potential alternative uses, removal and off-Site disposal of impacts above RSR criteria was selected as the remedial approach for all impact above the high water table. Remediation is not required for impact below the high water table for GB PMC exceedances. For DEC exceedances below the high water table, remediation is impracticable; however, the soil could be rendered inaccessible with an EUR. Prior to completion of a final RAP, a Phase III ESA should be completed to define the full extent of impacts at the AOCs and RAs. Although not proposed at this time, other remedial strategies could be utilized. Should the Site be redeveloped, and new buildings constructed, certain polluted materials throughout the Site could be excavated, consolidated, and capped under a Licensed Environmental Professional (LEP) certified Engineered Control (EC) and/or made inaccessible in accordance with the RSRs to address DEC exceedances.

Under these EC methods, filing of an EUR would be necessary. Based on the data obtained, residential restrictions under an EUR are not prudent at this time as both residential and industrial/commercial criteria was exceeded in most samples. The use of an EC or other restrictions could be evaluated as part of the proposed redevelopment of the site. Further, for site-wide fill impacts and/or airborne deposition of impacts (RA-12 and RA-30, respectively), additional data obtained from a complete Phase III ESA could be evaluated for compliance using statistical analysis (i.e., calculation of the 95% upper confidence limit). It may be possible to excavate only a few areas of elevated impact to achieve compliance for these RAs. However, this cannot be determined at this time; as such, the approach to remove the entirety of the impact above the high water table is the most prudent remedial approach at this time. The proposed excavation areas are shown in Figures 7, 7-1, and 7-2 (Appendix D).

9.5 PRELIMINARY OPINION OF PROBABLE COST

A preliminary Opinion of Probable Cost (OPC) was developed for the remediation of the Hartford-Brainard Airport with the following assumptions and qualifiers:

- Preliminary OPC contractor, transport, and disposal costs are based on recent bid information obtained from a remediation contractor for projects in Connecticut. Actual contractor costs to be determined following bidding.
- Preliminary OPC is based on data obtained from previous investigations, which have not defined the extent of impacts. A Phase III ESA should be completed prior to a final RAP and to further define remediation costs. The preliminary OPC does not include costs for completion of a Phase III ESA. In addition, given the size of the site and lengthy history, impact above RSR criteria may exist at other locations that were not previously tested that would require remediation. The OPC contains a contingency to address impact that could be present beneath Site buildings/structures; however, should significant contamination be identified, additional remedial costs beyond this preliminary OPC may be incurred.
- Preliminary OPC assumes use of common fill for backfilling of remedial excavations. Use of structural fill to support buildings and other Site improvements is not included.
- Preliminary OPC is specific to the current limits of the Hartford-Brainard Airport property, as identified during Tighe & Bond's April 2023 Phase I ESA. The preliminary OPC does not include any off-Site remediation, including potential remediation needs related to a contemplated land-swap with the south, adject Metropolitan District Commission (MDC) property and at outfalls along the Connecticut River.
- Preliminary OPC assumes dewatering is not needed during excavation activities.
- Preliminary OPC assumes that groundwater remediation will not be necessary and compliance with the RSRs could be demonstrated using downgradient monitoring wells and/or calculation of alternative criteria in combination with monitored natural attenuation.
- Preliminary OPC does not include costs for building demolition including abatement of hazardous building materials.
- Preliminary OPC does not include costs for site demolition including but not limited to removal of pavement, runways, utility systems, subsurface structures. Also does not include costs for repairs to the dyke/berms systems.
- Preliminary OPC does not include additional remedial costs for PFAS due to potential regulatory changes, including development of new criteria.

Tighe & Bond has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing. The preliminary OPCs expressed herein are made on the basis of Tighe & Bond's professional judgment and experience. Tighe & Bond makes no guarantee nor warranty, expressed or implied, that the bids or the negotiated cost of the Work will not vary from those presented in this Preliminary OPC.

Based on the draft Phase II/III ESA findings and current assumptions, the following estimated costs were developed:

Table 30: Preliminary Opinion of Probable Cost

Items	Estimated Costs (rounded)
Remediation Oversight, Post-Excavation Sampling, Documentation, and Reporting	$100,000
Excavation, Loading, Transport, Disposal, and Backfill	$900,000
Subtotal	**$1,000,000**
100% Contingency[1]	**$1,000,000**
TOTAL	**$2,000,000**

Notes: 1 = includes remediation of potential impact at previously untested locations beneath

9.5 FLOOD PLAIN

The Hartford Levee, constructed in the wake of the devastating floods of 1936, provides a level of flood protection to the entire site. According to Flood Insurance Rate Map panels 09003C0506G and 09003C0507G, which became effective on September 16, 2011, the site is classified as Zone X, an area with reduced flood risk due to the presence of the levee. The Federal Emergency Management Agency (FEMA) describes a levee as a man-made structure—typically an earthen embankment—engineered to contain, control, or divert water flow, offering some protection from temporary flooding.

It's crucial to understand that while levees reduce the risk associated with certain flood events, they do not offer complete flood protection. Maintenance is key, as levees can deteriorate over time, losing their effectiveness. When a levee fails or is overtopped, the resulting damage can be catastrophic, potentially even worse than if the levee had never been constructed.

In addition to serving as a protective barrier between the river and the Hartford-Brainard Airport, the levee also interferes with the natural drainage patterns of the land. Runoff water accumulating behind the levee must be actively managed, typically by being pumped over or through the levee and into the river. Failure to do so could ironically result in flooding within the very area the levee is designed to protect. Therefore, an effective water management strategy must be in place to ensure the levee serves its intended purpose without inadvertently causing issues it aims to prevent.

Levee Accreditation

FEMA regulates development within Special Flood Hazard Areas (SFHA), which have a 1-percent chance of flooding to a certain level in any given year, such as requiring construction with a minimum freeboard over the base flood elevation or floodproofing for non-residential buildings. Flood insurance is required within a SFHA as a condition of any federally backed, regulated, or insured mortgage.

The area protected by the Hartford Levee is currently not within a Special Flood Hazard Area. Therefore, no provisions under the National Flood Insurance Program would require new structures to be floodproofed or built to a certain elevation.

FEMA analyzes and maps the flood hazards associated with levee systems based on the information provided by other Federal agencies, levee owners, and/or communities. Accredited levee systems are depicted as reducing the base flood hazard on a Flood Insurance Rate Maps (FIRM) if FEMA has been provided with documentation and certified data that meets the requirements of 44 CFR 65.10, including an adopted operation, maintenance, and emergency preparedness plan provided by the community or other qualified entity seeking accreditation.

Hartford Flood Protection System

The levee protecting the Airport is part of a larger flood protection system serving the City. The Flood Protection System (System) protects approximately 3,000 acres of urban area in the vicinity of the Connecticut and Park Rivers. The United States Army Corps of Engineers (USACE) estimates that the population at risk resulting from a failure of the System/system component ranges from 26,200 (day) to 5,500 (night), with direct economic losses in the range of $300 million to $1 billion. The Federal Government constructed the System in various phases, with some of the Park River Conduit's segments being constructed by the Connecticut Department of Transportation (DOT) between 1938 and 1981. Ownership of the System was transferred from the Federal Government to the City of Hartford, with the City agreeing to operate and maintain the System in accordance with Federal standards.

The System consists of the following:

1. Four levee sections
    a. **North Meadows Dike** (16,400 LF of earthen dike with an average height of 27')
    b. **Hartford Dike also known as the Riverfront Dike** (5,300 LF of earthen dike & 4,400 LF of concrete floodwall)
    c. **Clark Dike also known as the South Meadows Dike** (11,400 LF of earthen dike with an average height of 24') This is the structure at the subject property.
    d. **Folly Brook Dike** (650 LF of earth fill dike with a minimum height of 10')
2. System Components
    a. 6.4 mile of embankment (34,000 LF)
    b. 0.8 miles of concrete floodwall (4,400 LF)
    c. 4 Stop Log Closure Structures (one of the former closure structures has been properly abandoned)
    d. 1 Sand bag Closure Structure (Wethersfield Ave.)
    e. Six Stormwater pump stations
    f. Four Conduits
        - Park River Conduit (16,800 LF of twin-rectangular reinforced concrete conduit)
        - Park River Auxiliary Conduit (9,100 LF of 22' diameter concrete-lined tunnel)
        - Folly Brook Conduit (2,200 LF of reinforced concrete box culvert)
        - Gully Brook (3,100 LF of rectangular section pressure conduit – Drainage area = +/- 120 acres)
3. The System is designed to provide protection for a maximum water surface elevation of 37.5' (1929 NGVD) with a top elevation of 42.5' (1929 NGVD)

Various engineering analyses and studies of the System have been completed as part of the FEMA Accreditation Process and as a result of USACE's Inspection Program. The studies have identified a number of deficiencies which need to be addressed. The Department of Public Works (DPW) has been working with the USACE and the CT DEEP to make the necessary improvements to ensure the System provides the intended level of protection based on current engineering standards.

Several improvements have been made to the System in the past few years. Unfortunately, the System is comprised of various elements and the strength of the overall System is dependent on its weakest link. DPW is moving forward to address structural deficiencies that could adversely affect the system's integrity and result in catastrophic failure. Operational elements and other components that are obsolete and past their operating life but are currently functioning have received lower priority but still must be addressed.

- **Loss of Accreditation.** In the event that the levee loses accreditation, the flood protection offered by the levee will be discounted, and the area protected from the 1% annual chance flood will be mapped as floodplain. If a building is constructed behind the levee, which subsequently loses its accreditation, the building owners would be required to purchase flood insurance, with the premium varying based upon the depth of flooding. Furthermore, the owner of a structure in a newly mapped SFHA area will be required to bring the entire structure into conformance with existing floodplain regulations should the value of the improvements exceed 50 percent of the fair market value of the structure. Therefore, the flood insurance requirement is subject to the maintenance of the levee and the levee maintaining its accreditation status.
- **Failure of Pumping Stations.** The levee is a barrier to natural runoff, and relies on a series of toe drains and pumping stations to evacuate runoff collected behind the levee. In the event that one or more of the pumping stations fails, runoff will accumulate behind the levee, potentially flooding the development area.
- **Levee Breach.** It is possible that a structural issue in the levee may develop, causing the levee to fail, allowing floodwaters to flood the levee protected area.
- **Levee Overtopping.** Flood Insurance Studies are based on historic risk, they do not represent future risk. There is a possibility that a storm, or combination of storms and/or saturated ground conditions, or an upstream failure of a large dam, could produce enough runoff in the river that the water surface elevation is raised above the top of the levee.

Development Considerations

The area protected by the Hartford Levee is currently not within a Special Flood Hazard Area, and therefore, there are no provisions under the National Flood Insurance Program that would require new structures to be floodproofed or built to a certain elevation. In other words, there is no restriction on development behind the levee from a floodplain management perspective. The base flood elevation at the levee in the project area is approximately elevation 29.5 NGVD29, which is below the levee protection elevation of 37.5.

Risk of Flooding

However, the risk of flooding is not zero. The following identifies some of the potential risks. Any modifications to the levee itself for public access will require review by the U.S. Army Corps of Engineers under 33 USC 408. USACE may grant permission for the alteration of a public work so long as that alteration is not injurious to the public interest and will not impair the usefulness of the work. The review area not only includes the levee itself, but the easement area associated with the levee on either side.

North and South Meadows Dike Toe Drain Replacement Project

The condition of the toe drain system that is part of the Hartford Levee presents several concerns. Based on available information, many of the filter materials in the toe drains are likely either clogged or compromised in a way that allows the loss of fine sand and silt particles from the adjacent embankment and foundational structures. Additionally, the accessibility of some of these toe drains is limited as they lack features like piping, manholes, cleanouts, or other access points for inspection and maintenance. Past condition assessments have cast doubt on the overall functionality of the toe drain system. To complicate matters, some toe drains have been destroyed or obscured due to adjacent construction projects, including Interstate 91.

To address these issues, construction of Phase #1 of the Toe Drain Replacement project is slated to begin in 2024. This project entails replacing, abandoning, or repairing portions of the existing toe and collector drain systems across three of the four dikes in Hartford. For the area near Hartford-Brainard Airport, the entire toe drain system will be replaced, with the exception of segments located beneath the highway embankments. The existing toe ditch or drainage swale will undergo limited sediment removal, and portions of the channel side slopes on the levee side will be stabilized.

Furthermore, the scope of the project has been expanded in the area near the Clark Dike to address potential seepage issues due to deficiencies in the impervious blanket covering portions of the dike. To mitigate this, a landside buttress and chimney drain will be installed along a section of the Clark Dike adjacent to Hartford-Brainard Airport. This additional work aims to resolve the issues with the deficient impervious blanket, ensuring a more robust flood protection system. A more detailed discussion on the replacement of the former impervious layer is outlined below.

Former South Meadows Dike Underseepage Design and Mitigation and Impervious Blanket Installation

The original project aimed to repair deficiencies in the impervious shell of the South Meadows Dike levee was canceled due to concerns about flooding risks during construction, the stability of the levee, and potential impacts on airport operations. Instead, these issues will now be addressed as part of the Toe Drain Replacement project.

Uncertainties surrounding the actual composition of the existing levee's impervious shell have been raised, notably in the Clark Dike area. These concerns stem from various levee-raising efforts and flood damage repairs over the years. In 2009, hand auger borings were conducted on the riverside slope of the South Meadows Dike to assess the state of the impervious shell. These borings indicated that in several areas, the shell's thickness is less than 1.5 feet, falling significantly short of the minimum design criteria of 3.5 feet. Furthermore, the material making up this "impervious" shell was found to be lacking in imperviousness in some locations. Analytical models indicate that this reduced thickness leads to increased seepage into the levee core and significantly impacts its stability.

Originally, the South Meadows Dike Seepage Impervious Shell Repair Design Project aimed to restore the impervious shell to meet required anti-seepage criteria. However, the project would have involved considerable risks. These included creating a haul road by degrading a part of the levee, removing acres of the riverside levee embankment, and replacing the impervious blanket. Such activities would have exposed the pervious core of the levee to potential flooding in the case of high water events. Given these challenges, the decision was made to focus on enhancing seepage controls through a landside chimney drain and buttress along a section of the Clark Dike. This revised approach aims to mitigate seepage and improve the overall stability of the levee system.

Figure 55: View of Flood Protection at Hartford-Brainard Airport

10

Economic Findings

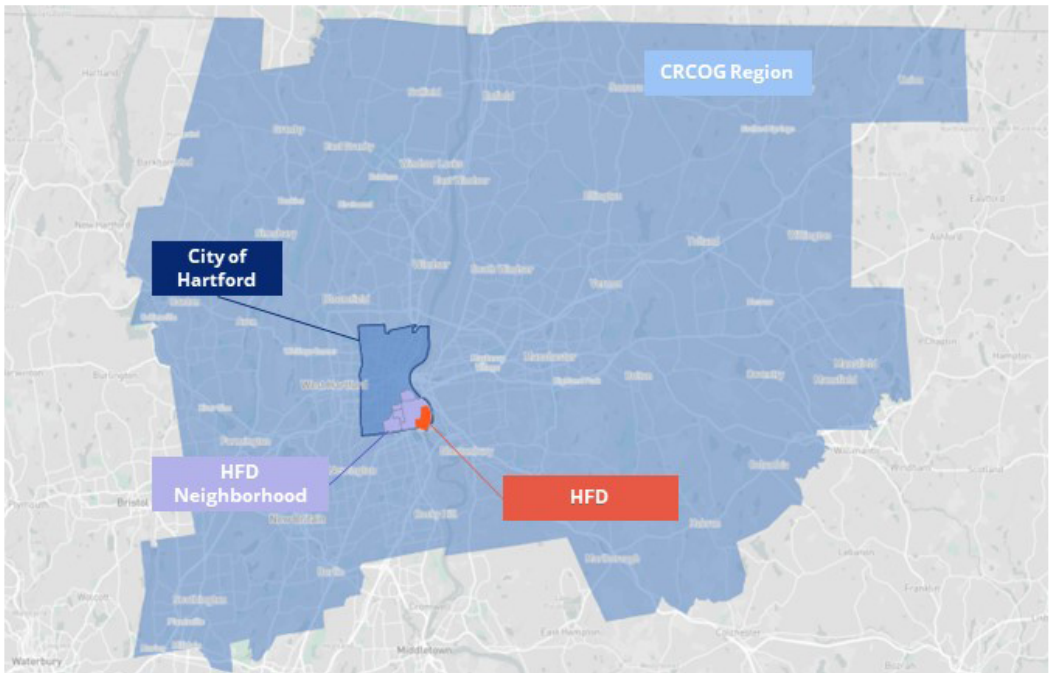
10.0 ECONOMIC ANALYSIS OF HARTFORD BRAINARD

10.1 MARKET SCAN AND ANALYSIS OF THE REGIONAL MARKET

In accordance with Public Act No. 22-118, Section 426, the Connecticut Department of Economic and Community Development (DECD) has been mandated to assess both the benefits and opportunity costs associated with the current and potential alternative uses of Hartford-Brainard Airport property. To fulfill this requirement, DECD has enlisted BFJ Planning as the lead consultant for the study. Serving as a subconsultant, HR&A Advisors has been tasked with performing a real estate market analysis to explore various development opportunities. This analysis aims to provide insights into an array of potential uses for the airport property, including mixed-use development, commercial spaces, retail establishments, and recreational areas. The objective is to offer a comprehensive understanding of the market forces at play and identify the most viable development scenarios that align with community needs and economic feasibility.

The real estate market analysis findings are systematically organized based on different types of usage, including multifamily residential, office, retail, industrial, and recreation. Two distinct study areas have been considered for each type of use. The primary study area is the City of Hartford, which represents the immediate market in which any potential development at Hartford-Brainard Airport (HFD) will likely compete. The secondary study area is the CRCOG (Capitol Region Council of Governments) region, offering a broader perspective on market trends. These areas are specifically delineated for residential, retail, and office uses, as shown in Figure 56.

Figure 56: Study Area Map



Source: Esri, U.S. Census Bureau, Capital Region Council of Governments

For assessing industrial real estate trends, HR&A examined a 5-mile corridor surrounding the key interstates in Connecticut— I-84, I-91, and I-95—to understand how these locations might compete or complement potential industrial development at HFD[1]. In addition to these areas, a demographic analysis focused on the five Census tracts comprising HFD and portions of adjacent neighborhoods. This more localized study, referred to as the "HFD Neighborhood," provides additional context for understanding how demographic factors might influence development potential and needs in the airport's immediate

The market analysis uses market, demographic, and employment data from trusted third-party sources such as:

- **CoStar** for data on multifamily, retail, office, and industrial rent, inventory, deliveries, and pipeline, absorption, and occupancy information. CoStar data in this analysis comes from the first quarter of 2023 unless otherwise noted.
- **Lightcast** for data and analysis from the U.S. Bureau of Labor Statistics including employment and labor income by industry.
- **Social Explorer** for data and analysis from the U.S. Census Bureau including population and demographic data sourced from the Decennial Census and American Community Survey.

Third-party data and analysis by HR&A are supplemented and validated through discussions with local and regional real estate market stakeholders including developers, brokers, and urban planners.

10.1.1 SITE LOCATION AND REGIONAL CONTEXT

Land adjacent to the airport includes both privately and publicly owned parcels and is used primarily for commercial and industrial purposes as well as major civic infrastructure facilities. Adjacent properties include the now-closed Materials Innovation and Recycling Authority (MIRA) waste-to-energy plant, the Connecticut regional market for farmers and wholesalers to distribute food and farming products, the South Meadows Industrial Park, and the MDC main wastewater treatment facility. MIRA and MDC both have significant negative externalities, while the rest of the nearby uses contain traditional older storage, logistics, and light industrial uses consistent with the current ID-1 zoning district.[2]

Figure 57: Hartford-Brainard Airport Context Area Map

[1] Industrial uses tend to locate near major roadways and users often consider large geographies to optimize building and leasing. See: Prologis, "The Evolution of Logistics Real Estate Clusters" (August 2015); and Dealpath (blog post, April 2023).

[2] ID-1 provides for medium to heavy industry characterized by a minimum of noise, odor, glare, and pollution, and by moderate traffic. See: City of Hartford Adopted Zoning – August 5, 2020.

Table 31: Employers at Hartford-Brainard Airport

Government & Public Safety Organizations	Private Venders and Service Providers
Connecticut Aero Tech School	Experimental Aircraft Association
Connecticut Wing Civil Air Patrol	Hartford Jet Center
Division of Emergency Management and Homeland Security	Hartford Tees, Inc.
	Learn2FlyCT
Department of Emergency Services and Public Protection - Division of State Police	Pegasus Air Charter
	Premier Flight School
Office of Public Health Preparedness and Response	Robert Dodenhoff MD (Aviation Medical Examiner)
	Total Aircraft Parts, Inc.
Connecticut Wing Civil Air Patrol	VIP Avionics, Inc. (sales/service center for avionics systems)
Connecticut Airport Authority	

10.2 ECONOMIC CONDITIONS

Job Growth

Regional employment has shifted away from the City of Hartford and to other parts of the metropolitan statistical area (MSA) from 2011 to 2021. Employment in the Hartford MSA increased by approximately 2,500 jobs from 2011 to 2021 or 0.4%. Meanwhile, employment within the city fell by approximately 2,800 jobs or 3%.[3] Employment decreases were more pronounced for workers in the HFD Neighborhood, which saw a loss of approximately 2,700 jobs (21%) from 2011 to 2020, the latest year for which data are available. Moreover, most of these losses are not pandemic related: employment in 2019, before the pandemic, was lower by more than 2,400 jobs from 2011.

Sector Growth

While regional employment remained largely flat, the composition of industries changed significantly. In the MSA, Transportation and Warehousing (+12,200), Healthcare and Social Assistance (+6,800), Professional, Scientific, and Technical Services (+4,500), and Management of Companies and Enterprises (+4,000) sectors all added jobs. Since 2016, Amazon has opened five distribution, sorting, and delivery facilities in the region with a recent expansion of its operations in Windsor that now employs over 2,000 workers.[4] The greatest decline in industry employment has been seen in Finance and Insurance (-9,000) with Retail Trade (-5,000), Government (-2,900), Wholesale Trade (-2,800), Manufacturing (-2,800) and Information (-2,500) all accounting for losses greater than 2,500 jobs. (For further industry data, see Appendix.) The result of this shift was away from industries with higher average earnings with a net loss of 13,100 jobs in industries with average earnings above the MSA average. This decrease is despite increases in Professional, Scientific, and Technical Services and Management of Companies and Enterprises employment, both of which have average earnings significantly above the average for the region. The City of Hartford saw similar trends with Transportation and Warehousing growing by 48% (+1,700 jobs) and Finance and Insurance posting the largest jobs loss at 17% (-4,300). In the HFD Neighborhood most of the employment decline has been in Educational Services (-1,500) with overall decreases offset by increases in Management of Companies and Enterprises, Utilities, and Healthcare and Social Assistance.

Regional Competitiveness

The Hartford MSA has demonstrated strength or specialization in key industries, including Finance and Insurance, Management of Companies and Enterprises, Health Care, and Manufacturing. Hartford's location quotient of 5.79 for Finance and Insurance indicated that this sector was highly concentrated in City of Hartford compared to the national average, reflective of its reputation of "insurance capital of the world" with major companies like Aetna, The Hartford, and Travelers headquartered there.[5] The industry's trajectory in Hartford has changed, notably in the mid- to late 2010s when Aetna announced

[3] All employment data comes from Lightcast analysis of U.S. Bureau of Labor Statistics data.

[4] WBUR, "The biggest Amazon warehouse in New England is now open in Connecticut" (May 3, 2023).

[5] Location quotients compare the concentration of an industry within a specific area to the concentration of that industry nationwide. A Location Quotient above 1 means that the area has a higher concentration of given industry than the national average. A quotient below 1 means that a given industry is less concentrated than the national average. See: Lightcast, "Glossary" (accessed May 2023).

they were leaving Hartford, only to stay after CVS Health acquired it, which resulted in a reduced company workforce in downtown Hartford. CVS pledged to keep Aetna's operations in Hartford for 10 years and expressed plans to make Hartford the location of its center of excellence for the insurance business.[6] More recently, UnitedHealthcare has announced it will downsize its office footprint to around 57,000 SF, down from a high of 450,000 SF a little over a decade ago, and Prudential Financial makes plans to reduce its current 250,000 SF footprint to 25,000 SF after the company sold off its retirement business and adopts a long-term hybrid work policy.[7] The result has been a 15% drop in the total number of jobs in the MSA and a 17% drop in the City of Harford, with additional job losses likely to occur soon.

Management of Companies and Enterprises jobs demonstrated a stronger local concentration with a 1.41 location quotient. This reflects the fact that Hartford has several large corporations headquartered there, such as United Technologies Corporation (UTC), which was based in Hartford until its merger with Raytheon in 2020. Manufacturing had the third highest location quotient of 1.27, showing a modest relative concentration. This sector also experienced a subtle drop in the number of jobs, while has steadily been growing in the past 10 years (+12,000 jobs or 71%).

The Hartford MSA is also an important aerospace hub, boasting more aerospace engine manufacturing jobs than any other MSA in the United States. The region produces $7.5 billion in aircraft engine exports and is home to 2,000 advanced manufacturing jobs. While Pratt & Whitney is Hartford's largest aerospace company, there are several other notable companies with a presence in the region including Barnes Group, Collins Aerospace, Honeywell, Kaman, and Sikorsky, now a Lockheed Martin company.[8]

Advanced manufacturing in the Hartford region accounts for 16% of Hartford's GRP. Furthermore, other advanced manufacturers like Otis Elevator, Pegasus Manufacturing (fabricated tube and pipe assemblies, precision machining, and gearing manufacturer), and Stanley Black and Decker contribute to the metal manufacturing sector in the region. A 2022 report by the Metro Hartford Alliance estimated advanced manufacturing in the region generated $2.3 billion in economic output and impacted more than 15,600 jobs.[9]

The region is increasingly supplying workers with education needed to support the aerospace and advanced manufacturing industries with completions in related degrees up significantly over the past 10 years including Engineering (22%), Precision Production (182%), and Computer and Information Sciences (17%). However, completions in Mechanic and Repair Technologies and Technicians are down (57%). Institutions such as Central Connecticut State University, Lincoln Technical Institute-East Windsor, and Asnuntuck Community College, Bristol Technical Education Center, and CT Aero Tech School are increasingly providing workers with two- and four-year degrees as well as technical certifications in these disciplines.[10]

Regional Economic Priorities

The CRCOG has identified seven priority economic clusters to help grow and diversify the region's economy by building off the region's existing strengths, while also providing livable wage jobs requiring a range of skills.[11]

1. **Business Services |** Hartford is already home to a large legal services industry and growing business services with help enhance growth in other sectors such as insurance and other financial services.
2. **Insurance and other Financial Services |** This is one of Hartford biggest economic drivers with companies like Aetna (now part of CVS), Conning & Company,

[6] Wall Street Journal, "CVS to Keep Aetna in Hartford, Conn." (January 12, 2018).

[7] Hartford Business Journal, "Major downtown Hartford employers shedding hundreds of thousands of sq. ft. of office space" (August 22, 2022)

[8] Metro Hartford Alliance, "Aerospace/Defense in "Aerospace Alley™", 2022.

[9] Metro Hartford Alliance, "Aerospace/Defense in "Aerospace Alley™", 2022.

[10] Lightcast analysis of National Center for Education Statistics' (NCES) IPEDS data.

[11] CRCOG, "Metro Hartford Future: Accelerating Shared and Sustained Economic Growth," 2019.

The Hartford, and other major insurance companies being based out of Hartford. Maintaining this regional stronghold is an important priority.

3. **Metal Working and Metal Products |** This includes both fabricated metal products and structural metals. The biggest challenge with growing this industry is the need for skilled labor.
4. **Printing Services |** Growing printing services will help support business services.
5. **Aerospace |** Aerospace is an important legacy industry in the region, with Pratt & Whitney being a key driver, but a major challenge is the availability of skilled labor with 87% of surveyed manufacturers citing it as their biggest challenge.[12] There are some workforce training programs as CT Aerotech which provides "a two-year Airframe Mechanics and Aircraft Maintenance Technology program provides training that enables the student to develop operative skills that meet the license requirements of the Federal Aviation Administration (FAA)," but this is still limited in the number of people that are trained through programs like this.[13]
6. **Production Technology Machinery and Equipment |** This sector has never been a major industry in the region but growing it would help support the aerospace industry.
7. **Medical Device Manufacturing |** Hartford is home to several health insurance companies and the region has small pharmaceutical companies that could benefit from medical device manufacturing. Additionally, Hartford is located near major pharmaceutical clusters in other northeast metro areas.

Of these priority industries for the Hartford region, several fall into line with the State's priority industries including advanced manufacturing, aerospace and defense, and insurance.[14] Connecticut is supporting the growth of these industries through a "Smart Manufacturing Campaign," creating and expanding workforce development programs and focusing investment on in-demand industries. In addition, the State is supporting an "Innovation Corridor" by clustering priority industries through a pool of $100 million in grants for place-based development. The program is designed to help support the creation of a minimum of 15,000 jobs in data science, advanced manufacturing, insurance technology, or other high-growth industries in major urban areas in the State, with preference given to proposals in Hartford, East Hartford, New Haven, Stamford, and southeastern Connecticut.[15] Many of these sectors are compatible with industrial land uses and may have potential for the site.

10.3 REAL ESTATE MARKET CONDITIONS

The CRCOG region has undergone substantial redevelopment in recent years, largely fueled by mixed-use projects and a thriving multi-family housing market. This market has been particularly appealing to moderate-income millennials, who are seeking living environments that offer a rich set of amenities and a strong sense of neighborhood character and culture. However, it's important to note that the office market within the CRCOG region has faced significant challenges due to the COVID-19 pandemic. The pandemic has led to shifts in workplace dynamics, including remote work arrangements, which have impacted office space demand. Consequently, the office market has experienced some setbacks. Conversely, the industrial sector in the CRCOG region has fared well. This sector has seen strong performance, characterized by absorption rates surpassing new supply deliveries and vacancy rates remaining below 4%. This indicates that there is a healthy demand for industrial spaces in the area, likely driven by various economic factors and logistics considerations. Overall, these trends reflect the evolving dynamics of the real estate market within the CRCOG region, influenced by both local and global factors, including the changing nature of work/living preferences.

Multifamily

The CRCOG region is a moderately active market for multifamily residential development, with 4,300 apartment units built since 2018 (6% of total inventory) and 1,730

[12] Fitch, "Connecticut manufacturers say labor shortage is biggest challenge", 2022.

[13] CT Aerotech, 2023.

[14] CT DECD, "Connecticut's Economic Action Plan" (September 2021).

[15] CT Insider, "Connecticut's 'Innovation Corridors' slated to create 15K jobs. Here's how it will work" (October 2021).

units currently under construction (2% of total inventory).[16] Currently several large residential projects have been proposed for Downtown Hartford, which though it indicates an appetite for housing, especially for affordable housing, may compete with any future residential development at HFD for residents and public investment. Moreover, the City has made a concerted effort to support conversions of existing office, hotel, and manufacturing spaces downtown into residential uses to restore the vibrancy to downtown. Currently 430 units are being created as part of conversion projects.[17]

Inventory and Recent Development | The CRCOG has about 69,000 housing units, with Hartford holding 34% or 23,500 units. Over the past five years, Hartford's new multifamily units accounted for 8%, slightly outpacing the region's 6%. Key additions include The Pennant at North Crossing in 2022, a 270-unit complex part of the larger North Crossing Development near Dunkin' Park. The next 228-unit phase is delayed due to legal issues with the former property owner.

Rents | Average effective monthly rents are $1.69/SF overall and $2.08/SF for Class A units.[18] Recent developments in Downtown Hartford, like the 97-unit 99 Pratt, have achieved average rents as high as $3.03/SF. Up House Apartments, a 225-unit property in the Farmington submarket was built in 2023 and has achieved the highest average effective rent in the region, $3.09/SF.

