Hartford Downtown Arena Feasibility Study





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Submitted By:



Hartford Downtown Arena Feasibility Study

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Executive Summary

Size and Cost

In order for the city of Hartford to continue to attract the top touring acts and family shows and to have the potential to attract a major league tenant, it will need an arena that is approximately 800,000 square feet in size. The estimated square footage is what is necessary to meet the needs and expectations of the existing major collegiate tenant and a potential NHL/NBA team. An appropriate arena for the Hartford market would seat approximately 17,500 fans for hockey and 18,500 for basketball, and will offer all the latest amenities in seating options and event presentation technologies.

The cost to construct an arena of this size on the existing site of the Hartford Civic Center is estimated to be between \$285 million and \$315 million. Turner Construction Company's Sports Group reached these estimated costs by studying the construction costs for seven recently completed NBA arenas and using the Means Relocation Factors and Turner Index (Turner Construction Company). These estimates equate to a range from \$350.11 to \$387.50 per square foot.

Demographic Comparison

While it is evident that the Hartford area would need a new arena to be able to attract an NHL or NBA franchise, it is important to consider the demographic and socioeconomic characteristics of the area to evaluate the market's ability to support an NHL/NBA franchise and the proposed new arena. Therefore, several key demographic characteristics of the Hartford area were compared to the characteristics of several markets with recently built NHL facilities. The following is a summary of the key findings of the demographic analysis.

- The Hartford market's CBSA and media market population is within the range of markets hosting NHL arenas built since 1995.
- Hartford's corporate inventory within the range of the smaller market hosting NHL-only facilities, but ranks well below the comparable market average. However, the Hartford market has a relatively strong corporate presence, with three companies in the Fortune 100 headquartered in the Hartford area.
- The median age of Hartford-area residents is more than three years older than the national average, with a relatively high proportion of the population aged 55 or older.
- Hartford's median household income is among the highest of any comparable arena market.
- The presence of an older, wealthier population in the Hartford area could make it a strong market for club seats and other upscale amenities.

The Hartford market's population, income levels and other demographic characteristics are generally comparable to those of many markets hosting recently built NHL arenas. However, it is important to note that the current economic structure of the NHL places an increased emphasis on corporate support in terms of sponsorships, naming rights, premium seating and other support.

Given the relatively small number of corporate headquarters and branches in the Hartford market, an NHL franchise may struggle to generate sufficient revenues from the corporate sector. Despite a relatively small corporate inventory, local corporations have demonstrated an ability to generate support for various projects, including the Travelers Championship (formerly the Greater Hartford Open) PGA event. For an NHL franchise to succeed in Hartford, it will be critical to generate similar corporate support so that general ticket prices can be held at prices that enable the general populace to attend games.

To gauge corporate interest in leasing luxury suites, we recommend the City establish an ad hoc/exploratory committee designed to ascertain this information. We envision this committee including representatives from the City, State and corporate community. Below is a table detailing the types of corporations who typically lease suites and what level of the arena they generally lease their suite.

	Event Level	Lower Bowl	Mid Bowl
1	Construction & Industrial	Environmental	Banking & Credit Union
2	Individual Account	Individual Account	Payment Service
3	Auto/Aftermarket	Banking & Credit Union	Financial Service
4	Home Improvement	Electronics	Construction & Industrial
5	Legal Service	Advertising	Individual Account
6	Beverage/Soft Drink	Home Builder	Transportation/Limo
7	Local Recreation	Legal Service	Repair & Maintenance
8	Technology	Auto/Aftermarket	Television/Cable Channel
9	Utilities	Financial Service	Legal Service
10	Advertising	Auto/Import	Beverage/Sports Drink-Isotonic
11	Hospital	Radio/National	Retail/Home Improvement
12	ISP	Technology	Technology
13	Packaged Food/Meat	Casino & Gaming	Camera
14	Radio/National	Auto Racing	Retail/Department
15	Real Estate	Insurance/Health	Financial Services
16	Realty Company	Construction & Industrial	Labor Union
17	Business to Business	Retail/Sporting Goods	Entertainment
18	Mortgage Lender	Auto/RV	Sports Property
19		Insurance/Multi-Property	Telecom/Hardware
20		Internet/Other	Telecommunications

Top 20 Industries for Private Suites

Economic Impact

In addition to the local demographic characteristics of the Hartford area, in considering a public investment in a facility such as the proposed new NHL arena, it is important to understand the potential economic and fiscal impacts that could be generated by the facility. Based on the key operating assumptions and results of the fan intercept surveys conducted as part of this analysis, estimates of the economic and fiscal impacts related to the development of a new arena have been prepared. The following table presents the estimated gross annual economic impacts of the new arena under both operating scenarios, compared to the estimated impacts of the Hartford Civic Center going forward, as developed in CSL's previous engagement with the CDA.

	On-Going	New A	rena	Incremental Impacts		
	HCC	AHL	AHL NHL (2)		NHL (2)	
Direct Spending	\$42,049,000	\$75,483,000	\$124,599,000	\$33,434,000	\$82,550,000	
Total Output	\$70,569,000	\$126,939,000	\$209,770,000	\$56,370,000	\$139,201,000	
Earnings	\$32,523,000	\$57,770,000	\$97,445,000	\$25,247,000	\$64,922,000	
Jobs (1)	1,400	2,500	4,300	1,100	2,900	
Tax Revenues						
State Sales	\$2,931,000	\$5,175,000	\$8,876,000	\$2,244,000	\$5,945,000	
State Lodging	\$88,000	\$116,000	\$148,000	\$28,000	\$60,000	
State Personal Income	\$1,110,000	\$1,972,000	\$3,326,000	\$862,000	\$2,216,000	
State Business	\$242,000	\$435,000	\$719,000	\$193,000	\$477,000	
Total State Taxes	\$4,371,000	\$7,698,000	\$13,069,000	\$3,327,000	\$8,698,000	

Estimated Economic and Fiscal Impacts Annual Arena Operations

(1) Includes full- and part-time jobs. This equates to approximately 1,000 FTEs for the existing HCC, 1,800 FTEs for an AHL arena and 3,100 FTEs for an NHL arena.

(2) Direct spending has been adjusted downward to reflect the assumption that a significant portion of the spending related to an NHL franchise is allocated to place payroll, and that only a portion of place papering will actually impact the local exponent.

allocated to player payroll, and that only a portion of player spending will actually impact the local economy.

As shown, the Hartford Civic Center is estimated to generate approximately \$42.0 million in direct spending going forward, which would result in approximately \$70.6 million in total output, \$32.5 million in earnings and would support approximately 1,400 jobs. In addition, this spending is estimated to generate approximately \$2.9 million in annual state sales taxes, \$88,000 in state lodging tax revenue, \$1.1 million in personal income taxes and \$242,000 in state business taxes.

The operations of a new arena with an AHL tenant are estimated to generate approximately \$75.5 million in direct spending, \$126.9 million in total output and \$57.8 million in total earnings, supporting approximately 2,500 total jobs. Similarly, this spending is estimated to generate approximately \$5.2 million in state sales tax revenue, \$116,000 in lodging tax revenue, \$2.0 million in personal income taxes and \$435,000 in business taxes.

Due to the higher attendance, ticket prices and associated spending related to an NHL franchise, a new arena with an NHL tenant is estimated to generate significantly higher overall spending and related economic and fiscal impacts than either the existing HCC or a new arena with an AHL tenant. Specifically, it is estimated that the operations of the new arena and NHL franchise could generate approximately \$124.6 million in direct spending, which would result in approximately \$209.8 million in total output, \$97.4 million in earnings and would support approximately 4,300 jobs. This spending is also estimated to generate approximately \$8.9 million in state sales taxes, \$148,000 in state lodging tax, \$3.3 million in personal income taxes and \$719,000 in state business taxes.

In addition to the economic and fiscal impacts that could be generated by the proposed facility on an ongoing basis, the construction of a new arena also generates significant economic and fiscal impacts during the construction period. Based on factors such as the costs of comparable arenas built in other markets, the relatively high building cost index of the Hartford market and the rapid inflation of construction costs throughout the country, it is estimated that a new, NHL-ready facility in Hartford could range from approximately \$300.0 million to \$400.0 million, while an AHL facility is estimated to cost between \$250.0 million and \$300.0 million. The actual project cost and resulting economic impacts could vary greatly depending on the final project design. The following table summarizes the range of economic impacts estimated be generated during the construction period. The impacts represent the estimated gross economic impact related to arena construction.

	AHL Arena	NHL Arena
Project Cost	\$250,000,000	\$400,000,000
Adjusted Local Spending	\$187,500,000	\$300,000,000
Total Output Earnings	\$338,277,000 \$166,378,000	\$541,243,000 \$266,204,000
Jobs (1)	3,200	5,100

Estimated Economic and Fiscal Impacts Construction - One-Time Impacts

(1) Includes full- and part-time jobs. A factor of approximately 80 percent can be applied to this number to determine FTEs.

As shown, it is estimated that approximately \$187.5 million to \$300.0 million would be spent locally for arena construction. This spending is estimated to generate approximately \$338.3 million to \$541.2 million in total output and between \$166.4 million and \$266.2 million in earnings, supporting approximately 3,200 to 5,100 jobs during the construction period.

While the construction and ongoing operations of the arena will likely result in significant economic and fiscal impacts for the greater Hartford area, the presence of a first-class facility and NHL franchise also generate significant non-quantifiable impacts for the area. These impacts can include increased private sector investment in ancillary development options around the arena, diversified entertainment options for local residents and visitors, enhanced community pride and other such amenities that cannot directly by quantified, but can have a major positive impact on the community as a whole.

Funding Analysis

In order to develop an arena of the type and quality described throughout this report, it is likely that a combination of both private and public funding sources will be required. The report provides a summary of funding sources utilized for the most recently development NHL arenas as well as a detailed summary of potential funding options that could be available in Hartford. The following table summarizes these potential sources, along with a brief commentary on specific requirements for each potential source.

