

Appendix J

Valuation Analysis

Memorandum

To: **Frank Fish FAICP, Principal, BFJ Planning**
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From: HR&A Advisors, Inc.

Date: **October 25, 2023**

Re: Hartford-Brainard Airport Property Study: Valuation Analysis

Public Act No. 22-118 Section 426 requires the CT Department of Economic and Community Development (DECD) to evaluate the benefits and opportunity costs of the current and alternative uses of the Hartford-Brainard Airport (HFD) property.¹ DECD has engaged BFJ Planning (BFJ) to lead this study, and as subconsultant, HR&A Advisors (HR&A) was engaged to support a highest and best use analysis of the property if it's no longer operating as an airport. This highest and best use analysis is designed to take into consideration:

- Economic impacts of potential alternative uses to the State and to the region;
- Environmental or flood control considerations, including potential actions and resources needed to render the property environmentally developable; and
- Federal, state, or local governmental considerations, including regulatory hurdles, existing contractual obligations, as well as avenues used to eliminate such constraints and their related costs.

In addition, HR&A has studied the region's market demand for alternative uses including residential mixed-use, commercial, retail, recreation and industrial, and has developed this analysis to understand the potential feasibility of alternative uses at HFD.

This memo is organized into six sections:

1. **Key Findings** from this analysis informing the broader study's highest and best use analysis.
2. **Site Context** section that describes the site, restrictions on development by area and use, and other considerations related to development of alternative uses.
3. **Residual Land Value Analysis** provides a high-level explanation of the rationale for the use of the residual land value analysis and illustrates what readers can learn from the outputs of the analysis.
4. **Residual Land Value by Use** and key underwriting assumptions used for calculating residual land value by use and by alternative repositioning scenario.
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¹ [Public Act No. 22-118, Section 426 \(Effective July 1, 2022\)](#).

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6. **Residual Land Value by Repositioning** Scenario that includes a description of each repositioning scenario studied and its corresponding residual land value.
 7. **Conclusion** of the analysis highlighting overarching takeaways and next steps.

Key Findings

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.²
- **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

² 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.**

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.

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.

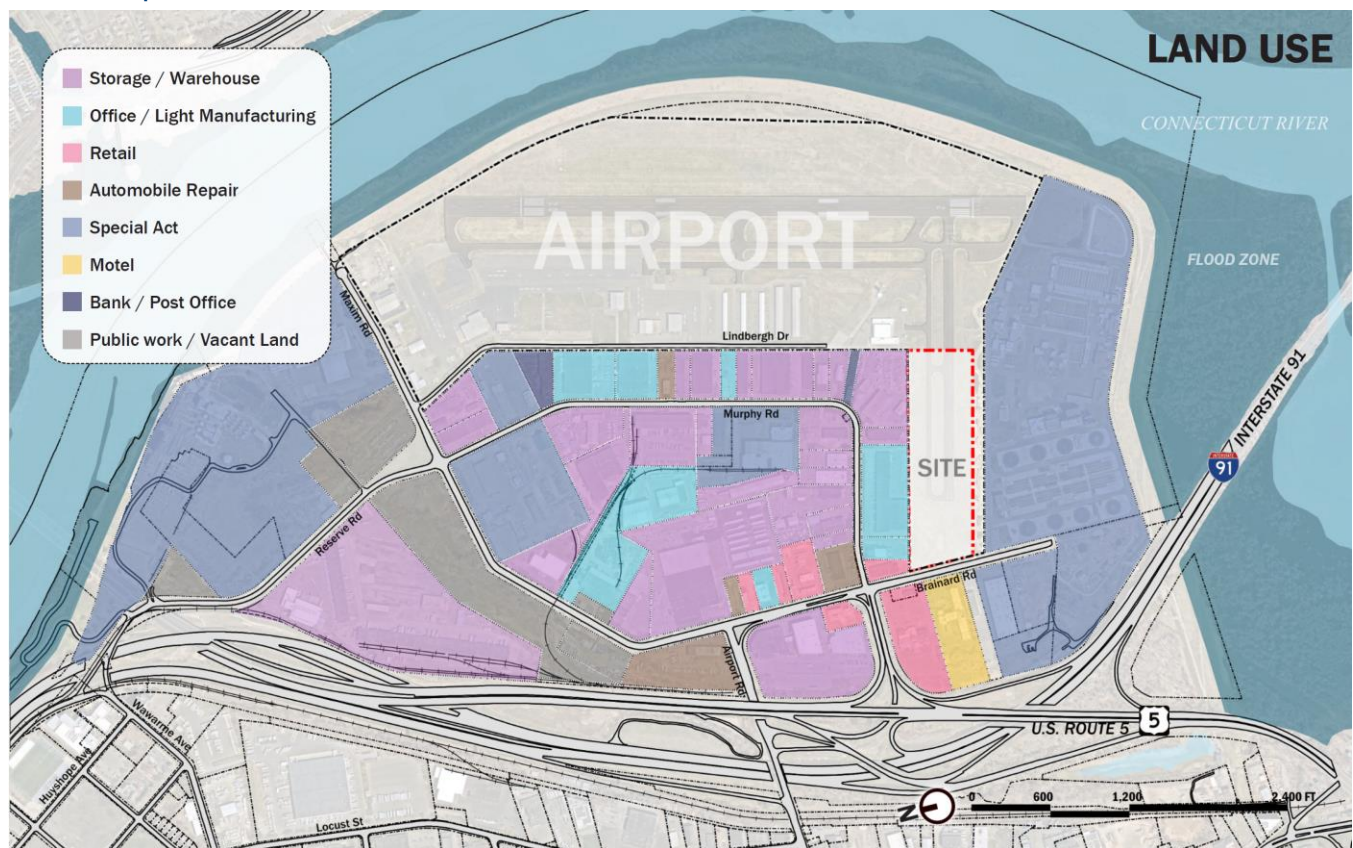
Findings from this analysis are one component of a highest and best use analysis of the airport that considers real estate development potential, environmental considerations, regulatory pathways, and economic