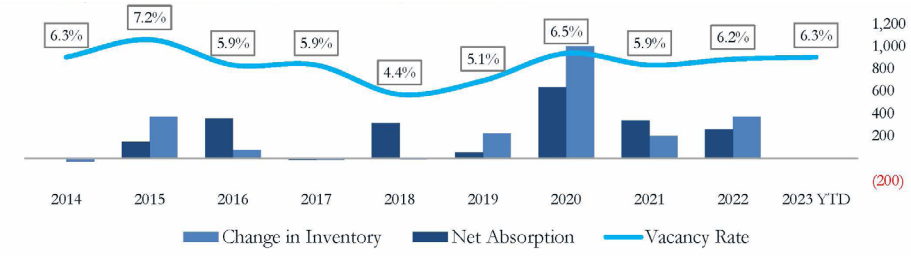
Vacancy | The CRCOG region's multifamily vacancy rate has been stable for the past decade, rarely exceeding 5.5%. It hit a 10-year low in 2021 at 3.6% but increased to 4.8% in 2023, still a healthy rate. Eviction filings in 2022 reached 20,585, up nearly 1,500 from 2019, according to the Hartford Courant. Local property managers note tenants are increasingly sharing spaces, moving back with family, or leaving the area.[19] Additionally, local property managers have observed instances of tenants sharing accommodations, relocating back to their family homes, or departing from the area entirely.

Table 32: Multifamily Residential Market Indicators

	City of Hartford	CRCOG Region
Total Inventory	23,500 units	69,000 units
Vacancy	6.3%	4.8%
Avg. Rent ($/SF)	$1.57	$1.70
New Units Constructed (2018-2023 YTD)	1,800 units	4,300 units
Total Net Absorption (2018-2023 YTD)	1,600 units	4,700 units
Units Under Construction	430 units* *(1,550 units proposed)*	1,730 units* *(2,650 units proposed)*
Market Opportunity	**Limited**	

** - Includes approximately 430 units under construction consisting of five properties in Hartford being converted from other uses – hotel, office, and manufacturing – and are not new build.*
Source: Costar, 2023; Hartford Courant, 2023

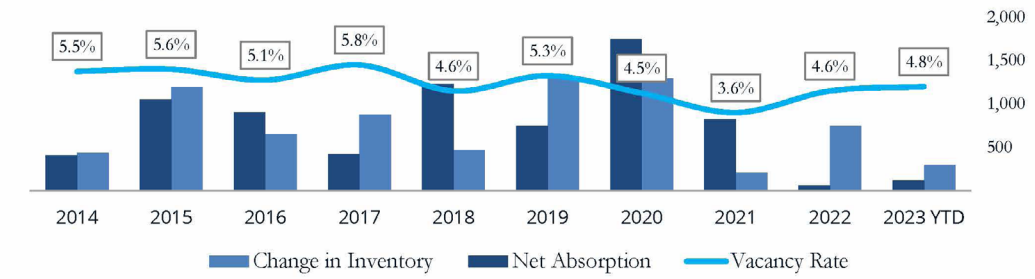
Figure 58: Hartford Multifamily Market Trends, 2014-2023 YTD



Source: Costar, 2023

[16] All real estate data is from CoStar unless otherwise indicated.
[17] Hartford Courant, "Check out an interactive map of Hartford development projects", 2023; and Capital Region Development Authority, "Housing" (accessed May 2023).
[18] CoStar relies on locally relative comparisons to establish building classifications.
[19] Hartford Courant: "The CT families were evicted, like so many others. Now in housing, 'It feels like a new beginning.'"

Figure 59: CRCOG Region Multifamily Market Trends, 2014-2023 YTD

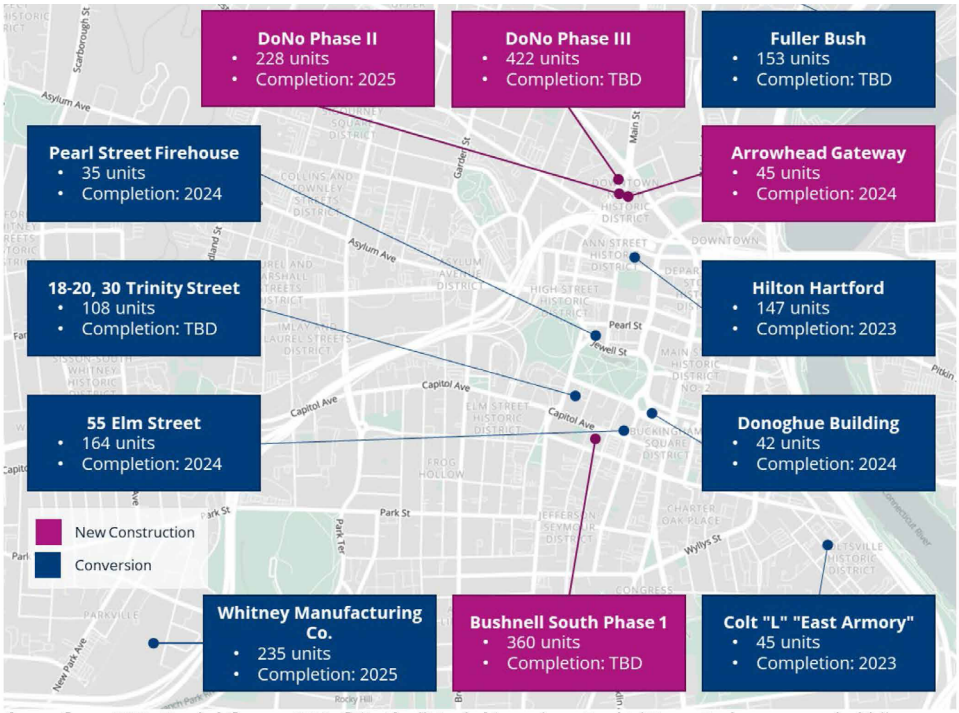


Source: Costar, 2023

Demand Drivers | Multifamily development in Hartford has focused on Downtown, with numerous office-to-rental conversions. However, the suburbs are also experiencing growth, particularly along the I-91 corridor which offers easy access to jobs. Loft-style apartments in former industrial buildings are also in demand. Many suburban historic industrial buildings are vacant, and developers are converting them to residential use.[20]

Planned Development | The CRCOG region has 1,740 multifamily units under construction, including 292 at One Park in West Hartford, with another 2,600 units planned. Hartford itself has nearly 1,550 units in the pipeline, including new projects and conversions. While upcoming construction may overlap with planned development at the HFD site, Downtown Hartford conversions target a niche market interested in urban living in older, smaller units and are not seen as direct competitors to new, large-scale developments outside the CBD.

Figure 60: Hartford Multifamily Pipeline



Source: Costar, 2023; Hartford Courant, 2023; CTInsider, "Hartford 'eyesore' near Dunkin' Donuts Park may soon get facelift," 2022.

[20] Discussions with industrial real estate brokers and developers active in the region.

Residential Market Feasibility

The Hartford multifamily housing market has remained robust, boasting low levels of vacancies. However, annual rent increases have been relatively modest, not exceeding 2.4% over the last half-decade. The broader region has seen the emergence of new large-scale developments, with several more in the planning phase. Furthermore, in the Downtown Hartford vicinity, a number of projects are either in progress or proposed to convert existing office, hotel, and manufacturing spaces into unique residential options. These will inevitably compete with any development at the HFD site for overall demand. The HFD location is at a disadvantage in this competition, lacking easy access to public services like transportation and parks, and being situated near industrial facilities, including a wastewater plant that emits odors seasonally. Given these drawbacks, it's unlikely that residential development at the HFD site could effectively compete with the broader Hartford market, which has absorbed between 250 and 300 units annually since 2015.

Retail

Nearly 1.3M SF of retail space has been added to the CRCOG region since 2018 most of which has been concentrated in suburban communities, and in many cases replacing space that has been taken offline.

Inventory and Recent Development | According to Costar the CRCOG region currently has 61 million SF of retail inventory, with 1.3 million SF added since 2018. The City of Hartford has 13% of all CRCOG retail space with 7.7 million SF of which 400,000 SF was added within the past five years.

Rents | Retail rents in the CRCOG have experienced limited growth over the past decade, increasing from $12.17 in 2013 to $16.46 in 2023 or less than 1% per year. Hartford's retail rents are stronger with an average rate of $20.86 PSF, and retail rents in the city have grown by 76% over the past 10 years. While this is a dramatic increase, this is based on lease transactions, which averaged 50,000 SF per year over the past 10 years.

Vacancy | Retail vacancies in the CRCOG region have historically remained stable and quickly recovered from a 2020 spike to reach their lowest point within the past 10 years. In 2013, the retail vacancy rate was 6.1% and fell to 3.6% in 2023. The CRCOG saw 107,000 SF of negative net absorption in 2020 which was followed by two years of strong leasing activity and over 400,000 SF of net absorption annually. Hartford retail has also remained stable with a vacancy rate of 2.5% in 2023, down 2.4% from 2013, though this potentially undercounts empty ground floor storefronts for mixed-use properties.

Table 33: Retail Market Indicators

	City of Hartford	CRCOG Region
Total Inventory	7.7 million SF	60.9 million SF
Vacancy	2.50%	3.6%
Avg. Rent ($/SF)	$20.86	$16.46
New Space Constructed (2018-2023 YTD)	399,400 SF	1,296,000 SF
Total Net Absorption (2018-2023 YTD)	289,300 SF	1,383,500 SF
Space Under Construction	8,000 SF	217,000 SF
Market Opportunity	**Limited**	

Source: Costar, 2023

Figure 61: Hartford Retail Market Trends, 2014-2023 YTD

Source: Costar, 2023

Figure 62: CRCOG Retail Market Trends, 2014-2023 YTD

Source: Costar, 2023

Demand Drivers | Recent retail development has been outside of the City of Hartford, with extremely limited development in Downtown or near HFD. As downtown increasingly serves residents in new construction and office conversions and office users work fewer days in the office, the nature of retail spaces Downtown will likely shift toward more neighborhood retail and services and amenities to serve this changing population.

Planned Development | There is 830,000 SF of new retail development in the pipeline across the CRCOG. This includes 611,662 SF of proposed retail and 217,658 SF under construction. New retail within the city of Hartford is limited to ground floor programs or components of larger residential-anchored projects like the 55 Elm Street conversion project and Bushnell South Phase 1.[21]

For example, the Arrowhead Gateway development is expected to include storefront retail below the residential program, as well as placemaking within an outdoor plaza for vendors or food trucks. The historic Pratt Street has received retail revitalization grants for 12 businesses to fill vacant storefronts and make the street a dining and entertainment hub. Lastly, the Parkville Market food hall is set to expand in 2023 to include an event space and bar.[22]

Within the larger CRCOG region, the largest retail development in the pipeline is the 86,000 SF Meadow Commons project in Newington, a mixed-use development project being built on a 25-acre site. A grocery store tenant is planned and will take 45,000 SF of the retail program.[23]

[21] Hartford Courant, "Future of Hartford's 'Bushnell South' takes shape with master plan for key property" (January 2022).

[22] Hartford Courant, "Check out an interactive map of Hartford development projects", 2023.

[23] CT Insider, "Stores to open at Newington development by year's end; supermarket remains a mystery", 2023. Note: the article states the development will have 99,500 SF of retail space while Costar lists the program as including 86,000 SF of retail.

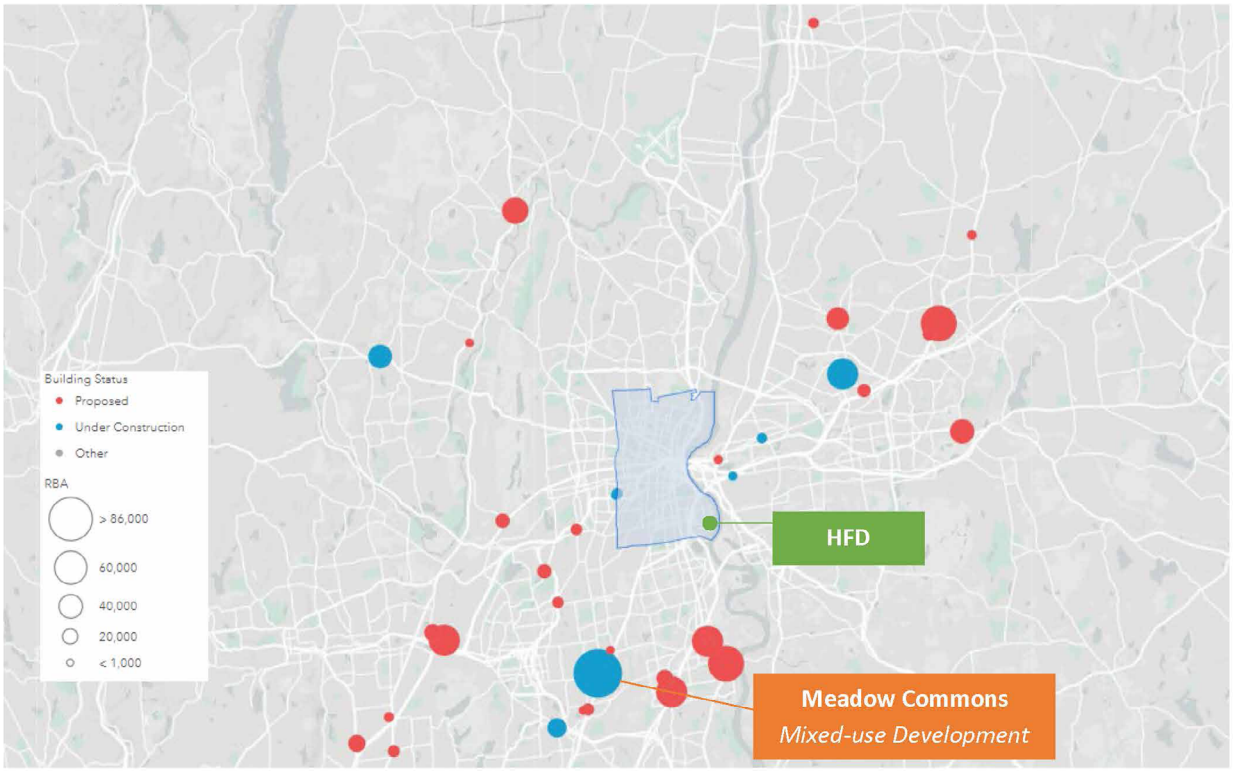
Residential Market Feasibility

While the Hartford retail market remains robust, its underlying fundamentals suggest it may struggle to accommodate additional inventory. As downtown office spaces undergo conversion to residential units, the city is utilizing federal aid to incentivize startups and business expansions into vacant storefronts. For the larger region, the retail landscape looks promising, marked by low vacancies, consistent rent levels, and a moderate development pipeline. However, the HFD site doesn't present an optimal setting for new retail endeavors. Its location in the industrial-centric South Meadows area poses challenges related to visibility, accessibility, and compatibility with potential retail tenants. Given the lack of a residential population in the immediate vicinity, any new retail at the HFD site would likely need to operate as a destination in its own right, perhaps attracting large-scale "big box" retailers. The site seems more suited to businesses like wholesalers, breweries, or fast-food establishments that can support nearby industrial operations and take advantage of easy access to the I-91 highway.

Office

With the onset of the pandemic Hartford's office market has been on the decline as major employers have reduced their footprints or consolidated multiple offices. When combined with pandemic's impact on the labor market and office-using employment sectors, absorption remains low and vacancy rates high. These trends have created a challenging environment to develop new office space in the region, stifling new development and leading to a very limited pipeline most which is predominantly medical office development. In the adjacent industrial park, there is 32,000 SF of fully leased office space within three buildings.

Figure 63: CRCOG Region Retail Pipeline



Source: ArcGIS, CoStar, 2023

Inventory and Recent Development | The CRCOG region has 63.4 million SF of office inventory, with approximately 346,000 SF delivered since 2018. Class A space comprises 18.9 million SF, making up about 30% of total inventory. The City of Harford has 12.7 million SF of Class A Office, with no recent deliveries indicating a lack of demand for new space, especially when compared to other major cities. Hartford also has 6.7 million SF of Class B office space, and it has seen five buildings removed from the inventory and demolished over the past 10 years. Moreover, four of the five conversion projects underway are for former office spaces.[24]

Rents | Average base rents for the Class B inventory are $19.47/SF, compared to $22.29/SF for Class A space. The City of Hartford commands lower rents than the region with $20.99/SF for Class A (-5% change from 2018) and $18.44/SF for Class B (-3% change from 2018). When paired with a lack of new office space, particularly Class A space, this indicates a shrinking demand for office within the City of Hartford.

Vacancy | Class A office vacancy rose to 16.4% in 2023 in the CRCOG region. Prior to the COVID-19 pandemic, vacancy had held stable between 11% and 12%. Conversely, Class B office maintains a lower vacancy of 10.2% while having consistently seen vacancy rates rise from 7% in 2015 in the CRCOG region. In the five years leading up to the pandemic, the region had net annual absorption of 102,000 SF across all classes, and net annual absorption of 900 SF of Class A space specifically. According to CoStar the City of Hartford maintains a lower vacancy rate for both Class A (13.1%) and Class B (4.5%) that the CRCOG region, which is likely due to the presence of long-standing companies. However, other third-party market reports show higher vacancy rates for Hartford, but the specific geographies and properties included are not outlined.[25] While such estimates may not represent a like comparison, multiple data sources with relatively high and growing vacancy suggest a poor market for commercial office development. The downtown submarket has been hit particularly hard by the pandemic and downsizing with vacancy rates above 20% as of the end of 2022 according to the Hartford Courant.[26] For the neighborhood defined as downtown by City Planning, the vacancy rate is 15.4% as of the second quarter of 2023.

Demand Drivers | The office market has historically been driven by private sector companies primarily in the insurance, financial services, and healthcare industries. However, despite its historical predominance, recent trends suggest the insurance industry may be less able to sustain the office market in the future. For example, United HealthCare has announced plans to reduce its presence in Downtown Hartford, downsizing from a sizable 450,000 SF to a mere 57,000 SF by September 2023. The release of approximately 400,000 SF will further increase vacancy rates in the city and in the downtown office submarket, signaling potential turbulence ahead for the market.[27]

[24] Hartford Courant, "Check out an interactive map of Hartford development projects," 2023.

[25] CBRE, "Hartford Office Figures Q1 2023" (April 2023).

[26] Hartford Business Journal, "Amid increasing vacancy rates, Hartford office market prepped for a reset" (January 2023).

[27] Hartford Courant, "Major downtown Hartford employers shedding hundreds of thousands of sq. ft. of office space", 2022.

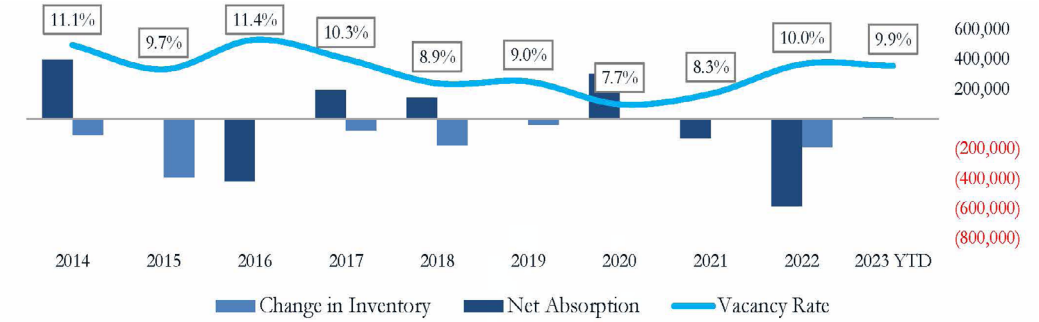
Table 34: Office Market Indicators

	Hartford	CRCOG Region
Total Inventory	24.1 million SF	63.4 million SF
Vacancy	9.9% - 24%*	11.0%
Avg. Rent ($/SF)	$22.56	$20.70
New Space Constructed (2018-2023 YTD)	0 SF	346,000 SF
Total Net Absorption (2018-2023 YTD)	-264,100 SF	-1,452,000 SF
Space Under Construction	0 SF	103,000 SF
Market Opportunity	**Very Limited**	

** - Office vacancy rates for the City of Hartford vary considerably between sources. CoStar's 2Q 2023 vacancy rate is 9.9% while CBRE's 1Q 2023 Market Report shows a vacancy rate of 24% though this methodology and boundaries of analysis may vary.*

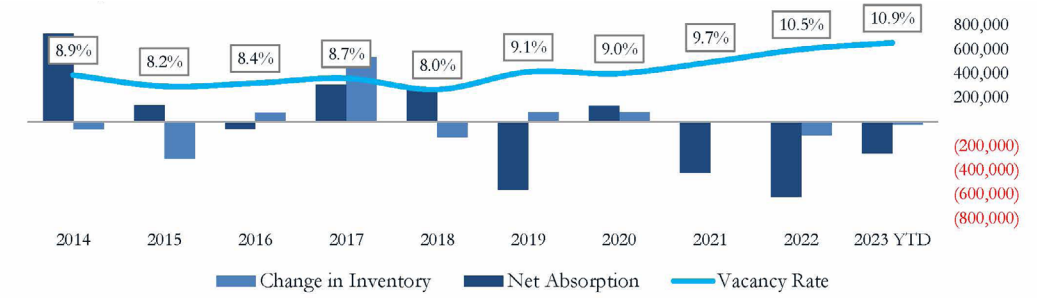
Source: Costar, 2023

Figure 64: Hartford Office Market Trends, 2014-2023 YTD



Source: Costar, 2023

Figure 65: CRCOG Region Office Market Trends, 2014-2023 YTD



Source: Costar, 2023

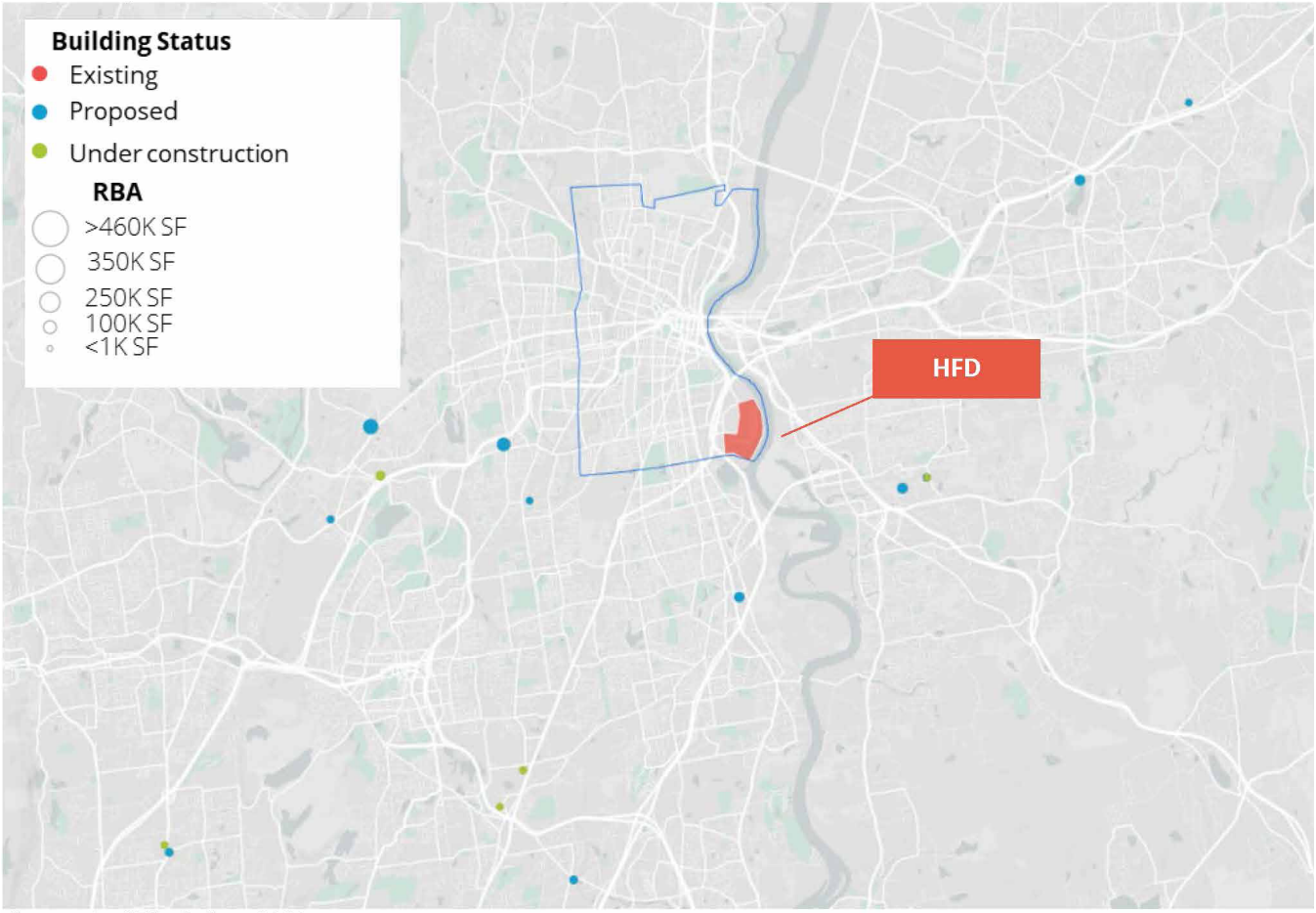
Planned Development | There are currently six office projects totaling 103,088 SF under construction in the CRCOG region, and an additional 391,538 SF of office is either proposed or planned, though most of these projects have remained in the proposal stage for many years, with no recent updates. Additionally, over 80% of the pipeline (by square footage) is medical office development. The limited office development tracks with shrinking number of office-using jobs—between 2011-2021, the CRCOG area lost 6% of office jobs (-3,000 Jobs).[28] There are currently no planned office developments in the City of Hartford.

[28] Office jobs includes Information, Finance and Insurance, Real Estate and Rental and Leasing, Professional, Scientific, and Technical Services, Management of Companies and Enterprises, Administrative and Support and Waste Management and Remediation Services, and Other Services (except Public Administration). See: Lightcast, 2023.

Office Development Feasibility

There is limited demand for new office development as there has been limited office growth, a high level of vacancy, and no rent growth in the past five years. Additionally, HFD is not located Downtown and is surrounded by industrial uses making it a suboptimal location for Class A office. The region's current pipeline is comprised mostly of medical office space and this product is not well-suited for HFD's location because of both the isolated nature of the site and the nearby incompatible uses. Office should only play a limited role in any mixed-use redevelopment scenario for HFD, with some potential for minimal office development to support light industrial development.

Figure 66: CRCOG Region Office Pipeline



Source: ArcGIS, CoStar, 2023

Industrial

The I-84, I-91, and I-95 Corridors industrial market has healthy fundamentals and has experienced record-breaking rent growth, deliveries, and absorption over the past three years. Among the various uses, industrial stands out as a top performer that is poised for continued growth, enduring the uncertainty caused by the COVID-19 pandemic.

Table 35: Industrial Market Indicators

	I-84, I-91, and I-95 Corridors	CRCOG Region
Total Inventory	45.6 million SF	102.0 million SF
Vacancy	3.6%	4.0%
Avg. Rent ($/SF)	$6.65	$6.70
New Space Constructed (2018-2023 YTD)	2,720,500 SF	4,786,000 SF
Total Net Absorption (2018-2023 YTD)	3,345,500 SF	4,425,000 SF
Space Under Construction	115,600 SF	957,000 SF
Market Opportunity	**Moderate**	

Source: Costar, 2023

Inventory and Recent Development | The I-84, I-91, and I-95 Corridors have 45.7 million SF of industrial inventory, with approximately 2.7 million SF delivered since 2018. The site is adjacent to the South Meadows Industrial Park which contains roughly 945,000 SF of industrial space in 31 properties.

- **Warehouse** space comprises 16.2 million SF or 35% of all industrial space in the corridor and 3% of all industrial space built since 2018.
- **Manufacturing** space comprises 15 million SF or 33% of all industrial space in the corridor and 7% of all industrial space built since 2018.
- **Distribution** space comprises 10.6 million SF or 23% of all industrial space in the corridor and 88% of all industrial space built since 2018.

The balance of 3.9 million SF (9%) is made up of a selection of smaller secondary types including but not limited to truck terminals, service, landfill, food processing, data hosting, and other uses.

Rents | Rents in the corridors have grown steadily since 2013 from $4.11 to $6.65/SF or an average annual growth rate of 5.5%. For the corridors:

- **Warehouse** rents are slightly higher than the overall industrial average at $7.70 /SF – a 17% premium and have grown 76% from $4.36/SF in 2013.
- **Manufacturing** rents are lower than the overall industrial average at $6.09/SF – a 9% discount and have grown 57% from $3.89/SF in 2013.
- **Distribution** space rents are higher than the overall industrial average at $7.27/SF – a 9% premium and have grown 83% from $3.97/SF in 2013.

Vacancy | The vacancy rates for industrial real estate in the I-84, I-91, and I-95 Corridors have been declining steadily since 2013, when the rate was at its highest at 13.2%. The most recent rate for 2023 is at its lowest since 2014, with a vacancy rate of 3.6%. According to Costar, as of the first quarter of 2023 the adjacent South Meadows industrial park was fully leased; however, as of June 2023 Loopnet shows four listings within this area including a 3,000 SF industrial/office space at 141 East Elliot Street, 3,000 to 6,000 SF of flex space at 280-320 Murphy Road that currently houses a microbrew operation, 2,000 SF of flex space at 110 Airport Road, and 154,000 SF of industrial space at 121 Wawarme Avenue consisting of a warehouse and maintenance building that was the former home of the Hartford Courant distribution warehouse.[29] This suggests a strong and consistent demand for industrial real estate in the area.

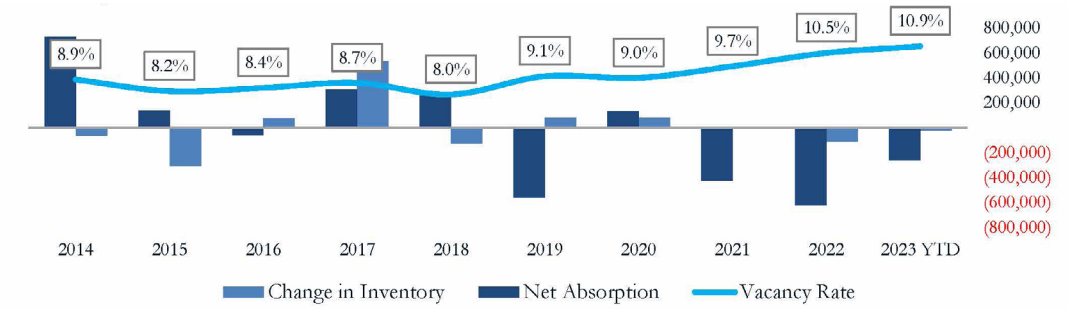
- **Warehouse** vacancy has been consistently declining and reached its lowest point recorded—3.5%—in 2023.
- **Manufacturing** vacancies stabilized at 4.2%, slightly higher than the industrial average. While the vacancy rate grew by less than 1% since 2022, it has been trending downward since 2013 when the rate was as high as 17.4%.
- **Distribution** industrial product has the lowest vacancy rate of each typology at 2.4%. The market had previously delivered more than 1 million SF of distribution space between 2018 and 2019, which had pushed the vacancy rate as high as 20% but most of that new space has been absorbed very quickly.

[29] Loopnet, "South Meadows Industrial Space for Lease" (accessed June 2023).