		Potential Pu	blic Funding Sources	5
Source	Incremental Rate	Estimated Annual Revenue	Estimated Debt Supported (1)	Comments
PUBLIC SOURCES				
TIF - In-Arena Sales Tax	n/a	\$1.6 million to \$4.2 million	\$6.3 million to \$16.1 million	May require approval from the City Council for implementation. Also, it may be possible to capture a higher percentage than the 50 percent used in this estimate for project costs, with Council approval.
TIF - Property Taxes (2)	n/a	\$106,000 - Residential \$162,500 - Apartments \$186,000 - Commercial	\$2.4 million \$3.7 million \$4.3 million	Assumes \$10.0 million of development for each property type. Also assumes 50 percent of increment is captured for project costs. With Council approval, this amount could be increased.
Admission Tax	10.00%	\$1.9 million to \$5.3 million	\$14.4 million to \$40.4 million	Would require legislative approval as Kalamazoo currently does not qualify under the Stadia or Convention Facilities Act of 1991. Would also require voter referendum for approval.
Sales Tax Increase - City	0.25%	\$4.8 million	\$44.4 million	The State of Connecticut currently does not allow municipalities to levy a local sales tax. Legislative action would be required to enable the City to enact such a tax.
Sales Tax Increase - Statewide	0.25%	\$130.4 million	\$1.2 billion	Legislative action would be required to increase the State sales tax rate.
Occupancy Tax - City	1.00%	\$420,000	\$3.9 million	The State of Connecticut currently does not allow municipalities to levy a local tax, therefore legislative action would be required. In addition, all revenues generated by the State's occupancy tax are currently allocated to the General Fund, therefore specific action to establish a segregated fund may be required.
Occupancy Tax - Statewide	1.00%	\$6.3 million	\$58.1 million	All revenues generated by the State's existing occupancy tax are currently allocated to the General Fund, therefore specific action to establish a segregated fund may be required to enable funds to be used for arena construction.
Tourism Account Surcharge	\$1.00 per day	\$4.8 million	\$43.6 million	Legislative action would likely be required to implement an increase in the Tourism Account Surcharge amount on rental cars. Information on rentals within specific municipalities is not available, therefore only a statewide estimate has been included herein.
PRIVATE SOURCES				
Suite Revenue	n/a	\$4.6 million to \$17.4 million	\$30.4 million to \$113.9 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered.
Naming Rights	n/a	\$750,000 to \$3.0 million	\$4.9 million to \$19.7 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered.
Advertising	n/a	\$1.25 million to \$5.0 million	\$8.2 million to \$32.8 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered.
Admission Surcharge	\$1.75 to \$2.50 per paid admission	\$1.6 million to \$3.5 million	\$12.3 million to \$26.4 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered

(1) Assumes 20-year debt with a six percent interest rate and various coverage ratios. However, depending on the type of tax, a higher coverage ratio may be

required, reducing the amount of debt supported accordingly. (2) Revenue and supported debt are based on \$10.0 million of development for each property type.

As shown, it is likely that a combination of both public and private sources will be required to secure adequate project funding. In addition, it is important to note that several of the public sources identified would require legislative approval for implementation.

Site Analysis

We carefully considered seven potential sites in Hartford where a new arena could be located. After narrowing the list down to three sites which were then studied in greater detail, we determined that building a new arena on the existing site of the Hartford Civic Center is the best option. This location not only capitalizes on existing and planned parking and transportation systems, but also would strengthen the nascent mixed-use district in this part of downtown jumpstarted by the Hartford 21 Project.

To help us reach our decision, each site was measured against the given development considerations/criteria. We established a basic rating system which illustrates our assessment of the probability for success in each category: High = 3 points / Medium = 2 points / Low = 1 point.

		SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	SITE 7
		High Street	Main Street	Asylum Street	Existing Civic Cntr	Adriaen's Landing	Sheldon Street
1.	Market Condition	Low	Low	Medium	Medium	High	Low
2.	Enhanced Value	High	High	Medium	High	Low	Medium
3.	Infrastructure	Medium	Medium	Medium	Medium	High	Low
4.	Development Opportunity	Medium	Medium	High	High	Low	Low
5.	City Needs	Medium	Medium	High	High	Low	Medium
6.	Public Financing	Medium	Medium	Medium	Medium	Medium	Medium
7.	Public Benefit	Medium	Medium	High	High	Medium	Medium
8.	Critical Mass Development	High	High	Medium	High	Low	Medium
9.	Access to Transit	Medium	Medium	High	High	Medium	Low
10.	Existing Development Integration	Low	Low	Medium	High	High	Low
11.	New Development Integration	High	High	Medium	High	Low	High
12.	Activity Center Proximity	Medium	Medium	Medium	Medium	High	Medium
	POINT TOTAL	25	25	28	32	23	20

Note: Site 1 (Myrtle Street) was dismissed after further review due to physical constraints of the site.

The existing Civic Center site is adjacent to the significant investments of Hartford 21, the historic Goodwin Hotel, an existing retail environment that includes Pratt Street, and the development opportunities on the land between the site and the train depot. This site is also close to the new residential development opportunities overlooking Bushnell Park. In the aggregate, these adjacent properties provide a beneficial mix of existing development, new opportunities for higher density development and the potential for a new mixed-use neighborhood that could include a range of product types that include, but may not be limited to, retail, hotel, office and residential that could include a live-work loft product.

When analyzing the sites against the considerations and criteria that we developed for this report, the site of the existing Hartford Civic Center, Site 5, emerges as the best location for providing opportunities for ancillary development and enhancements for downtown Hartford. If the City believes that redevelopment of an area of downtown increases the public benefit, then a public-private partnership with the goal of developing a world-class arena that is integrated into a broader urban plan is best achieved at the existing Civic Center site.







HARTFORD ARENA: "National Best Practices In Urban Coliseum Design"

Arenas are large, complex buildings that host a variety of activities. They are also a part of a city's physical and cultural fabric. As such, development of a new arena requires careful analysis to ensure its success – defined both by the building's function as well as its impact on the downtown context.

Site Factors: Occupying several hundred thousand square feet of space, arenas are large buildings in any downtown setting. The unique relationship of the event floor, spectator seating, and related services dictate a building footprint that often covers several urban blocks. With these basic parameters in mind, any potential sites must first be able to accommodate the physical size and configuration of a contemporary arena building. Topographical features may present either advantages or disadvantages, particularly as it relates to access to the concourse and event floor levels. Utilities must also be evaluated with respect to capacity as well as location; in some cases, existing lines may have to be either upgraded or relocated to support a new arena.

Cost & Timing: Assuming an arena will physically fit on a site, a related issue is the relative land costs within the project budget. Certain sites may trigger construction cost premiums due to issues such as demolition requirements, environmental remediation, undesirable soil conditions, etc. Additionally, on-site and/or off-site improvements (such as relocation of existing businesses or utilities) may have significant impacts on the project's financial viability. Depending on unique site characteristics and/or land acquisition requirements, timing may or may not work to meet the needs of the building and its tenants; interim scenarios may be necessary to bridge the gap between available venues.

Transportation: A reality of arenas is that they are entertainment destinations that attract large numbers of visitors. How people get to and from the building is a critical factor in determining an appropriate site location. For many arenas, automobiles are the primary mode of transportation: roadway access and capacity, therefore, are important considerations. Traffic management plans aid in maximizing efficiency and safety, especially before and after events. Parking availability and location is a related factor, with a ¹/₂-mile walking radius considered an acceptable range; parking ratios vary upon location, but a basic average may be on the order of 3 seats per car. Ideally, mass transit options are part of the overall transportation strategy, with the effect of reducing the arena's impact on existing vehicular and parking systems.

Urban Design: By their very nature, arenas are highly visible buildings, with the ability to greatly affect the image of the city in which they are built. Determining the optimal building massing relative to its existing and anticipated context is a key design challenge to maximize the arena's visual presence and ability to act as a catalyst. Similarly, framing special views from the public lobby and plaza areas will help to distinguish the arena as truly unique to its particular city – a place that captures local traditions, personalities, and aspirations. Frequently featured as anchors to larger mixed-use/entertainment districts, urban arenas can also reinforce larger development initiatives through architectural decisions such as entry locations, building materials, environmental graphics, public spaces, etc.

III Program Requirements for Potential Users





Program Requirements for Potential Users

Programming is the process of establishing the functional requirements of a building and translating them into space requirements that define the layout, size, configuration and technical aspects of the space. This process requires collection and synthesis of the data throughout the design process. It is intended to document and communicate this information to the owner, design team and others.

Attached is a Concept-level Facility Program based on an NHL/NBA facility with a major collegiate tenant, which is intended to establish the primary program elements for the building and related support space and their square footages, which allows a preliminary summary of required total area of the facility. This program can then be used by the design team to begin site studies and developing design concepts.

The program described is a relatively brief concept-level document which will be expanded as the project advances through various stages of design development, to include more detail as appropriate to each stage.

The program is a fluid document that will continue to be revised and refined throughout the project.

		Recommended			ed
Space Type	Room Description	Units	SF	Total SF	Comments
CLASSIFICA	ATION 1: SPECTATOR FACILITIES		-	-	
Seating Bowl	Seating: Hockey (Basketball 18,500)	17,500	7.0		
				122,500	
Premium	a. Luxury Suites	60	375	22,500	
Spaces	b. Bunker Suites	8	600	4,800	
	c. Bunker Lounge			2,100	
	d. Courtside Club	1 - 00	10	5,000	
	e. Club Lounge	1500	10	15,000	
Other	a. Owner/Sponsors Rooms (includes support areas)	3	1,500	4,500	
Hospitality					
Sponsorships	a. Sponsor Zones (off concourse)	4	2,000		
				8,000	
Amenities	a. Public/ Premium Toilet Rooms	330	60	19,800	units = number of
		220		17,000	toilet fixtures
	h Quest Service Facilities (First Aid other)			2 500	tonet matures
	b. Guest Service Facilities (First Ald, other)			2,300	
SUB-IUIAL	(INET AKEA)			200,700	
CLASSIFICA	Conversion of the Conversion o	144	150	21 (00	
Concessions	a. Concession stands (@ 1:120 spectators)	144	150	21,600	
	b. vending Stations	8	200	2 000	
Vitabana	C. FOOD COURT		2,000	6,000	
Kitchells	a. Main Kilchen	1	500	3,000	
Beer	a Beer Pump Rooms	4	500	2 000	
Distribution			500	2,000	
Each Service	. Commission	1	6.000	6 000	
Food Service	a. Commissary	1	0,000	5,000	
Restaurants	a Restaurants	2	10,000	20.000	
Retail Sales	a Team Store Storage and Novelty Sales Booths		10,000	6,000	
Rotuit Bulos	a. Team Store, Storage, and Noverty Sales Bootins			0,000	
SUB-TOTAL	(NET AREA)	<u> </u>	<u> </u>	73.200	
CLASSIFIC	ATION 3: CIRCULATION			-,	
Concourses	a. Main and Upper Concourses	17.500	5.2	91.000	
Lobbies	a. Lobbies (Main, Secondary, @ Elevators)	11,000		20.000	
Corridors	a. Service Corridor on Event Floor Level	1	20,000	20,000	12' min. width
	b. Suite Corridors on Suite Levels	2	12,000	24,000	6' min. width
Vertical	(included in net to gross factor below)			0	
Circulation					
SUB-TOTAL	(NET AREA)	<u>_4</u>	<u> </u>	155,000	
CLASSIFIC	TION 4: EVENT FACILITIES				
Event	a. Hockey Rink	1	17,000	17,000	
Floor	b. Basketball Court (70' x 134' clear)		9,380	9,380	fits within above
	c. Hockey Benches, Other Off-floor Areas			600	
Event	a. Performer Dressing/ Mascot/ Green Rooms			4,000	
Support	b. Crew Facilities			1,200	
	c. Production Offices		<u> </u>	1,000	
SUB-TOTAL	(NET AREA)			23,800	
CLASSIFICA	ATION 5: TEAM FACILITIES				
Home	a. Hockey (NHL)	1	15,000	15,000	includes training
Lockers					facilities
	b. Basketball (NCAA)	1	10,000	10,000	includes training
					facilities
					, v
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Program Requirements for Potential Users at a New Downtown Hartford Arena