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.

Site Context

The subject of this analysis is the Hartford-Brainard Airport (HFD) a general aviation facility operated by the Connecticut Airport Authority (CAA) located three miles south of Hartford's central business district, within the South Meadows neighborhood, along the Connecticut River. HFD sits within an industrial park that is bounded by the river to the east and north, Interstate 91 (I-91) to the south, I-91 and U.S. Route 5 (Route 5) to the west and north. (See Figure 1.) Access to HFD and the surrounding industrial park is primarily via I-91 and Route 5, a pair of grade-separated highways that act as a barrier to the residential neighborhoods to the West. The airport is located off the Airport Road/Brainard Road exit, which leads directly to Maxim Road and Lindbergh Drive. Most of the airport's facilities and services are located along Lindbergh Drive, a two-lane road that runs north to south along the western edge of the airport before turning west and running parallel to the cross runway at the southern end of the airport.

FIGURE 1 | LAND USE OF HFD AND SURROUNDING INDUSTRIAL PARK



Source: Perkins Eastman

HFD aviation facilities are comprised of three runways—two paved and one grass—two helipads, and hanger and office spaces that house several active organizations. 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 Metropolitan District (MDC) main wastewater treatment facility.

For this exercise, we considered potential development on some or all the 204 acres comprising HFD. Though the airport and surrounding properties are currently zoned ID-1, we reviewed all uses consistent with a repositioning of the site, including those required as part of the state legislation.³

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: **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:

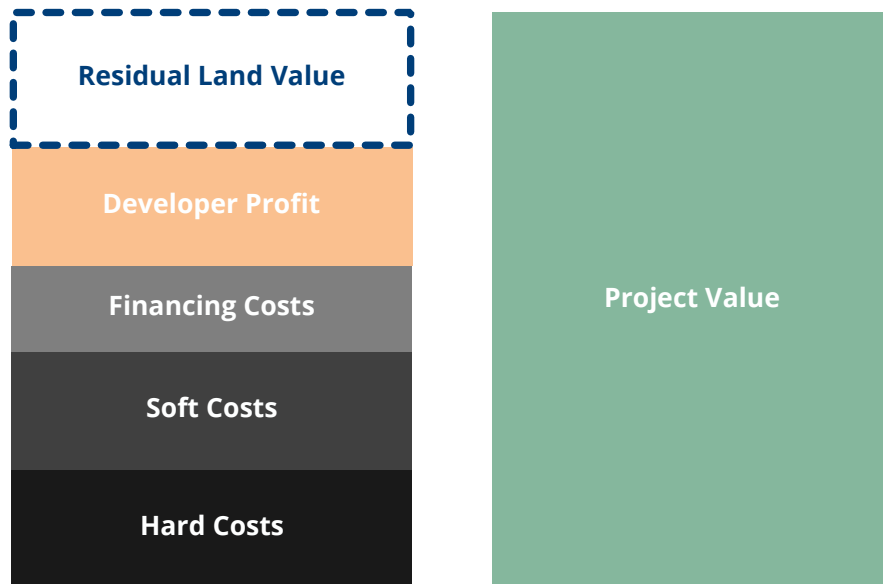
³ ID-1 provides for medium to heavy industry characterized by a minimum of noise, odor, glare, and pollution, and by moderate traffic. See: [City of Hartford Adopted Zoning](#) – August 5, 2020.