Figure 67: I-84, I-91, and I-95 Corridors Industrial Market Trends, 2014-2023 YTD

Source: Costar, 2023

Figure 68: CRCOG Region Industrial Market Trends, 2014-2023 YTD

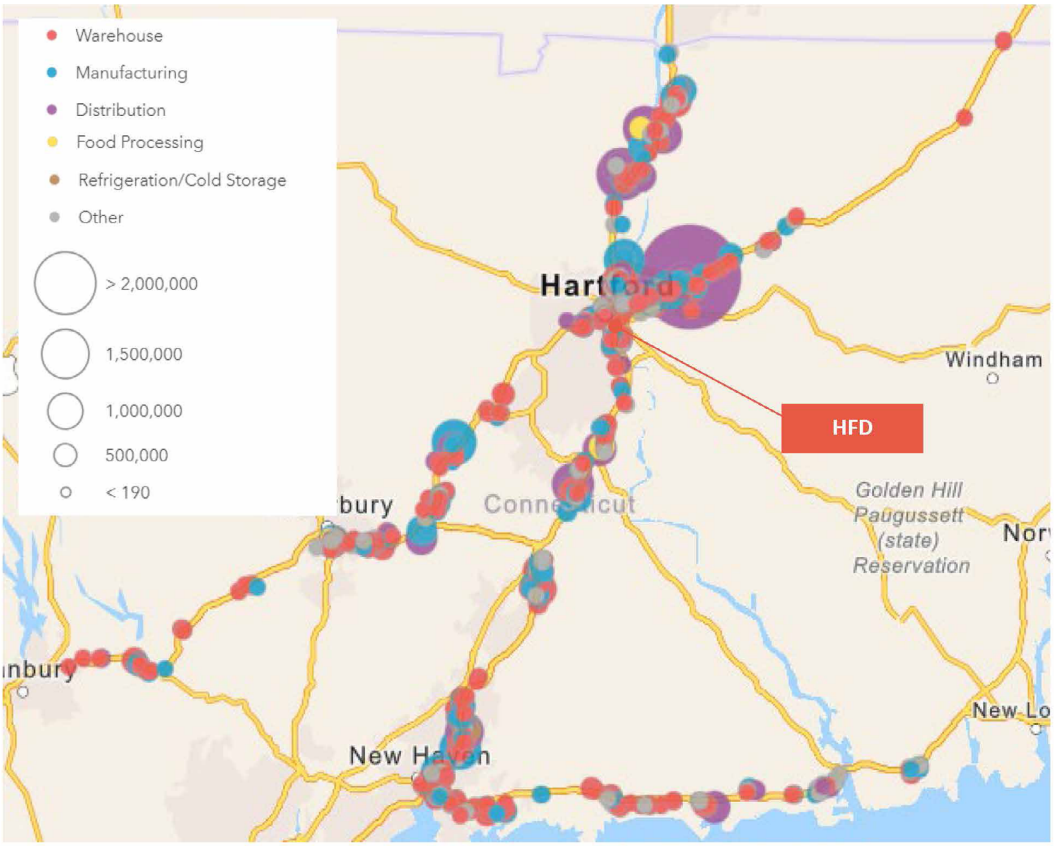


Source: Costar, 2023

Demand Drivers | The exponential rise of e-commerce is driving an increased need for industrial space to accommodate the storage and transportation of goods in the CRCOG region. National Development has responded to this demand by constructing two sizable warehouses at the East Hartford Logistics & Technology Park at Rentschler Field, which will be anchored by two major players in the industry, Lowes, the second-largest hardware retailer in the country, and Wayfair, a leading e-commerce retailer for home goods.[30]

[30] Hartford Business Journal, "Massive Rentschler Field logistics center development inks Wayfair, Lowe's as tenants" (March 2023).

Figure 69: Regional Industrial Inventory



Source: ArcGIS, Costar, 2023

Planned Development | There is currently 10.9M SF of industrial product in the pipeline with 960,000 SF under construction and 9.9M SF proposed. Proposed projects include the 2.5M SF Rentschler Field Logistics Center in East Hartford being built on the site of a decommissioned airport in East Hartford. A future phase of the project is planned to include approximately 200,000 SF of high-tech and/or specialty manufacturing space in at least two new buildings.

Figure 70: I-84, I-91, and I-95 Corridors Industrial Market Trends, 2014-2023 YTD

The 300-acre former airport will be redeveloped by National Development as a logistical and technology park that will include two 1 million SF logistical facilities for Lowe's and Wayfair and a 200,000 SF high-tech manufacturing facility. National Development will ready the site this year and expects to get the first certificate of occupancy in early 2024.

Source: Hartford Courant, "Wayfair, Lowe's bringing hundreds of jobs in move to 2.5-million-square-foot logistics centers in East Hartford" (March 2023).

Recreational

The City of Hartford at one point in history was known as the "City of Parks." Hartford has over 2 square miles of parks and recreation space within the city limits and the region boasts multiple large nature reserves, which has remained relatively consistent since Hartford's population peaked in the 1950s. These parks and open spaces range from small pocket parks to the 694-acre Keney Park, one of the largest public parks in New England.

Hartford has a high level of public involvement in maintaining the City's 54 parks—there are 10 "friends of" groups that help maintain some of Hartford's most well-known parks such as Elizabeth Park. In addition to these groups, Riverfront Recapture is a non-profit organization whose mission is to connect people with the Connecticut River in Hartford. The city has far more open space than the national median of 89 acres per 10,000 residents for a jurisdiction of between 100,000 residents and 250,000 residents—Hartford has over 4X more.

Recreation Facilities

There are over 20 basketball courts, 21 baseball and softball fields, 4 turf fields, and 16 tennis courts in addition to many soccer fields and other outdoor recreational facilities in Hartford. However, the City of Hartford does not have any indoor fieldhouse facilities or large multisport indoor complexes. Regional parks and recreation stakeholders and the Connecticut Convention & Sports Bureau cited a shortage of these type of facilities in the region and Connecticut. Existing facilities are largely concentrated in New Haven with multiple indoor fields and ice rinks. Some, such as Sports Center of Connecticut, are geared more towards amusement with event rooms and a food court. Another stated need in the region is an aquatics center.

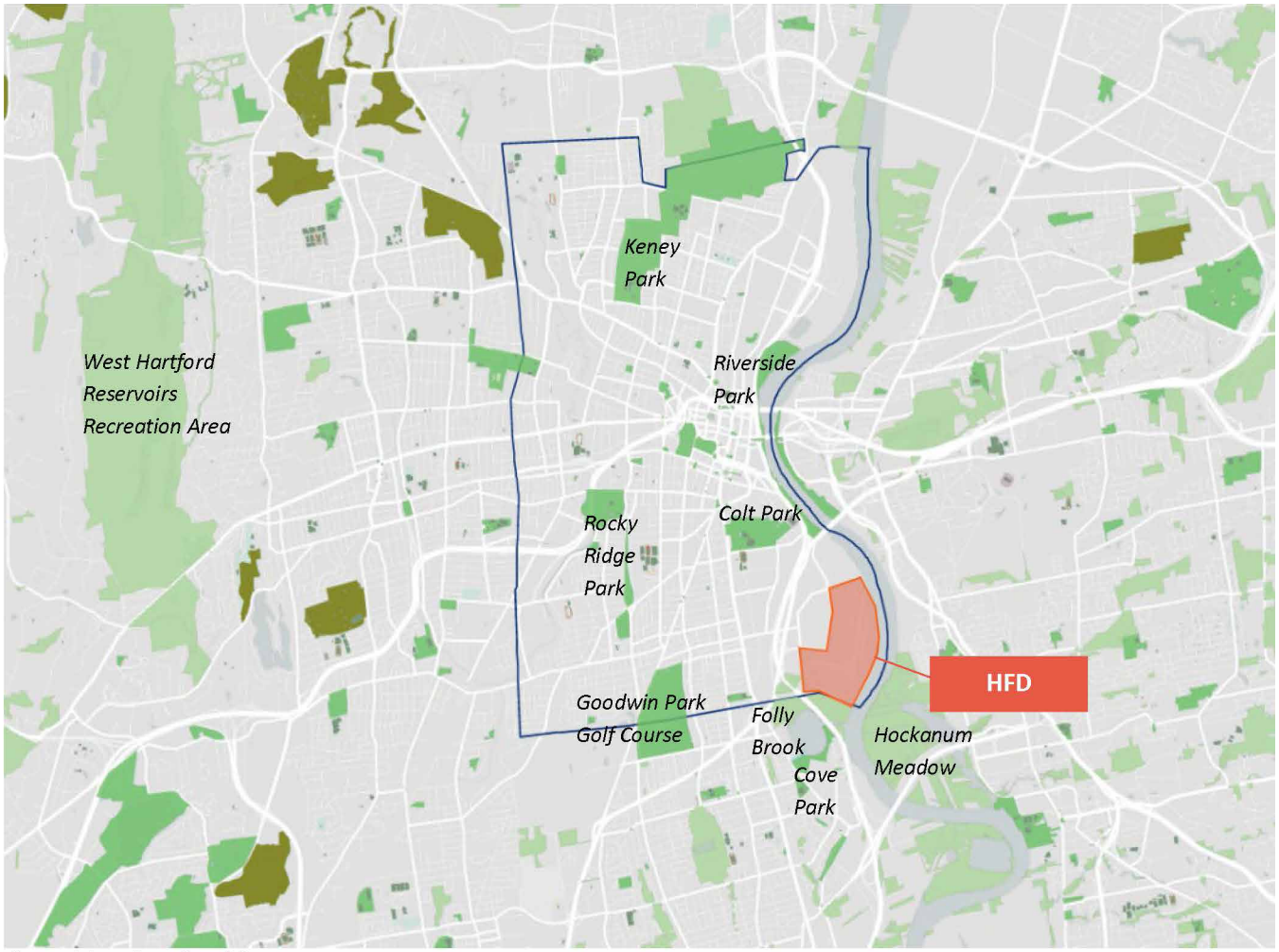
In 2019, there was a proposal to develop an indoor and outdoor multisport facility in Windsor Locks. The developer stated that the project would bring in $15 million in revenue in the first year and could create up to 300 jobs and $2 million in additional revenue for the town. The developer was unsuccessful in getting the project off the ground and moved the proposal to Enfield where project costs are estimated to be between $90 million and $125 million. The future of the project is still in flux.

Open Space

Riverfront Recapture helps support and maintain Riverside Park, Mortenson Riverfront Plaza, Great River Park, and Charter Oak Landing—all of which join to create a seven-mile plus riverwalk system. Riverfront Recapture's goal of revitalizing the Connecticut River in the Hartford area. While Riverfront Recapture is most well known for their parks, programming, and stewardship of the river, the original Riverfront Recapture plan also acknowledges the economic opportunity that ranges from housing to light industrial development. They are currently redeveloping Garmany Cove, a 60-acre inaccessible site acquired in 2019, into the final portion of the riverwalk system. The project is being supported by the Connecticut Department of Economic and Community Development (DECD), Connecticut's Bond Commission via The CRCOG region Development Authority (CRDA), and several other public and private supporters.

Hartford-Brainard Airport is also located along the Connecticut River and could offer good access to the river, but the area is surrounded by several uses that are not conducive to recreation such as wastewater treatment and the City of Hartford controls the land directly on the riverfront. Furthermore, the MIRA plant to the north of HFD creates a barrier to achieving continuous access to the river. HFD's isolated location is not necessarily a barrier to recreational uses: More than 85% of Connecticut residents travel to outdoor recreational facilities via automobile. Moreover, HFD is well positioned to meet some of Connecticut's more pressing recreational needs according to Connecticut residents: paved multi-use trails, nature preserves and bird watching, inclusive and accessible playgrounds, and tennis and basketball courts.

Figure 71: Regional Industrial Inventory



Source: Esri, OpenStreetMap

Recreation Feasibility

Open space is not a market-driven use and though some types of recreation uses may be privately developed, such as indoor multisport complexes, others are publicly supported. In either case, developing recreation at the HFD site would require commitments from the City of Hartford, State of Connecticut, or other partner to support feasibility. The area does appear to be underserved by indoor fieldhouses, but these facilities have specific site considerations – space, access, parking, etc. – that may be difficult to accommodate at HFD.

Figure 72: Indoor Sportsplexes in Connecticut

Source: Esri, Google Maps

10.4 CONCLUSION

Hartford-Brainard Airport's (HFD) redevelopment potential likely is limited to certain industrial uses, which could be compatible with recreation uses on part of the site. Industrial development is most viable given the market's overall health and the site's proximity to I-91. Both local and macro trends in office development present high risks for development of office space, though some limited office space supporting industrial uses may be appropriate based on given tenants' needs. A big box destination retail user may also find the large site and proximity to the highway appealing. Residential development is much less suitable due to the lack of on-site and nearby amenities, transportation, and site infrastructure, and the industrial character of the surrounding properties. All uses will have to contend with negative externalities generated by nearby properties such as the Metropolitan District (MDC) wastewater treatment plant south of the airport.

Table 36: Market and Location Opportunities For Hartford-Brainard Airport

	Multifamily	Retail	Office	Industrial	Open Space
Study Area	*City of Hartford*	*City of Hartford*	*City of Hartford*	*Interstate 84, 91, and 95 Corridors*	*CRCOG region*
Vacancy Rate	6.3%	2.5%	9.9% - 24%*	3.6%	N/A
Under Construction	430 units** *(1,550 units proposed)*	8,000 SF	0 SF	115,645 SF	N/A
Market Opportunity	**Limited**	**Limited**	**Very Limited**	**Moderate**	**N/A**
Location Opportunity	**Very Limited**	**Very Limited**	**Very Limited**	**Moderate**	**Moderate**

** - Office vacancy rates for the City of Hartford vary considerably between sources. CoStar's 2Q 2023 vacancy rate is 9.9% while CBRE's 1Q 2023 Market Report shows a vacancy rate of 24% though this methodology and boundaries of analysis are not included in the publicly available report.*

*** Includes approximately 430 units being converted from other uses at five properties in Hartford.*

In addition to this high-level classification of market and location opportunity for different uses, key takeaways of this market analysis include:

- **Industrial and utility uses that generate traffic and odors limit the attractiveness of the site for redevelopment.** The 200-acre site is surrounded by a wastewater treatment plant and a recently decommissioned waste-to-energy facility. Moreover, the site is surrounded by aging industrial properties to the west. Heavy machinery, trucks, and processing equipment produce noise pollution, air pollution, and odors, reducing appeal for dissimilar uses. While the site has relatively easy access to I-91, investments in the exit and entrance ramps to I-91 and local road network are required to serve redevelopment at HFD.
- **Hartford's population is declining, and incomes have fallen in real terms, suggesting a limited pool of residents seeking premium residential rentals.** While vacancy rates have remained low in the city, new deliveries in the form of conversion projects and proposed projects will compete with a shrinking pool of residents able to pay top-of-market rents. Since 2015 the City of Hartford has absorbed an average of approximately 260 units annually, and any larger scale development at HFD – even if phased over a multiyear period – would need to absorb an outsized share of this annual number to stabilize.
- **The HFD site currently lacks the amenities to capture households drawn to either Downtown Hartford or suburban markets within the broader region.** The site is neither an amenitized part of the urban core nor within a suburban submarket, and multifamily development will likely struggle to compete with properties in either setting. Moreover, while the Capital Region Council of Governments (CRCOG) region has seen modest population growth, this has been in more suburban portions of the region that are much more likely to be populated by homeowners.
- **Corporate office downsizings combined with a post-pandemic trend to reduce office footprints as hybrid work policies are regularized has stifled new office development and left Downtown Hartford with high vacancy rates.** Despite a high concentration of insurance, financial services, and management firms in the region, firms' decisions to relocate or reduce office footprints – both prior to the pandemic and after the pandemic as companies have rolled out more flexible work-from-home policies – have left Downtown Hartford with office vacancy above 20%. Limited new office development in the broader CRCOG region has been predominantly medical office, a use that is incompatible with other nearby uses at HFD.

- **Industrial market trends and development pipeline suggest warehousing, manufacturing, or distribution uses may be redevelopment opportunities.** The industrial market has healthy fundamentals and has seen record-breaking growth in rents, deliveries, and absorption. Despite nearly 5 million SF in new space being constructed over the past five years and another 10.9 million SF in the pipeline primarily built to suit, rents have grown at an average annual rate of 5.5% over the past 10 years. The development of more than 2.5 million SF of space directly across the river in East Hartford at Rentschler Field, as well as any future, yet unplanned phases of that project, would likely compete with development at HFD.
- **Select destination retail also may be viable, but HFD's location makes traditional retail a difficult market use to develop.** In terms of retail uses, rents have grown only modestly, and retail vacancy rates remain low despite continued deliveries in the region. Given the existing uses in and around HFD, any retail would likely need to be destination retail that could lure spending from a broader area, such as a distinctive big box retail offering.
- **The site's size, access to I-91, and central location within the state and the region's lack of indoor, multisport recreational facilities suggest private development of such a facility might be appropriate.** In addition, the site's proximity to existing trails and the Connecticut River makes it conducive for repurposing for open space uses. Both types of uses may be compatible with continued airport operations, development on some or all the site, or both.

10.5 ECONOMIC AND FISCAL IMPACT OF CURRENT AIRPORT OPERATIONS AND REDEVELOPMENT SCENARIOS

This study has conducted an analysis to determine the highest and best use of the property in the event that Hartford-Brainard Airport is no longer operating as an airport. This analysis takes into consideration several key factors:

1. **Economic Impacts:** Assessment of the economic impacts of potential alternative uses of the property, both to the State and the broader region. This includes an evaluation of how different uses might contribute to economic development, job creation, and tax revenues.
2. **Environmental and Flood Control Considerations:** The analysis considers environmental and flood control considerations. It examines any environmental challenges or flood-related issues that may need to be addressed to make the property suitable for development. This includes identifying potential actions and resources required to render the property environmentally developable. (See Section 4 Environment)
3. **Governmental Considerations:** Assessing regulatory hurdles that may need to be overcome to repurpose the property. It also considers existing contractual obligations related to the property and explores avenues to eliminate or modify such constraints, along with an estimation of the associated costs.
4. **Market Demand Analysis:** An analysis of the region's market demand for various alternative uses. This includes assessing the potential demand for residential mixed-use developments, commercial spaces, retail establishments, recreational facilities, and industrial uses at the Hartford-Brainard Airport property. This analysis helps in understanding the feasibility of these alternative uses.

This information is essential for making informed decisions about the future use of the property if it ceases to operate as an airport.

10.5.1 METHODOLOGY

HR&A conducted a comprehensive analysis of the economic and fiscal impacts associated with potential future scenarios for the use of the Hartford-Brainard Airport (HFD). The analysis considered the implications for the City of Hartford, the jurisdiction of the Capital Region Council of Governments (CRCOG or "CRCOG region"), and the State of Connecticut.

This analysis encompassed two main categories of impacts:

1. **One-Time Impacts:** These are associated with non-recurring spending linked to capital investments in aviation facilities and real estate development. These investments likely involve significant upfront expenditures and can have both immediate and long-term effects on the local and regional economy.
2. **Ongoing Impacts:** These stem from recurring activities that may occur either as part of an operational airport, as part of a redeveloped site with non-residential uses, or a combination of both. These impacts are continuous and contribute to the sustained economic activity in the area.

The analysis focused on assessing the impacts in terms of:

- **Employment:** The effects on job creation and workforce participation.
- **Labor Income:** The impact on wages, salaries, and overall compensation.
- **Economic Output:** Measured in terms of gross regional product (GRP), representing the total economic value generated within the region on an annual basis.

By considering these key economic metrics, the analysis provided a comprehensive understanding of how different scenarios for the use of Hartford-Brainard Airport could influence the local, regional, and state economies. This information is valuable for informed decision-making and policy development related to the airport's future and its potential role in driving economic growth and development in the area.

To perform this analysis, HR&A relied on three types of inputs to inform its economic impact model:

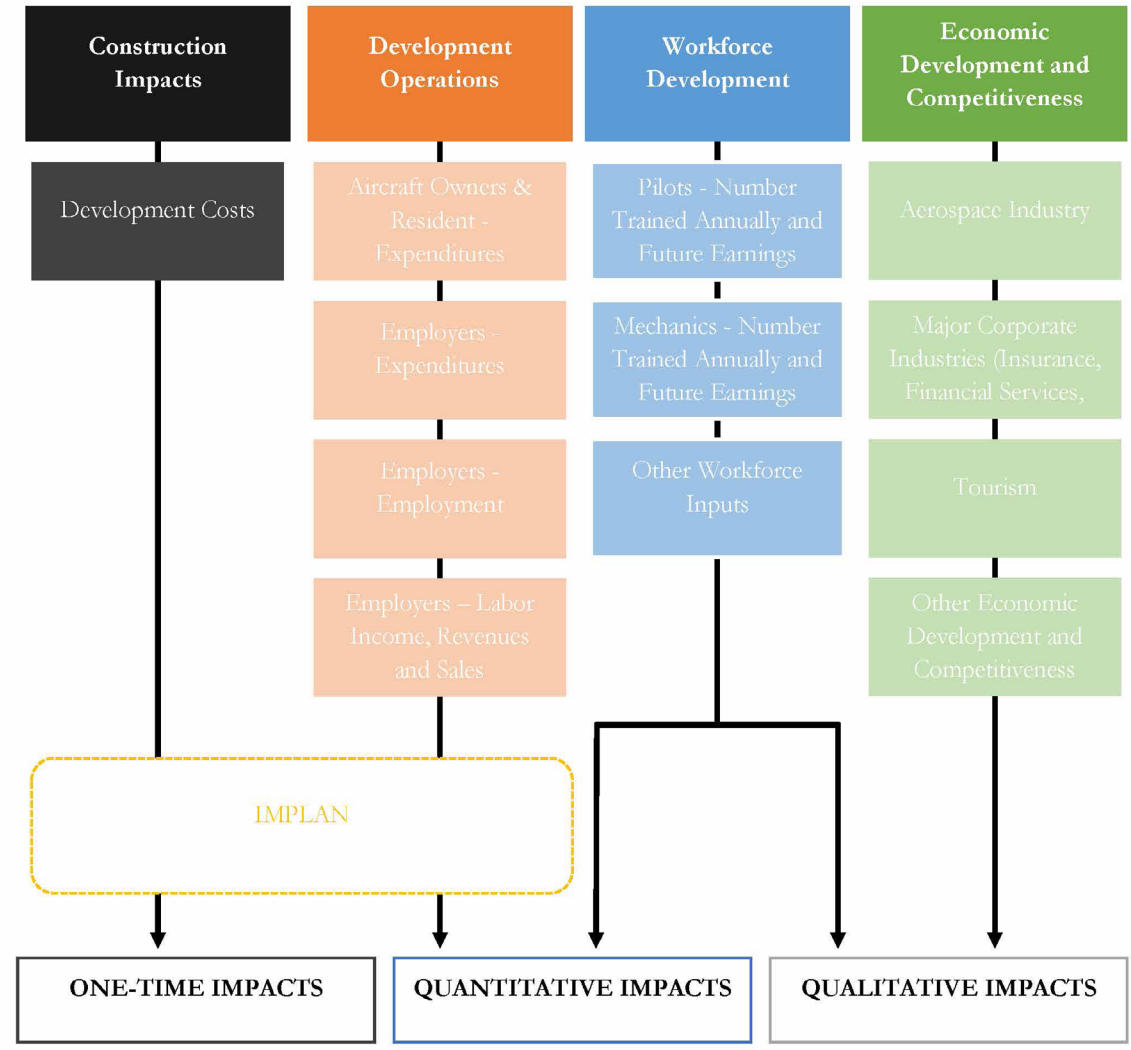
1. **Construction Program**. BFJ and Perkins Eastman, with the support of the broader consultant team, advanced four scenarios for study of their related economic and fiscal impacts. These scenarios include:
   a. Baseline scenario that assumes continued operations of HFD.
   b. Partial closure scenario that uses a portion of the airport for redevelopment while retaining most aviation facilities and operations.
   c. Two full closure scenarios envision redevelopment on the entire 204-acre site: one scenario focuses on industrial uses and a second focuses on residential uses but includes a mix of uses throughout the site.

   BFJ and Perkins Eastman provided programmatic assumptions while Tighe & Bond provided horizontal infrastructure and remediation cost estimates. More detail on the four scenarios can be found in the Scenarios and Impact Analysis Inputs section.
2. **Third-Party Data.** Data collected and analyzed from the U.S. Bureau of Labor Statistics, Bureau of Economic Analysis, U.S. Census Bureau, Marshall and Swift, broker interviews, operator interviews, and Connecticut Airports Authority (CAA) informs assumptions about direct and indirect economic model inputs.
3. **Other Economic and Fiscal Studies.** In addition, our team reviewed third-party analyses of industries within the region to understand their relationship to HFD and how ongoing activities at the general aviation airport may affect their future economic competitiveness. This includes both more directly related industries, such as aerospace, whose labor pool is affected by workforce development occurring at HFD, as well as indirect industries that may see benefits from the existence of a general aviation airport proximate to Downtown Hartford, such as the insurance and financial services industries, whose corporate users may opt to use HFD now or in the future. To support these third-party reports, HR&A relied on discussions with economic development professionals and business representatives in the region to gain additional context on HFD's role as it relates to regional competitiveness.

The figure below shows a conceptual model of the relationships between inputs and quantitative and qualitative outputs in the one-time and ongoing economic impact analysis.

This analysis considers Construction Impacts, Development Operations, Workforce Development, Economic Development, and Competitiveness impacts as affecting the total economic impact of the selected scenarios. Selected impacts are quantified, while others are analyzed and discussed at a qualitative level. The first section will describe the economic and fiscal impacts of one-time construction impacts for all four scenarios. The second portion of this report will focus on the ongoing impacts for each one of the scenarios.

Figure 73: Conceptual Economic Impacts Model



This analysis focuses on two types of quantitative impacts. The first includes employment levels, labor income, and economic output resulting from the activities related to each scenario, including one-time construction impacts. The analysis relied on the Impact Analysis for Planning (IMPLAN) input-output model IMPLAN for the regions outlined above to measure these impacts.

IMPLAN is a widely used economic tool that allows users to analyze the economic effects of changes in various economic sectors. The model is based on the concept of inter-industry relationships, where the output of one industry serves as an input to another industry. IMPLAN captures these relationships by breaking down the economy into a set of industries and measuring the flow of goods and services between them.[31] The data summarizes how industries produce and consume commodities and is customized for smaller regions of the country, using each region's unique industry mix and spending patterns.[32]

[31] The IMPLAN model consists of three components: the industry sector database, the regional social accounting matrix (SAM), and the impact analysis model. The industry sector database provides information on the production, employment, and other economic activities of different industries, while the regional SAM captures the inter-industry relationships specific to a particular region.

[32] Scenarios 1 and 2 build include analysis and outputs from the ongoing operations developed as part HR&A's previous analysis of HFD's ongoing operations. While the impacts modeled in the full closure scenario will occur in Scenarios 3 and 4, the values are not incorporated into the outputs shown in this report

HR&A used IMPLAN and data from airport operations to produce the following:

- **Direct Impacts.** Employment, wages, and output from spending immediately associated with ongoing operations of each scenario.
- **Indirect Impacts.** Employment, wages, and output associated with businesses that supply the businesses and ongoing activities occurring in each scenario.
- **Induced Impacts.** Employment, wages, and output associated with household spending are directly and indirectly affected by each scenario's ongoing operations.

In addition to employment, labor income, and economic output, this analysis measures other quantifiable impacts resulting from ongoing operations in each scenario that are not direct outputs of the IMPLAN model outlined here.

Timing of Impacts

The timing of economic benefits and costs is a fundamental aspect of economic impact analysis, as it profoundly influences the overall assessment of a project, policy, or investment. Typically, such an analysis will consider when economic effects occur and incorporate appropriate discounting mechanisms is vital for accurate decision-making to reflect the time value of money, risk and uncertainty, fair comparison across projects under varying timelines, opportunity costs of development in one place and not another, as well as other policy considerations.

Figure 74: Economic Input and Output Measures

In this case, the uncertainty around the timeline needed to close an FAA public-use airport, remediate the airport and ready the site for development, and construct buildings, as applicable, HR&A has not applied these expenditures to a set of timelines and discounted the totals. Instead, for one-time impacts of redevelopment, we assume all expenditures are not trended forward for construction cost increases and are undiscounted. In addition, ongoing annual impacts presume the full buildout and stabilization of any associated program. In the case of closure of HFD and full development of the site, this is anticipated to occur over several phases and a multiyear period. All values of one-time and ongoing impacts are expressed in 2023 dollars.

10.5.2 SCENARIOS

HR&A modeled the economic and fiscal impacts of four scenarios, including three repositioning scenarios that contemplate the partial or full closure of HFD and redevelopment of the site. This section includes a description of those scenarios as well as a high-level description of the inputs for the economic and fiscal impact analysis.

- Scenario 1: Airport remains open with limited new development of aviation uses. This scenario presumes the airport remains open and any development is related to aviation uses. This includes a new air traffic control tower near the intersection of the crosswind runway and main runway, extension of the main runway to 5,000 feet, additional hangars, and the development of 94,000 SF of aviation uses, including 29,000 SF of new hangar space. All existing ongoing airport operations will continue to occur.

- Scenario 2: Closure of Runway 11-29 and development of industrial uses. This scenario assumes that the crosswind runway is closed and approximately 18 acres of HFD is made available for redevelopment. This scenario assumes development of two 100,000 SF single-story industrial buildings that could support warehouses, manufacturing, and research and development facilities with an emphasis on aerospace, as well as a 20,000 SF accessory retail program off Brainard Road. Additionally, all on-airport development of aviation-related uses that occurs in Scenario 1 is assumed to occur in Scenario 2, and all existing ongoing airport operations will continue to occur.

- Scenario 3: Closure of airport and redevelopment with primarily industrial buildings with accessory office and retail uses. This scenario includes development of the 204-acre airport with more than 2.6 million SF of industrial development along with 140,000 SF of office to support industrial spaces and 100,000 SF of accessory retail oriented on Maxim Road.

- Scenario 4: Closure of airport and redevelopment with mixed-use development including residential, office, retail, industrial, and recreation uses. This scenario includes development of the 204-acre airport with more than 2,700 rental housing units of different typologies, 105,000 SF of retail, 262,000 SF of industrial/flex space, and 255,000 SF of indoor recreation and 75,000 SF outdoor recreation use. In addition, this Scenario includes a new school building, community center, and library to serve this new neighborhood. Costs associated with these public facilities are not included as part of this analysis.

In the case of those repositioning scenarios that envision closure and redevelopment of a part or all the airport (i.e. Scenarios 2, 3, and 4), all programs are illustrative and intended only to serve as "test-fits" to determine the buildable capacity of these sites. They are not intended to suggest a final master plan for the site, and it is expected that a private developer would consider these among other possible configurations.

Moreover, the redevelopment and stabilization timelines will vary by scenario, with Scenarios 1 and 2 likely requiring a substantially shorter period to plan, construct, and absorb users than Scenarios 3 and 4 that envision the full build out of the 204-acre site. This will result in the City, region, and State experiencing the one-time economic and fiscal impacts of development over varying timelines based on the scenario, as well as a different length of time before reaching the stabilizing annual recurring benefits of the full buildout.

The development programs of the four scenarios are summarized in the table below.

Table 37: Development Program by Scenario

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Site Area (acres)	N/A	18 ac	204 ac	204 ac
Development Program (GSF)				
Townhome	-	-	-	660,000 GSF
8-Story Mid-rise Residential	-	-	-	472,320 GSF
4-Story Low-rise Residential	-	-	-	2,028,738 GSF
Industrial	50,000 GSF	250,000 GSF	2,360,000 GSF	262,000 GSF
Retail	-	20,000 GSF	100,000 GSF	105,600 GSF
Office	15,000 GSF	15,000 GSF	140,000 GSF	-
Indoor Recreation	-	-	-	255,000 GSF
Outdoor Recreation	-	-	75,000 GSF	75,000 GSF
School/ Community Center/ Library	-	-	-	169,000 SF
Hangar	29,000 GSF	29,000 GSF	-	-
Total Development Program	**94,000 GSF**	**314,000 GSF**	**2,675,000 GSF**	**3,991,500 SF**
Sitewide FAR	*N/A*	*0.28*	*0.30*	*0.43*
Residential Program (in dwelling units)				
Townhome	-	-	-	220 Units
8-Story Mid-rise Residential	-	-	-	472 Units
4-Story Low-rise Residential	-	-	-	2,029 Units
Total Dwelling Units	-	-	-	**2,721 Units**
Sitewide Density	*N/A*	*N/A*	*N/A*	*13.34 DU/acre*
Total Parking Spaces	*N/A*	**360 Spaces**	**4,520 Spaces**	**5,966 Spaces**
Parking Spaces per 1,000 GSF of Development	***N/A***	***0.87***	***1.69***	***1.55***

Model Inputs

HR&A developed inputs for the IMPLAN analysis from a variety of sources, including:

- Interviews with market experts to confirm construction and operations costs;
- Market Data from Costar, Market reports, and brokers;
- Marshall and Swift construction cost estimators;
- Scenarios development program developed by Perkins Eastman and BFJ Planning; and
- Remediation and infrastructure costs estimated by Tighe & Bond.[33]

Table 38 summarizes the model inputs in terms of:

- One-time expenditures on development of the associated program by scenario. These are likely to be borne primarily by the developer(s) of the associated programs by may also include private and public spending related to buildout of the site (horizontal infrastructure) and onsite supportive social infrastructure such as parks, schools, and other community facilities. One-time expenditures include hard costs and soft costs of development, but exclude financing costs.
- Ongoing expenditures and employment related to activity occurring in each scenario. This approach uses a combination of business spending by selected industries, consumer spending by selected industries, and full-time employment for selected industries to generate direct inputs that calculate direct, indirect, and induced economic impacts in terms of total employment, labor income, and total economic output. It is important to note that each industry uses one input method in order to avoid double counting of total economic impacts.

[33] All values in this report are also rounded to avoid a false sense of precision lent by these inputs.

Table 38: Expenditures and Jobs INPUTS by Scenario

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
One-Time Impacts				
One-time Expenditure Inputs (dollars in millions)	$11.6	$62.2	$497.2	$1,364.3
Ongoing Impacts				
Annual Expenditure Inputs for onsite activity (dollars in millions)	$24.7	$34.6	$49.5	$121.1
Jobs Inputs for Onsite Activity	95	205	1,990	800

More detailed breakdowns of inputs used in the model in terms of industry and input type can be found in APPENDIX B – IMPLAN MODEL INPUTS.