Visitor	a. Visiting NHL	1	3,500	3,500	
Lockers					
	b. Visiting NCAA	1	2,500	2,500	
	c. Auxiliary Lockers	2	2,000	4,000	
Other	a. Officials' Lockers	2	900	1,800	
	b. X-ray	1	400	400	
Practice					
Facility					
SUB-TOT	AL (NET AREA)			37,200	
CLASSIFI	CATION 6: ADMINISTRATION				
Offices	a. Arena Management Office	1	5,000	5,000	
	b. Team Offices for NHL, NCAA	2	20,000	40,000	
	c. Box Office (includes 20 ticket windows)			2,500	
SUB-TOT.	AL (NET AREA)			47,500	

Program Requirements for Potential Users at a New Downtown Hartford Arena

Program Requirements for Potential Users at a New Downtown Hartford Arena

CLASSIFICA	TION 7: MEDIA FACILITIES							
Press	a. Press Box - Hockey (writing, broadcast & other			25,000				
Facilities	booths and support space)							
	b. Press Support @ Event Level			5,000				
	c. Interview Facilities (includes multi-purpose/ press	5		2,900				
	conference room)							
Control	c. Control Rooms			1,400	@ press & event			
Rooms					levels			
Broadcast	a. TV Truck Parking (interior)			6,000				
Trucks								
SUB-TOTAL	(NET AREA)			40,300				
CLASSIFICA	TION 8: OPERATIONS SUPPORT							
Staff	a. Building Staff Offices and Lockers			2,500				
Facilities	b. Event Staff Facilities			3,000				
Storage	a. Event Storage and General Building Storage			20,000				
Loading Dock	a. Dock/ Staging/ Marshalling/ Trash			24,000				
Maintenance	a. Maintenance Shops			6,000				
	b. Janitorial/Cleaning (storage, trash rooms, other)			3,000				
Security	a. Security Offices	1	1,000	1,000				
	b. Command Center	1	500	500				
Ice Support	a. Zamboni Parking/ Ice Support			3.200				
M/E/P	a. Mechanical/ Electrical/ Plumbing Space			40,000				
SUB-TOTAL	(NET AREA)			103,200				
CLASSIFICA	TION 9: PARKING							
Parking	a. Players/Coaches/ Administrators (interior)	50	500	2,500				
SUB-TOTAL	SUB-TOTAL (NET AREA) 2,500							
BUILDING N	BUILDING NET TOTAL 689,400							
+ net to gross i	multiplier (20%)			113,380	*excludes seating			
BASE PROG	BASE PROGRAM - BUILDING GROSS TOTAL 802,780							

CLASSIFIC	CLASSIFICATION 9: ADDITIONAL PROGRAM OPTIONS							
A. Practice	1. Ice Surface/ Support			20,000				
Ice Rink								
B.	1. Check in/ Spectator Area/ Party Rooms/			15,000				
Community	Changing Rooms, other							
Ice Use								
Facilities								
C. Business/	1. Meeting Rooms & Prefunction Space			18,000				
Conference								
Center								
D. Kids' Fun	1. Kids' Activity Area (off concourse)	1	6,000	6,000				
Zone								
E. Museum	1. Hall of Fame Museum	1	5,000	5,000				
SUB-TOTAI	SUB-TOTAL (NET AREA) 64,000							
OPTIONAL	OPTIONAL PROGRAM NET TOTAL 64,000							
+ net to gross	+ net to gross multiplier (20%) 12,800							
OPTIONAL	OPTIONAL PROGRAM - GROSS TOTAL 76,800							







Site Locations:



HARTFORD ARENA: Site Evaluation Process

"Where is the best place to put a new state-of-the-art arena in downtown Hartford?"

That is the question that we have focused on with this study, aided by previous work such as the *Hartford 2010* report, as well as by the input of City officials and business leaders. With the desire to build a new facility in the downtown core, we coordinated with the City of Hartford's Development Services, Economic Development, and Planning Departments to identify seven potential candidate sites to analyze according to "Phase One Threshold Criteria." For a site to be considered worth of further study, it had to meet these basic requirements:

- 1) The site's size and configuration needs to accommodate an arena building footprint.
- 2) Transportation features must allow people to safely get to and from the arena.
- 3) Existing or future parking must be sufficient to meet arena demands, typically within a ¹/₂mile walking radius.
- 4) Impact on existing buildings must be considered in relation to their economic and cultural significance.

A summary of the seven initial site analyses, including maps of the evaluated sites:

Site 1 (Myrtle Street)

Located on the northwest corner of the downtown core, just north of I-84, Site 1 is bounded by Walnut Street, Myrtle Street and Spring Street, just east of the Hartford Insurance building. Currently a surface parking lot, the site has historically been the confluence of rail lines servicing the train station located a block to the south. While identified in the Hartford 2010 report as a potential arena site, an initial building footprint test on the site has concluded that an arena would not fit onto this site, given the constraints of existing rail lines and roadways. This site, therefore, has been dismissed.

Site 1 - Parcel









Site 2 (High Street)

Bordering the northern edge of I-84, Site 2 is on the north side of the downtown core, bounded by High Street, Main Street, and Trumbull Street. In order for this site to be large enough for an arena, a portion of Pleasant Street (between Main Street and I-84) would have to be vacated. Surrounded by several local roadways, this site could be accessed from a number of directions, with the advantage of tapping into downtown's nearby parking supply. This site has been identified for further analysis.

Site 2 - Parcel





Site 2 - Existing Buildings





Site 3 (Main Street)

Located just on the other side of Main Street from Site 2, Site 3 also has one side on the northern edge of I-84. It is also bounded by Windsor Street on the east along with the Bank of America building and the Crowne Plaza Hotel. Pleasant Street borders the northern side of the site. In order for this site to be large enough for an arena, a portion of Trumbull Street (between Main Street and Windsor Street) would have to be vacated. Surrounded by several local roadways, this site could also be accessed from a number of directions, with the advantage of tapping into downtown's nearby parking supply. This site has also been identified for further analysis.

Site 3 - Parcel









Site 4 (Asylum Street)

This site is located south of I-84, bounded by Church Street, Ann Street, Asylum Street, and Union Place – just west of the existing Civic Center. In order for an arena to fit within this area, Allyn Street would have to be vacated, in addition to two blocks of High Street (between Church Street and Asylum Street). While an arena could physically fit within these boundaries and be located close to parking and the rail station, it would greatly impact several existing properties including historically significant buildings such as the Bond Hotel and St. Patrick – St. Anthony Church. This site, therefore, has been dismissed.

Site 4 - Parcel





Site 4 - Existing Buildings




Site 5 (Existing Civic Center)

This site candidate is defined by the idea of replacing the existing Civic Center with a new arena. Because new arenas are typically larger buildings than their predecessors, a new building would cover a larger footprint than the existing building. The site constraints, then, for this potential site would be defined by the recently completed Hartford 21 Project along Trumbull Street and Asylum Street. It would also be constrained by the Hilton Hotel on Trumbull Street and the City-owned parking garage on Chapel Street. The western boundary would be Ann Street. Assuming a degree of separation and/or integration could be achieved with the Hartford 21 Project and with the Hilton Hotel, the existing parking garage would have to be demolished, however, in order for an arena to fit onto this site. Additionally, Church Street (between Ann Street and Trumbull Street) would have to be vacated. This site has also been identified for further analysis.









Site 6 (Adriaen's Landing)

This site is also known as Adriaen's Landing, located directly west of the Convention Center, along the northern edge of the Whitehead Highway. While an arena could fit in this area, between Prospect Street and Columbus Boulevard, the new Adriaen's Landing Project has already moved forward, thereby eliminating this site for further consideration.

Site 6 - Parcel









Site 7 (Sheldon Street)

Located at the junction of I-91 and the Whitehead Highway, this site is also bounded by Taylor Street and Charter Oak Boulevard. An arena would also fit onto this site, although forcing demolition of an existing office building. While it is adjacent to two major highways, however, access to and from the site is difficult and would have a significant impact on the adjacent residential neighborhood. As this site is on the southern edge of the downtown core, it is also located comparatively further away from existing parking lots and garages. This site, therefore, has been dismissed.

Site 7 - Parcel









V Review of Development Opportunities & Enhancements





Review of Development Opportunities &

Entertainment District Enhancements in Downtown Hartford

I. Introduction

Selection of the site for a new Hartford arena is potentially the most critical factor in the ultimate success of the facility as a catalyst for ancillary development. Increasingly, cities are seeking the public benefits that can be derived from arenas that are part of broader economic development strategies. The purpose of this report is to provide our professional opinion regarding opportunities for ancillary development that may exist with each of the proposed sites and to provide a recommendation as to which site(s) provides the greatest opportunity for a new civic center/arena to be a stimulus for development.

The goal of accommodating and maximizing private development is important, yet challenging. It is rarely the easy approach; however, it can be the solution with the greatest return on investment for the City. The benefits will, at a minimum, include economic development, but they could also be cultural and societal in nature, which can improve the quality of life for the residents of the community.

Our recommendations do not include a market analysis that studies the demand for development or appropriate product mix in the Hartford market. These studies should be undertaken in the future, should the City of Hartford decide to encourage and pursue ancillary development opportunities as part of a new arena project.

II. Development and Sports Facilities

Over the past fifteen years, a significant number of sports facilities have been constructed in the United States. Many of these facilities were strategically placed in urban cores to be cornerstones of massive revitalization efforts. Although there are numerous public-private partnership projects of this type that provide benefits to their community, we will highlight two that best exemplify the positive impacts that can result from a sports facility acting as a catalyst for a broader redevelopment. PETCO Park, a 42,000 seat ballpark in San Diego, CA, and Verizon Center, a 20,000 seat arena in Washington DC, were driving forces behind massive redevelopment efforts in their respective communities. These cities and their (re)development departments, in partnership with the franchise owners, made significant financial commitments through substantial investments in the facility, infrastructure and private development to make these projects not only viable, but thrive. These communities also selected sites that needed a stimulus and provided an opportunity to extend the development beyond the walls of the facility.

A. PETCO Park - San Diego, CA

PETCO Park, home of the San Diego Padres, was the catalyst for the most ambitious and complex redevelopment project in San Diego's history. This Major League ballpark, which opened in 2004, is the cornerstone of a lively new Ballpark District. Owned 70% by the City of San Diego and 30% by the San Diego Padres, this \$474 million public-private partnership project is a monumental success.

When the ballpark site was selected in 1998, approximately 70 percent of the surrounding land was vacant or used only for surface parking or outdoor storage. In that year, the entire East Village neighborhood generated only \$2 million in property tax revenue, and it consumed far more than that in public services. That area - blighted, littered, and home to a significant homeless population - is now booming with a variety of successful residential, hotel, commercial and retail projects.



1997

2007

The Center City Development Corporation (CCDC), the City of San Diego's redevelopment agency, reports that development investment within the 60-blocks surrounding PETCO Park is nearing \$4 billion. This private investment will exceed ten times the public investment in the ballpark (\$301 million) made by the City and CCDC. Projects completed, underway and planned for the ballpark area will result in 8,300 new homes, 1.3 million square feet of commercial space, 1,200 hotel rooms and more than 3,000 public parking spaces. Real estate economists have estimated that the area will generate more than \$300 million in property tax revenue over the next decade - an average of more than \$30 million annually, or a 15-fold increase from 1998.

The ballpark and urban redevelopment project provided a dramatic jump-start, compressing into a few years development that likely would have taken decades to occur. Seemingly overnight, San Diego is enjoying a vibrant new "Live, Work & Play" district.