Residual Land Value by Repositioning Scenario.)

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 2.)

FIGURE 2 | CONCEPTUAL RESIDUAL LAND VALUE



$\text{Residual land value} = \text{project value} - (\text{development cost} + \text{financing costs} + \text{developer profit})$

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.⁴ 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

⁴ 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.

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.⁵ 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.

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.

Residual Land Value by 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 low-rise multifamily residential rental;
- Eight-story 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.⁶

Table 1 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.

⁵ In some cases, data analysis and expert interviews supplemented HR&A's and the consultant team's extensive experience in the regional market.

⁶ 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 1 | RESIDUAL LAND VALUE PSF OF VERTICAL DEVELOPMENT BY USE

	Townhome	8-Story Mid-rise	4-Story Low-rise	Industrial	Retail	Office	Indoor Recreation	Outdoor Recreation
Hard Cost	(\$173)	(\$401)	(\$288)	(\$124)	(\$257)	(\$226)	(\$154)	(\$186)
Soft Cost	(\$42)	(\$96)	(\$69)	(\$42)	(\$92)	(\$84)	(\$53)	(\$45)
Financing Cost	(\$16)	(\$37)	(\$27)	(\$12)	(\$24)	(\$21)	(\$14)	(\$17)
Total Cost	(\$231)	(\$534)	(\$383)	(\$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)	(\$185)	(\$68)	\$20	(\$215)	(\$149)	(\$114)	(\$99)

RLVs of the uses described above range from negative \$215 per SF for retail 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.⁷

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.

⁷ 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](#).

Residual Land Value 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

Table 2 below.

TABLE 2 | 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.

Source: Perkins Eastman

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 3 | 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 3 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.

Total horizontal costs range from \$5 million to \$55 million. (See: Table 4.) 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 4 | HORIZONTAL DEVELOPMENT COSTS BY SCENARIO

	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

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 5.) HR&A calculated the RLV based on the difference between the gross project value and the costs associated with development and sale.

TABLE 5 | 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)

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 \$511 million, or negative \$133 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.⁸ 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 City of Hartford (1,600 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.⁹

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 \$231 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 6 | 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

Table 6 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

⁸ CoStar, 2023.

⁹ 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), “

\$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.

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 7 below 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 50 basis points and average rents that are 10% greater than the current market with all other assumptions remaining equal – Scenario 4 has a negative RLV of \$342 million.

TABLE 7 | 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.

Conclusion

The outcome of this RLV analysis suggests that none of the repositioning scenarios are feasible as market rate development, primarily due to the extraordinary horizontal costs required to redevelop HFD. Redevelopment centered on higher value industrial uses such as technology, advanced manufacturing, and warehousing results in greater value than a mixed-use development centered on a substantial residential program. Even with a common level of public sector subsidy a residential mixed-use scenario would still result in a negative RLV.

Though negative RLVs can be mitigated with public subsidies in the form of direct grants, access to low-cost subsidized and/or forgivable financing, more favorable property tax assessments, tax abatements, or a combination of these, doing so at the HFD site would preclude the use of these resources in other parts of the region where the region is currently investing, including Downtown Hartford. This RLV analysis does not consider this opportunity cost.