In the case of one-time impacts these comprise capital investments in horizontal infrastructure needed to prepare the site for development, as applicable, and the vertical development of additional uses depending on the scenario. In the case of ongoing expenditures, this is expressed in two ways. First, it relies on spending generated by activity occurring at the airport if it were to remain open, as contemplated in Scenarios 1 and 2, as well as any spending at retail uses in Scenarios 2, 3, and 4 to calculate related economic benefits. Second, it considers ongoing employment at developed uses at the airport that is not captured through spending categories (i.e. aviation operations and retail spending).

For each scenario, HR&A analyzed the drivers of expenditures and employment and mapped spending and job values to IMPLAN multipliers that correspond with the associated economic activity. (For more detail on the IMPLAN multipliers used.

10.5.3 ECONOMIC IMPACTS

HR&A used the assumptions generated through the analyses above as inputs to the IMPLAN input-output model, focusing on jobs supported, labor income, and economic output for the City of Hartford, CRCOG Region, and the state of Connecticut. For Scenarios 1 and 2 HR&A relied on outputs from the analysis of the economic impact analysis of existing operations at HFD estimated in the previous report.[34] This section lays out impacts by scenarios with a brief description of key drivers of these outputs by scenario.

[34] For this analysis, HR&A relied on the midpoint of the high and low estimates of impacts. The Hartford-Brainard Airport Economic and Fiscal Impacts of Continued Operations report was produced by HR&A as a part of this study in June 2023.

Scenario 1

In Scenario 1, HFD operations remain largely unchanged from current conditions, but there would be some development on existing vacant land for buildings that support airport operations. This includes a 50,000 SF vertiport, four new hangars totaling roughly 29,000 SF, and one 15,000 SF aviation supporting office building. Additionally, an extended, 5,000-foot main runway will allow for an increase in the share of jet engine planes to be able to utilize HFD. This is estimated to increase overnight visitation to the region via HFD. The construction timeline of Scenario 1 would be shorter than other scenarios because of the minimal construction volume. These impacts would likely reach stabilization relatively quickly.

Extending the runway will also ensure the airport complies with FAA guidance regarding safety and allows HFD to have a runway that meets many aircraft insurers' guidelines for use, potentially opening up the airport to a broader range of corporate jets that could aid broader economic development and corporate locations strategies in Hartford. Additionally, the added vertiport will increase the region's competitiveness in terms of the aviation and aerospace industries, especially as the VToL (Vertical Take off and Landing), drones, and other advanced aerial technologies continue to develop. Qualitive impacts discussed in the previous report of ongoing operations – such as workfowrce development, supporting State economic priorities, and public service uses– would also apply to this scenario.

Table 39 outlines the one-time and ongoing employment, labor income, and economic output – measured in GRP – impacts of Scenario 1 in terms of direct impacts, as well as indirect and induced impacts.

Table 39: Scenario 1 Employment, Labor income, and economic output

Employment	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	80	80	80	255	255	255
Indirect	-	10	10	5	45	50
Induced	-	20	30	5	65	100
Total	**80**	**110**	**120**	**265**	**365**	**405**
Labor Income ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	$6.8	$6.8	$6.8	$23.3	$23.3	$23.3
Indirect	$0.1	$1.0	$1.2	$0.5	$3.6	$4.3
Induced	$0.1	$1.3	$2.1	$0.2	$4.3	$7.8
Total	**$6.9**	**$9.1**	**$10.1**	**$24.0**	**$31.3**	**$35.5**
Economic Output ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	$11.5	$11.5	$11.5	$34.3	$34.3	$34.3
Indirect	$0.2	$2.6	$3.3	$1.1	$8.6	$10.9
Induced	$0.2	$3.7	$5.8	$0.6	$12.0	$21.3
Total	**$11.9**	**$17.7**	**$20.5**	**$36.0**	**$54.8**	**$66.4**

Employment values are rounded to the nearest 5; labor income and economic output values to the nearest $100,000. Totals may not add due to rounding. Costs are not netted out.
Source: HR&A analysis of IMPLAN, 2023.

Scenario 2

As with Scenario 1, Scenario 2 assumes HFD ongoing operations remain largely the same with the enhancement from an extended runway. Scenario 2 differs in that it includes a larger development program on the 18-acre portion of the airport closed. Scenario 2 includes all the development that occurs in Scenario 1, including full ongoing operations of the airport, and additional development occurring on the crosswind runway. The runway closure will likely have no impact on ongoing airport operations because it is rarely used and any loss in activity on the crosswind runway would be made up on the extended runway. Table 4 summarizes the economic impact of Scenario 2.

Scenario 2 focuses on industrial development as it is market appropriate and the most compatible with the surrounding uses, including the immediately adjacent wastewater treatment plan. The partial site redevelopment would include the development of one 100,000 SF building that will include 50,000 SF of flex industrial and 50,000 SF of advanced manufacturing space. A second building will be 100,000 SF of industrial or manufacturing space. There will also be 20,000 SF of retail space. The construction timeline of Scenario 2 would be shorter than Scenarios 3 and 4 because of the minimal construction volume. These impacts would likely reach stabilization relatively quickly, and the program may be feasibly developed in a single phase.

Qualitative benefits included in Scenario 1 will largely accrue to Scenario 2 as well.

Table 40: Scenario 2 Employment, Labor Income, and Economic Output

Employment	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	480	480	480	405	405	405
Indirect	5	65	75	10	90	105
Induced	5	125	180	5	100	165
Total	**495**	**675**	**735**	**420**	**595**	**680**
Labor Income ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	$42.6	$42.6	$42.6	$30.3	$30.3	$30.3
Indirect	$0.6	$6.4	$7.4	$0.6	$7.0	$8.9
Induced	$0.5	$8.4	$13.2	$0.3	$6.9	$12.8
Total	**$43.7**	**$57.3**	**$63.2**	**$31.2**	**$44.2**	**$52.1**
Economic Output ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	$63.4	$63.4	$63.4	$47.6	$47.6	$47.6
Indirect	$1.6	$16.8	$20.5	$1.7	$17.9	$24.4
Induced	$1.2	$23.0	$35.9	$0.8	$19.0	$34.8
Total	**$66.3**	**$103.3**	**$119.8**	**$50.1**	**$84.6**	**$106.8**

Employment values are rounded to the nearest 5; labor income and economic output values to the nearest $100,000. Totals may not add due to rounding. Costs are not netted out.
Source: HR&A analysis of IMPLAN, 2023.

Scenario 3

In Scenario 3, HFD operations completely shut down to allow for the full redevelopment of the site. The full closure of the airport would require all existing airport users and tenants to relocate or cease operation. The closure alone with no redevelopment would support limited economic activity in Hartford, with most continuing operations occurring in the CRCOG region or the state.[35] For purposes of these scenario analyses, we did include these closure scenario impacts for Scenarios 3 and 4, which means the scenarios are accounting for the closure of the airport. For a detailed discussion of the closure scenario and its impacts, please previous HR&A report: Hartford-Brainard Airport Economic and Fiscal Impacts of Continued Operations. Table 5 summarizes economic impacts resulting from Scenario 3.

The current market and the positioning of the site indicate that industrial and warehousing uses have strong market potential. There currently already is a large industrial redevelopment project at Rentschler Field, but there are also limited large plots of land located near a major artery. Scenario 3 would include 2,360,000 SF of warehousing or manufacturing space, 14,000 SF of supportive office space, 100,000 of retail, and 75,000 SF comprising building related to an outdoor driving range. This full redevelopment would also require significant investment in infrastructure such as roads, water and sewer, and other utilities. While the industrial market is relatively strong in the CRCOG, the delivery of 2,360,000 SF of industrial space would still need to be phased in to stabilize appropriately, unless built to suit for a specific user.[36] The construction timeline of Scenario 3

[35] These impacts are discussed at length in the previous report on economic impacts of ongoing operations.

[36] For example, many major distributors own their own industrial space, purchasing a development that is built to their own specifications rather than renting space.

Table 41: Scenario 3 Employment, Labor Income, and Economic Output

Employment	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	3,475	3,475	3,475	2,280	2,280	2,280
Indirect	40	440	535	55	510	630
Induced	50	900	1,290	10	375	630
Total	**3,565**	**4,820**	**5,300**	**2,345**	**3,165**	**3,540**
Labor Income ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	$301.7	$301.7	$301.7	$123.6	$123.6	$123.6
Indirect	$3.8	$42.3	$51.1	$3.3	$34.8	$45.3
Induced	$3.4	$59.3	$94.6	$0.6	$25.8	$48.5
Total	**$309.0**	**$403.3**	**$447.4**	**$127.4**	**$184.2**	**$217.4**
Economic Output ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	CRCOG Region	Connecticut	Hartford	CRCOG Region	Connecticut
Direct	$497.2	$497.2	$497.2	$231.6	$231.6	$231.6
Indirect	$10.0	$113.1	$143.1	$11.1	$100.4	$138.2
Induced	$9.0	$163.2	$256.8	$1.6	$71.3	$132.0
Total	**$516.1**	**$773.6**	**$897.2**	**$244.3**	**$403.3**	**$501.8**

Employment values are rounded to the nearest 5; labor income and economic output values to the nearest $100,000. Totals may not add due to rounding. Costs are not netted out, but the loss of airport activity is accounted for.

would be substantially longer than Scenarios 1 and 2 because the scenario involves the demolition and remediation of the entire site and the construction of 2,680,000 SF of new space. Furthermore, full absorption of the site would take years.

Employment, labor income, and GRP are all substantially higher in Scenario 3 than in Scenarios 1 and 2. Employment is highest for Scenario 3 than all other scenarios. Even though industrial uses have relatively low job densities, the alternative scenario with the residential mixed-use buildout is primarily comprised of residential development which has even lower job densities.

Scenario 3 will build on the area's current industrial nature and create a significant number of new jobs for all levels of education. Additionally, the new industrial space can be positioned to support Connecticut's economic goals such as aerospace, metal working and metal products, production technology machinery and equipment, and medical device manufacturing. While HFD would close, there would be an opportunity to position some of the warehousing and manufacturing to be focused on aviation, which may allow CT Aerotech to capitalize on its current location. There will also be a potential increase in truck traffic, especially if much of the space is focused on warehousing. The closure of the Airport and redevelopment of the site will require the remediation of the soil which will benefit the broader area. Additionally, the redevelopment may create additional costs for the City such as added infrastructure maintenance (e.g., street repairs) that have not been quantified in this scenario.

Scenario 4

The table below outlines the one-time and ongoing employment, labor income, and economic output – measured in GRP – impacts of Scenario 4. The impacts below include the impacts from the closure scenario as this would occur in a full redevelopment scenario.

Table 42: Scenario 4 Employment, Labor Income, and Economic Output

Employment	One-Time			Ongoing (Annual)		
	Hartford	**CRCOG Region**	**Connecticut**	**Hartford**	**CRCOG Region**	**Connecticut**
Direct	8,525	8,525	8,525	1,975	1,975	1,975
Indirect	70	1,210	1,470	30	230	285
Induced	125	2,630	3,775	5	235	380
Total	**8,720**	**12,365**	**13,770**	**2,015**	**2,440**	**2,640**
Labor Income ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	**CRCOG Region**	**Connecticut**	**Hartford**	**CRCOG Region**	**Connecticut**
Direct	$747.5	$747.5	$747.5	$91.9	$91.9	$91.9
Indirect	$5.6	$95.2	$117.8	$2.0	$17.0	$22.7
Induced	$8.8	$173.0	$277.3	$0.6	$17.3	$31.4
Total	**$761.9**	**$1,015.6**	**$1,142.5**	**$94.5**	**$126.3**	**$146.0**
Economic Output ($000,000)	One-Time			Ongoing (Annual)		
	Hartford	**CRCOG Region**	**Connecticut**	**Hartford**	**CRCOG Region**	**Connecticut**
Direct	$1,096.9	$1,096.9	$1,096.9	$208.0	$208.0	$208.0
Indirect	$14.4	$248.6	$322.0	$7.0	$51.2	$71.6
Induced	$23.0	$476.6	$752.7	$1.5	$47.8	$85.3
Total	**$1,134.2**	**$1,822.2**	**$2,171.5**	**$216.6**	**$307.1**	**$365.0**

Employment values are rounded to the nearest 5; labor income and economic output values to the nearest $100,000. Totals may not add due to rounding. Costs are not netted out, but the loss of airport activity is accounted for.
Source: HR&A analysis of IMPLAN, 2023.

In Scenario 4, the site would be fully transformed into a residential mixed-use development. The added investment this entails in terms of horizontal and vertical construction costs drives substantial one-time employment, measured in job-years. In addition to nearly 4 million SF of private development including more than 2,7000 housing units, the scenario also contemplates the construction of a public school, community center, and more than 14 million SF of public parks and open space both along the edge of the development adjacent the river and within the neighborhoods. The one-time jobs, labor income, and economic output impacts the largest of all four scenarios because of the intensive residential development. The program for Scenario 4 is 1.5X larger than Scenario 3, the second largest development footprint. This results in Scenario 4 generating 3.4X the one-time jobs, 3.4X the one-time labor income, and 3.2X the one-time economic output of Scenario 3.

The residential program may require several phases and a lengthy timeline to fully build out and stabilize. Scenario 4 would add 2,721 multifamily units and townhouses to Hartford's current housing stock, which would be more than six times the approximately 430 multifamily units currently under construction. Put another way, from 2018 to 2023 the City of Hartford absorbed approximately 300 multifamily units annually. Even if the residential program at the HFD site as part of Scenario 4 were able to capture 100% of all demand in Hartford, the project would take nine years to fully absorb, thus a realistic timeline would likely take much longer, and relating one-time and ongoing economic impacts should be viewed with that lens.

Scenario 4 is a complete reimagining of the HFD site. The plan will bring a significant amount of new, high-quality housing to Hartford. To support all new housing will be significant neighborhood amenities that will be developed for both residents to use and visitors. Amenities include the development of three neighborhood parks and a park on the riverfront. Additionally, the development of a new school, library, and community center will benefit the broader Hartford community. This analysis does not quantify the cost to the City and State in terms of new infrastructure such as road improvements in the surrounding area, the costs of added burdens to the school system, and cost of providing services to the development.

The new development will also include the development of a recreation facility that would include ball fields that could be used for tournaments. Tournaments, depending on how they are programmed and how frequently they are, could bring in a significant number of visitors including both day visitors and overnight visitors that would spend money on food and hotels in the region. These numbers have not been quantified as they would vary significantly depending on programming.

10.5.4 FISCAL BENEFITS

Economy activity generated by the outcomes of the four scenarios in this report result in fiscal benefits that accrue to the City of Hartford and State of Connecticut in the form of taxes and fees, including:

- Local property taxes generated from the site, including in the case of continued operations the payment in lieu of taxes (PILOT) that the State makes on behalf of the CAA to the City of Hartford for property it owns within the municipality.
- Sales taxes from retail sales of construction materials and ongoing retail spending in the redevelopment scenarios and broader region.
- Personal and corporate income taxes based on labor and business income at the HFD site and within broader region to support activity in redevelopment or ongoing activities.
- Other taxes and fees related to HFD's use as an aviation facility such as Gross Earnings Tax on petroleum products sales, registration fees, etc.

To determine the fiscal benefits owing to the scenarios, this analysis relies on the historical relationship between personal income and statewide collections for sales taxes, personal income taxes, and corporate income taxes. The labor income output of the input-output model is then applied to this ratio to estimate aggregate increases in these taxes owing to direct, indirect, and induced impacts of operations at HFD.

To estimate property taxes of redeveloped property, HR&A assumed that private development has a market value that is equal to its net operating income divided by a market and use appropriate cap rate, and that this market value is assessed at the full rate in the City of Hartford and levied the appropriate millage rate by use: for purposes of this analysis a rate of 68.95 mills is used, as even in Scenario 4 none of the development is contemplated as owner-occupied single-family homes.

Scenarios 1 and 2 assume the CAA will retain ownership of HFD and the State will continue to pay its PILOT as it has done historically.[37] This analysis attributes a portion of that larger payment to HFD. In addition, fees related to aircraft registration and fuel sales at HFD are assumed to remain consistent with existing operations. There is limited new development so the impacts are still largely driven by the ongoing operations scenario with some additional impacts from the new development. All of the one-time fiscal impacts stem from new construction in Scenario 1. Scenario 2 has a more substantial horizontal a vertical development program and results in a greater magnitude of one-time benefits. The ongoing fiscal impacts in Scenario 2 are larger than Scenario 1 as the new development generates more economic activity than the underutilized crosswind runway.

The table below summarizes fiscal benefits of the four studied scenarios.

[37] The Airport is located on CAA-owned land and is exempt from paying property tax to the City of Hartford. The CAA is a quasi-public agency, so the land that it owns, including HFD, is treated as a part of the PILOT, similarly to other State-owned land. To partially reimburse municipalities for foregone property tax revenue on State-owned land, the State of Connecticut has a payment in lieu of taxes (PILOT) program that provides annual grants to municipalities. Payments for State-owned property are equal to 45% of the baseline property taxes on the property if it were not exempt. PILOT is appropriated, and the State has generally underfunded this appropriation. Recent legislation acknowledges this underfunding and directs greater shares of limited PILOT funding to higher need municipalities. Connecticut municipalities were broken into three tiers, with Tier 1 receiving the highest level of reimbursement. Hartford is considered a Tier 1 city, and it receives a PILOT equal to 50% of the PILOT payment attributed to State-owned property within the city. Tier 1 cities receive the highest payments as a share of baseline property tax. This results in the State paying an effective rate of 22.5% of the property tax owed attributed to the Airport.

Table 43: One-time and Ongoing Fiscal Benefits

($000,000)	One-time				Ongoing (Annual)			
	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Sales Taxes	$0.2	$1.1	$7.3	$19.2	$0.6	$0.9	$3.7	$2.5
Individual Income Taxes	$0.3	$2.0	$14.2	$37.0	$1.1	$1.7	$7.0	$4.7
Corporate Income Taxes	$0.1	$0.4	$2.7	$7.0	$0.2	$0.3	$1.3	$0.9
Subtotal State Taxes	**$0.6**	**$3.5**	**$24.2**	**$63.1**	**$2.0**	**$2.9**	**$12.0**	**$8.1**
Property Tax*	-	-	-	-	$0.7	$0.7	$29.1	$57.3
Other Fiscal Benefits	<$0.1	<$0.1	-	-	<$0.1	<$0.1	-	-
Subtotal City Taxes	**<$0.1**	**<$0.1**	-	-	**$0.8**	**$0.8**	**$29.1**	**$57.3**
Property Tax to Other Municipalities**	-	-	-	-	$2.7	$4.3	$20.1	$14.7
Total Fiscal Benefits	**$0.6**	**$3.5**	**$24.2**	**$63.1**	**$5.7**	**$7.8**	**$61.3**	**$80.1**

Values for State sales, individual income, corporate income taxes, and Other Local Governments property taxes rely on the midpoint of elasticity related to labor income and economic output.
** - Property Taxes for the City of Hartford include State PILOT share attributed to HFD. Other Fiscal Benefits include Aircraft Registration Fees and Gross Earnings Tax on Petroleum Products Sales.*
*** To estimate the impact of HFD operations on property taxes broadly – and not on the Airport– this analysis considers the relationship between Connecticut's economic output and total local property tax collections in the state. In 2022 this ratio was $40.14 in statewide local property tax collections per $1,000 in statewide economic output.*

Scenarios 3 and 4 result in substantially greater fiscal benefits both from one-time development of the entire 204-acre site and the ongoing impacts of employment, retail spending, and other activity occurring on the reposition scenarios. In Scenario 3, the dedication of almost all the land for job generating uses drives fiscal impacts related to personal income and corporate income. Scenario 4 has substantially higher one-time fiscal impacts because of more valuable development and the magnitude of development and cost of development for the residential program. Conversely, ongoing benefits are still larger than Scenario 3, but by a much smaller margin because there are fewer jobs created—a factor that drives the property tax value to other municipalities and the State income taxes. In Scenario 4 the value of residential property over industrial property in Hartford is significantly higher, so the value to the City of Hartford is much higher than in the other scenarios. This is an important consideration as it is not clear what municipalities would be impacted.

Lastly, despite significantly higher one-time and ongoing impacts of Scenarios 3 and 4, these values will likely be spread out over a greater number of years – in the case of one-time impacts – or take longer to reach stabilization and full impacts – in the case of ongoing benefits.

10.5.5 CONCLUSION

The impacts of all of scenarios exceeds the existing impact of the HFD ongoing operations, but it is important to consider the feasibility for each scenario, the costs associated with each scenario—both in terms of development costs and the additional fiscal burden that could arise in each scenario (not examined in this analysis) --, and the regional need for each scenario. Scenarios 1 and 2 maintain the existing airport operations but expand the opportunity to capitalize on the existing underutilized land. Repositioning the underutilized land to focus on aviation and aerospace supportive uses could allow HFD to reach its full potential, but it may also be difficult to justify the development cost without guaranteed users.

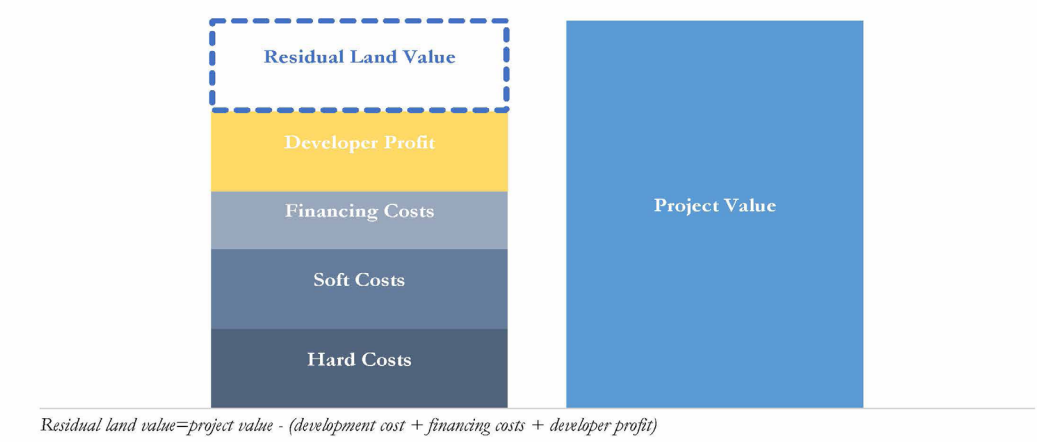
Scenario 3 is a costly redevelopment effort but fits in well with the existing character of the surrounding area. There is already a similar large project occurring across the river at Rentschler Field, so the development would have to compete with a nearby large warehousing and manufacturing facility. This could lead to the new development having difficulty being absorbed by the market. Conversely, the site is well-located, and the market analysis conducted by HR&A indicates that industrial uses have the strongest market potential. Additionally, this scenario would create 2,150 new jobs, the most of any scenario.

Finally, Scenario 4 includes significant new residential development and commercial development. While there is limited population growth in the region, existing housing and new developments have low vacancy rates and have been well-absorbed by the market. Most new residential developments in Hartford have required significant subsidy to be developed, and this project would also likely need significant subsidy to be redeveloped as it is in an unproven market for residential development and would require remediation. Providing such a subsidy would preclude the use of those public resources in other public policy and economic development priorities including the revitalization of downtown Hartford and provision of additional housing throughout the rest of the City and region. Furthermore, there are currently limited transportation options. The proposed program would also bring significant neighborhood amenities to the area including parks, a school, and library. Additionally, the new recreational facility could bring in visitors to Hartford and create new jobs for residents and help support local businesses.

10.6 RESIDUAL LAND VALUE ANALYSIS

To inform the study's highest and best use analysis, HR&A estimated the value associated with the development of various types of uses relying on a residual land value (RLV) analysis. HR&A first used this analysis to understand the relative value of vertical development for different uses on a per square foot basis. (See: Appendix J: Residual Land Value by Use.) Next, we applied the same methodology to proposed repositioning scenarios, incorporating the costs associated with preparing development-ready pads for new development at HFD, and assessing an overall value for total development programs of each repositioning scenario. (See: Appendix I: Residual Land Value by Repositioning Scenario.)

Figure 75: Conceptual Residual Land Value



Residual Land Value Approach

Calculating residual land value (RLV) is a widely accepted method for estimating the value of property or development rights that are attached to a property. RLV is equal to the total value of a given development program less hard and soft development costs, financing costs, and the developer's required profit (See: figure below).

RLV analysis is useful in this case because it calculates what a private developer could theoretically afford to pay for land owned by the CAA and currently comprising HFD and earn a competitive return on investment from new development. A positive residual value indicates market feasibility, while a negative value indicates that additional support is required to reach feasibility. Higher RLVs also indicate a development concept's ability to support public benefits, such as affordable housing, community facilities, and public realm improvements.

RLV depends on the development planned for a site. The more valuable a given development program, the greater the amount the developer can afford to spend on the land and therefore the greater the RLV.[38] The RLV for the site should not be equated to the economic impacts generated by development and ongoing activities resulting from development on a site, and it is possible that a project that would result in a negative RLV may have the potential to generate incremental economic impacts. The purpose of this analysis is to consider the potential for various uses and combinations of uses as part of a set of potential reposition scenarios to maximize the value of the land comprising HFD. It relies on a purely market rate set of conditions and does not consider the potential for any types of public subsidy through alternative property assessment rates, tax abatements or credits, grants, below-market rate financing, etc.

To conduct this analysis, HR&A developed an RLV model based on a stabilized year of various repositioning uses and scenarios. This model calculates the market value of the potential annual revenue streams, less the cost to finance, design and construct the development including the profits or net-revenues. HR&A's assumptions are based on findings from a market scan performed earlier as part of this study and subsequent conversations with private sector and public sector real estate market stakeholders.[39] For this analysis, HR&A assumed that development on a repositioned HFD site would not receive any public sector subsidy in the form of reduced assessments, property tax abatements, grants, other forms of low-cost financing, or other benefits.

[38] Positive residual land value also conveys the feasibility of a ground lease; however, ground lease payments that CAA or another future owner of the HFD site would receive can vary substantially based on the structure of such a lease. Inversely, a negative RLV indicates an infeasible project, even under a ground lease structure.

[39] In some cases, data analysis and expert interviews supplemented HR&A's and the consultant team's extensive experience in the regional market.

The following section includes the steps taken as part of HR&A's model to calculate the RLV for vertical development of these uses and the resulting values to inform the development of potential repositioning scenarios.

10.6.1 BY TYPE OF USE

Before recommending programs for consideration as part of a potential repositioning scenario for the study's highest and best use analysis, HR&A considered a wide range of supportable uses at HFD. As part of this process, we underwrote key assumptions related to the development and operation of such uses and calculated an RLV for the vertical development of each on a per square foot basis. The relative value of each helped to inform the magnitude and mix of uses included in repositioning scenarios discussed in the following section.

Uses Analyzed

State legislation mandating this study required the consultant team to consider alternative uses including commercial, residential, and recreational opportunities. However, given the findings of the market scan and discussions with real estate market stakeholders, our team further refined these alternatives, describing a set of uses consistent with current development typologies in the region that are also appropriate for the HFD site.

To show the potential for different uses at a repositioned HFD HR&A tested the financial feasibility of vertical development of up to eight uses and development types:

- Four-story multifamily residential rental;
- Mid-rise multifamily residential rental;
- Single-family attached townhome rental;
- Accessory retail development;
- Accessory office development primarily designed to support industrial uses;
- Industrial development that can be subdivided and used to support everything from aerospace uses, advanced manufacturing, and other flexible industrial requirements;
- Indoor recreation facility comprised of indoor sports facilities (e.g., fieldhouse with multisport turf fields, courts, indoor track, and other facilities); and
- Outdoor recreation facility comprised of a golf driving range facility modeled on the Top Golf concept.[40]

[40] TopGolf is a golf driving range game with electronically tracked balls and automatically scored drives. Most locations include indoor space (50,000 – 100,000 SF) and an outdoor driving range. Locations sell food and drink and golf equipment, as well as host parties and other events. There are more than 80 locations in the United States currently. See: https://topgolf.com/us/locations-by-state/.

Table 44 summarizes the results of the RLV analysis on each use based on underwriting assumptions that were developed from a combination of third-party data related to value and cost and validated with real estate market stakeholders in the region. These assumptions are further described in Appendix A: Vertical Development Underwriting Assumptions. Note that this does not include any investments in horizontal infrastructure – demolition, environmental remediation, streets, utilities, etc. – that may be required at HFD to ready the site for vertical development. Those costs are more appropriately assessed in the following section that measures the RLV of different repositioning scenarios.

Table 44: Residual land value PSF of vertical development by use

	Townhome	Mid-rise Residential	Low-rise Residential	Industrial	Retail	Office	Indoor Recreation	Outdoor Recreation
Hard Cost	($173)	($453)	($330)	($124)	($257)	($226)	($154)	($186)
Soft Cost	($42)	($109)	($79)	($42)	($92)	($84)	($53)	($45)
Financing Cost	($16)	($42)	($31)	($12)	($24)	($21)	($14)	($17)
Total Cost	**($231)**	**($604)**	**($439)**	**($177)**	**($373)**	**($331)**	**($221)**	**($247)**
Net Operating Income	$13	$26	$24	$13	$14	$18	$9	$13
Cap Rate	*6.5%*	*6.5%*	*6.5%*	*5.5%*	*7.5%*	*8.5%*	*7.5%*	*7.5%*
Total Value	**$197**	**$407**	**$367**	**$230**	**$184**	**$213**	**$124**	**$173**
Cost of Sale	($3)	($6)	($6)	($3)	($3)	($3)	($2)	($3)
Developer Profit	($25)	($52)	($47)	($29)	($23)	($27)	($16)	($22)
Residual Land Value	**($62)**	**($255)**	**($124)**	**$20**	**($215)**	**($149)**	**($114)**	**($99)**

RLVs of the uses described above range from negative $255 per SF for mid-rise residential rental buildings to positive $20 per GSF for industrial development. On a per GSF basis, assuming a pad is ready for development and based on the current market conditions of the site and underlying assumptions of development including hard and soft costs, financing costs, and required developer equity returns, only industrial uses result in a positive RLV. This means that a private developer would be willing to pay $20 per GSF of development for land for industrial use, supposing the site were prepared and ready for development. All other uses would require a subsidy to pursue the project.[41]

[41] For purposes of the per GSF basis of analysis, we assume that these unit values are associated with an overall program that the market can support and absorb and that they are consistent with building design and total programs that are constructable, efficient, and market-supportable in the region. Detailed underwriting assumptions used to generate estimated RLVs can be found in Appendix A | Vertical Development Underwriting Assumptions.

These vertical RLVs do not consider the added investments in horizontal infrastructure needed to ready a site for vertical development such as demolition and site preparation, streets, utilities, and other related costs. As those costs vary by repositioning scenario and will be different on a per GSF of development basis according to the associated program, HR&A explored their impacts when combined with the findings from this RLV analysis of vertical development as part of the analysis of potential repositioning scenarios in the next section.

10.6.2 BY REPOSITIONING SCENARIO

BFJ and Perkins Eastman, with input from the consultant team, crafted four scenarios at HFD based on:

- Land use conditions;
- Development suitability;
- Market scan; and
- Other considerations relevant to environmental, regulatory, and economic conditions of HFD.

These repositioning scenarios are illustrative and intended only to serve as "test-fits" to determine the buildable capacity of these sites. They are not intended to suggest a final master plan for the site, and it is expected that a private developer would consider these among other possible configurations. However, they are useful in laying out a spectrum of potential value in terms of applicable uses and development intensity. They include:

- **Scenario 1:** Airport remains open with limited new development of aviation uses. This scenario presumes the airport remains open and any development is related to aviation uses. This includes a new air traffic control tower near the intersection of the crosswind runway and main runway, extension of the main runway to 5,000 feet, additional hangars, and the development of 65,000 SF of aviation uses. Though this scenario will be modeled for its economic impacts, this analysis does not calculate its RLV.
- **Scenario 2:** Closure of Runway 11-29 and development of industrial uses. This scenario assumes that the crosswind runway is closed and approximately 18 acres of HFD is made available for redevelopment. Assumes development of two 100,000 SF single-story industrial buildings that could support warehouses, manufacturing, and research and development facilities with an emphasis on aerospace, as well as a 20,000 SF accessory retail program off Brainard Road. This is in addition to the construction the additional hangars and development of 65,000 SF of aviation uses on airport property outlined in Scenario 1.
- **Scenario 3:** Closure of airport and redevelopment with primarily industrial buildings with accessory office and retail uses. This scenario includes development of the 204-acre airport with more than 2.6 million SF of industrial development along with 140,000 SF of office to support industrial spaces and 100,000 SF of accessory retail oriented on Maxim Road.
- **Scenario 4:** Closure of airport and redevelopment with mixed-use development including residential, office, retail, industrial, and recreation uses. This scenario includes development of the 204-acre airport with more than 2,700 rental housing units of different typologies, 105,000 SF of retail, 262,000 SF of industrial/flex space, and 255,000 SF of indoor recreation and 75,000 SF outdoor recreation use. In addition, this Scenario includes a new school building, community center, and library to serve this new neighborhood. Costs associated with these public facilities are not included as part of this analysis.