B. Verizon Center - Washington DC

The Verizon Center (formerly MCI Center) is a multipurpose sports and entertainment facility located in the Gallery Place redevelopment area of northwest Washington, D.C. The center opened in 1997 as home to the Washington Capitals of the NHL, Washington Wizards of the NBA, Washington Mystics of the WNBA, and Georgetown University men's basketball. The arena is also used for amateur sporting events, concerts and shows, and other social events. A 14-multiplex theater, as well as retail and restaurant space within the complex, complements the arena, and proximity to the Metrorail mass transit system eases parking requirements and provides convenient access for spectators.



Considered the largest private-sector construction project in the District in years, construction of the Verizon Center cost sports team owner Abe Pollin nearly \$220 million. The District provided financial assistance in the amount of \$70 million for land and site preparation costs.

The Verizon Center served as the primary vehicle for revitalizing the downtown entertainment district and Chinatown neighborhoods of Washington D.C. The arena was the centerpiece of a broad economic development plan that helped spawn new restaurants, housing and office developments in the once desolate Chinatown area. The Washington Post reported that from 1998 to 2006 businesses in the seven blocks surrounding the Verizon Center have generated \$3.7 billion in construction, \$161 million in taxes and 34,200 jobs.



III. Opportunities and Challenges of Downtown Hartford

As with all mature cities, there are numerous opportunities and challenges that exist with locating an arena downtown. The following list is just the start of a more exhaustive exercise to evaluate and ultimately develop a plan to take advantage of the opportunities and overcome the challenges of development in downtown Hartford.

A. Opportunities

- Currently 80,000 workers downtown
- Significant existing infrastructure in place
- Considerable public investment is already in downtown
- A proven demand in the market for a civic center
- A need for a downtown community
- A potential demand for hotel rooms
- Residential development is starting to gain traction

B. Challenges

- A limited residential and retail base
- Significant competition from the suburban areas
- A limited supply of existing parking

IV. Site Analysis

A. Development Categories

To frame our site analysis from the perspective of accommodating ancillary development, we placed each of the sites into one of three basic development categories: Stand Alone, New Development and Redevelopment.

1. Stand Alone: Site 6 (Adriaen's Landing)

The Stand Alone category identifies a site that has very little ancillary development opportunity. Site 6 is directly adjacent to the new convention center and other new developments that include a major hotel. There are numerous existing office and other sizeable buildings in the vicinity where a new arena would be built, limiting the development opportunities at this site. Another significant concern with this site is that a new development plan already exists and appears to be moving forward. Although this would be an appealing site if the City desired to build an arena that would complement the convention center, the site offers very little opportunity for additional development and enhancements to downtown.

2. New Development: Site 2 (High St), Site 3 (Main St), Site 7 (Sheldon St)

The New Development category identifies sites that could be part of significant new developments, but they would have minimal connection to downtown. Sites 2, 3, and 7 are adjacent to downtown, but they do not sit within the core. Each site provides enough land for ancillary development, but would need to create an entirely new development with enough critical mass to be a destination for visitors to the arena during events, and more importantly for residents, office workers and retail patrons during non-event periods. One concern with these sites, although they lie within the City proper, is that they would actually hinder people from going downtown. Those driving from the suburbs would likely drive directly to these sites and then leave without patronizing the businesses in the downtown area.

3. Redevelopment: Site 4 (Asylum St), Site 5 (Existing Civic Center)

The Redevelopment category includes sites that sit adjacent to existing and planned development that would benefit from the stimulus provided by an arena to reach greater potential. Sites 4 and 5 site are both located in an area that is starting to realize increased private development activity. These sites are also appealing due to the additional development opportunities that exist on adjacent property. Both of these sites would benefit greatly from a new arena as an amenity to the surrounding community and a mechanism by which ancillary development opportunities are integrated into the urban plan.

B. Development Considerations / Criteria

To assess the relative strengths of each site, we established a set of development considerations/criteria. These basis questions assist in evaluating the key elements that will influence the project's overall probability for success.

- 1. Market Condition: Is there a market demand on the site?
- 2. Enhanced Value: Is the site capable of enhancing real estate values for the surrounding land?
- 3. Infrastructure: Does the site have sufficient infrastructure in place?
- 4. Development Opportunity: Does the site have significant development opportunity (both in scope and scale based on FAR, entitlements, etc.)?
- 5. City Needs: Can the site be a catalyst for the City's most desirable product type (residential, office, hotel)?
- 6. Public Financing: Are public financing alternatives available to assist with financing the arena on this site (TIF, public bonds)?
- 7. Public Benefit: Could the site derive great benefit for the public?
- 8. Development Phasing: Does the site provide the flexibility for the phasing or natural evolution of the private development?
- 9. Critical Mass of Development: Could the site quickly achieve a critical mass of development?
- 10. Access to Transit: Does the site have access to mass transit and transportation?
- 11. Development Integration: Could the site provide an opportunity to integrate the new development into the new arena?
- 12. Activity Center Proximity: Is the site proximate to other existing or planned activity centers that could benefit the project?

C. Summary Chart

To measure each site against the given development considerations/criteria, we established a basic rating system, which illustrates our assessment of the probability for success in each category: High = 3 points / Medium = 2 points / Low = 1 point.

		SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	SITE 7
		High Street	Main Street	Asylum Street	Existing Civic Cntr	Adriaen's Landing	Sheldon Street
1.	Market Condition	Low	Low	Medium	Medium	High	Low
2.	Enhanced Value	High	High	Medium	High	Low	Medium
3.	Infrastructure	Medium	Medium	Medium	Medium	High	Low
4.	Development Opportunity	Medium	Medium	High	High	Low	Low
5.	City Needs	Medium	Medium	High	High	Low	Medium
6.	Public Financing	Medium	Medium	Medium	Medium	Medium	Medium
7.	Public Benefit	Medium	Medium	High	High	Medium	Medium
8.	Critical Mass Development	High	High	Medium	High	Low	Medium
9.	Access to Transit	Medium	Medium	High	High	Medium	Low
10.	Existing Development Integration	Low	Low	Medium	High	High	Low
11.	New Development Integration	High	High	Medium	High	Low	High
12.	Activity Center Proximity	Medium	Medium	Medium	Medium	High	Medium
	POINT TOTAL	25	25	28	32	23	20

Note: Site 1 (Myrtle Street) was dismissed after further review due to physical constraints of the site.

V. Conclusion

Given our position that the arena could provide an enhanced return on investment for the City of Hartford as part of a larger development project, and more specifically if the arena were to act as a stimulus for redevelopment, we recommend that the City of Hartford embark upon a more extensive analysis of the Redevelopment sites. Although Site 4 is considered a redevelopment alternative, the removal of a significant number of existing buildings deems this alternative as less than desirable. On the other hand, a reconfigured arena on Site 5, the Existing Civic Center site, provides the best opportunity for the City of Hartford.

The Existing Civic Center site is adjacent to the significant investments of Hartford 21, the historic Goodwin Hotel, an existing retail environment that includes Pratt Street, and the development opportunities on the land between the site and the train depot. This site is also close to the new residential development opportunities overlooking Bushnell Park. In the aggregate, these adjacent properties provide a beneficial mix of existing development, new opportunities for higher density development and the potential for a new mixed-use neighborhood that could include a range of product types that include, but may not be limited to, retail, hotel, office and residential that could include a live-work loft product.

In summary, when analyzing the sites against the considerations and criteria that we developed for this report, the site of the Existing Civic Center, Site 5, emerges as the best location for providing opportunities for ancillary development and enhancements for downtown Hartford. If the City believes that redevelopment of an area of downtown increases the public benefit, then a public-private partnership with the goal of developing a world-class arena that is integrated into a broader urban plan is best achieved at the Existing Civic Center site.

A City must carefully make a determination as to the desired outcome when considering an investment in major civic asset, and that determination must be based upon fact. Therefore, prior to the final site selection, it will be important for the City of Hartford to commission significant additional studies to include, but not be limited to, market analysis, development feasibility analysis and construction feasibility.

VI Renderings & Massing Plans for Preferred Sites





Renderings and Massing Plans for Preferred Sites

Site 2 (High Street)

The site bounded by High Street, Main Street, Trumbull Street and I-84 represents a new arena development scenario with two very different impacts on the city. First, an arena on this site would significantly expand the perceived geographic area of the downtown core. Second, an arena located north of I-84 would trigger an interest in considering potential new uses for the adjoining blocks.



Land Use:

The positioning of the arena on Site 2 will present the challenge of overcoming the perceived separation from downtown by the interstate, and historic under-investment in the North End neighborhood. A critical urban design feature that will make the arena feel "connected" to downtown would be the enhancement of the triangular parcel over I-84 into a "gateway" park or plaza. Developing this as an inviting public space would be a way of extending the growing vitality along downtown's Trumbull and Main Street corridors, culminating at the front door of the arena. Safe, convenient and interesting streetscape corridors will encourage the vital pedestrian patterns between various parking destinations and the arena.

The city's new Public Safety Complex, located adjacent to this arena site, on High Street and Walnut Street, marks the first major new development north of I-84. Together with the arena, these two projects represent highly visible, significant reinvestments into the North End, opening up potential interest in other development opportunities. Compatible uses on adjacent blocks will further integrate the arena into both the downtown and the neighborhood; they will also strengthen a future I-84 park with active building edges.

Six blocks, then, are identified as desirable for a comprehensive arena development for Site 2. Blocks 1, 2 and 3 are required for the arena building itself, supporting fundamental program uses such as the seating bowl and concourse, service areas and a public lobby. Block 4 (the I-84 air rights parcel) supports a secondary – but still important – function for the arena: a public park and plaza. Because arena events attract thousands of visitors, the inclusion of a public space near the main entry serves as a crowd control device. From a thematic and cultural point of view, such a space provides an opportunity to make the arena project reflect Hartford's unique personality with public art, landscaping, lighting, etc. Blocks 5 and 6 also support a secondary function – that of an accompanying development opportunity, which could include a portion of the necessary arena parking. This block also presents important urban edges to consider: the Main Street façade facing the arena and park, and the I-84 façade facing downtown and passing highway traffic.



Development Strategy:

The architectural appearance of arenas have the ability to significantly enhance the image of a city, depending on how prominent its location, and how visible its building mass. Interstate visibility will be prominent on this site, with over 1,000 feet of frontage. While not in the immediate "core" of downtown, an arena location slightly separated from the tall buildings of the C.B.D. presents the ability to design public spaces – such as the plaza, lobby, and lounges – with striking views of the downtown skyline. Conversely, many downtown buildings will enjoy the new ability to look down on the new arena from the south and east. Ancillary development, together with the arena, could act as a new gateway at the juncture of Main Street and Trumbull Street, embracing the new I-85 park with connections from the North End to downtown.

Assuming that portions of the Ann Street and Pleasant Street rights-of-way are incorporated into the arena parcel, the size of the property would be sufficient to support such a building. The triangular configuration of the parcel, however, presents few options for locating the main arena footprint: the optimal site organization places the arena bowl towards the northwestern end, as illustrated below. The southeastern portion of the site, then, would be designed as the "front door", with a public lobby opening onto an exterior plaza that connects to the I-84 elevated plaza on Block 4, and further to downtown. The "back door" with service access and functions, then, would be located either on High or Chapel Street (adjacent to the I-84 r.o.w.).