Moreover, our market analysis also suggests that regardless of scenario and mix of uses, closure of the HFD site and dedication of 200-plus acres to repositioned uses will require a significant amount of time to absorb. Any such repositioning would likely comprise several phases over a multiyear development period for market demand to keep up with new deliveries. Whether considering the more than 2.3 million square feet of industrial development in Scenario 3 or the more than 2,700 housing units in Scenario 4, both uses would require absorption of the entire market study area's demand over a multiyear period. Regardless of the quality of product, ability to market the site, or catalytic effects of a well-planned initial phase, this is not realistic without an extended phasing plan.

When comparing industrial use-based Scenarios 2 and 3, a smaller program has several advantages. First, it represents a more manageable development program that can be delivered in either one or two phases. Second, it requires a lower level of site infrastructure investment. Third, it features uses that are aligned with uses that are in greater demand in the region. Fourth, by developing Runway 11-29 and keeping operations at HFD ongoing, the site can be positioned to serve aviation and aerospace industries that may find proximity to an FAA-authorized airport a benefit to locating there.

Findings from this analysis will be used with other analyses of the HFD site to inform a highest and best use analysis and recommendation for the future of HFD. RLVs of these potential repositioning scenarios will be included with a broader consideration of incremental economic and fiscal impacts resulting from their development and ongoing operations.

Appendix A | Vertical Development Underwriting Assumptions

Development Costs

Table A - 1 shows the total development cost per square foot by use, components of these total costs, and selected assumptions underlying these cost figures. Total development costs range from \$177 per GSF for industrial uses to \$534 per GSF for the development of eight-story mid-rise residential buildings. These presume a relatively standard design that can accommodate these types of development with a market-appropriate amount of space for common areas, mechanical rooms, etc.

Hard costs have been adapted from estimates developed by Marshall & Swift for various development typologies and confirmed through desktop research and discussions with market stakeholders. Parking costs have been provided by Tighe & Bond for surface parking and are shown on a per GSF of vertical development by use. Both costs include a 5% hard cost contingency. In addition, owing to the relatively high position of the water table at HFD, our team assumed that vertical development would require piles to anchor buildings to the bedrock beneath softer soil along the river for selected uses. For low- and mid-rise residential buildings in Scenario 4 this adds between \$9 and \$27 per GSF of hard costs. 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. Parking associated with these uses is assumed to cost approximately \$4,500 per space in total development costs, adding between \$5 and \$12 per GSF of development based on the use. Soft costs for all uses are assumed to be 20% of total hard costs with a 5% soft cost and tenant improvements contingency.

TABLE A - 1 | DEVELOPMENT COSTS

	Townhome	8-Story Mid-rise	4-Story Low-rise	Industrial	Retail	Office	Indoor Recreation	Outdoor Recreation
Construction (per GSF)								
Building Hard Cost	(\$168)	(\$395)	(\$282)	(\$112)	(\$231)	(\$200)	(\$142)	(\$173)
Parking Hard Cost	(\$5)	(\$5)	(\$5)	(\$5)	(\$11)	(\$11)	(\$4)	(\$12)
Tenant Improvements	-	-	-	(\$6)	(\$16)	(\$16)	(\$8)	-
Soft Cost	(\$42)	(\$96)	(\$69)	(\$42)	(\$92)	(\$84)	(\$53)	(\$45)
Financing Cost	(\$16)	(\$37)	(\$27)	(\$12)	(\$24)	(\$21)	(\$14)	(\$17)
Total Cost	(\$231)	(\$534)	(\$383)	(\$177)	(\$373)	(\$331)	(\$221)	(\$247)
Financing Assumptions								
Loan-to-Cost	65.0%	75.0%	75.0%	65.0%	65.0%	65.0%	65.0%	65.0%
Loan Term	24 mos	24 mos	24 mos	24 mos	24 mos	24 mos	24 mos	24 mos
Average Balance	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%
Interest Rate	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%
Loan Fees	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%

* - Does not include cost for piles, which are assumed to be \$35 per GSF of development for a share of industrial uses in Scenario 3 only.

Nationally commercial real estate (CRE) faces a set of unusual financing conditions that has stalled many projects. Namely, high interest rates and a lack of CRE lending broadly has led to financing costs that have been higher than seen over the past 10 to 15 years. For this analysis, we've assumed that the time needed to ready HFD for repositioning would likely result in most of these costs reverting to the longer-term average. Differences across loan-to-cost ratios and interest rates are reflective of the differences in current lending conditions for these uses according to CRE broker lending reports and discussions with market stakeholders and adjusted for HR&A's experience in real estate analysis in the region.