Scenarios are summarized in the table below:

Table 45: Repositioning Scenarios for RLV Analysis

	Scenario 2*	Scenario 3	Scenario 4
Site Area (acres)	18 ac	204 ac	204 ac
Development Program (GSF)			
Townhome	-	-	660,000 GSF
8-Story Mid-rise Residential	-	-	472,320 GSF
4-Story Low-rise Residential	-	-	2,028,738 GSF
Industrial	200,000 GSF	2,360,000 GSF	262,000 GSF
Retail	20,000 GSF	100,000 GSF	105,600 GSF
Office	-	140,000 GSF	-
Indoor Recreation	-	-	255,000 GSF
Outdoor Recreation	-	75,000 GSF	75,000 GSF
Total Development Program	**220,000 GSF**	**2,675,000 GSF**	**3,858,658 GSF**
Sitewide FAR	*0.28*	*0.30*	*0.43*
Residential Program (in dwelling units)			
Townhome	-	-	220 Units
8-Story Mid-rise Residential	-	-	472 Units
4-Story Low-rise Residential	-	-	2,029 Units
Total Dwelling Units	**-**	**-**	**2,721 Units**
Sitewide Density	*N/A*	*N/A*	*13.34 DU/acre*
Total Parking Spaces	**360 Spaces**	**4,520 Spaces**	**5,966 Spaces**
Parking Spaces per 1,000 GSF of Development	***1.64***	***1.69***	***1.55***

** - This scenario also includes the enhancement of HFD through the development of 65,000 SF of aviation-related industrial and office uses on the grounds of the airport. For calculating the relative value of repositioning scenarios, this new development on airport grounds is not included.*

Horizontal Development Costs

Each repositioning scenario that contemplates the closure or part or all HFD will require additional investment to prepare the land for development. These vary by scenario and may include:

- Soil and groundwater remediation to address areas of concern on the airport property stemming primarily from the presence of underground storage tanks.
- Abatement and demolition of existing buildings on the airport property including hangars, office buildings, and other operational and maintenance facilities. This does not include costs to demolish existing roadways and runways, which are included in other horizontal and vertical development costs.
- Roadways, sidewalks, and streetscapes, assuming 24-foot-wide roadways to serve development sites.
- Utilities to serve the site including water, sewer, power, and telecommunications infrastructure.
- Parks and open space included in each development program.

Table 46: Horizontal Development Unit Hard Costs

Assumption	Value
Soil Remediation (sitewide)	$1,500,000
Abatement and Demolition (aviation buildings only)	$6,600,000
Roadways (per linear foot)	$450 - $500
Water and Sewer (per linear foot)	$450
Power (per linear foot)	$250
Telecommunications (per linear foot)	$175
Park/Open Space (per SF)	$0.85

** - Roadway costs for the mixed-use Scenario 4 relies on higher value of $500 per linear foot reflecting cost to incorporate sidewalks, streetscapes, and other design features not applicable to an industrial development.*
Source: Tighe & Bond, Perkins Eastman, BFJ, and HR&A

Table 47 includes unit costs for these horizontal costs. Some costs are calculated as lump sums, rather than variable based on the scale of development. Roadway and utility costs are based on the linear feet of this infrastructure needed to support the associated development program. Costs related to the development of parks and open space are calculated on a per land SF basis.

Table 47: Horizontal Development Unit Hard Costs

	Scenario 2	Scenario 3	Scenario 4
Hard Cost			
Soil Remediation	($1,500,000)	($1,500,000)	($1,500,000)
Abatement and Demolition	-	($6,600,000)	($6,600,000)
Roadways	($759,600)	($13,649,000)	($21,321,500)
Water and Sewer	($422,000)	($3,421,300)	($3,421,300)
Power	($337,600)	($2,737,000)	($2,737,000)
Telecommunications	($422,000)	($3,421,300)	($3,421,300)
Park/Open Space	($295,400)	($2,394,900)	($2,394,900)
Subtotal Hard Cost	**($3,736,600)**	**($33,723,500)**	**($41,396,000)**
Soft Costs	($938,400)	($8,414,800)	($8,847,200)
Financing Costs	($435,000)	($3,916,200)	($4,988,000)
Total Horizontal Infrastructure Costs	**($5,110,000)**	**($46,054,500)**	**($55,231,200)**

Source: Tighe and Bond, Perkins Eastman, BFJ, and HR&A

Total horizontal costs range from $5 million to $55 million. (See: Table 47.) This range is bounded by costs for Scenario 2, which only contemplates the development of an 18-acre portion of HFD and does not include demolition of existing buildings or park space and Scenario 4, which includes development of the entire 204-acre site, abatement and demolition of existing aviation buildings, higher roadway costs to accommodate sidewalks and streetscapes suitable for residential development, and 14 million SF of parks and open space.

Table 48: Residual Land Value by Scenario

Category	Scenario 2	Scenario 3	Scenario 4
Gross Project Value	$49,638,000	$603,434,000	$1,037,994,000
Less: Cost of Sale for Rental Uses	($745,000)	($9,052,000)	($15,570,000)
Less: Developer Profit	($6,112,000)	($74,298,000)	($127,803,000)
Less: Total Development Cost	($46,066,000)	($565,973,000)	($1,406,610,000)
Total Residual Land Value	**($3,285,000)**	**($45,888,000)**	**($511,989,000)**
Residual Land Value Per SF Land Area	*($4 per Land SF)*	*($5 per Land SF)*	*($58 per Land SF)*
Residual Land Value Per GSF	*($15 per GSF)*	*($17 per GSF)*	*($133 per GSF)*

RLV Analysis of Repositioning Scenarios

Combining horizontal and vertical development programs and related costs for each of the three studied repositioning scenarios results in a total RLV that is negative for each scenario (See: Table 48). HR&A calculated the RLV based on the difference between the gross project value and the costs associated with development and sale.

Scenario 2, which contemplates closure of the crosswind runway and development of industrial space and accessory retail has the greatest RLV with a negative value of $3 million. Scenario 3 considers development of the entire 204-acre HFD site and the development of more than 2.3 million SF of industrial space, accessory retail and office space, and an outdoor recreation facility and had a negative RLV of $46 million. Given the largely industrial nature of Scenarios 2 and 3 RLV per GSF of development is similar (negative $15 per GSF in Scenario 2 versus negative $17 per GSF in Scenario 3). Scenario 4, the residential mixed-use development option at the HFD site results in a negative RLV of $658 million, or negative $170 per GSF of development.

RLV estimates developed as part of this analysis presume full buildout of the proposed development programs with the associated scenarios using today's dollars. While the assumptions underwriting this RLV analysis are grounded in the region's real estate fundamentals, HR&A has made some adjustments to account for a long-term return to more typical conditions in relation to vacancy rates, financing costs, and project values expressed in terms of cap rates associated with each use. It is unlikely that these development programs closing on construction today would have these same conditions.

More importantly, while the RLVs shown in this analysis presume the full build out and stabilization of the associated development programs in these scenarios, the region will likely need to absorb these conceptual development programs in several phases spanning a multiyear period. While Scenario 2, which considers the construction of two 100,000 SF industrial buildings and a 20,000 SF accessory retail property and could likely be delivered in a single phase, Scenarios 3 and 4 contain more product than the entire region has been able to absorb in recent years. For example, the 2.3 million SF industrial program in Scenario 3 would be more than twice as much manufacturing and warehousing space than has been absorbed in the broader I-84, I-91, and I-95 corridors in the State of Connecticut in the past five years.[42] In the case of Scenario 4, the addition of more than 2,700 dwelling units is greater than the total of all multifamily deliveries in the more than five years spanning from 2018 to 2023 year-to-date in the Capital Region Council of Governments (CRCOG) region (2,539 units). Moreover, according to the State of Connecticut data center, Hartford is only expected to see its population grow by 1,612 residents over the next 20 years, and based on the current share of renters and average household size in Hartford currently this would comprise 500 additional renter households over that period, less than one-fifth of Scenario 4's residential program.[43]

Lastly, HR&A assumed that each repositioning scenario occurred without any type of public subsidy, such as reduced property tax assessments, tax abatements, grants, or other low-cost, subsidized financing. Most major redevelopment projects in the region receive some type of support, and according to market stakeholders all multifamily development that is occurring in Hartford receives a subsidy that is typically at least 20% of the total project cost. For example, considering a 20% reduction in development costs for each of the scenarios would result in positive RLVs for Scenario 2 ($6 million) and Scenario 3 ($67 million) and a smaller gap for Scenario 4 (negative $347 million).

Sensitivity Analysis

RLV provides a reasonable estimate based on current market conditions, but development of this magnitude will require time to go from planning to construction to, ultimately, ongoing operations.

Table 49 illustrates the various repositioning scenarios' RLVs and how these are affected by changes to key assumptions (e.g., development cost, interest rates, rent, cap rates, etc.) For example, a 50-basis point increase in cap rates would result in a decrease in RLV of $3.5 million to $63 million based on the scenario; a 50-basis point decrease in cap rates result in an increase in RLV of $4.1 million to $74 million based on the scenario. Likewise, a $10 increase or decrease in hard cost per GSF would result in an increase or decrease in RLV of $3 million to $53 million based on the scenario.

[42] CoStar, 2023.

[43] CT State Data Center, "2015 to 2040 Population Projections by Town," (accessed August 28, 2023) https://data.ct.gov/Government/2015-2040-Population-Projections-Town-Level/p6hp-fnp7; U.S. Census Bureau, American Community Survey (2021).

Table 49: Sensitivity Analysis Summary

Category	Scenario 2	Scenario 3	Scenario 4
Baseline RLV	($3,285,000)	($45,888,000)	($511,989,000)
0.5% Increase to Cap Rates	($3,459,000)	($41,587,000)	($63,301,000)
0.5% Decrease to Cap Rates	$4,140,000	$49,703,000	$73,912,000
Δ $10 Hard Cost per GSF	+/- $3,023,000	+/- $36,758,000	+/- $53,415,000
Δ 5% Rent per NSF	+/- $2,115,000	+/- $25,710,000	+/- $44,225,000
Δ 1% Profit Requirement	+/- $488,900	+/- $5,944,000	+/- $10,224,000
Δ 1% Stabilized Vacancy Rate	+/- $438,800	+/- $5,226,000	+/- $9,268,000

While RLV provides a reasonable estimate based on a set of underwriting assumptions of the market conditions for the HFD site at a point at which it could come to the market, it is sensitive to major drivers in the cost and value of a project. Three such factors include construction costs, average rents, and cap rates. Modest changes in these variables can significantly affect the total value and, therefore, the RLVs associated with the repositioning scenarios studied.

RLV is most sensitive to changes in cap rate, a market- and use-specific indicator that measures how much a buyer may be expected to pay per dollar of net operating income generated by a property and is determined by dividing this value by price of recent property sales. That is, a decrease in the cap rate represents an increase in the price a buyer would pay for a property based on its net operating income.

In this case, a 0.5% decrease in cap rates would increase RLV by $4 million in Scenario 2, $49 million in Scenario 3, and $74 million in Scenario 4 or enough to generate positive RLVs in Scenarios 2 and 3 and reduce the feasibility gap in Scenario 4 by 11%. If the Hartford region and South Meadows submarket becomes seen as more mature, and if a repositioning scenario can incorporate the right mix of uses to meet demand and lease up quickly by building high quality product the property may see its cap rate fall, all else being equal about a project. To the extent the City and its regional partners – private, public, or nonprofit – can enhance the HFD site through place-based, public investments or continued commitments to high quality public services they can enhance the value of future development. However, there are limitations to the ability to enhance value.

Table 50 provides an example of how compounding effects can increase – or decrease – development feasibility. Even in the most favorable outcome on this two-dimension sensitivity analysis – a weighted cap rate reduced by 1.5% percentage points and average rents that are 20% greater than the current market with all other assumptions remaining equal – Scenario 4 has a negative RLV of more than $161 million.

Otherwise, changes in cap rates and rents can also play a large role in RLV and project feasibility. In the context of Hartford, this sensitivity demonstrates that further investment and a market recovery could increase RLVs of the repositioning scenarios in the long run. Changes in required developer returns and vacancy rates play a more limited role in driving RLVs; however, both values are not likely to fall substantially below underwritten levels.

For example, looking at Scenario 2, if rental rates were to increase 5% and cap rates were to fall 50 basis points, the project would be financially feasible. Similar changes to Scenario 3 would also result in a positive RLV. In Scenario 4, no combination of shown underwriting assumptions could result in a positive RLV; however, even a reduction in cap rates of 150 basis points, all else being equal, would reduce the feasibility gap by approximately $497 million or 76%.

While this is a simplified example, it demonstrates the impact of modest changes in underwriting assumptions on a project as large as the repositioning of HFD and provides a helpful starting point for policy decisions that support community goals, economic development objectives, and housing needs.

Table 50: Example: Cap Rate and rental rate RLV sensitivity table (dollars in millions)

Scenario 2

Weighted Rent per NSF		Weighted Cap Rate			
			5.15%	*5.65%*	*6.15%*
		($3,285,000)	-0.50%	0.00%	0.50%
	$1.02	-10%	($3.8)	($7.5)	($10.6)
	$1.14	0%	$0.9	($3.3)	($6.7)
	$1.25	10%	$5.5	$0.9	($2.9)

Scenario 3

Weighted Rent per NSF		Weighted Cap Rate			
			5.25%	*5.75%*	*6.25%*
		($45,888,000)	-0.50%	0.00%	0.50%
	$1.06	-10%	($52.6)	($97.3)	($134.7)
	$1.17	0%	$3.8	($45.9)	($87.5)
	$1.29	10%	$60.2	$5.5	($40.2)

Scenario 4

Weighted Rent per NSF		Weighted Cap Rate			
			6.00%	*6.50%*	*7.00%*
		($511,989,000)	-0.50%	0.00%	0.50%
	$2.08	-10%	($533.9)	($600.4)	($657.4)
	$2.31	0%	($438.1)	($512.0)	($575.3)
	$2.54	10%	($342.2)	($423.5)	($493.2)

Otherwise, changes in cap rates and rents can also play a large role in RLV and project feasibility. In the context of Hartford, this sensitivity demonstrates that further investment and a market recovery could increase RLVs of the repositioning scenarios in the long run. Changes in required developer returns and vacancy rates play a more limited role in driving RLVs; however, both values are not likely to fall substantially below underwritten levels.

While this is a simplified example, it demonstrates the impact of modest changes in underwriting assumptions on a project as large as the repositioning of HFD and provides a helpful starting point for policy decisions that support community goals, economic development objectives, and housing needs.

Description of Benefits and Costs

This analysis measures the benefits and costs of each of the three scenarios from the perspective of the State of Connecticut and City of Hartford as a combined public fisc. We quantify selected one-time and ongoing benefits – fiscal revenues – and costs – development subsidies required for financial feasibility and fiscal expenditures. Development subsidies conveyed by the public fisc could be financed in multiple ways by different entities, but for purposes of this analysis we assume all are provided as cash grants consistently across all three scenarios.

One-time and ongoing fiscal benefits are derived from the economic and fiscal impact analysis appended as a separate report to this study.[44] Public subsidies for development are assumed to equal the residual land values calculated as part of this study's valuation analysis, which were negative for all three repositioning scenarios.[45] Public expenditures, estimates of workers, households, residents, and school-aged residents derive from development programs of each scenario and assumptions from the economic and fiscal impact report and third-party data from the City of Hartford, State of Connecticut, and U.S. Census Bureau.

All residents and workers estimated as part of each of the three repositioning scenarios are assumed to be incremental new residents and workers to the City and State.[46] Key assumptions are appended to this memo.

The benefits and costs itemized in Table 51 are not exhaustive, but rather count for major categories of expected benefits and costs to the public fisc. Moreover, they do not include expenditures required to close part or all the airport, necessary to advance these scenarios, including the costs to relocate public services currently using HFD.

[44] See: Hartford-Brainard Airport Economic and Fiscal Impacts of Continued Operations and Potential Repositioning Scenarios.

[45] Calculating residual land value (RLV) provides the total value of a given development program less hard and soft development costs, financing costs, and the developer's required profit. In the case of the three repositioning scenarios, each calculated RLV results in a negative value, indicating a private developer would only pursue the project if it could receive additional support bring the RLV to zero. For more on the RLVs of each repositioning scenario, see: Hartford-Brainard Airport Property Study: Valuation Analysis.)

[46] This acknowledges that some or most residents and workers may not be "net-new" but that they are leaving homes or employment that ultimately becomes filled by incremental residents or workers backfilling residences or jobs.

Table 51: Benefits and Costs Measured

	Benefits	**Costs**
One-time	Taxes resulting from economic activity generated by construction and pre-development: - State sales taxes - State individual income taxes - State corporate income taxes	Public subsidies required to make scenario financially feasible
Recurring	Taxes resulting from ongoing economic activity during repositioning: - State sales taxes - State individual income taxes - State corporate income taxes Property taxes based on the income generated by private development on site: - Local property tax	Public expenditures to support incremental residents, workers, and school-aged children: - Local general fund expenditures - Local public-school expenditures - State general fund expenditures

Phasing and Absorption

Given the variation in the development programs for the repositioning scenarios and the size of industrial and residential programs included in Scenarios 3 and 4, respectively, we relied on a conceptual phasing program that was based on our understanding of real estate market conditions to spread development over time. We assumed each phase took four years to reach stabilized occupancy with full ongoing benefits beginning after the development period. (i.e., "Year 5" of a phase). One-time benefits were distributed evenly across the construction period for each phase while one-time costs – that is, public subsidies for development – which include sitewide soil remediation and – if applicable – abatement and demolition of existing airport buildings occur in the first year of analysis as a "Phase 0." The remaining public subsidy (cost) is then divided by the number of phases, with an equal share applied at the start of each phase. As with ongoing benefits, ongoing costs related to a phase begin after the development period.

This conceptual phasing program implies annual absorption of 100,000 SF of industrial uses in Scenario 2 and approximately 118,000 SF of industrial uses in Scenario 3, representing capture rates of 16% and 19% of average annual absorption of all industrial uses within the I-84, I-91, and I-95 corridors within the State of Connecticut from 2018 to the second quarter of 2023. In the case of Scenario 4, this phasing implies annual absorption of 136 units annually, representing a capture rate of 16% of average annual absorption for the Capital Region Council of Governments (CRCOG) region from 2018 to the second quarter of 2023.[47]

[47] See: Hartford-Brainard Airport Property Study: Market Analysis.

Table 52: Phasing Assumptions

	Program	Phases	Development per Phase	Implied Annual Absorption*
Scenario 2				
Industrial	200,000 SF	1	200,000 SF	100,000 SF
Retail	20,000 SF	1	20,000 SF	10,000 SF
Scenario 3				
Industrial	2,360,000 SF	5	472,000 SF	118,000 SF
All Other	315,000 SF	5	63,000 SF	15,750 SF
Scenario 4				
Residential	2,721 Units	5	544 Units	136 Units
All Other	697,600 SF	5	139,520 SF	34,880 SF

** - Assumes absorption is spread over each phase lasting four years, except for Scenario 2, which assumes a two-year absorption period.*

Comparison of Repositioning Scenarios Over Time

We compared repositioning scenario returns, considering total benefits, total costs, internal rate of return (IRR), net present value (NPV) at a 4% discount rate, and payback period using a 30-year analysis period, which incorporates nine years of full benefits for Scenarios 3 and 4.[48] The highest performing scenario in terms of IRR is Scenario 2 (57%), given its relatively low upfront costs of projected public cost (development subsidy) and regularly recurring incremental tax revenues. Scenarios 3 and 4 (32% and 5%) must overcome larger one-time projected public costs (development subsidies) but generate larger projected one-time and recurring benefits. Scenario 3 generates greater economic impacts and subsequent fiscal impacts through new employment in industrial sectors than new household spending generates in Scenario 4. Moreover, incremental public expenditures in terms of resident spending and school-aged child spending are higher than for incremental workers. (See: Appendix.)

Given the significantly larger ongoing fiscal net benefits from large-scale industrial development result in Scenario 3 having the highest NPV ($287 million) over the 30-year period. However, given the upfront costs of residential development and lower recurring benefits, even Scenario 2 with is smaller development program results in a higher NPV ($43 million) than Scenario 4 ($27 million). A full table of related benefits and costs over the 30-year analysis period for each of the three scenarios is found in Appendix J.

The purpose of this analysis is to provide a financial comparison – using IRR, NPV, and payback period – of repositioning scenarios beyond the necessary one-time subsidies needed to make their conceptual development programs feasible. This comparison has several shortcomings including: (1) the difficulty in applying long-term projections to the development and economic activity occurring at HFD, (2) the variability of future real estate market and economic conditions that may change in Hartford and the region, but also globally, and (3) the inability to encompass reasonable estimates of other benefits and costs associated with these scenarios. That being said, providing a consistent set of conditions to compare these three scenarios informs the highest and best use of HFD as the three alternatives relate to each other and can assist in the broader HFD study.

To provide an illustrative example the potential impact of a delay in closing the airport and its impact on this comparison, we compared scenarios assuming Scenarios 3 and 4 (i.e., full closure scenarios) begin in Year 10 versus Year 1. Given the relatively smaller upfront investment, IRR falls very little for Scenario 3 (less than 1%) but is negative for Scenario 4 (-7%). NPV for Scenario 3 falls by two-thirds from $287 million to $97 million and ends up being negative for Scenario 4 (negative $91 million). By pushing out the start year, the payback year for Scenario 3 increases to 17 years and is beyond the 30-year analysis period for Scenario 4.

[48] The Internal Rate of Return (IRR) is a financial metric used to evaluate the potential profitability of an investment or project. It represents the interest rate that makes the sum of all future cash flows equal to the initial investment. IRR is used to compare different investment opportunities with higher IRR suggesting greater returns, all else being equal; however, it is a relative measure of profitability and does not give an exact dollar amount of the return. Net Present Value (NPV) analysis takes into account the time value of money and helps in determining whether an investment will generate a positive or negative return. However, it relies on an appropriate discount rate, which can be difficult to determine for long-range analyses. This analysis uses 4% as a proxy for public sector borrowing costs less a premium for inflation risk, as all cash flows are in real terms.

Table 53: Return Metrics Over 30-Year Analysis Period

Scenario	Total Benefits	Total Costs	IRR	NPV @ 4.00%	Payback Period
Scenario 2	$92,200,000	($7,400,000)	57%	$43,400,000	5 Years
Scenario 3	$724,300,000	($70,800,000)	32%	$287,300,000	7 Years
Scenario 4	$1,175,200,000	($868,100,000)	5%	$27,000,000	24 Years

Table 54: Return Metrics Over 30-Year Analysis Period – Alternative Start Date for Full Closure Scenarios

Scenario	Project Start Date	IRR	NPV @ 4.00%	Payback Period
Scenario 2	Year 1	57%	$43,400,000	5 Years
Scenario 3	Year 10	32%	$96,800,000	17 Years
Scenario 4	Year 10	-7%	($91,200,000)	+30 Years*

** - Payback period beyond 30-year analysis period.*

The following section delves deeper into some other considerations related to a comparison across scenarios.

Other Considerations for Comparison of Repositioning Scenarios

This memo compares conceptual returns of repositioning scenarios; it uses a simple, yet consistent, approach that incorporates the of timing and absorption of related programs to compare multi-year returns. However, additional factors should be considering when reviewing this analysis including but not limited to:

- The real estate market is a key driver and difficult to predict over longer periods. Rent, vacancy, absorption, and other real estate indicators drive benefits and costs. Baseline assumptions used may be either too aggressive or too conservative based on the trajectory of markets for different uses over 30 years. Moreover, this analysis does not consider a phasing program or added investments or policies outside the HFD are that might catalyze growth in the neighborhood.
- This analysis does not incorporate airport closure risks, a key factor that likely affects all three repositioning scenarios but will have much greater bearing on a full closure. These could include the time and effort needed to close the airport and make the Federal Aviation Administration whole for grant funds directed to HFD. Nor does it consider unforeseen delays owing to environmental, geotechnical, entitlement, or other site or land uses conditions that can slow redevelopment.
- Benefit and cost assumptions are derived from conceptual programs for a site that, in the case of Scenarios 3 and 4, would require decades to develop based on historical absorption within the region and a reasonable expected share of absorption that might occur at the HFD site. Program size and mix may change upon implementation, which could result in greater or fewer jobs, in higher- or lower-paying jobs, in larger or smaller households with an average number of school-aged children that departs from the current averages. It also assumes all workers and residents are net-new, rather than shifted from other parts of the region.

Conclusion

These considerations notwithstanding, based on a consistent framework applied to the three repositioning scenarios, Scenario 2 offers the highest rate of project returns while Scenario 3 offers a higher potential net present value over the 30-year analysis period.

10.6.3 CONCLUSION

HR&A performed a residual land value analysis of three repositioning scenarios for Hartford-Brainard Airport – three of the four scenarios considered for the future of the airport – that consider either the partial or full closure of the airport. A baseline Scenario 1 assumed the airport remained open with limited new development of aviation uses, consistent with HFD's current use. This analysis calculated the potential value of the following three repositioning scenarios:

Scenario 2: Partial Closure of the Airport. This scenario assumes closure of the crosswind runway and development of 220,000 SF on 18 acres of the existing airport including:

- 200,000 SF of industrial uses;
- 20,000 SF of accessory retail uses; and
- 370 surface parking spaces.[49]

Scenario 3: Full Closure of Airport – Industrial-focused. This scenario assumes closure of the entire 204-acre airport property and development of more than 2.6 million SF focused primarily on industrial uses and includes:

- 2.4 million SF of industrial uses;
- 140,000 SF of office uses supporting the industrial program;
- 100,000 SF of accessory retail uses;
- 75,000 SF of outdoor recreation uses; and
- 4,520 surface parking spaces.

Scenario 4: Full Closure of Airport – Residential Mixed-use. This scenario assumes closure of the entire 204-acre airport property and development of more than 3.8 million SF in a residential-focused mixed-use development and includes:

- 2,501 multifamily rental units (2.1 million SF);
- 220 townhome rental units (594,000 SF);
- 262,000 SF of industrial/flex uses;
- 105,600 SF of accessory retail uses;
- 330,000 SF of indoor and outdoor recreation uses; and
- 5,966 surface parking spaces

All three repositioning scenarios are infeasible without some type of public support with residual land values ranging from negative $512 million to negative $3 million. Negative RLVs are largely the result of high costs of development of horizontal infrastructure and buildings at the airport site. Scenario 2 has the highest value of negative $3 million largely owing to developing a smaller portion of the airport and lower levels of investment to make the pads development ready. Moreover, Scenario 2 focuses on relatively low-cost buildings for industrial uses. Lower values in Scenarios 3 and 4 result from greater levels of investment needed to make the entire 204-acre site available for development, with Scenario 3 (negative $46 million) showing a higher value than Scenario 4 (negative $512 million) owing to less investment required for industrial buildings relative to their value and a less intensive street network. Negative values for market rate development at the airport is consistent with current market conditions for commercial real estate in the Hartford region, which typically requires some type of subsidy – favorable property tax assessments, tax abatements, grants, low-cost financing, etc. – to advance a project.

- Broadly speaking, industrial uses have the highest residual land values, with relatively low investment required to build these sites and historically high demand. In Hartford and the region, high rents for high technology, manufacturing, and warehousing spaces have buoyed the market, and real estate market stakeholders have identified a lack of options for firms looking for space to start a business or enter the market that will also allow them to expand.

[49] This scenario also includes the enhancement of HFD through the development of aviation uses on the grounds of the airport. For purposes of calculating the relative value of repositioning scenarios, this new development on airport grounds is not considered. Discussion of the economic impacts of such development can be found in the separate appendix report, Hartford-Brainard Airport: Economic and Fiscal Impacts of Continued Operations and Potential Repositioning Scenarios.

- All other uses show negative residual land values on a per GSF basis of vertical development with retail development RLV of negative $215 per GSF, 8-story mid-rise development RLV of negative $185 per GSF, office development RLV of negative $149, recreation development of negative $114 to negative $99 per GSF, and 4-story low-rise and townhome development RLV of negative $68 and negative $62 per GSF, respectively. An 8-story mid-rise building that may command higher rents by providing views of the river would also have significantly higher construction costs in order to allow for concrete or steel construction, elevators, and other required features. Four-story low rise and townhome development are less costly to develop, but even though vacancy rates in the region suggest the market could absorb additional units, the location of HFD, lack of amenities, and proximity to incompatible uses like the wastewater treatment plant, industrial park, and flood protection dike may make it difficult to attract enough residents to stabilize a new mixed-use community. Moreover, rents underwriting this RLV analysis are consistent with the top of market, which may not be achievable given the site's constraints.
- Conditions at HFD add to costs related to site infrastructure and vertical development. In order to develop the HFD property, more than $46 million is required to abate and demolish existing buildings, remediate soils contaminated with underground storage tank leakage, and build out the site's street, utility, and park network. Moreover, the site's soil conditions, and relative position of the water table will require low- and mid-rise residential buildings in Scenario 4 to use piles that drill down to bedrock adding between $9 and $27 per GSF of hard costs based on use and height of building. In addition is expected that one-fifth of all industrial development in Scenario 3 will also require piles at a cost of $35 per GSF of development.
- Negative RLVs can be mitigated with public subsidies, but doing so precludes the use of these resources for other critical economic and community development initiatives. Particularly in the case of Scenarios 3 and 4 that contemplate closure of the airport and development on the entire site, such investment would be substantial and long-term. Deploying funding and human capital here would detract from resources that are currently being concentrated in redeveloping the region's downtowns, particularly Hartford. Given the site's challenging location, particularly for residential development, the depth of subsidy per unit required would likely be greater here than in other submarkets of Hartford and the broader region.
- Closure of HFD and repositioning of the 200-plus acre airport would likely only happen over multiple phases and a multiyear timeline to fully absorb new real estate development regardless of its use. For example, Scenario 3 is designed to primarily provide industrial space (2.3 million SF) with some accessory retail and office uses; however, despite the strong recent performance of the industrial market along the interstate corridors in Connecticut, stabilizing 2.3 million SF of industrial space at HFD would require four years of absorbing all demand within the interstate corridors based on historical rates. The more than 2,700 housing units included in Scenario 4 could take even longer: that total is greater than the number of housing units absorbed and multifamily development in the entire City of Hartford since 2018, and it is expected to occur during a time when population growth is expected to stagnate in Hartford and to slow to less than 0.2% in annual growth in the broader region.
- Findings from this analysis are one component of a highest and best use analysis of the airport that considers real estate development potential, environmental considerations, regulatory pathways, and economic impacts of various repositioning scenarios. RLVs of these repositioning scenarios based on a market rate development of HFD will be considered alongside the economic impacts of development and ongoing operations of new uses, as well as related fiscal impacts for the City and State.