Circulation:

Located along I-84 with direct access to many arterial roadways, the regional access for this site is well-positioned. Since the site is only a block away from the northern edge of the downtown core, most of the event parking would utilize public and office parking lots and garages that are empty in the evenings. While not all of this parking can be counted on, the bulk of the downtown parking supply is located within a ½ -mile walk from the arena entry. A dedicated parking lot or garage adjacent to the arena will still be necessary, however, to meet competitive criteria geared for V.I.P. parking – one possible location being across Main Street on Block 5 or 6. Regional and local transit systems at Union Station represent another nearby transportation option, located approximately three blocks from the arena's front door, or between a five- and ten-minute walk. A downtown trolley or other special-event transit/parking systems would also help to achieve a more balanced multi-modal mix, to reduce the impact on downtown roadways.



Massing:

While arena buildings may be several hundred thousand square feet in total size, the various program elements and site features allow for a variety of architectural solutions within the overall composition. In the case of Site 2, an important urban design aspect is the sequence of spaces that lead visitors walking from downtown to the front door lobby. A taller building mass along Main Street would help to define the public plaza, and would also enhance the visibility of the arena complex within the downtown context and along the I-84 corridor.

Many different design concepts are possible for the edge of the building along the interstate, but an important consideration is to embrace the idea of the façade as perhaps the best opportunity for creating the building's primary "image." This could include an integrated solution of lighting and graphics, in addition to the architectural materials and massing. Ideally, this approach would extend to the vertical wall along the highway, "extending" the iconic appearance of the arena. Additionally, the streetscape improvement program along Trumbull Street could extend across the interstate, perhaps with a partially covered walkway to encourage pedestrian connections and further define the area as a northern gateway to the city.



Site 3 (Main Street)

Like Site 2, the site bounded by Main Street, Pleasant Street, Windsor Street and I-84 represents a new arena development scenario with two very different impacts on the city. First, an arena on this site would significantly expand the perceived geographic area of the downtown core. Second, an arena located north of I-84 would trigger an interest in considering potential new uses for the adjoining blocks.



Land Use:

The positioning of the arena on Site 3 will present the challenge of overcoming the perceived separation from downtown by the interstate, historic under-investment in the North End neighborhood. A critical urban design feature that will make the arena feel "connected" to downtown would be the enhancement of the triangular parcel over I-84 into a "gateway" park or plaza. Developing this as an inviting public space would be a way of extending the growing vitality along downtown's Trumbull and Main Street corridors, culminating at the front door of the arena. Safe, convenient and interesting streetscape corridors will encourage the vital pedestrian patterns between various parking destinations and the arena.

The city's new Public Safety Complex, located on High Street and Walnut Street, marks the first major new development north of I-84. The land between this building and Site 3 represents a second critical urban design challenge, offering the ability to further expand the arena

development as a multi-block improvement initiative, rather than a singular, isolated building program. This redevelopment area has over 1,000 feet of interstate frontage between High Street and Trumbull Street, thereby possessing the ability to greatly influence the positive redefinition of the North End's image. Its frontage on the I-84 elevated plaza is another important design feature, since the success of public spaces depends largely on active, engaging building edges.

Four blocks, then, are identified as desirable for a comprehensive arena development for Site 3. Blocks 1 and 2 are required for the arena building itself, supporting fundamental program uses such as the seating bowl and concourse, service areas and a public lobby. Block 3 (the I-84 air rights parcel) supports a secondary – but still important – function for the arena: a public park and plaza. Because arena events attract thousands of visitors, the inclusion of a public space near the main entry serves as a crowd control device. From a thematic and cultural point of view, such a space provides an opportunity to make the arena project reflect Hartford's unique personality with public art, landscaping, lighting, etc. Block 4 also supports a secondary function – that of an accompanying development opportunity, which could include a portion of the necessary arena parking. This block also presents three important edges to consider: the Main Street façade facing the arena, the Trumbull Street façade facing the new park, and the I-84 façade facing downtown and passing highway traffic.



Development Strategy:

The architectural appearance of arenas have the ability to significantly enhance the image of a city, depending on how prominent its location, and how visible its building mass. Interstate visibility will be somewhat limited on this site, since I-84 is depressed and other tall buildings (Crown Plaza Hotel and Bank of America) are located between it and I-91. Some visibility may be apparent to eastbound traffic along I-84, but this will likely change if and when new development takes place on Block 4, west of Main Street. On the other hand, an arena location slightly separated from the tall buildings of the C.B.D. presents the ability to design public spaces – such as the plaza, lobby, and lounges – with striking views of the downtown skyline. Conversely, many downtown buildings will enjoy the new ability to look down on the new arena from the south.

Assuming that a portion of the Trumbull Street right-of-way is incorporated into the arena parcel, the size of the property would be sufficient to support such a building. The configuration of the parcel, however, is irregular, which results in a site organization that places the arena bowl towards the northern end, as illustrated below. The southern portion of the site, then, would be designed as the "front door", with a public lobby opening onto an exterior plaza that connects to the I-84 elevated plaza on Block 3, and further to downtown. The "back door" with service access and functions, then, would be located either on Pleasant or Windsor Street.



Circulation:

Located near the juncture of two major interstate highways, the regional access for this site is well-positioned. Since the site is only a block away from the northern edge of the downtown core, most of the event parking would utilize public and office parking lots and garages that are empty in the evenings. While not all of this parking can be counted on, the bulk of the downtown parking supply is located within a ½ -mile walk from the arena entry. A dedicated parking lot or garage adjacent to the arena will still be necessary, however, to meet competitive criteria geared for V.I.P. parking – one possible location being across Main Street on Block 4. Regional and local transit systems at Union Station represent another nearby transportation option, located approximately five blocks from the arena's front door, or about a ten-minute walk. A downtown trolley or other special-event transit/parking systems would also help to achieve a more balanced multi-modal mix, to reduce the impact on downtown roadways.



Massing:

While arena buildings may be several hundred thousand square feet in total size, the various program elements and site features allow for a variety of architectural solutions within the overall composition. In the case of Site 3, an important urban design aspect is the sequence of spaces that lead visitors walking from downtown to the front door lobby. Because of the relatively tight site, there is not much land available for creating public plaza spaces, once the

building footprint is established. This places a particular importance on enhancing the I-84 air rights parcel into a park/plaza for visitors as they circulate in and out of the arena; it also is an effective visual foreground for the building. A taller building mass along Main Street would help to define the public plaza, and would also enhance the visibility of the arena complex within the downtown context and along the I-84 corridor.

As the arena transitions down to a neighborhood scale along Main Street, an accompanying building on the west side of the street will reinforce the arena complex with supporting uses and development character. An arena tower or marquis along Main Street would also help to mark the building entry, as well as increase the ability for building visibility from downtown and drivers along I-84. A building mass on the east side of the arena lobby would help to frame the front door, with the opportunity to accommodate ancillary uses. Given the parcel configuration and adjacent roadways, an option for a special vehicular drop-off/ plaza is possible between this portion of the arena and the Crown Plaza Hotel, to the east.

Additionally, the streetscape improvement program along Trumbull Street could extend across the interstate, perhaps with a partially covered walkway to encourage pedestrian connections and further define the area as a northern gateway to the city.



Site 5 (Existing Civic Center)

The site bounded by I-84, Ann Street, and the Hartford 21 Project (along Trumbull and Asylum Streets) represents a redevelopment scenario that replaces the existing Civic Center with a new facility. This strategy would trigger two major impacts on downtown. First, it would remove an obsolete arena, which is an introverted building whose big blank walls do little to encourage vibrant street activity. Second, it would further bolster downtown's newest development by integrating a state-of-the-art arena with not only the Hartford 21 Project, but with mixed-use activities that continue to evolve on adjacent blocks.



Land Use:

As documented in the city's study entitled "Downtown West," many restaurants and entertainment businesses are present in the four-block area between the existing Civic Center and Union Station. The current arena, however, discourages pedestrian activity that would further activate these and other businesses. A new arena that features both programmable space and articulated fenestration, materials and graphics will make the building a contributing anchor to the growing mixed-use district – rather than an impediment. In the Parcel Plan, Parcels 6, 7, and 8 are identified as necessary for the arena building itself, supporting fundamental program uses such as the seating bowl and concourse, service areas and a public lobby.

In addition to the existing businesses, approximately 6-1/2 acres of vacant land exists in the four blocks between Union Place, Asylum Street, Ann Street and Church Street, with other potential

redevelopment opportunities also available – indicated by Parcels, 1, 2, 3, 4, 5 and 9. Several buildings in the areas to the east and west of the arena are part of the Ann Street or Pratt Street historic districts, which add invaluable charm and pedestrian scale. The ability to introduce other buildings of compatible use and character would establish more of a critical mass with more of a continuous corridor of active uses – similar to other urban mixed-use/entertainment districts such as Memphis, Washington D.C., or Glendale, Arizona.



Development Strategy:

Since a new arena would be larger than the existing Civic Center, the only way that a new building could fit onto this site would be to demolish the existing city-owned Church Street Garage next to I-84, and close down one block of Church Street. Removing the parking garage will obviously reduce the amount of available downtown parking, but it frees up an important downtown edge that faces both the interstate and the North End neighborhood. Both the east and west sides of the arena (facing Trumbull Street and Ann Street) have the ability to transition in scale down to 3- to 4-story building heights. In fact, the Trumbull Street side already has the building storefronts in place, developed by the Hartford 21 Project; a design challenge would be how to manipulate floor levels and program elements to appropriately integrate arena functions with the existing buildings. Perhaps most interestingly, the arena lobby and front door could be designed as an indoor-outdoor space just north of the residential tower and parking garage, acting as a connecting element between Pratt Street and Allyn Street.

Rebuilding a new arena on the existing Civic Center site is an attractive option for several reasons. First, it maintains the historic use of the site, but also reaches a potentially wider audience by offering more uses with a modern facility. Second, it capitalizes on existing – as well as planned – parking and transportation systems. Third, it strengthens the nascent mixed-use district in this part of downtown jump-started by the Hartford 21 Project, and connects – rather than blocks – the Allyn Street corridor and the Pratt Street corridor. Fourth, it replaces an imposing blank wall of a parking garage with a iconic civic building that is oriented toward the North End. Finally, it has the ability to become integrated with the pedestrian scale that downtown is focusing on, in contrast with previous generations of buildings that were built with large blank walls and detached plazas and podiums.



Circulation:

Frontage along I-84 would establish a strong presence for the arena; for visitors coming to events and related entertainment, it is an easy visual marker to spot. Because it is embedded in the downtown core, multiple vehicular access points exist, and plenty of parking options are well distributed within easy walking distance. Located two blocks to the west (approximately five minutes walking), transit options from Union Station will also be ideally located – funneling visitors through two blocks of mixed-use activity to and from the arena. A similar circulation pattern exists to the east as well, with the potential for downtown office workers, residents and visitors to walk through the Pratt Street corridor on their way to and from the arena. A downtown trolley or other special-event transit/parking systems would also help to achieve a more balanced multi-modal mix, to reduce the impact on downtown roadways.