Development Value

The feasibility of vertical development by use at HFD is dependent on development value being greater than the associated costs of development. This financial analysis relies on the findings of the market scan and discussions with real estate market professionals active in the CROG region. While it reflects longer-term market conditions

in the region, some assumptions are underwritten assuming that the size of the development program is market supportable. For example, underwritten stabilized vacancy rates assume that a program would be advanced that can be absorbed by the market and would not sit empty on the site.

Table A - 2 provides high-level assumptions used to generate net operating income and development value for vertical development of each studied use at HFD.

Residential rental rates include:

- \$1.50 per NSF per month of townhome development or an average of \$4,050 per unit per month;
- \$3.10 per NSF per month for 8-story mid-rise development or an average of \$2,635 per unit per month; and
- \$2.80 per NSF per month for 4-story low-rise development or an average of \$2,380 per unit per month.

All residential uses are expected to generate 5% of gross rents in other income and assume a stabilized vacancy of 6% and operating expenses totaling 28% of Effective Gross Rent, inclusive of property taxes.

TABLE A - 2 | DEVELOPMENT VALUE

	Townhome	8-Story Mid-rise	4-Story Low-rise	Industrial	Retail	Office	Indoor Recreation	Outdoor Recreation
Hard Cost	(\$173)	(\$401)	(\$288)	(\$124)	(\$257)	(\$226)	(\$154)	(\$186)
Soft Cost	(\$42)	(\$96)	(\$69)	(\$42)	(\$92)	(\$84)	(\$53)	(\$45)
Financing Cost	(\$16)	(\$37)	(\$27)	(\$12)	(\$24)	(\$21)	(\$14)	(\$17)
Total Cost	(\$231)	(\$534)	(\$383)	(\$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)	(\$185)	(\$68)	\$20	(\$215)	(\$149)	(\$114)	(\$99)

Non-residential rents range from \$0.83 per SF per month for Indoor Recreation uses to \$1.67 per SF per month for office and outdoor recreation uses. This pro forma assumes stabilized vacancies for industrial and indoor recreation is only 3.5% and retail is 5%. We assume the office vacancy rate at this development would be 7% and that the outdoor recreation would not have a vacancy rate, consistent with the franchising model for entertainment driving ranges. Apart from outdoor recreation, which we assume operating expenses are more in line with hospitality uses, we assume that all other non-residential leases are triple-net and that any developer operating expenses and reserves are 3% of revenues.

Cap rates range from 5.5% for industrial uses to 8.5% for office uses, more in-line with longer-term trends. All sales are assumed to include costs of 1.5% and, though current financing conditions have resulted in higher-than-normal developer equity return requirements, HR&A has assumed developer return rates more consistent with long-term conditions of 12.5% for all uses.

Appendix B | Definitions and Glossary of Selected Terms

“Absorption” is a metric indicating the pace at which vacant or newly built space is leased.

“Average Balance” refers to an assumed amount of a construction loan that is outstanding during the construction period. For modeling purposes, this assumption is used in combination with the interest rate to calculate capitalized interest over the construction period.

“Capitalization Rate” is the ratio of a building’s net operating income (NOI) to market value. Can be calculated based on a specific transaction or as an average for a particular use in a particular market, fluctuating with market conditions. (NOI / capitalization rate = market value)

“Capitalized Value” is the estimated purchase or sale value of a building as a multiple of the building’s net operating income (or, inversely, as a function of its net operating income divided by a capitalization rate).

“Crosswind Runway” is a runway where prevailing winds blow perpendicular to the angle of the runway. Runway 11-29 at Hartford Brainard Airport is such a runway, and when it is used – which is less than 3% of all aircraft movements – it is used for training pilots how to perform crosswind landings.

“Deliveries” refer to completion of new buildings in a given market.

“Developer Profit” or **“Developer Return”** is the minimum return required by a developer to complete a particular project.

“Efficiency” or **“Net-to-Gross Ratio”** is the ratio of total rentable or sellable square footage (Net Square Feet or NSF) of the modeled project to the total built square footage of the modeled project (Gross Square Feet or GSF).