11

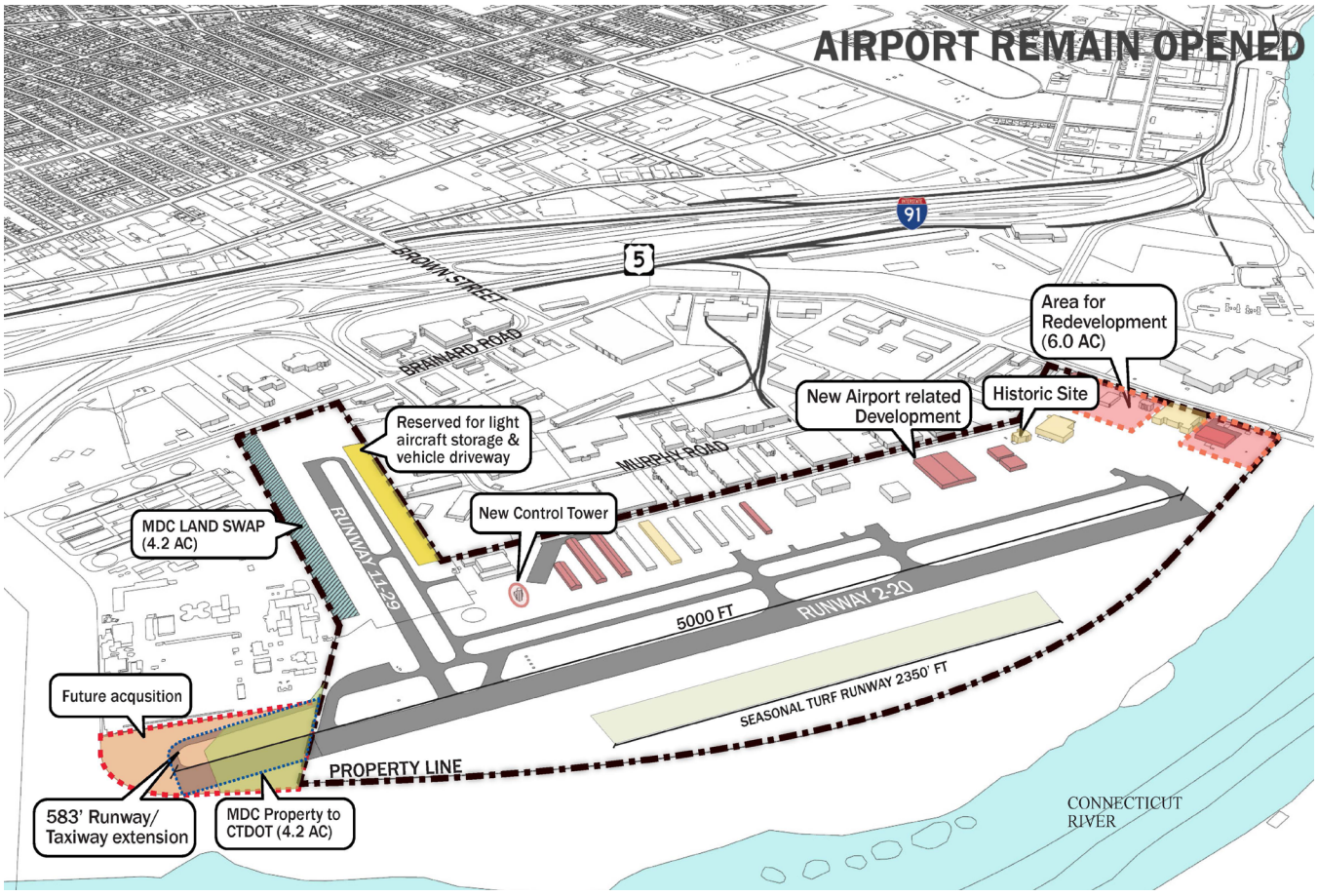
Option #1: Airport Remains Open

11.0 OPTION #1: AIRPORT REMAINS OPEN

11.1 INTRODUCTION

Of the decision pathways identified through the Hartford-Brainard Airport Property Study, Option #1 is for the Airport to remain open. The following section describes the potential for improvements to the Airport, necessary investments, and obstacles to implementation. Improvements include new development of aviation uses, a new air traffic control tower, extension of the main runway to comply with FAA safety requirements, and additional hangar space. For more detailed information on the current operations analysis conducted by QED Airport & Aviation Consultants, see Appendices N and O.

Figure 76: Option #1: Airport Remains Open



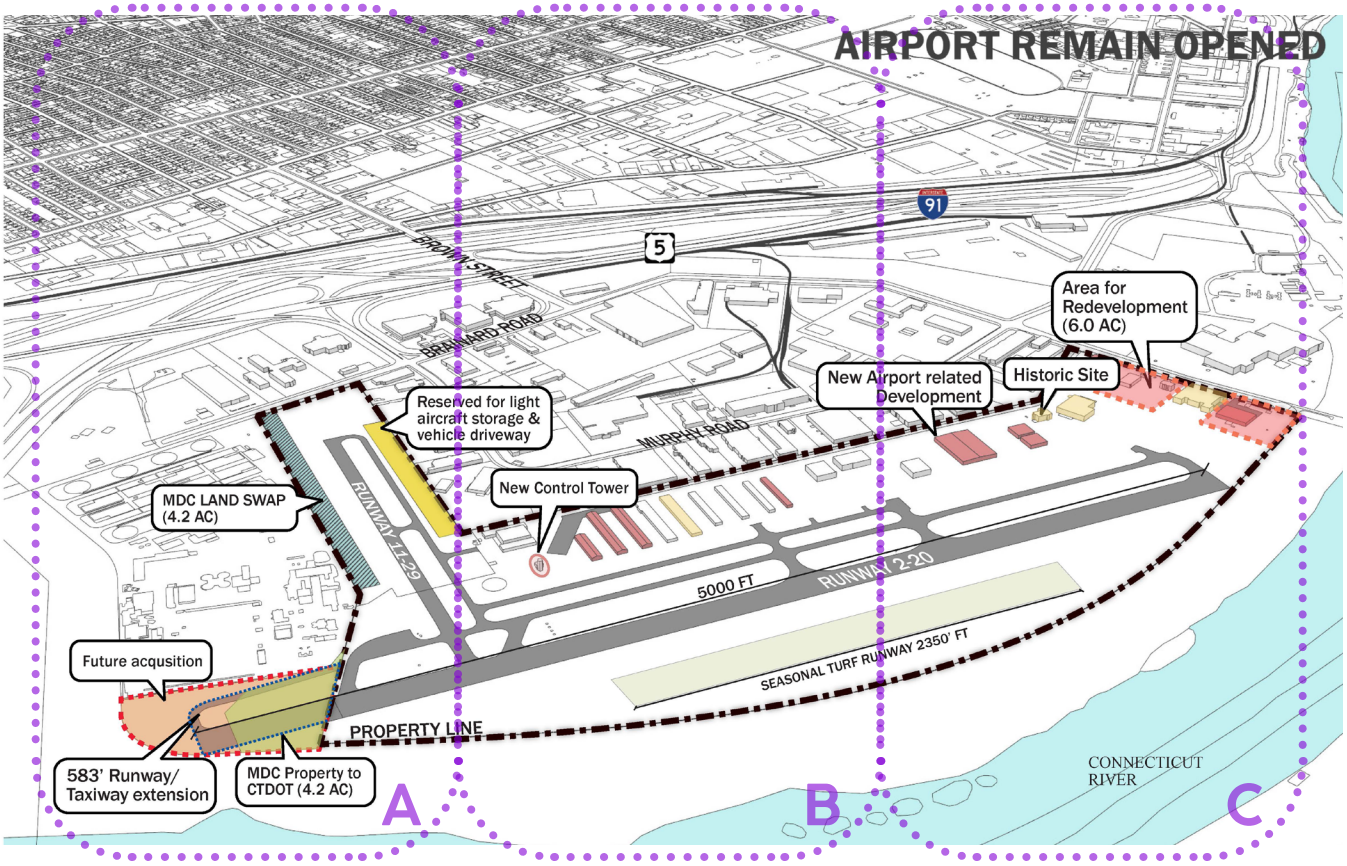
11.2 POTENTIAL IMPROVEMENTS

According to QED's analysis, like all airports, this Airport is in continuing need of repair, rehabilitation, and reconstruction. The CAA prepares and updates capital improvement plans annually and has provided the following input for the Airport, to which other projects that could be expected over time have been added. 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 25 should be considered the minimal requirements to improve the Airport over the next 20 years.

If the Airport were to remain open over the next 20 years, CAA has indicated that the Airport would need some $22 million total investment (see Table 25). To achieve these improvements, CAA would contribute approximately $2.4 million, the FAA would contribute approximately $19.4 million, and the private sector would contribute approximately $2.2 million for hangars specifically. Runway 11-29 would require $5 million in improvements, which leads to a life-cycle benefit/cost ratio of 0.52.

The rendering below demonstrates the implementation of many of these potential improvements proposed by the CAA and QED. The diagram is divided into three sections (A, B, C) for the purposes of this description.

Figure 77: Option #1: Subsections



11.2.1 ACTION A

Action #1 – Property Swap

As part of preparing for potential future demand, the 2014 Sustainable Airport Master Plan identified the need for the potential extension of Runway 2-20. The area outlined by the red dotted boundary, designated as the "Future acquisition area," is earmarked for a proposed property exchange spanning 4.2 acres between the MDC (Metropolitan District Commission) and the CAA (Connecticut Airport Authority). Under this arrangement, the CAA would gain possession of the 4.2-acre portion of the MDC property, specifically encompassing two sewage treatment lagoons. In return, the CAA would transfer ownership of a 4.2-acre strip of land positioned along the northern edge of the MDC property, adjacent to Runway 11-29. Currently, the MDC utilizes this strip of land for equipment storage. By acquiring the 4.2-acre strip of land from the MDC, the CAA would secure an additional 583 feet of runway or taxiway space. This expansion is crucial to ensuring the safe operation of Runway 2-20 in accordance with the stringent safety standards mandated by the FAA (Federal Aviation Administration).

Action #2 – Light Aircraft Storage

The CAA could create a new storage area for light aircraft and a vehicle driveway as part of its airport development efforts. The construction project proposes a pad of approximately 1.7 acres, with dimensions of 130 feet by 1,200 feet. This area would be located adjacent to the northern section of the Runway 11-29. The aim is to provide a dedicated space for storing light aircraft and vehicular access, thereby enhancing the Airport's overall operational efficiency and catering to the evolving needs of light aircraft users.

The designated space has the potential to accommodate the various types of small aircraft storage hangars. According to the 2014 Sustainable Airport Master Plan, the area could be outfitted with either paved or turf tie-downs, one-sided T-hangars, or smaller conventional hangars. A new vehicle roadway extending from Brainard Road would also need to be built to facilitate access. Some limitations do exist; any structures erected may encroach upon the transitional surface and thus would likely require obstruction lighting. Restricted access and other limitations make this location less ideal compared to other potential sites.

11.2.2 ACTION B

Action #1 – Control Tower Reconstruction

Air Traffic Control Tower is owned and maintained by the FAA and staffed by contract personnel. It is located on the west side of the airfield at the intersection of Taxiways J and B. A review of the Tower Line of Sight is located in another section of this report. The ATCT is estimated to be 66 feet tall, with the cab floor at 34 feet. Additional information regarding the operation of the ATCT is in the previous section covering Airspace and Air Traffic Control.

Action #2 – New Hangars

New hangars could increase capacity and revenue at the site. CAA proposes funding these through the private sector.

12

Option #2: Crosswind Runway Closure

12.0 OPTION #2: CROSSWIND RUNWAY CLOSURE

The following section describes the economic and environmental feasibility of closure of the crosswind runway. If the crosswind runway were to close, approximately 18 acres at Brainard Airport would be available for redevelopment. QED notes that closing the crosswind runway would require the same regulatory elements for airport closure, even if airport operations at the rest of the site are maintained. An outcome on FAA's decision regarding airport closure cannot be guaranteed, yet this section outlines potential benefits to CAA if the crosswind runway were to close.

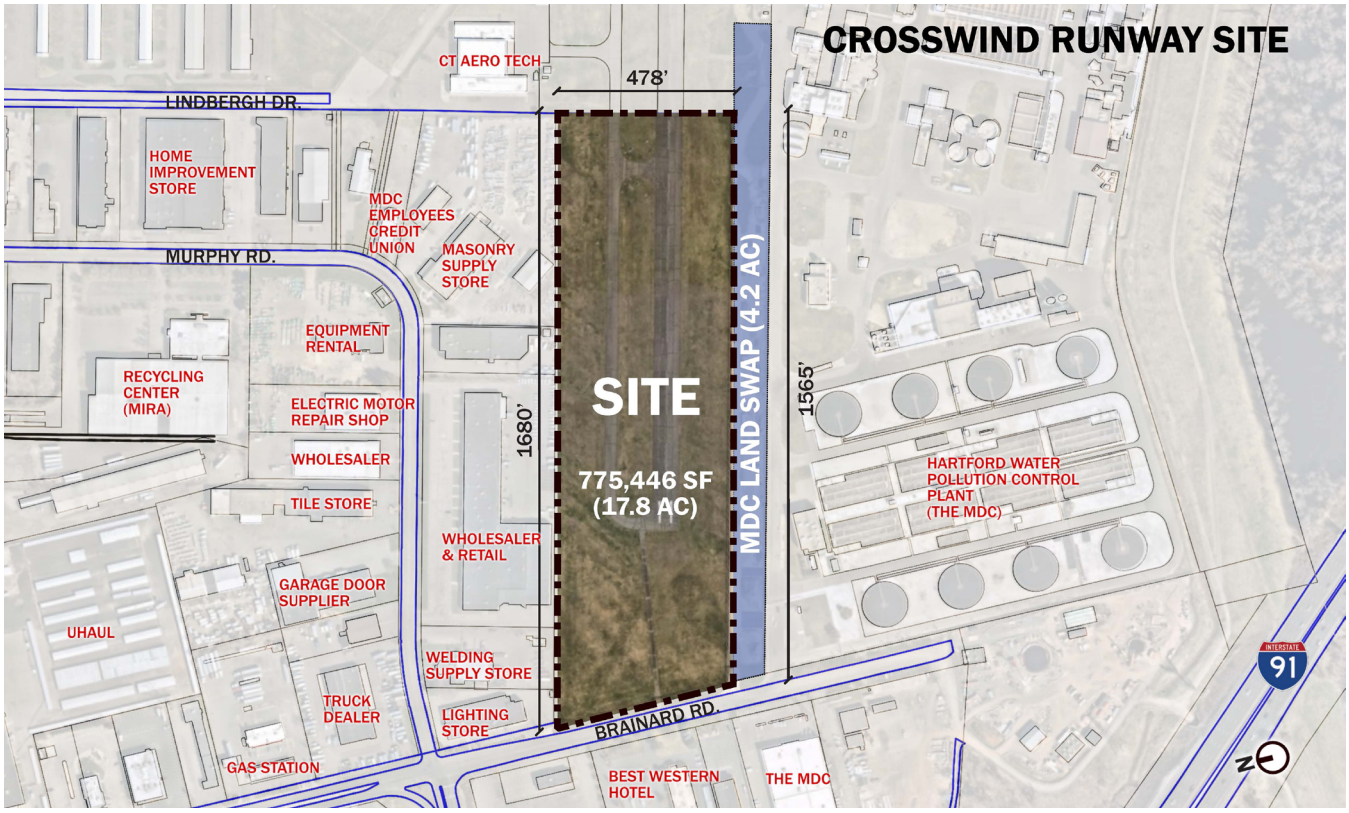
12.1 SUMMARY OF MARKET SCAN

To assist in determining recommendations for development alternatives at the crosswind runway site, HR&A conducted a market scan. The full market scan can be accessed in the Appendix H. According to HR&A's analysis, HFD's redevelopment potential likely is limited to certain industrial uses, which could be compatible with recreation uses on part of the site. Industrial development is most viable given the market's overall health and the site's proximity to I-91. Both local and macro trends in office development present high risks for development of office space, though some limited office space supporting industrial uses may be appropriate based on given tenants' needs. A big box destination retail user may also find the large site and proximity to the highway appealing. Residential development is much less suitable due to the lack of on-site and nearby amenities, transportation, and site infrastructure, and the industrial character of the surrounding properties. All uses will have to contend with negative externalities generated by nearby properties such as the MDC wastewater treatment plant south of the Airport.

12.2 PROPOSED IMPROVEMENTS

The crosswind runway site is 775,466 SF, or 17.8 acres of land, located to the north of MDC's Hartford Water Pollution Control Plant. Based on the findings of HR&A's Market Scan, Residual Land Value Analysis, and Economic Modeling, the Consultant Team gathered precedents to support a future industrial use on the crosswind runway site.

Figure 78: Crosswind Runway Site



Due to the Airport's current zoning designation for industrial use (ID-1), a warehouse or distribution center could be a suitable development option without requiring zoning amendments. Precedents include the Industrial Distribution Center in Elizabeth, New Jersey.

Figure 79: Precedent: Industrial Warehouse

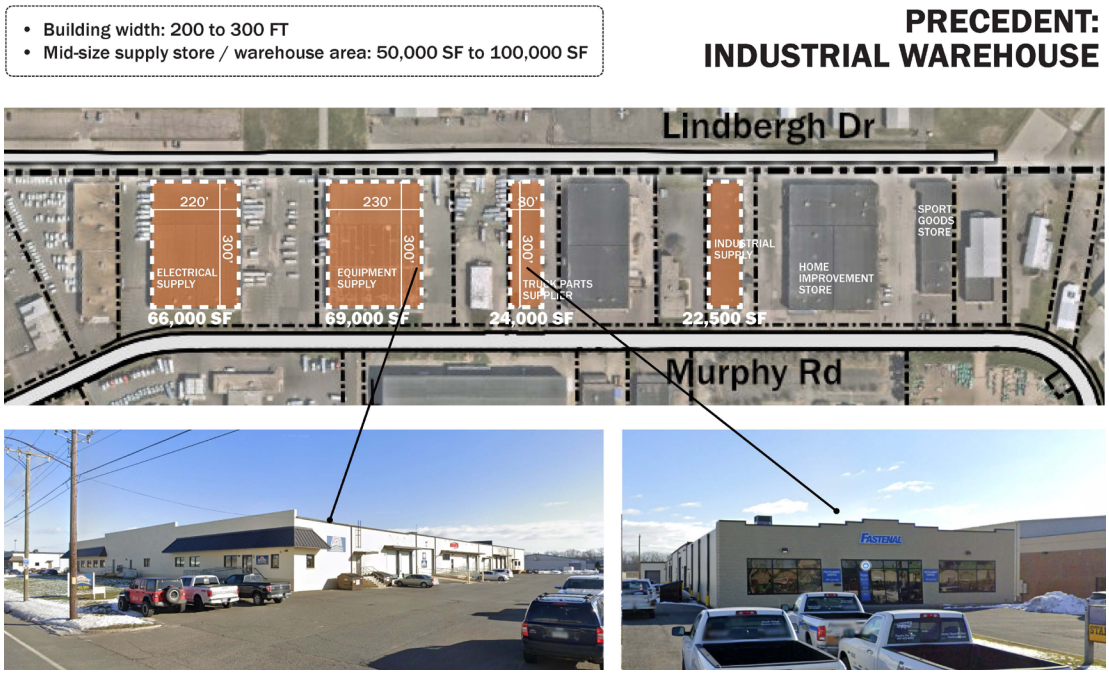
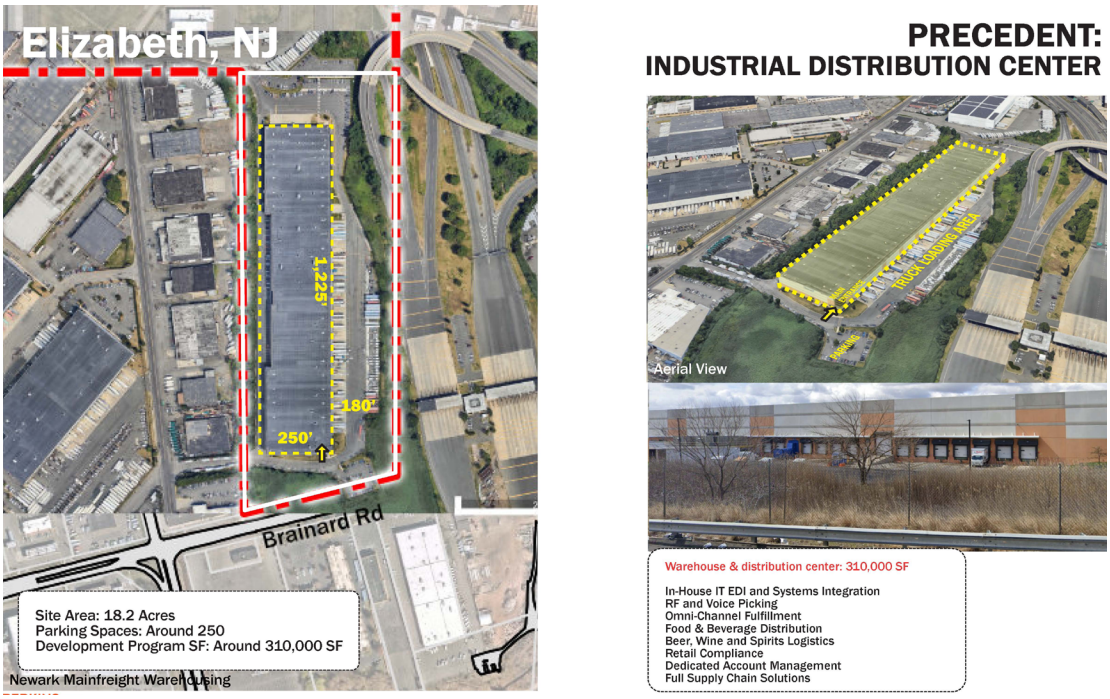


Figure 80: Precedent: Industrial Distribution Center



Based on regional trends and the site's conditions, recreation is another compatible use for the crosswind runway. Examples include an outdoor driving range or indoor sports and entertainments facility, such as TopGolf or Chelsea Piers.

Figure 81: Outdoor Recreational Uses

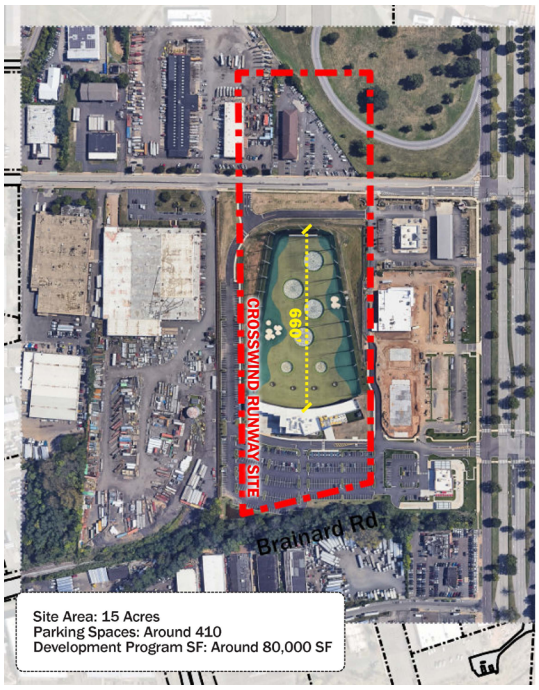
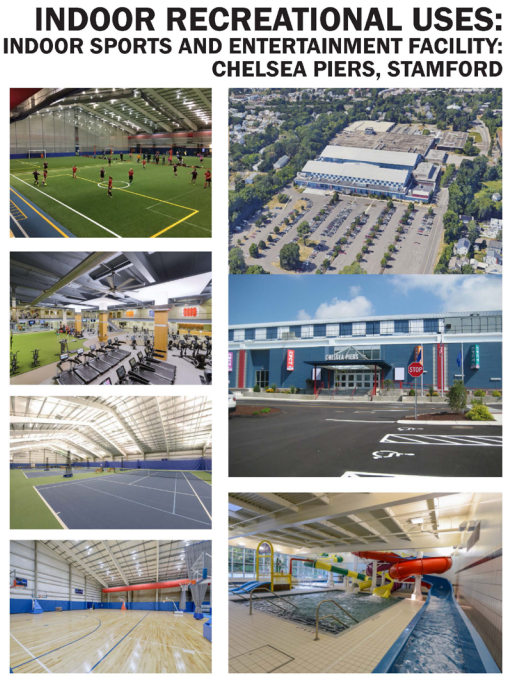
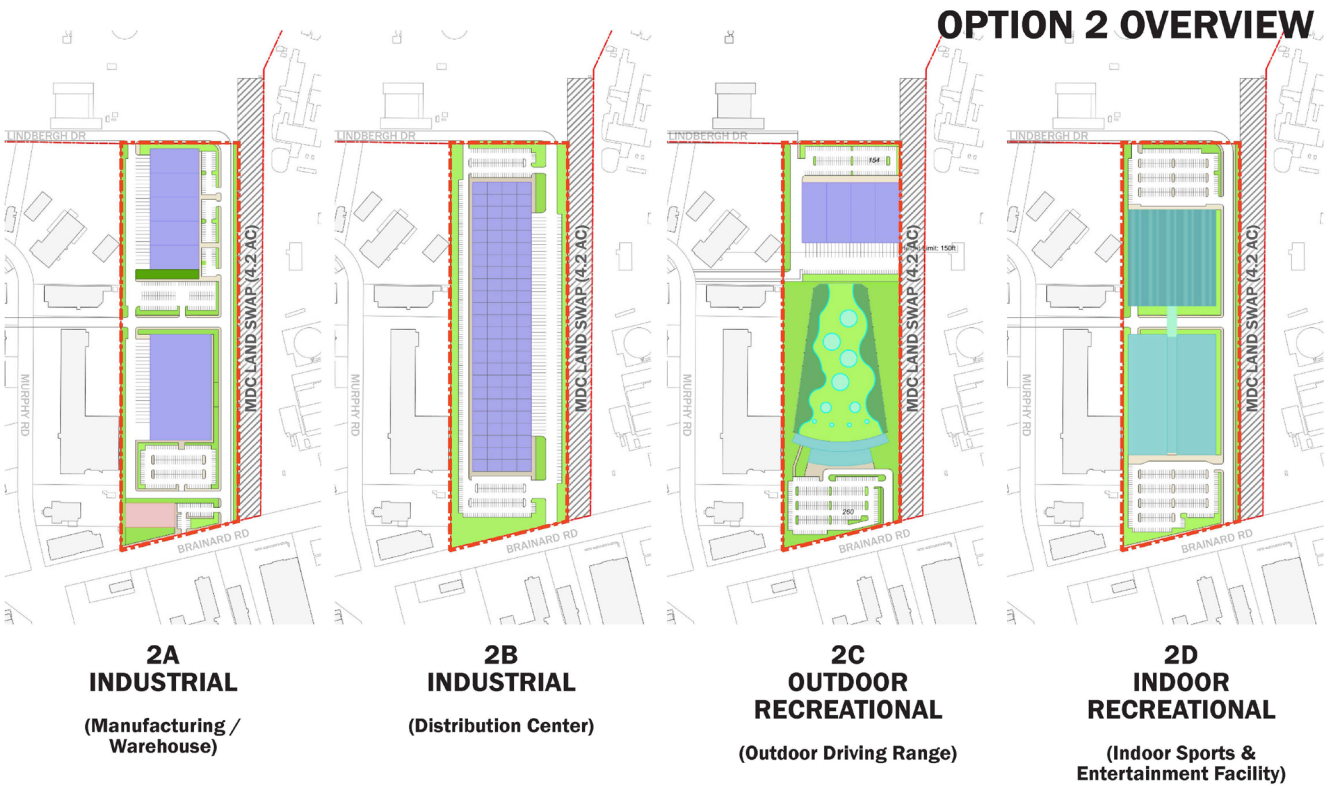


Figure 82: Precedent: Indoor Recreational Uses



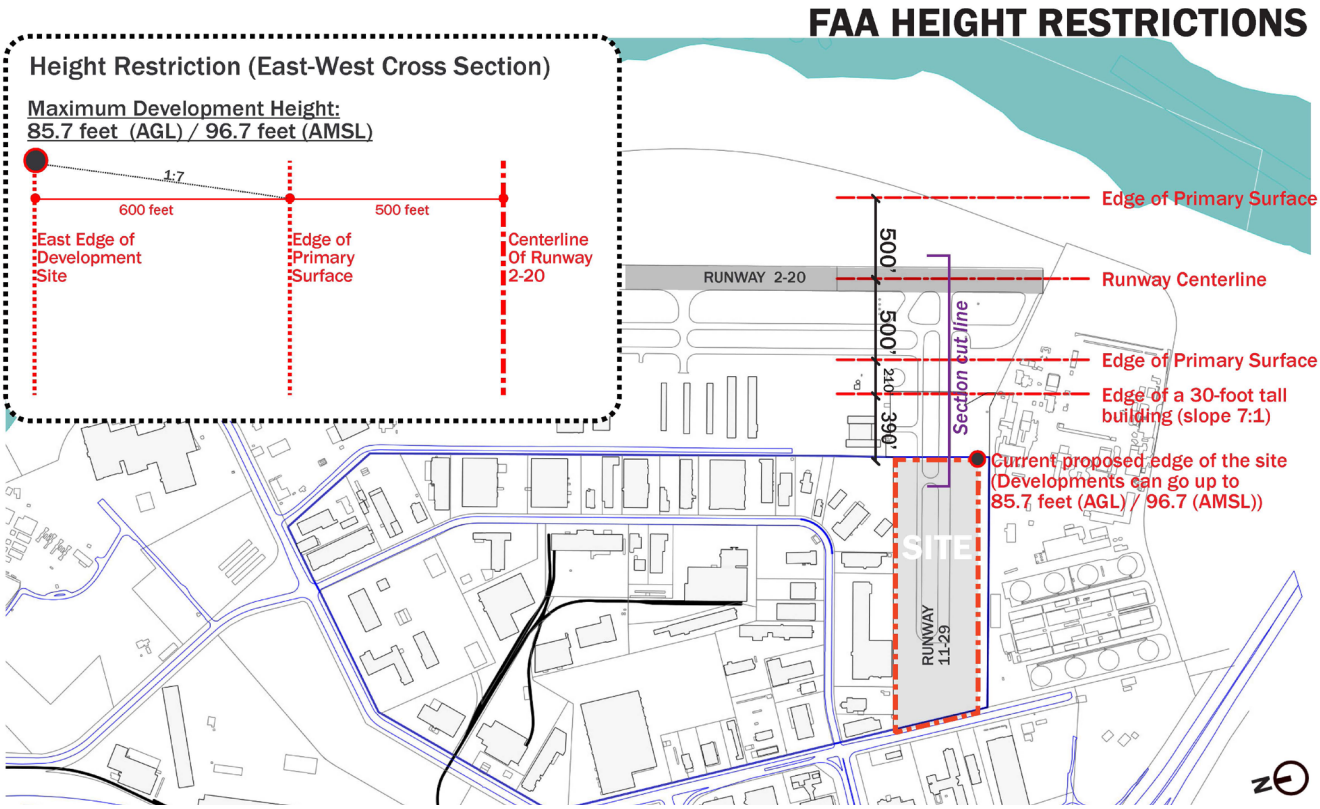
This graphic demonstrates four the potential redevelopment options for the crosswind runway site if the Airport were to remain open.

Figure 83: Option #2 Overview



It's important to note that if the crosswind runway were to close with continued airport operations, any development on the crosswind site must align with FAA Height Restrictions. All four options illustrated in this section incorporate the FAA height restrictions into their designs.

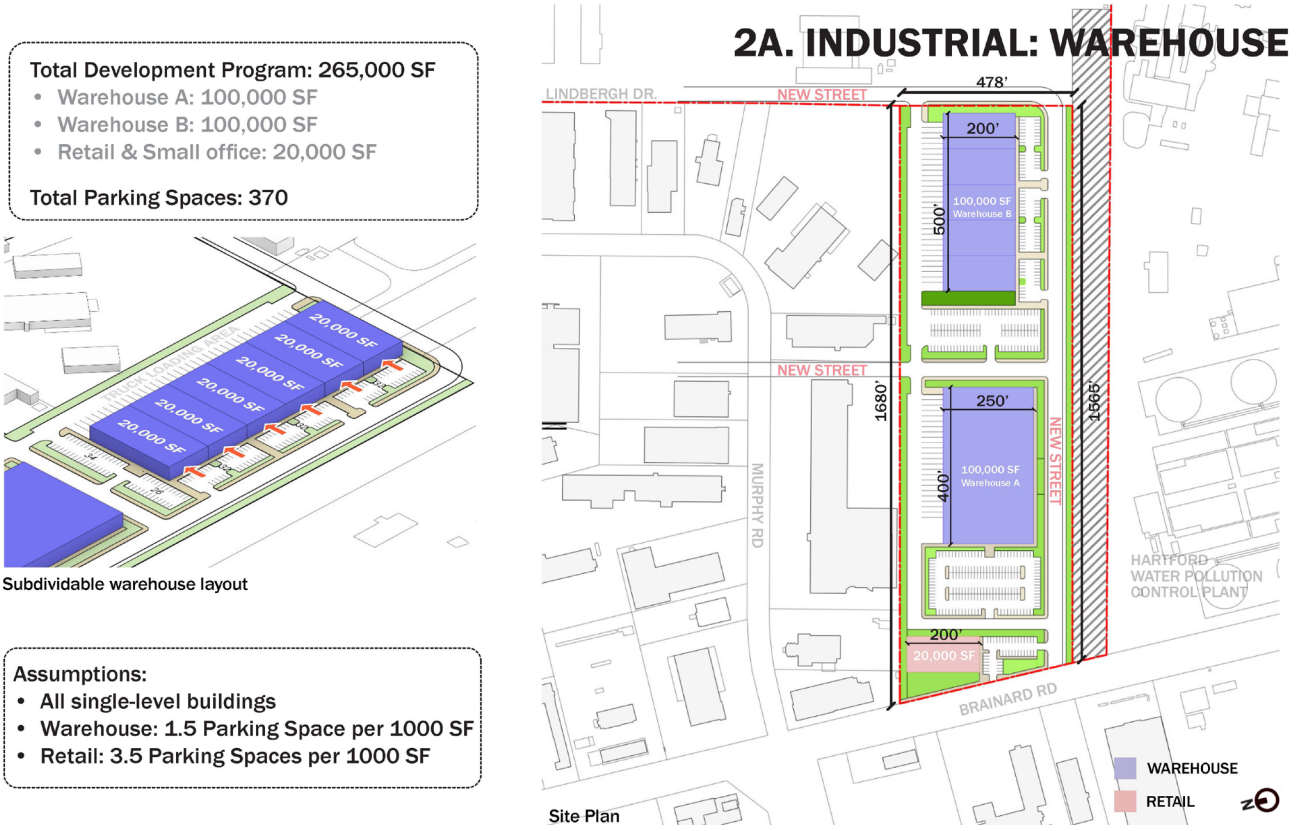
Figure 84: FAA Height Restrictions



Development Option 2A is composed of two warehouses, each 100,000 SF, along with a retail and small office space of 20,000 SF. The option depicted here assumes each of the warehouses would be single-level buildings.