Massing:

While arena buildings may be several hundred thousand square feet in total size, the various program elements and site features allow for a variety of architectural solutions within the overall composition. In the case of Site 5, each of the four sides presents distinctly different urban design considerations.

The northern edge creates an iconic architectural opportunity, expanded by the idea of integrating a portion of the interstate wall into the materials, graphics, lighting, etc. of the arena façade. An improved I-84 park and possible bridge enhancement along Trumbull Street would
further define this as a downtown gateway. A cantilevered roof along Ann Street is another idea that could enliven the arena architecture, especially as perceived by passing drivers along I-84.

The western edge of the arena block between the interstate and the Hartford 21 parking garage borders the Ann Street National Historic District – a multi-block area of small-scale buildings, including the St. Patrick – St. Anthony Church. It is critical that the arena building break down in scale to relate to this unique context; it is also critical that the complex appear transparent and inviting to pedestrians, to support the resurgence of this urban district.

With the Hartford 21 tower and parking garage occupying the length of Asylum Street (between Ann Street and Trumbull Street), the arena would have little presence along its southern edge. However, the creation on an inside/outside public space that also functions as the main public lobby for the arena is an intriguing thought which warrants further study. Conceptually, this design feature could link the Ann Street District and Union Station to the Pratt Street District and the heart of downtown – the arena, in effect, could become a major "link" in downtown, rather than the "barrier" that it has been for the past 32 years. Like Asylum Street, the Trumbull Street edge is built out by the Hartford 21 tower and retail buildings, as well as the Hilton Hotel. In addition to creating a primary entry into the lobby space discussed above, some arena uses (as well as exterior signage and graphics) could potentially be integrated into the Hartford 21 retail block.









City of Hartford New Downtown Arena Study



July 2007



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SPORT

VII Economic & Fiscal Impact Analysis





Demographic Analysis

An important component in assessing the potential success of an arena development project is the demographic and socioeconomic profile of the local market. The strength of a market in terms of its ability to support a sports and entertainment venue is measured in part by the size of the market area population and its spending characteristics. The following section summarizes a number of key demographic and socioeconomic characteristics of the Hartford region.

The analysis also presents comparisons of the Hartford market's demographics with those of other NHL markets currently hosting arenas built since 1995. The analysis excludes NHL markets that also host an NBA franchise, as these markets are generally not comparable to Hartford based on their significantly larger populations. The following table summarizes the markets included in the demographic comparisons.

Arena	Location	Year Opened	Concert Capacity
NHL Only			
Glendale Arena	Glendale, AZ	2003	17,500
X cel Energy Center	St. Paul, MN	2000	18,064
Nationwide Arena	Columbus, OH	2000	18,137
RBC Center	Raleigh, NC	1999	21,000
BankAtlantic Center	Sunrise, FL	1998	19,088
Bell Centre	Montreal, PQ	1996	21,631
Scotiabank Place	Ottawa, ON	1996	18,500
St. Pete Times Forum	Tampa, FL	1996	19,758
Gaylord Entertainment Center	Nashville, TN	1996	17,500
HSBC Arena	Buffalo, NY	1996	18,500
General Motors Place	Vancouver, BC	1995	19,193
Hartford Civic Center	Hartford, CT	1975	16,500
NHL Only Average (Excl. HC	C)		19,000

Comparable Arena Markets

For purposes of this analysis, the demographics of each market have been evaluated utilizing each market's Core Based Statistical Area (CBSA) and the 50-mile radius surrounding each market. The CBSA is defined as an area with a concentrated population core, along with an adjacent territory with social and economic ties to the core. The population within 50 miles of a facility is generally considered the primary market area from which the majority of venue patrons will be drawn.

The Hartford CBSA is comprised of Hartford, Middlesex and Tolland Counties. The following map illustrates the boundaries of the Hartford CBSA as well as the 50 mile radius surrounding Hartford.



The Hartford CBSA extends through central Connecticut from the Massachusetts border to the north to Long Island Sound to the south and includes cities such as Hartford, New Britain, Bristol and Middletown. The 50-mile radius surrounding Hartford approximately doubles the area included in the CBSA, extending beyond Danbury, Bidgeport, New London and Norwich to the South and into New York, Massachusetts and Rhode Island to the West, North and East.

Population

The level of population from which sports and entertainment facilities will draw attendees can impact the events and attendance attracted to the facilities. The following exhibit summarizes the key population statistics of the Hartford area.

Hartford Population Statistics						
	Hartford CBSA	U.S.				
2005 Population	1,192,100	292,937,000				
2010 Population	1,239,000	307,116,000				
CAGR 2005 - 2010	0.8%	0.9%				

Soure: Claritas, Inc. CAGR = Compound Annual Growth Rate

The Hartford CBSA had a population of approximately 1.2 million in 2005. The market's population is projected to grow by approximately 0.8 percent annually over the next five years, similar to the projected growth rate for the U.S. as a whole. The following chart compares Hartford's population with the populations of the comparable facility markets.



While the Hartford market's population is significantly lower than the average among markets hosting recently built NHL-only arenas, several markets with similar populations, including Columbus, Nashville, Buffalo and Raleigh have developed NHL arenas in recent years.

While the CBSA population analysis presented above provides a uniform comparison of the populations of each market, it is also important to consider the media market population of each market. This factor is particularly important to the NHL and other sports leagues. The following exhibit summarizes the media market population of the Hartford area compared to similar NHL markets.



Comparable Arena Market Demographics - Media Market Population

As shown, the media market population for the Hartford area of approximately 2.6 million is significantly higher than the CBSA population. When compared to other existing NHL markets, the Hartford media market is somewhat below the average of the markets discussed herein, comparing closely to Raleigh, Nashville and Columbus.

As another comparison, it is helpful to consider the population within a specific radius of each market. In general, the population within 50 miles of a particular venue can be considered the primary market draw area from which the majority of facility patrons will be drawn. The following exhibit compares the estimated population within 50 miles of each comparable NHL facility discussed herein.



Comparable Arena Market Demographics - 50-Mile Radius Population

While the Hartford area's CBSA and media market population levels fell below the NHL only average, when the market is expanded to 50 miles, the Hartford market ranks third highest, behind only Miami and Phoenix. While this statistic indicates a relatively strong population from which the proposed new arena and NHL franchise could draw, it is important to understand that a variety of factors will impact the extent to which patrons from the outer edges of this radius will be drawn to the facility. For instance, high levels of traffic and related issues in and around the arena could negatively impact potential patrons' propensity to attend events at the facility. However, a quality facility that provides a high quality fan experience may have a positive impact on attracting patrons from outside the immediate Hartford area. Overall, the population in and around Hartford falls within the range of markets hosting recently built NHL facilities.

Age

The age of a specific populace can impact the overall drawing power for the proposed development, particularly for spectator events held at the proposed ballpark and arena. In general, the 18 to 34 year old age group is regarded in the spectator events industry as one of the groups that is most likely to attend sporting and other spectator events. The 35 to 54 year old age group is also regarded as a relatively strong market for these events. This age group also exhibits higher spending patterns than other age groups. A lower than average population concentration within these groups will not necessarily adversely affect the number of events hosted in the given market, but could potentially affect the type of programming that can work to maximize event potential at spectator facilities in the market. The following table summarizes the age distribution and median age of the Hartford-area population.

Hartford Age Statistics				
	Hartford CBSA	U.S.		
Age Distribution:				
Under 15	16.6%	20.7%		
15 to 24	14.2%	14.2%		
25 to 34	11.4%	13.6%		
35 to 44	14.7%	15.3%		
45 to 54	16.0%	14.1%		
55 and over	27.1%	22.1%		
Median Age	39.1	36.0		
Source: Claritas				

The Hartford market population is relatively old in comparison to the nation as a whole. Specifically, the median age of the Hartford market is approximately 3.1 years older than the national median and has a significantly larger proportion of its population aged 55 and over. The following chart compares the median age within each comparable arena market.

Comparable Arena Market Demographics - Median Age



As shown, the median age of the Hartford market is older than all but two of the comparable NHL markets discussed in this analysis.

Household Income

Household income is an important socioeconomic variable that can be indicative of the potential success of sports and entertainment venues. Household income can be used as a surrogate measure for the ability to purchase tickets, premium seating and other such items at sports facilities. The following table summarizes the key household income variables of the Hartford market area.

	Hartford CBSA	U.S.
Household Income Distribution:		
Under \$25,000	19.4%	26.0%
\$25,000 to \$49,999	23.3%	27.7%
\$50,000 to \$74,999	19.4%	19.1%
\$75,000 to \$99,999	14.4%	11.6%
Over \$100,000	23.5%	15.7%
Median Household Income	\$59,100	\$46,500
Average Household Income	\$75,700	\$63,300

Hartford Household Income Statistics

Source: Claritas

Household income levels in the Hartford market area are generally significantly higher than the national average, with higher proportions of households having annual incomes of \$100,000 or greater. The median and average household income of Hartford-area households are also higher than the national average. The following chart compares the median household income of the Hartford market with those of the comparable NHL markets.





Hartford's median household income ranks well above the average of the NHL markets considered as part of this analysis, trailing only the Minneapolis/St. Paul market.

Corporate Inventory

Local corporations play a significant role in supporting the arenas by purchasing private suites, season tickets and advertising/sponsorship opportunities. The following table summarizes the corporate inventory of the Hartford CBSA, including all corporate headquarters with at least 25 employees and \$5.0 million in annual sales and corporate branches with at least 25 employees.

Annual Sales (in millions)	Number of Headquarters	Subtotal
\$2,000.0 or more	7	7
\$1,500.0 - \$1,999.9	0	7
\$1,000.0 - \$1,499.9	4	11
\$750.0 - \$999.9	6	17
\$500.0 - \$749.9	2	19
\$250.0 - \$499.9	12	31
\$100.0 - \$249.9	37	68
\$50.0 - \$99.9	66	134
\$25.0 - \$49.9	131	265
\$10.0 - \$24.9	314	579
\$5.0 - \$9.9	341	920
Total Headquarters	920	
Corporate Branches	694	
Total	1,614	

Hartford CBSA Corporate Inventory

Note: Includes only corporate headquarters and branches with at least 25 employees. Source: Dun & Bradstreet.

As shown, the Hartford CBSA has a total of approximately 920 corporate headquarters with at least 25 employees and \$5.0 million in annual sales. The Hartford market is also home to approximately 690 corporate branches with 25 or more employees, resulting in a total corporate inventory of approximately 1,610.

The following chart compares the inventory of corporate headquarters and branches with at least 25 employees in each comparable arena market. It should be noted that the corporate headquarter inventories in the chart include only organizations with at least \$5.0 million in annual sales.



Comparable Arena Market Demographics - Corporate Inventory

Compared to other NHL markets, the Hartford corporate inventory ranks well below the average inventory of similar markets, ranking second lowest among the markets discussed in this analysis. This factor could have a significant impact on the ability of an NHL franchise to generate sufficient revenues from corporate sponsorship, premium seating and other such areas.

While the corporate inventory of the Hartford market is relatively small compared to other markets with newer NHL facilities, it is also important to consider the strength of companies located in the Hartford area. The Hartford market is home to three companies in the Fortune 100, while several other companies in the Fortune 100 have major operating centers in and around Hartford. Of the comparable NHL markets discussed herein, only Minneapolis and Nashville are currently headquarters to companies in the Fortune 100, with five headquarters and two headquarters, respectively. The strength of the corporate base and potential support for the proposed facility and NHL franchise in Hartford will play an important role in the potential success of the arena and team.