“Financing Costs” refer to the one-time fees for origination of loans supporting real estate development, as well as the cost of any accrued interest on a construction loan during the construction period.

“Floor Area Ratio” (FAR) is the measurement of a building’s floor area in relation to the size of the lot/parcel that the building is located on. FAR is expressed as a decimal number, and is derived by dividing the total area of the building by the total area of the parcel (building area ÷ lot area). FAR is an effective way to calculate the bulk or mass of building volume on a development site, and is often used in conjunction with other development standards such as building heights, lot coverage and lot area to encourage a community’s desired arrangement and form of development.

“Hard Cost” is the cost of construction materials and construction labor.

“Horizontal Development” refers to the building out of a site’s common infrastructure to create “pads” that are ready for development. This can include construction of streets, sidewalks, utilities, and open space and can also refer to investments in demolishing existing structures, environmental mitigation, and other costs that are not directly tied to the development of a building.

“Loan Term” is the assumed time period a loan is outstanding. At the end of this term it is assumed that the loan will be repaid. In the case of the residual land value model, this is used to calculate capitalized interest, and the model assumes a permanent loan will be used to repay the outstanding construction loan upon project completion.

“Loan to Cost Ratio” is the ratio of a construction loan amount to the development cost of the property. The ratio is commonly expressed to a potential borrower as the percentage of cost a lending institution is willing to finance. The ratio is not fixed and varies by lending institution, property type, geographic location, property size and other potential variables.

“Net Operating Income” is a building’s income after accounting for vacancy and after deducting operating costs borne by a building’s owner.

“Parking Ratio” indicates how many parking spaces a building has per its specific program and is often expressed in terms of spaces per unit (for residential) or spaces per 1,000 SF of rentable building area (for most other uses).

“Relocation Scenario” comprises a horizontal and vertical development program of non-aviation uses on some or all the Hartford Brainard Airport and is distinguished from a scenario that presumes the airport remains open and that any modest new development is focused on uses that support airport operations.

“Residual Land Value Model” is a model created to test, at a high level, the relative feasibility of a theoretical development project. Feasibility is demonstrated via a calculation of the amount a developer should be willing to pay a landowner for the right to build the modeled project, assuming the developer earns its required rate of return and no more/no less.

“Soft Costs” is the cost of project design and other professional work, permits, and fees.

“Stabilization” is the point at which a newly constructed property has been leased sufficiently to reach its stabilized occupancy, in line with the vacancy contingency.

“Tenant Improvement Allowance” is the amount a developer or building owner provides to a tenant to fund a portion of interior fit-out costs. Only a portion of total fit-out costs within a tenant’s space is generally funded via the landlord’s tenant improvement allowance, subject to market conditions/negotiation.

“Vacancy” is the share of a building assumed to be vacant at any given time following upfront lease-up.

“Vertical Development” refers to the development of buildings, and in the case of commercial real estate, typically entail development that can be sold or rented.

Appendix C | General and Limiting Conditions

- In preparing this Report, HR&A has used its independent professional judgment and skills in good faith, subject to the limitations, disclosures and disclaimers herein.
- This Report is based on estimates, assumptions and other information developed by HR&A based upon data provided by other parties. Every reasonable effort has been made to ensure that the data contained in this Report are accurate as of the date of this Report; however, factors exist that are outside the control of HR&A and that may affect the estimates and/or projections noted herein.
- HR&A reviewed the information and projections provided by third parties using its independent professional judgment and skills in good faith, but assumes no liability resulting from errors, omissions or any other inaccuracies with respect to the information provided by such third parties referenced in this Report.
- In addition to relying on data, information, projections and forecasts of others as referred to above, HR&A has included in this Report estimates and assumptions made by HR&A that HR&A believes are appropriate, but HR&A makes no representation that there will be no variances between actual outcomes and such estimates and assumptions.
- No summary or abstract of this Report, and no excerpts from this Report, may be made for any purpose without HR&A's prior written consent, which consent will not be unreasonably withheld.
- No opinion is intended to be expressed and no responsibility is assumed for any matters that are legal in nature or require legal expertise or specialized knowledge beyond that of a real estate and economic development consultant.
- This Report is qualified in its entirety by, and should be considered in light of these General and Limiting Conditions. By use of this Report each party that uses this Report agrees to be bound by all of the General and Limiting Conditions stated herein.