The development would include 370 total parking spaces, with 1.5 parking space per 1,000 SF for warehouse uses, and 3.5 parking spaces per 1,000 SF for retail.

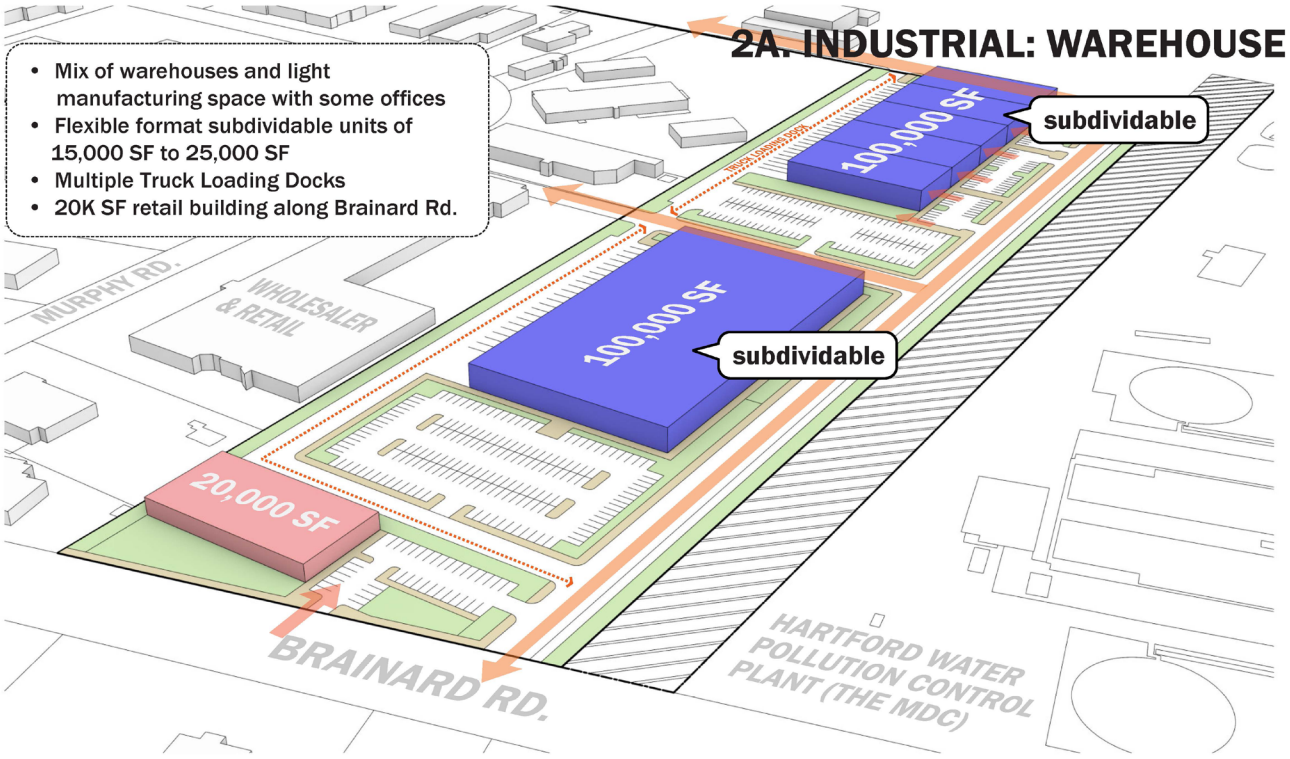
Figure 85: Option 2A Overview



Shown in the figure below, each warehouse building could be subdivided into multiple units between 15,000 SF and 25,000 SF . The flexibility of sizing, as well as warehouse and light manufacturing uses, could attract various tenants to this site.

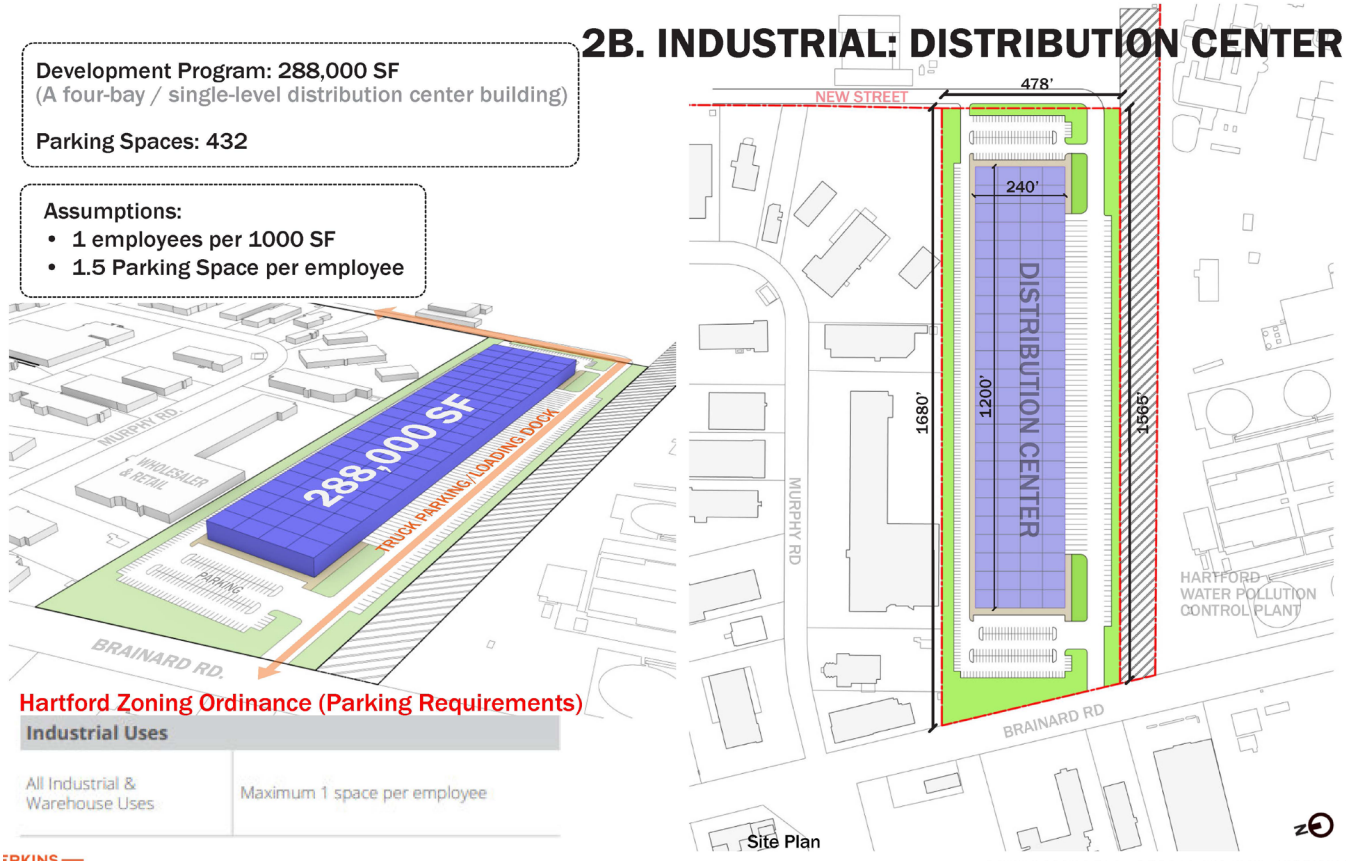
This option also includes multiple truck loading docks, as well as space for office and retail uses. The 20,000 SF retail building could be located along Brainard Road to maximize convenient travel to the site through this access point.

Figure 86: Option 2A Subdividable Units



Development Option 2B consists of a four-bay, single-level distribution center building. Access to Interstate 91 and US Route 5 make this a convenient location for distribution.

Figure 87: Option 2B Overview



Development Option 2C would have the potential to create a social hub through the creation of an outdoor driving range. This option would be suitable for recreation, but it could also house a subdividable warehouse of 100,000 SF to generate additional revenue. The driving range could be located on Brainard Road to increase public access and could accommodate 260 parking spaces for visitors and employees.

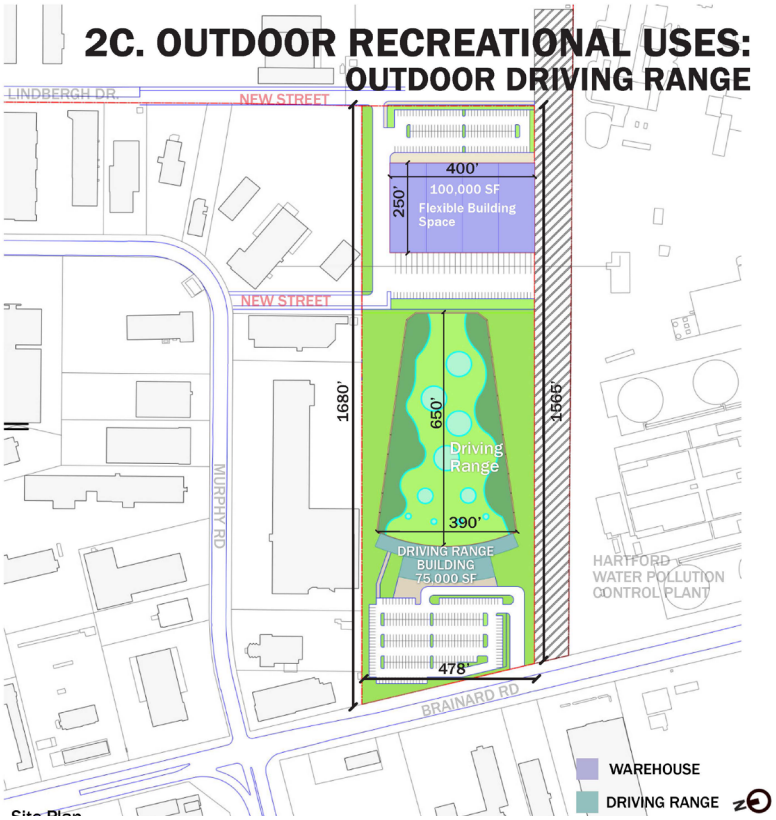
Figure 88: Option 2C Overview

Total Development Program: 175,000 SF
- Subdividable warehouse: 100,000 SF
- Driving Range Main Building: 75,000 SF

Driving Range Site Area: 12 acres
Driving Range Parking Spaces: 260

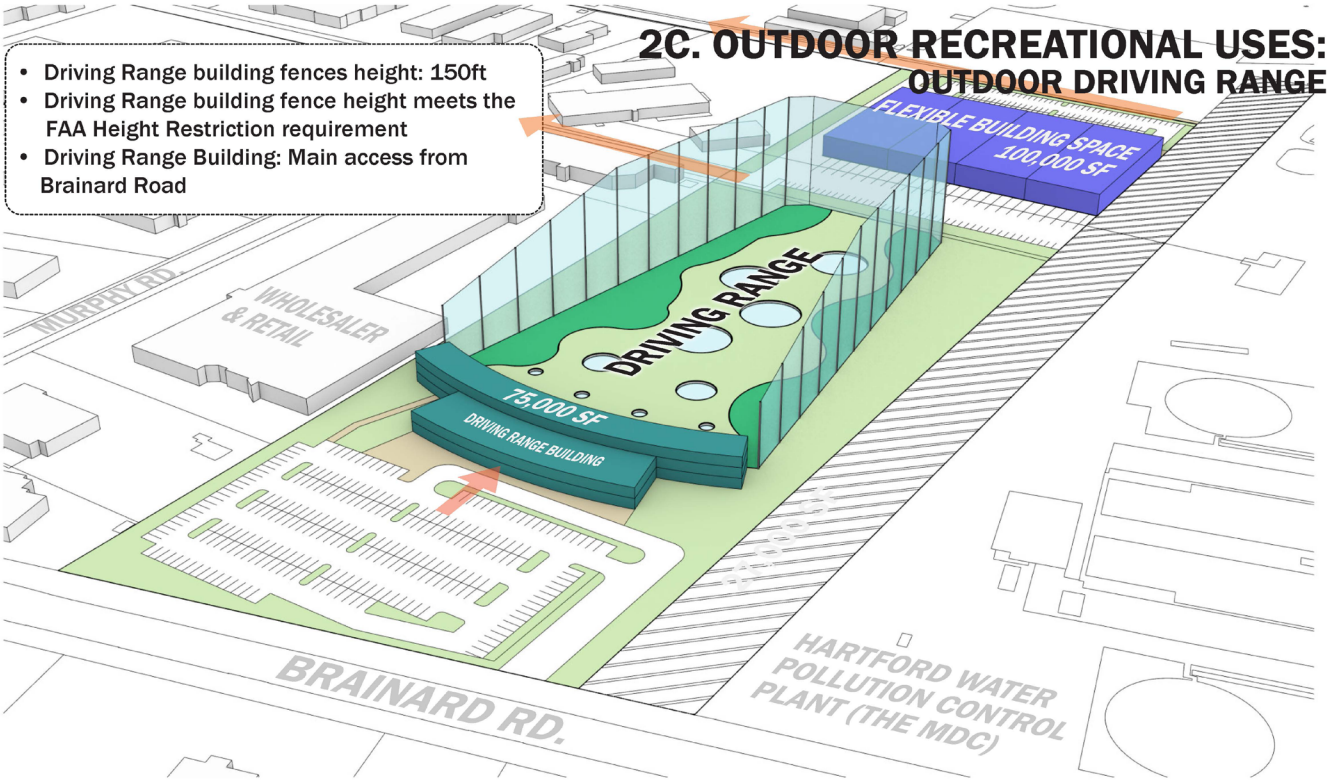
Topgolf

Driving Range overview:
- A golf driving range game
- Total acreage of 12-15 acres depending on efficiency of layout



As noted previously, redevelopment of the crosswind runway while maintaining airport operations at Runway 2-20, requires all development to meet FAA Height Restriction requirements. The driving range building fences could be capped at 150 ft to ensure FAA compliance.

Figure 89: Option 2B Outdoor Driving Range



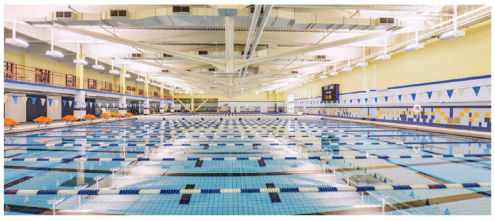
Development Option 2D encompasses a combination of an indoor sports complex and an indoor event venue. Located beside each other, the indoor sports complex could be slightly larger to accommodate various recreational amenities. The proximity of these two uses could create a hub of activity at the Brainard site, bringing visitors to stay for a series of events. The separate entrances, however, would reduce congestion in the case of simultaneous usage.

Figure 90: Option 2D Overiew

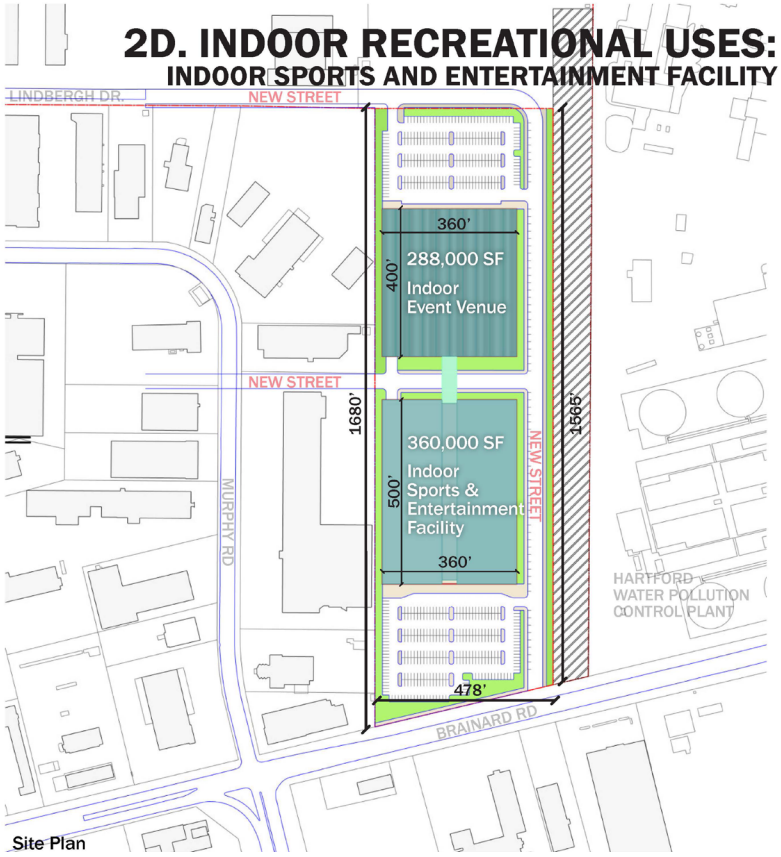
Total Development Program: 648,000 SF
- Indoor Sports Complex: 360,000 SF
- Indoor Event Venue: 288,000 SF

Total Parking spaces: 650

Assumptions:
- 1 Parking Space per 1,000 SF



Chelsea Piers, Stamford, CT



Site Plan

Figure 91: Option 2D Indoor Sports Complex

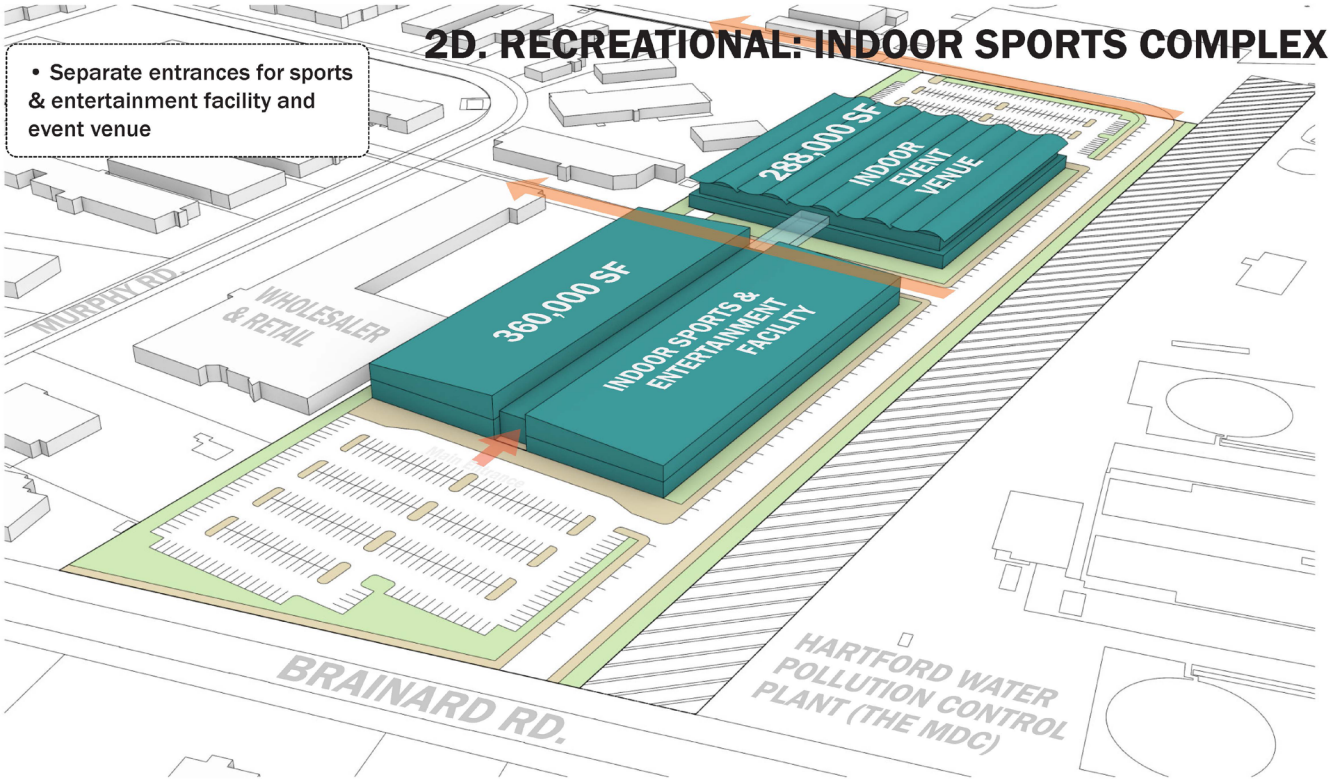


Figure 92: View of Brainard Road in South Meadows Neighborhood

13

Option #3 and #4: Airport Closure

13.0 OPTION #3 AND #4: AIRPORT CLOSURE

13.1 INTRODUCTION

In the case of Option #3, airport closure, the following section identifies potential alternative uses for the site. The two uses analyzed in this section are: (3) primarily industrial uses with accessory office and retail uses developed on the site and (4) primarily residential but also including office, retail, industrial, and recreation uses.

13.2 OPTION 3: INDUSTRIAL WITH RECREATIONAL

The following renderings demonstrate a potential street and block plan, as well as a site plan for an industrial development. This development would total 2.6 million SF on a 204-acre site, and include 2,360,000 SF of industrial space, 140,000 SF of office space, and 100,000 SF of retail space.

Figure 93: Site Overview

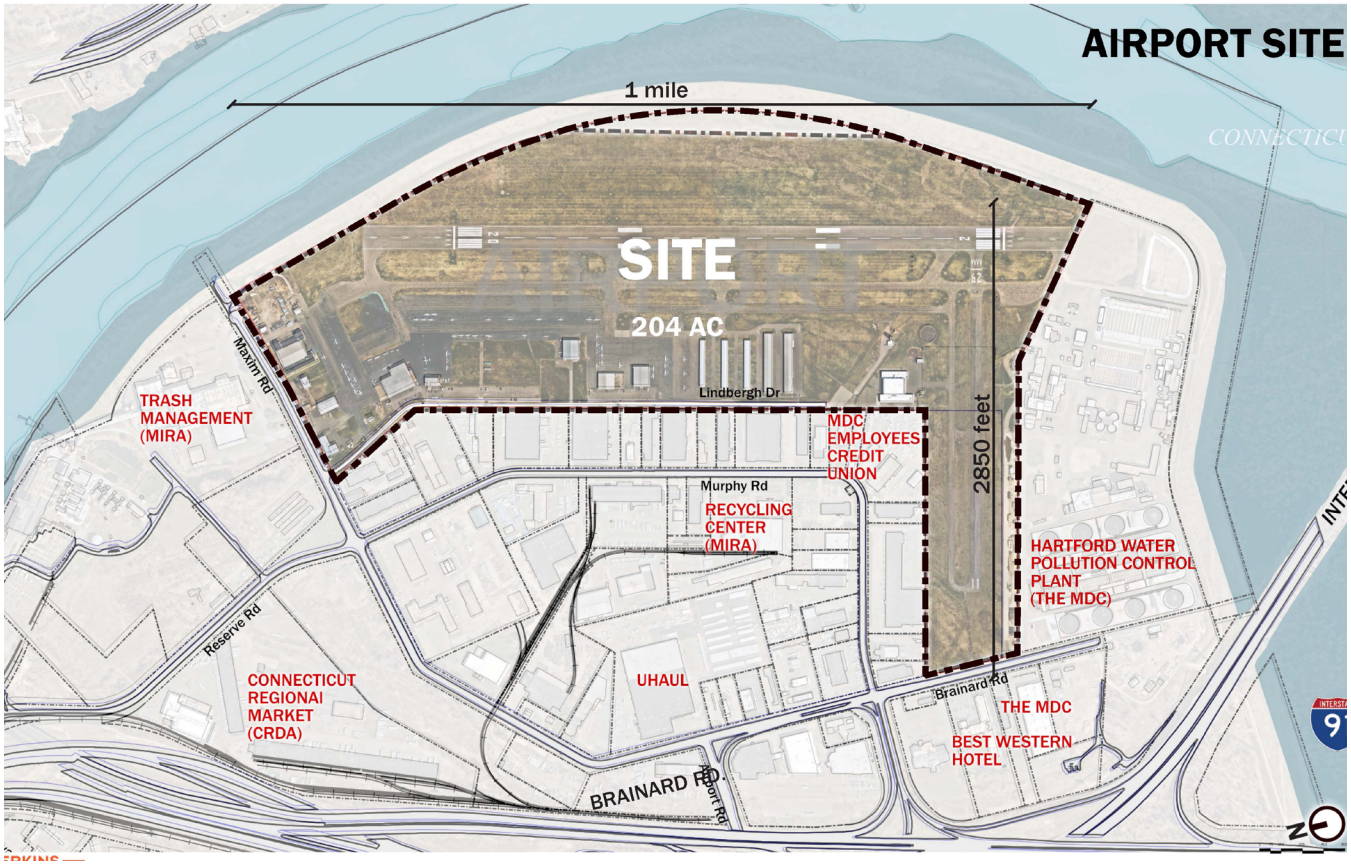


Figure 94: Industrial Development Street and Block Plan

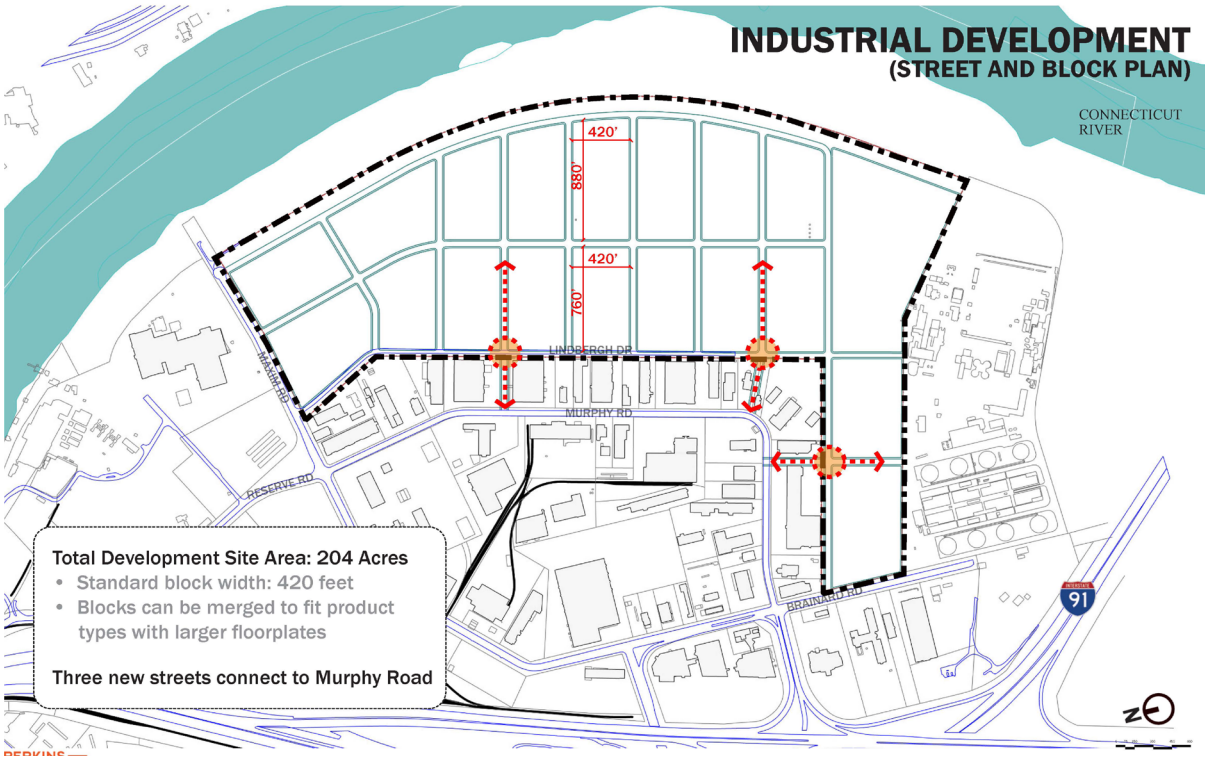
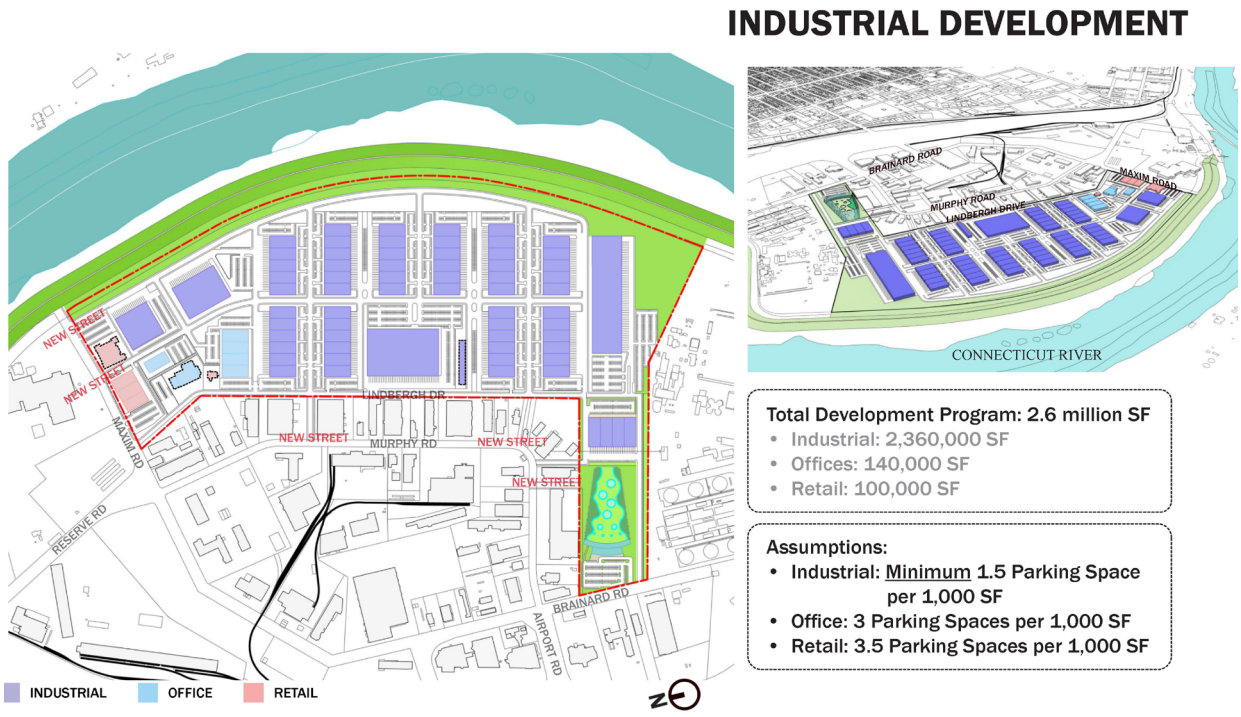


Figure 95: Industrial Development Street and Block Plan



13.3 OPTION 4: RESIDENTIAL WITH RECREATIONAL

The design for a residential neighborhood at the Hartford-Brainard site is characterized by four neighborhoods, which would be constructed in a phased approach over time. Three new streets would allow for greater access circulation in the area. In this Option Neighborhoods A-C would be a mix of lower and higher-density residential units, and the crosswind runway could be developed for retail uses.