Demographic Summary

Within this section, the Hartford market has been compared to several markets hosting large, recently built arenas on the basis of a number of key demographic variables. The following is a summary of the key findings of the demographic analysis.

- The Hartford market's CBSA and media market population is within the range of markets hosting NHL arenas built since 1995.
- Hartford's corporate inventory within the range of the smaller market hosting NHL-only facilities, but ranks well below the comparable market average. However, the Hartford market has a relatively strong corporate presence, with three companies in the Fortune 100 headquartered in the Hartford area.
- The median age of Hartford-area residents is more than three years older than the national average, with a relatively high proportion of the population aged 55 or older.
- Hartford's median household income is among the highest of any comparable arena market.
- The presence of an older, wealthier population in the Hartford area could make it a strong market for club seats and other upscale amenities.

The Hartford market's population, income levels and other demographic characteristics are generally comparable to those of many markets hosting recently built NHL arenas. However, it is important to note that the current economic structure of the NHL places an increased emphasis on corporate support in terms of sponsorships, naming rights, premium seating and other support.

Given the relatively small number of corporate headquarters and branches in the Hartford market, an NHL franchise may struggle to generate sufficient revenues from the corporate sector. Despite a relatively small corporate inventory, local corporations have demonstrated an ability to generate support for various projects, including the Travelers Championship (formerly the Greater Hartford Open) PGA event. For an NHL franchise to succeed in Hartford, it will be critical to generate similar corporate support so that general ticket prices can be held at prices that enable the general populace to attend games.

Economic Impact Analysis

The economic and fiscal benefits generated by public assembly facilities are often among the primary determinants regarding the decision to construct a new facility. The purpose of this section is to provide estimates of the historical economic impacts related to the operations of the Hartford Civic Center and to estimate the incremental impacts that could result from the operations of a new arena.

Key Operating Assumptions

As a part of CSL's work with the Connecticut Development Authority (CDA) in 2006, estimates of the event demand and financial results of a new arena were developed. The previous analysis included two potential operating scenarios for the new arena. Both scenarios assumed that the University of Connecticut would continue to hold the majority of their home basketball games at the new facility. In addition, in one scenario it was assumed that an AHL franchise would serve as a primary tenant, while in the second scenario it was assumed that an NHL franchise would be brought to Hartford and would use the new arena as its home facility. The event assumptions for both scenarios have been updated based on the most current information available and are presented below.

New Arena – AHL Tenant

The following table summarizes the assumptions underlying the estimates related to the potential financial performance of a new arena in Hartford, assuming the presence of an AHL tenant hockey franchise.

					Direct	1			
	Annual	A ve Pd	No-Show/	Actual	Event		Per Capi	ta Spending	
Event Type	Events	Attendance	Comp Factor	Attendance	Revenue	Tickets	Concessions	Catering	Merchandise
Tenant Hockey (AHL)	43	4,800	5%	4,560	2,500	\$15.00	\$6.00	\$25.00	\$1.50
Tenant Football	7	6,000	5%	5,700	30,000	\$15.00	\$6.00	\$25.00	\$1.50
Tenant Lacrosse	8	10,000	5%	9,500	30,000	\$22.00	\$6.00	\$25.00	\$1.50
UCONN Basketball	21	15,000	10%	13,500	30,000	\$15.00	\$5.00	\$25.00	\$1.50
Concerts	12	10,000	-10%	11,000	25,000	\$40.00	\$7.00	\$25.00	\$7.00
Family Shows	30	3,500	-20%	4,200	15,000	\$20.00	\$2.00	\$25.00	\$4.00
Other Sports	12	9,000	10%	8,100	10,000	\$15.00	\$3.50	\$25.00	\$2.50
Flat Floor	10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other Events	20	5,000	0%	5,000	5,000	\$1.00	\$2.00	\$0.00	\$0.00
Premium Seating	_					Corporate	e Revenue		
Suites:						Annual Nar	ning Rights	\$750,000	
Quantity	50					Annual Adv	vertising	\$1,250,000	
Tickets per suite	16						0	. , ,	
Sold	45								
Average Price	\$70,000								
Club Seats:									
Quantity	1,000								
Sold	850								
Average Price	\$1,750								

Summary of Key	Operating	Assumptions - Nev	v Arena - AH	I Tenant
Summary of Key	Operating	Assumptions - Nev	V Alena - An	

Under this scenario, it is assumed that the revenue allocations for the new arena would be similar to the current operations of the HCC. It is assumed that the arena would receive rent and/or reimbursement for event expenses from each tenant, and would retain all revenue and merchandise commissions, non-event specific advertising revenue, premium seating revenue and other such revenue streams. The following table summarizes the estimated financial operations for a new arena in Hartford with an AHL tenant, based on the assumptions noted above.

	Now Arono
	AHL Tenant
Revenues	
Direct Event Revenues	\$2,208,000
CT Ticket Surcharge	1,667,000
Premium Seating	4,638,000
Naming Rights	750,000
Food & Beverage	2,636,000
Merchandise	321,000
Sponsorship & Sgnage	1,250,000
Other	600,000
Total revenues	\$14,070,000
Expenses	
Facility	\$4,500,000
General & administrative	6,500,000
Management Fee	1,000,000
Total expenses	\$12,000,000
Operating Income (Loss)	\$2,070,000

Estimated Financial Operating Results New Arena - AHL Tenant

As shown, a new arena with an AHL tenant is estimated to generate approximately \$14.1 million in annual revenues, while incurring approximately \$12.0 million in annual operating expenses. This level of operations would result in net annual operating income of approximately \$2.1 million, before debt service or capital reserve funding.

New Arena – NHL Tenant

In the second operating scenario, it is assumed that the new arena will serve as the home of an NHL franchise, in addition to UCONN basketball and other tenants and other events. While the new arena with an AHL tenant is assumed to operate in a manner similar to the existing HCC, the operations of an NHL arena typically differ significantly. While each case is subject to negotiations, in most cases, the NHL franchise is responsible for the operations of the arena, retaining all NHL and non-NHL event revenue as well as revenue from naming rights, advertising and other non-event specific revenue streams.

For purposes of this analysis, it is assumed that the NHL franchise would operate the proposed new arena and would retain all arena revenues. It is also assumed that the NHL franchise would be responsible for all arena operating expenses. The following is a summary of the key operating assumptions utilized in developing the financial projections for a new arena with an NHL franchise.

					Direct	1			
	Annual	Ave Pd	No-Show/	Actual	Event		Per Capi	ta Spending	
Event Type	Events	Attendance	Comp Factor	Attendance	Revenue	Tickets	Concessions	Catering	Merchandise
Tenant Hockey (NHL)	45	15,000	5%	14,250	n/a	\$55.00	\$10.00	\$40.00	\$4.00
Tenant Football	7	6,000	5%	5,700	30,000	\$15.00	\$6.00	\$25.00	\$1.50
Tenant Lacrosse	8	10,000	5%	9,500	30,000	\$22.00	\$6.00	\$25.00	\$1.50
UCONN Basketball	21	15,000	10%	13,500	30,000	\$15.00	\$5.00	\$25.00	\$1.50
Concerts	12	10,000	-10%	11,000	25,000	\$40.00	\$7.00	\$25.00	\$7.00
Family Shows	30	3,500	-20%	4,200	15,000	\$20.00	\$2.00	\$25.00	\$4.00
Other Sports	12	9,000	10%	8,100	10,000	\$15.00	\$3.50	\$25.00	\$2.50
Flat Floor	10	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Other Events	20	5,000	0%	5,000	5,000	\$1.00	\$2.00	\$0.00	\$0.00
Premium Seating						Corporate	e Revenue		
Suites:						Annual Nar	nina Riahts	\$3.000.000	
Quantity	80					Annual Adv	rtisina	\$5.000.000	
Tickets per suite	16						5	• - , ,	
Sold	75								
Average Price	\$125,000								
Club Seats:									
Quantity	2,500								
Sold	2,000								
Average Price	\$4,000								

Summarv of	Key Opera	tina Assum	ptions - New	Arena with	NHL Tenant
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The assumptions related to non-NHL events, including other tenant events, are assumed to remain the same whether the arena is home to an AHL or NHL franchise. However, estimates related to premium seating, naming rights, advertising and hockey event assumptions have been adjusted to reflect the presence of an NHL franchise.

In addition to the arena-related assumptions presented above, estimates were also developed related to the potential team-related revenues and expenses that could result from NHL franchise operations. These assumptions were based on operating results of existing NHL franchises. The following table summarizes the estimated financial operations of an NHL franchise and arena in Hartford.

Estimated Financial Operating Results NHL Arena and Franchise

Revenues	_
Arona Balatad	
Direct Event Income (Non-NHI Events)	\$2,100,000
CT Ticket 9 rcharge	3 521 000
Premium seating	17 375 000
Naming rights	3,000,000
Food and beverage	5,393,000
Advertising	5,000,000
Merchandise	604,000
Other	600.000
Total Arena Revenues	\$37,593,000
Trave Delated	
Icam Related	©07 405 000
NHL Gate Receipts	\$37,125,000
	31,000,000
Total Team Revenues	\$68,125,000
Total Team and Arena Revenues	\$105,718,000
Total Team and Arena Revenues	\$105,718,000
Total Team and Arena Revenues Expenses	\$105,718,000
Total Team and Arena Revenues Expenses Arena Related	\$105,718,000 -
Total Team and Arena Revenues Expenses Arena Related Facility	\$105,718,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative	\$105,718,000 - \$5,500,000 9.500,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee	\$105,718,000 - \$5,500,000 9,500,000 1.250,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee Total Arena Expenses Total Arena Expenses	\$105,718,000 - \$5,500,000 9,500,000 1,250,000 \$16,250,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee Total Arena Expenses	\$105,718,000 \$5,500,000 9,500,000 1,250,000 \$16,250,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee Total Arena Expenses Team Related Baver Compensation	\$105,718,000 \$5,500,000 9,500,000 1,250,000 \$16,250,000 \$44,000,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee Total Arena Expenses Team Related Player Compensation Other Team Operations	\$105,718,000 - \$5,500,000 9,500,000 1,250,000 \$16,250,000 \$44,000,000 41,200,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee Total Arena Expenses Team Related Player Compensation Other Team Operations Total Team Expenses	\$105,718,000 \$5,500,000 9,500,000 1,250,000 \$16,250,000 \$44,000,000 41,200,000 \$85,200,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee Total Arena Expenses Team Related Payer Compensation Other Team Operations Total Team Expenses	\$105,718,000 \$5,500,000 9,500,000 1,250,000 \$16,250,000 \$16,250,000 \$44,000,000 41,200,000 \$85,200,000
Total Team and Arena Revenues Expenses Arena Related Facility General & administrative Management Fee Total Arena Expenses Total Arena Expenses Team Related Payer Compensation Other Team Operations Total Team Expenses Total Team Expenses Total Team Expenses	\$105,718,000 \$5,500,000 9,500,000 1,250,000 \$16,250,000 \$16,250,000 \$44,000,000 \$44,000,000 \$44,000,000 \$41,200,000 \$85,200,000 \$101,450,000

As shown, combined NHL franchise and arena operations are estimated to generate approximately \$105.7 million in total revenues and \$101.5 million in total annual operating expenses, resulting in approximately \$4.3 million of net operating income.