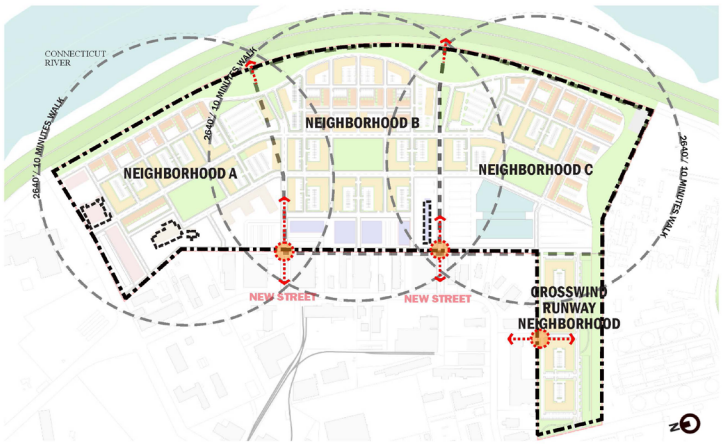
In this option, the neighborhood would house a total of 2,721 residential dwelling units, and include amenities, such as retail, recreational, public, and industrial uses.

Figure 96: Option 4 Overview

DEVELOPMENT SUMMARY

- Total Development GFA: 4.2 million SF
- Total DU: 3,256
- Retail - 105,600 sqft
- Recreational - 255,000 sqft
- Public - 169,000 sqft
- Industrial - 162,000 sqft

- Total Development Site Area: 204 Acres
- Density: 16 DU/AC (Gross)
- Minimum 1.5 Parking Space per 1,000 SF



SITE ORGANISATIONAL PRINCIPLES

- Entire site is organized into four neighborhoods
- Each neighborhoods is encompassed within a ten minute walk
- Transitional areas along east side of Lindbergh for communal, light industrial uses
- Each neighborhood is focused on a neighborhood park
- Transitional new greenway along the bottom of the levee with two locations to access the top of the levee at two 'lookout' points.
- Two new streets provide access into the neighborhoods from Lindbergh and provide public access to the new greenway and the riverfront

Figure 97: Option 4 Site Plan

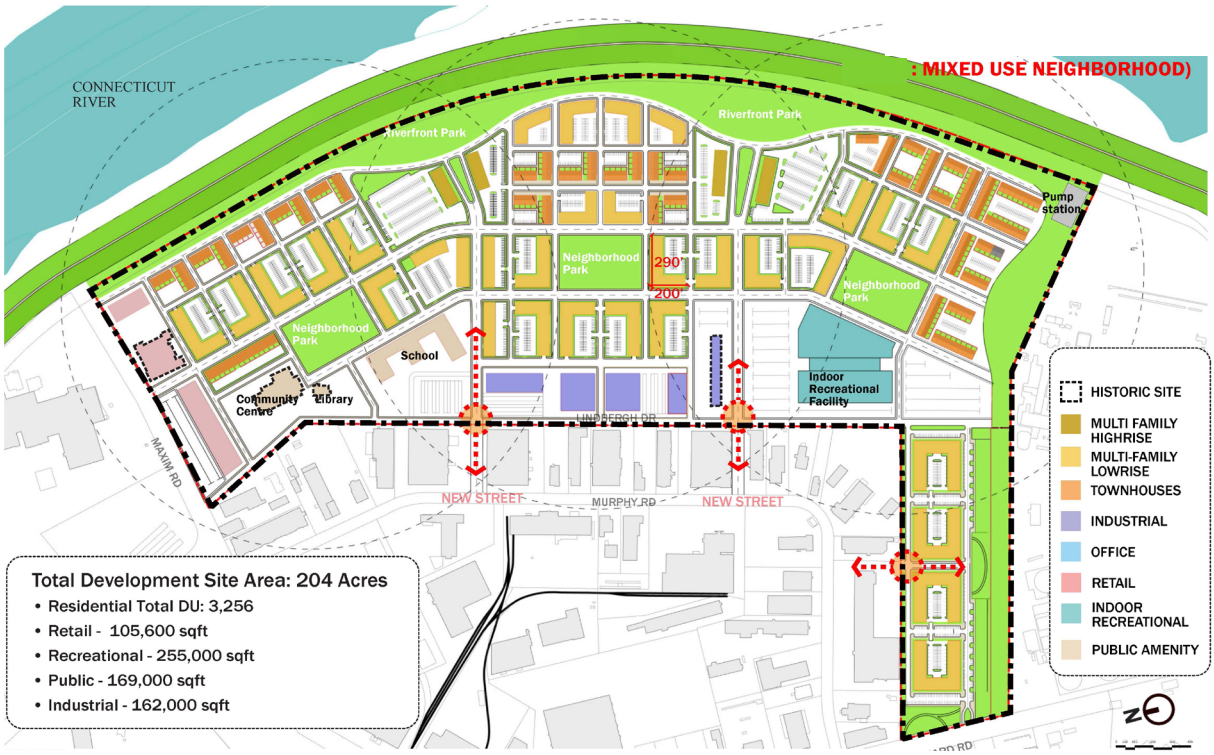
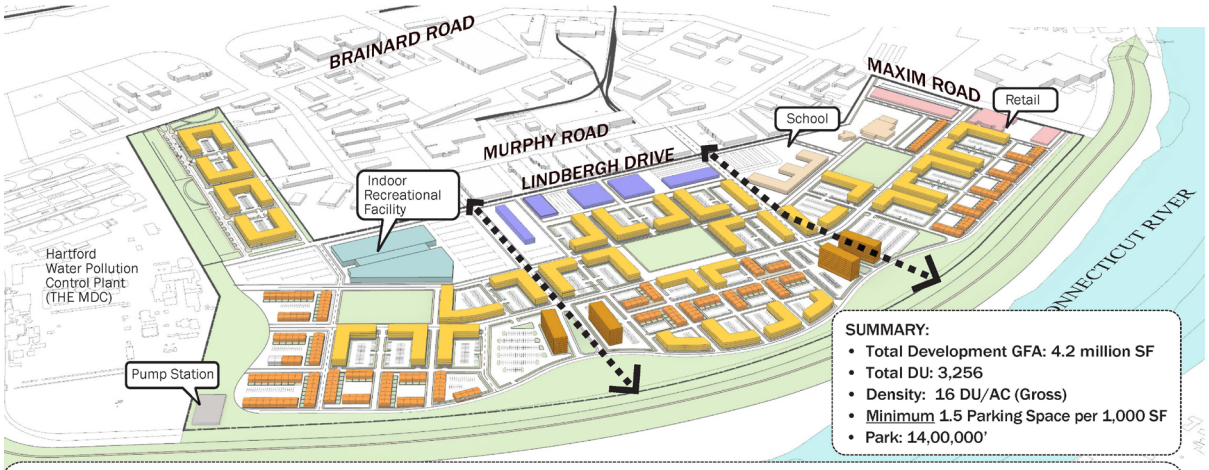


Figure 98: Option 4 Summary



DEVELOPMENT SUMMARY

	Block Size	Acres	Site Coverage	Multi-Family Lowrise	Multi-Family Highrise	Townhouses	Retail	Recreational	Public	Industrial	Office	Total GFA	Unit Count	
Neighborhood A	1,621,507	38	N/A	567,360	104,000	183,000	105,600	-	169,000	-	-	1,128,960	732	-
Neighborhood B	1,302,984	30	N/A	1,038,138	236,160	162,000	-	-	-	162,000	-	1,578,300	1,328	-
Neighborhood C	1,375,258	32	N/A	423,240	132,160	315,000	-	255,000	-	-	-	870,400	660	-
Crosswind Runway	775446	18	N/A	533,000	-	144,000	-	-	-	-	-	677,000	535	-
TOTAL	5,075,195	117		2,561,738	472,320	804,000	105,600	255,000	169,000	162,000	-	4,254,660	3,256	
Percentage				56%	11%	19%	2%	6%	4%	4%	0%			
DU/AC (GROSS)													16.0	
DU/AC (NET)													27.8	

Figure 99: View of Aircraft at Hartford-Brainard Airport

14

Final Recommendation

14.0 FINAL RECOMMENDATION

14.1 INTRODUCTION

The Public Act No. 22-118 Section 426 mandates the CT Department of Economic and Community Development (DECD) to scrutinize the benefits and opportunity costs of the current and alternative uses of the Hartford-Brainard Airport (HFD) property. DECD has thereby assigned BFJ Planning (BFJ) to head this study, and QED Airport & Aviation Consultants, Tighe & Bond, and HR&A Advisors (HR&A) have been enrolled as subconsultants to support an in-depth analysis to determine the optimal use for the Hartford-Brainard Airport Property if it ceases its operations as an airport.

In navigating the future of HFD, several factors were considered in the scenario development:

1. Economic Viability: Each scenario should be subjected to a cost-benefit analysis, considering both direct and indirect impacts on the local and state economy.
2. Environmental Issue: Site environmental issues are critical to the evaluation, including potential pollution from surrounding brownfield sites directly to the north and a sewage treatment plant to the south of the site.
3. Community Context: the community context of the Airport is also critical to the evaluation of the scenarios. It is a relatively isolated site, cut off from adjacent neighborhoods by I-91 and a freight rail line.
4. Public Infrastructure and Accessibility: Development should prioritize connectivity, making the area easily accessible to both residents and businesses.
5. Aviation Role: HFD is an active airport and supports several on-site tenants that rely on the facility to support their business and public service functions.

It's essential to strike a balance between economic growth, environmental stewardship, transportation linkages, and community welfare when determining HFD's future trajectory.

14.2 POTENTIAL REDEVELOPMENT SCENARIOS

The assessment of the economic and fiscal benefits of four potential future scenarios for HFD considers the impacts of both continued operations as an airport and the potential redevelopment of the Airport for repositioning purposes. This analysis aims to determine the economic benefits of jobs, labor income, and economic output for Hartford, the Capital Region Council of Governments (CRCOG) region, and the state of Connecticut. Additionally, it assesses the fiscal benefits that would accrue to the City of Hartford and the State of Connecticut. This assessment aims to provide stakeholders with a comprehensive understanding of the potential economic and fiscal implications associated with each of these scenarios, ultimately guiding decision-making processes regarding the future of the Hartford-Brainard Airport and its impact on the region and the state of Connecticut.

Each of the four development options offers distinct opportunities and challenges. To ensure the successful transformation of the Hartford-Brainard Airport area, it is crucial to carefully plan and consider various factors, including prevailing market conditions, environmental remediation requirements, and governmental regulations.

The four repositioning scenarios for the Hartford-Brainard Airport (HFD) that were examined are as follows:

- **Scenario 1:** The Airport remains open with limited new development of aviation uses. This scenario presumes the Airport remains open and any development is related to aviation uses. This includes a new air traffic control tower near the intersection of the crosswind runway and main runway, an extension of the main runway to 5,000 feet to meet aircraft operational requirements, additional hangars, and the development of 94,000 SF of aviation uses, including 29,000 SF of new hangar space. All existing ongoing airport operations will continue to occur.

- **Scenario 2:** Closure of Runway 11-29 and development of industrial uses. This scenario assumes the crosswind Runway 11-29 is closed and approximately 18 acres of HFD is made available for redevelopment. This scenario assumes the development of two 100,000 SF single-story industrial buildings that could support warehouses, manufacturing, research and development facilities, and a 20,000 SF accessory retail program off Brainard Road. Additionally, all on-airport development of aviation-related uses that occurs in Scenario 1 is assumed to occur in Scenario 2, and all existing ongoing airport operations will continue to occur.
- **Scenario 3:** Closure of the Airport and redevelopment with primarily industrial buildings with accessory office and retail uses. This scenario includes the development of the 204-acre Airport with more than 2.6 million SF of industrial development along with 140,000 SF of office to support industrial spaces and 100,000 SF of accessory retail oriented on Maxim Road. Airport tenants will relocate to area airports, which have the capacity to absorb the repositioned aircraft. Some aircraft owners may sell their aircraft to in- or out-of-state buyers, and some may relocate to out-of-state airports.
- **Scenario 4:** Closure of Airport and redevelopment with mixed-use development including residential, office, retail, industrial, and recreation uses. This scenario includes the development of the 204-acre Airport with more than 2,700 rental housing units of different typologies, 105,000 SF of retail, 262,000 SF of industrial/flex space, 255,000 SF of indoor recreation, and 75,000 SF of outdoor recreation use. In addition, this Scenario includes a new school building, community center, and library to serve this new neighborhood. Costs associated with these public facilities are not included in this analysis. Existing Airport tenants will experience the same outcome as Scenario 3.

In the case of the repositioning scenarios that involve the closure and redevelopment of a part or the entirety of the Airport, specifically Scenarios 2, 3, and 4, it's important to note that all programs outlined in these scenarios are purely illustrative. Their purpose is to serve as "test-fits" designed to determine the buildable capacity of these sites. These scenarios are not intended to propose a final master plan for the site. Instead, they are meant to provide a starting point, and it is expected that a private developer, in collaboration with relevant stakeholders, would explore various configurations and options when considering the redevelopment of the area.

Furthermore, it's crucial to recognize that the redevelopment and stabilization timelines will differ significantly among these scenarios. Scenarios 1 and 2 are likely to require a substantially shorter period for planning, construction, and the absorption of users, compared to Scenarios 3 and 4, which envision the full buildout of the 204-acre site. As a result, the City, region, and State will experience the one-time economic and fiscal impacts of development over varying timelines depending on the chosen scenario. Additionally, each scenario will have a different length of time before reaching the stabilizing annual recurring benefits associated with the full buildout.

These variations in timelines and impacts underscore the need for careful consideration and strategic planning when evaluating the potential repositioning of the Hartford-Brainard Airport site. Ultimately, the choice of scenario will have significant implications for economic and fiscal outcomes, and it should align with the broader goals and priorities of the community and the region.

14.3 ENVIRONMENTAL CONSIDERATIONS

The Study undertook a rigorous Environmental Due Diligence Assessment to evaluate the environmental risks, potential impacts, and mitigation strategies to analyze the potential of future development. If airport closure is considered, the FAA would need to review the environmental assessments. The initial Phase I Environmental Site Assessment (ESA), updated in 2012, revealed significant environmental conditions and areas of concern. The ESA uncovered numerous potential hazards, specifically five Recognized Environmental Conditions (RECs) and twenty-three Areas of Concern (AOCs)., prompting a more detailed Phase II/III ESA. This deeper analysis exposed release areas with contaminants above regulatory safety criteria.

Environmental Concerns:

- Addressing Recognized Environmental Conditions (5 RECs) and Areas of Concern (23 AOCs).
- Implementing remedial actions based on Phase II/III ESA findings.
- Consulting with environmental legal counsel due to the Connecticut Property Transfer Act.
- Contaminants in soil and groundwater, especially PFAS, need to be addressed.

Groundwater Analysis & Strategy:

- Monitoring and potentially remediating emerging contaminants like PFAS.
- Establishing an Environmental Use Restriction for areas below the high water table.

Flood Protection System:

- Monitoring the Hartford Flood Protection System's health and improvements.
- Being aware of potential risks, including levee breaches, pumping station failures, and levee overtopping.
- Ensuring compliance with the U.S. Army Corps of Engineers regulations on modifications to the levee or adjacent areas.
- Monitoring the North and South Meadows Dike Toe Drain Replacement Project, especially concerning the Clark Dike's structural enhancements.

Environmental Justice:

- Prioritizing community engagement, especially with vulnerable populations within the environmental justice census tract.
- Ensuring equitable and environmentally sound development.

Regulatory Oversight:

- Adhering to guidelines set by federal and state agencies, including FAA and CT DEEP.

For Scenarios 1 and 2, the environmental sub-consultant's preliminary Opinion of Probable Cost (OPC) for remediation, formulated from historical data and recent bids, calls for an estimated $2 million for cleanup. This figure accounts for various contingencies but excludes several critical expenses, including a comprehensive Phase III Environmental Site Assessment (ESA), demolition, hazardous material abatement, and any unforeseen remediation costs stemming from future regulatory changes, notably concerning PFAS (Per- and polyfluoroalkyl substances). Beyond remediation, the site's physical and geological peculiarities further complicate development.

For Scenarios 3 and 4, In order to preparing the HFD site necessitates an investment of over $45 million, designated for demolishing existing infrastructure, treating contaminated soils, and constructing new facilities, inclusive of a functional road and park system. The terrain demands specialized construction methods due to soil and water table conditions, significantly impacting cost. Particularly, buildings in Scenarios 4 and 3 will require deep foundational support systems, incurring additional expenses ranging from $9 to $27 per GSF or $35 per GSF, ensuring structural integrity in response to the area's environmental challenges.

14.4 REGULATORY CONSIDERATIONS

The procedure of closing an airport, especially one with the stature and operational scope of Hartford-Brainard Airport (HFD), is a multifaceted process, demanding extensive collaborative efforts among various stakeholders. These entities range from local to federal authorities, with significant emphasis on the FAA's role. The FAA typically champions the continued operation of airports, underlining their strategic importance in supporting regional and national economic stability and logistical networks. The decision to shut down an airport is far from straightforward, entailing a labyrinth of regulatory, legal, and contractual channels. For instance, any closure proposition must convincingly justify the move, overcoming the FAA's general resistance based on their mandate to preserve the national airport network's integrity.

Each closure option for the Hartford Brainard Airport carries its own set of distinct challenges and benefits. These options have significant implications for costs, 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 deciding if a closure of the Airport is warranted.

Option 1: Wait Out Grant Obligations until 2035

Option 1 proposes a strategy to wait until 2035, after all current grant obligations are met, to proceed with the Airport's closure. This approach involves immediately ceasing to accept new grants, as these would extend the closure period, and notifying the Federal Aviation Administration (FAA) within 30 days, assuming no perpetual operational requirements exist. During the waiting period, the Airport must operate without FAA funding, adhering strictly to federal regulations and policies to avoid liabilities, especially regarding safety and potential accidents. This could mean significant maintenance costs and the possibility of increased operational subsidies due to decreased business activities.

Despite these challenges, the strategy offers the advantage of greater autonomy, eliminating the need for federal oversight and allowing decisions that align more closely with local community needs. This independence facilitates strategic, context-specific planning for the Airport's future, including repurposing land and assets post-closure. However, this route demands a thorough assessment to weigh the financial and legal responsibilities against the benefits of self-governance and the potential for tailored local development post-2035.

Option 2: Apply to FAA for Closure

Option 2 involves seeking direct permission from the FAA for an early airport closure, arguing that this action would result in a net benefit for civil aviation. The strategy necessitates a rigorous application process, providing compelling evidence and rationale due to the FAA's strict criteria for closures and expected opposition from aviation industry groups like the National Business Aviation Association and the Aircraft Owners and Pilots Association. These entities may undertake legal actions to prevent the closure, further complicating the process.

The FAA stipulates specific conditions for early closure, including financial requisites concerning the unamortized value of existing grants and an environmental assessment for repurposing the airport land, potentially extending the closure timeline and increasing costs. However, these costs for environmental assessments are grant-eligible and exempt from repayment upon closure approval. One significant advantage of Option 2 is timing flexibility, as the application for closure can begin anytime, allowing for strategic alignment with other initiatives or adapting to new circumstances. While this option is riddled with potential hurdles, including a high rejection probability, legal battles, and additional costs, choosing a suitable time for application is a critical consideration. Pursuing this route requires balancing its timing advantage against the multi-faceted challenges inherent in this complex closure process.

Option 3: Secure Passage of Federal Legislation

Option 3 proposes a strategic approach to closing the Airport by seeking the passage of federal legislation. This action involves lobbying for an act of Congress to instruct the FAA to authorize the Airport's closure. A significant challenge lies in garnering adequate support from Congress members, demanding extensive lobbying, discussions, and negotiations to accommodate various stakeholders' and legislators' interests. This option also mandates preparing an environmental assessment and addressing the unamortized value of existing grants, similar to Option 2. Moreover, potential legal challenges may arise, emphasizing the importance of fostering a robust relationship with state representatives in Congress.

Despite these challenges, Option 3 presents several advantages. It may allow bypassing some or all FAA requirements regarding airport sales, simplifying the closure process. This strategy also provides flexibility in timing, as legislative efforts can commence at any point, ensuring alignment with ideal timelines and adaptability to evolving circumstances. In the past two decades, only two federally obligated airports have closed before their grant expiration, each necessitating federal legislation. This historical precedent indicates that if Option 2 is unfeasible or encounters setbacks, Option 3 might emerge as the most viable strategy to pursue the Airport's closure. Balancing this option's challenges and benefits is essential for making an informed decision about the Airport's future.

Option 4: Destroy Runways without Notice

Option 4 proposes a radical approach to the Airport's closure by deliberately crippling its operational capabilities by destroying runways without prior notice. This extreme strategy, while offering immediate execution, comes with significant risks and challenges. The immediate financial cost of destroying and potentially repairing the runways is considerable. More so, this approach will likely trigger severe legal and financial consequences due to its illegal nature, including sanctions, fines, and lawsuits from both the FAA and airport tenants, posing a serious financial and regulatory burden.

Moreover, the strategy substantially harms public perception due to its irresponsible and drastic nature. The loss of credibility and trust from the public and stakeholders, accompanied by negative publicity, could extend its impact beyond the airport issue, tarnishing the reputation of associated parties and individuals. This could have lasting effects on the current and future endeavors of the involved entities. The profound potential for legal repercussions, financial burdens, and extensive damage to public relations and stakeholder trust makes this a highly risky strategy. It demands careful consideration of its immediate and long-term potential impacts on all involved parties, the broader community, and the aviation industry. The decision to proceed with such a drastic measure must critically evaluate these risks against any perceived strategic advantages.

STEPS TO PHYSICAL AIRPORT CLOSURE

The following are the steps for Option 2, which presents a comprehensive procedure for the CAA to follow in closing the Hartford-Brainard Airport, with FAA approval and release from all associated obligations. This procedure emphasizes regulatory compliance, detailed financial and environmental considerations, and the strategic handling of assets and obligations. Here's a breakdown and analysis of the steps involved:

1. **Updating and Submitting the Exhibit A Property Map:** This initial step ensures that all areas of obligation are recognized and included in the appraisal process. Updating the map is crucial as it serves as a reference for the property's current status and obligations.
2. **Property Appraisal and Fair Market Value:** Obtaining a fair market value based on the property's highest and best use is crucial. It ensures the FAA receives due compensation, reflecting the property's real worth. The requirement for re-appraisal, if the sale is delayed, ensures that the most current property value is considered.
3. **Relocation Plan for Tenants:** This step acknowledges the impact of closure on existing tenants, necessitating a clear strategy for their relocation. It underscores the CAA's responsibility in mitigating the disruption caused by the closure.
4. **Property Transfer Options:** This section outlines the CAA's options for transferring the property through direct fund transfer based on the appraised value or through a bid process. The detailed requirements for the bid advertisement and the FAA's role in reviewing the offers ensure transparency and fairness in the process.
5. **Transferring Assets and Repayment:** This complex step involves several financial considerations, including handling salvageable equipment, compensating based on fair market value, and managing unamortized grants. Coordinating with the FAA ensures compliance with federal laws during fund transfers.
6. **Environmental Requirements:** Compliance with NEPA is vital, necessitating at least an Environmental Assessment (EA) or potentially an EIS. This step reflects the federal government's emphasis on environmental considerations during significant changes like airport closures.
7. **Public Notice and Comment Period:** The inclusion of a public notice and comment period reflects a commitment to transparency and public involvement, allowing for community input before final decisions are made.
8. **Release Agreement:** This formal document signifies the completion of all requirements, allowing the property sale to proceed. It is a crucial legal instrument that ensures all parties are aware of the obligations and rights conferred upon them with the closure.
9. **Final Notifications and Closure:** Filing the necessary forms and making formal announcements, including the notice in the Federal Register, are procedural finalizations that make the closure official. It underscores the importance of regulatory compliance up to the final stages.

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 example is the last known publicly-owned, grant-obligated Airport to close successfully for repurposing 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.

Scenario 2 would require the cessation of Runway 11-29 operations in order to redevelop the 18 acre parcel. the closure of Runway 11-29 has been under consideration due to its limited utility and the low benefit/cost ratio of keeping it operational. By discontinuing investments in this runway, resources could be reallocated, operational inefficiencies reduced, and the land repurposed for more profitable uses.

Scenarios 3 and 4 would require full closure of the Airport and could take several years through the FAA process. The economic analysis of these scenarios uses a timeline of ten years for full closure to be completed and economic benefits to begin. However, the timeline from closure decision to tangible redevelopment is a long-term undertaking, often unfolding over several years due to the complexities of planning, stakeholder engagement, legal formalities, and actual construction work. The nature of the final developed space also introduces variables in market absorption rates, with industrial spaces potentially reaching stability faster within the market compared to residential sectors, owing to prevailing market forces.

Moreover, unique legal elements, like the stipulations within HFD's 1959 Airport Deed, introduce additional nuances. This deed grants the City of Hartford preemptive purchasing rights, adding layers to the already complex decision-making matrix, thereby extending the timeline and necessitating even more comprehensive planning and coordination among involved parties.

14.5 ECONOMIC CONSIDERATIONS

The economic subconsultant conducted a comprehensive assessment of four potential future scenarios for Hartford-Brainard Airport, measuring their economic and fiscal outcomes. The analysis considered the airport's possible continued operation or redevelopment, using job creation, labor income, and economic output as critical evaluative metrics. Each scenario presented distinct implications for Hartford, the CRCOG region, and the state of Connecticut. The fiscal benefits, depending on the scenario, showed considerable variation, from less than $1 million to $63 million in one-time returns and $6 to $80 million in annual recurring benefits. While Scenarios 1 and 2 propose limited changes and maintain some airport functions, offering stable economic advantages with minimal investment risks, Scenarios 3 and 4 suggest extensive redevelopment with significant upfront costs on an uncertain timeline for the development.

Scenario 3, emphasizing industrial use, anticipates over $502 million in annual economic activity, largely driven by job creation, despite high initial investment. Scenario 4, proposing a vast residential development, predicts substantial one-time economic impacts but faces long-term market absorption issues, partly due to regional demographic trends. The analysis recommends careful consideration of each plan, balancing immediate costs against future fiscal returns and market realities. Particularly, the ambitious redevelopment in Scenarios 3 and 4 would necessitate a phased, multi-decade strategy responsive to ongoing economic and demographic shifts to ensure the area's sustainable growth and revitalization.

The Residual Land Value (RLV) analysis as part of a broader highest and best-use study for HFD is crucial for evaluating the feasibility of various proposed repositioning scenarios, focused on the comparative value of different types of vertical developments, excluding the substantial horizontal infrastructure costs. Despite exploring a range of uses, from multifamily residences to industrial spaces and recreation facilities, the RLV analysis concluded that none of the repositioning scenarios were financially feasible without public subsidies due to high preparatory costs. Particularly, scenarios heavily oriented toward residential programs yielded less value compared to those prioritizing higher-value industrial uses.

The findings underscore that significant public sector subsidies would be necessary to offset negative RLVs, implicating potential trade-offs with other regional investment opportunities. Moreover, any redevelopment would face a prolonged market absorption period, necessitating a multi-phased approach over several years, irrespective of the scenario pursued. Smaller, more manageable development programs, especially those aligned with regional demand and offering proximity advantages to specific industries, appear more viable.

The analysis outlines a phased approach to the redevelopment of Hartford-Brainard Airport, adjusting for realistic timelines and market absorption. It adopts a strategic allocation of costs and benefits over each developmental phase, spanning four years until stable occupancy is achieved. The initial phase, "Phase 0," incurs significant one-time costs, including public subsidies for essential groundwork. The plan foresees specific absorption rates for industrial and residential spaces, gauged from historical data, to ensure the development aligns with market demand.

In a 30-year comparative analysis of the repositioning scenarios, Scenario 2 shows the most robust internal rate of return (IRR) at 57%, attributed to lower initial costs and steady tax revenues. Scenarios 3 and 4, while presenting substantial public costs, forecast larger benefits, with Scenario 3 leading in net present value (NPV) due to substantial ongoing fiscal gains. Scenario 4, despite its ambitious development plan, lags due to higher upfront costs and lower recurring benefits.

Interestingly, delaying the airport's closure significantly impacts the scenarios' financial viability. If Scenarios 3 and 4 starts in Year 10, Scenario 3 maintains a positive, albeit reduced, IRR and NPV, while Scenario 4 turns negative, underscoring the financial models' sensitivity to timing. This insight is crucial, stressing the importance of strategic timing in harnessing the full potential of the developmental plans.

14.6 HIGHEST AND BEST USE OPTION

Analyzing the impacts of potential repositioning scenarios for Airport property involves a comprehensive evaluation beyond assessing the operational impact. Crucially, the economic feasibility of each scenario, including development costs and regional needs, is central to this assessment. This evaluation includes the expenses related to environmental remediation and those directly tied to the Airport's closure. The Internal Rate of Return (IRR) was used to offer a deeper economic insight, a standard financial metric that helps gauge an investment's possible profitability. While a higher IRR generally indicates higher potential returns, it's a relative metric and doesn't provide a precise dollar-based return value.

Further enhancing the financial analysis, the study incorporated the Net Present Value (NPV) analysis. By accounting for the time value of money, NPV assists in discerning the likely positive or negative returns on investment for each scenario. However, the accuracy of the calculations hinges on selecting an apt discount rate—a challenge in long-term evaluations. This analysis chose a 4% rate, mirroring public sector borrowing costs minus an inflation risk premium, considering all cash flows are represented in real terms. A project would be considered financially viable if its NPV is positive when using a discount rate reflecting the capital cost.

The returns on each reposition scenario were examined, weighing total benefits against costs and accounting for variables such as the IRR, NPV at a 4% discount rate, and a payback period based on a 30-year analysis frame.

Table 55: Return Metrics Over 30-Year Analysis Period

Scenario	Total Benefits	Total Costs	IRR	NPV @ 4.00%	Payback Period
Scenario 2	$92,200,000	($7,400,000)	57%	$43,400,000	5 Years
Scenario 3	$724,300,000	($70,800,000)	32%	$287,300,000	7 Years
Scenario 4	$1,175,200,000	($868,100,000)	5%	$27,000,000	24 Years

Table 56: Return Metrics Over 30-Year Analysis Period – Alternative Start Date for Full Closure Scenarios

Scenario	Project Start Date	IRR	NPV @ 4.00%	Payback Period
Scenario 2	Year 1	57%	$43,400,000	5 Years
Scenario 3	Year 10	32%	$96,800,000	17 Years
Scenario 4	Year 10	-7%	($91,200,000)	+30 Years*

** - Payback period beyond the 30-year analysis period.*

The analysis delves into the consequences of a hypothetical delay in airport closure under Scenarios 3 and 4, altering the start from Year 1 to Year 10. This delay precipitates distinct financial repercussions for each scenario. For Scenario 3, the IRR experiences a negligible decline of less than 1%, preserving much of its investment appeal. However, its NPV suffers, dropping from $287 million to $97 million, a two-thirds decrease that significantly undermines its long-term fiscal promise. However, Scenario 4 takes a more detrimental hit; its IRR plunges into negative territory at -7%, and the NPV collapses to negative $91 million, signaling financial infeasibility.

The postponement also affects the payback timelines. Specifically, the payback year for Scenario 3 is pushed to 17 years, a substantial extension within the 30-year analysis framework. In contrast, the return period for Scenario 4 exceeds the 30-year analysis boundary, marking it as an unsustainable investment option in the context of long-term financial planning and returns.

These financial insights, derived from rigorous evaluation, are compounded by the analysis of comprehensive environmental, economic, and regulatory assessments. Considering all these multifaceted considerations, Scenario 2 is the optimal choice primarily due to its exceptional Internal Rate of Return (IRR) at 57%, attributed to lower initial investment demands, especially in development subsidies, and a consistent increase in tax revenues. The endorsement is based on economic performance, particularly its high IRR and reasonable NPV, and bolstered by its alignment with broader strategic considerations, confirming Scenario 2 as the most prudent, beneficial, and sustainable investment pathway.

It is important to note that unpredictable long-term real estate market trends, potential complications arising from airport closure risks, and unforeseen delays due to environmental or other conditions are not accounted for. Assumptions regarding benefits and costs are based on conceptual development scenarios, which may evolve during actual implementation, affecting job creation and demographic compositions in unpredictable ways.

The endorsement is based on economic performance, particularly its high IRR and reasonable NPV, and bolstered by its alignment with broader strategic considerations of the legislation, confirming Scenario 2 as the most prudent, beneficial, and sustainable investment pathway.