Survey Results

While the financial operations of the arena presented above have been based on the information developed as part of CSL's previous engagement with the CDA, the related economic impact estimates have been refined through a survey process as part of the current analysis. Specifically, over 500 one-on-one interviews were completed with patrons of the HCC at events taking place during March 2007, including Wolf Pack games as well as an ice skating exhibition. The intent of this process was to gather additional information on patron spending before and after arena events.

As an initial set of questions, patrons were first asked if they were residents of Hartford and, if not, if they were staying in a hotel during their visit to Hartford. As shown below, less than 10 percent of HCC patrons are actually residents of the City of Hartford. Of those respondents who are visiting Hartford to attend the event, approximately one percent are staying overnight at a hotel. On average, those respondents staying in a hotel indicate an average stay of two nights.



Respondents were then asked if they have attended events at the Hartford Civic Center in the past and, if so, which events they have attended.



Approximately 95 percent of the survey respondents have attended events at the HCC in the past. Of these participants, approximately 73 percent have attended Wolf Pack events, while 62 percent have attended concerts at the HCC. In addition, approximately 50 percent had attended a UCONN basketball event, 49 percent had attended a family show in the past, and 48 percent had attended a Whalers hockey game at the HCC.

After these initial questions, the survey focused primarily on spending before and after an event as well as the impact of various new arena locations on potential spending and attendance at the new arena. Respondents were first asked to indicate the likelihood of attending events at a new arena in downtown Hartford or a new arena located outside of downtown Hartford.



As shown, location appears to have a slight impact on HCC patrons' propensity to attend events, with approximately 95 percent of patrons indicating they would attend the same number or more events at a new downtown arena, compared to approximately 88 percent if the arena was located outside of the downtown area.

Survey participants were then asked to indicate if they currently patronize area restaurants, bars, nightclubs or retail establishment before or after HCC events. Respondents were also asked to estimate their spending at each type of establishment while attending HCC events as well as their spending outside a new downtown arena and a new arena located outside of downtown.



As shown, approximately 53 percent of all survey participants currently patronize area establishments while attending events at the HCC. Based on the survey results, it is estimated that spending outside the HCC at restaurants, bars and retail establishments totals approximately \$23.10 per person, while these patrons indicated spending outside a new arena would total approximately \$36.50 per person.

Economic and Fiscal Impact Analysis - Methodology

Economic impacts are typically conveyed through measures of direct spending, total output, personal earnings and total employment. Each of these measures of economic impact is further described below:

- *Direct Spending* represents spending generated by the arena and arena patrons, including in-facility expenditures on tickets, rent, concessions, novelties and parking; out-of-facility spending on hotels, restaurants, retail, transportation and entertainment; and spending related to the facility, including advertising, sponsorships, premium seating and other similar sources of spending.
- *Total Output* represents the total direct, indirect and induced spending effects generated by the arena.
- *Personal Earnings* represent the wages and salaries earned by employees or businesses involved with the operations of a public assembly facility.
- *Employment* represents and estimate of the total full- and part-time jobs that are supported by the direct, indirect and induced spending related to the arena.

Direct Spending

The construction phase of an arena represents a significant one-time impact on a local economy. This impact is determined by the volume and nature of the construction expenditures as well as the region in which they take place. Direct spending on construction typically consists primarily of a large number of purchases of materials and labor. Since these large purchases tend to take place in a relatively short time frame, a distinct and visible impact on the community is typically generated during the construction phase.

The operations of arenas and their tenants can also impact the local economy in a variety of ways. Direct spending is generated during events on tickets, concessions, merchandise and parking as well as before and after events throughout the local hotels, restaurants, retail and other establishments. In addition, the operations of a public assembly facility can generate facility-related spending in areas such as advertising, premium seating, naming rights and sponsorships. It is important to note that, in the scenario with an NHL tenant, direct spending has been adjusted downward to reflect the fact that a significant portion of the spending will be allocated to player payroll. Due to the unique nature of professional sports salaries, a significant portion of this spending is assumed to take place outside the local economy.

Direct spending represents the beginning of the calculation of economic impacts within the economy, or what is termed the initial change in final demand. For purposes of this analysis, impacts are represented as total economic activity and net new economic activity. Total economic activity represents gross spending associated with the construction and operations of the arena regardless of the origin of spending and whether or not the spending would have taken place in another form within the local economy (i.e. displaced spending).

Multiplier Effects

Economic impacts are further increased through the re-spending of the direct spending. The total impact is estimated by applying an economic multiplier to initial direct spending to account for the total economic impact. The total output multiplier is used to estimate the aggregate total spending that takes place, beginning with the direct spending and continuing through each successive round of re-spending. Successive rounds of respending are generally discussed in terms of their indirect and induced effects on the area economy.

Indirect Effects – consist of the re-spending of the initial or direct expenditures. These indirect impacts extend further as the dollars constituting the direct expenditures continue to exchange hands. This process, in principle, could continue indefinitely. However, recipients of these expenditures may spend all or a part of it on goods and services outside the market area, put part of these earnings into savings, or pay taxes. This spending halts the process of subsequent expenditure flows and does not generate additional spending or impact within the community after a period of time. This progression is termed leakage and reduces the overall economic impact.

Induced Effects – consist of the positive changes in spending, employment, earnings and tax collections generated by personal income associated with the operations of the facility and franchises. Specifically, as the economic impact process continues, wages and salaries are earned, increased employment and population are generated, and spending occurs in virtually all business, household and government sectors. This represents the induced spending impacts generated by direct expenditures.

The appropriate multipliers to be used are dependent upon certain regional characteristics and also the nature of the expenditure. An area that is capable of producing a wide range of goods and services within its border will have higher multipliers, a positive correlation existing between the self sufficiency of an area's economy and the higher probability of re-spending occurring within the region. If a high proportion of the expenditures must be imported from another geographical region, lower multipliers will result.

The multiplier estimates used in this analysis are based on the IMPLAN System, which is currently used by hundreds of universities and government entities throughout the country. IMPLAN is a microcomputer program that performs regional input-output analysis based on 528 industrial sectors.

Economic and Fiscal Impact Analysis – Operations

Based on the key operating assumptions and results of the fan intercept surveys discussed above, estimates of the economic and fiscal impacts related to the development of a new arena have been prepared. The following table presents the estimated gross annual economic impacts of the new arena under both operating scenarios, compared to the estimated impacts of the HCC going forward, as developed in CSL's previous engagement with the CDA.

	On-Going	ng New Arena Inc			Incremental Impacts	
	нсс	AHL	NHL (2)	AHL	NHL (2)	
Direct Spending	\$42,049,000	\$75,483,000	\$124,599,000	\$33,434,000	\$82,550,000	
Total Output	\$70,569,000	\$126,939,000	\$209,770,000	\$56,370,000	\$139,201,000	
Earnings	\$32,523,000	\$57,770,000	\$97,445,000	\$25,247,000	\$64,922,000	
.bbs (1)	1,400	2,500	4,300	1,100	2,900	
Tax Revenues						
State Sales	\$2,931,000	\$5,175,000	\$8,876,000	\$2,244,000	\$5,945,000	
State Lodging	\$88,000	\$116,000	\$148,000	\$28,000	\$60,000	
State Personal Income	\$1,110,000	\$1,972,000	\$3,326,000	\$862,000	\$2,216,000	
State Business	\$242,000	\$435,000	\$719,000	\$193,000	\$477,000	
Total State Taxes	\$4,371,000	\$7,698,000	\$13,069,000	\$3,327,000	\$8,698,000	

Estimated Economic and Fiscal Impacts Annual Arena Operations

(1) Indudes full- and part-time jobs. This equates to approximately 1,000 FTEs for the existing HCC, 1,800 FTEs for an AHL arena and 3.100 FTEs for an NHL arena.

(2) Direct spending has been adjusted downward to reflect the assumption that a significant portion of the spending related to an NHL franchise is allocated to player payroll, and that only a portion of player spending will actually impact the local economy.

As shown, the HCC is estimated to generate approximately \$42.0 million in direct spending going forward, which would result in approximately \$70.6 million in total output, \$32.5 million in earnings and would support approximately 1,400 jobs. In addition, this spending is estimated to generate approximately \$2.9 million in annual state sales taxes, \$88,000 in state lodging tax revenue, \$1.1 million in personal income taxes and \$242,000 in state business taxes.

The operations of a new arena with an AHL tenant are estimated to generate approximately \$75.5 million in direct spending, \$126.9 million in total output and \$57.8 million in total earnings, supporting approximately 2,500 total jobs. Similarly, this spending is estimated to generate approximately \$5.2 million in state sales tax revenue, \$116,000 in lodging tax revenue, \$2.0 million in personal income taxes and \$435,000 in business taxes.

Due to the higher attendance, ticket prices and associated sending related to an NHL franchise, a new arena with an NHL tenant is estimated to generate significantly higher overall spending and related economic and fiscal impacts than either the existing HCC or a new arena with an AHL tenant. Specifically, it is estimated that the operations of the new arena and NHL franchise could generate approximately \$124.6 million in direct spending, which would result in approximately \$209.8 million in total output, \$97.4 million in earnings and would support approximately 4,300 jobs. This spending is also estimated to generate approximately \$8.9 million in state sales taxes, \$148,000 in state lodging tax, \$3.3 million in personal income taxes and \$719,000 in state business taxes.

Economic and Fiscal Impact Analysis – Construction

In addition to the ongoing operations of the new arena, spending during the construction period will also generate significant economic and fiscal benefits for the Hartford area. The amount of economic impacts taking place during the construction period will depend on the project cost for the arena, which could vary greatly depending on capacity, square footage, level of finish and amenities and other such factors.

In order to provide a preliminary estimate of the range of project costs that could be associated with the development of a new arena in Hartford, the following table presents construction costs of several comparable minor league and NHL arenas. The costs presented in the table have been adjusted to 2007 dollars using an annual inflation factor of 7.5 percent. In addition, the project costs for each arena have been adjusted to reflect the estimated cost if the arena were constructed in Hartford based on the relative construction cost indices of each respective market.

Facility	Location	Year O pened	Project Cost (1)
Minor League			
Qwest Center (2)	Omaha, NE	2003	\$462.9
Wells Fargo Arena (2)	Des Moines, IA	2004	315.1
Sprint Center	Kansas City, MO	2007	304.1
Veterans Memorial Coliseum	Jacksonville, FL	2003	226.1
Bi-Lo Center	Greenville, SC	1998	175.7
Ford Center	Oklahoma City, OK	2002	163.1
Minor League Average			\$274.5
NHL-Only			
BankAtlantic Center	Sunrise, FL	1998	\$508.6
RBC Center	Raleigh, NC	1999	436.8
Gaylord Entertainment Center	Nashville, TN	1996	424.9
St. Pete Times Forum	Tampa, FL	1996	411.6
Glendale Arena	Glendale, AZ	2003	334.1
Nationwide Arena	Columbus, OH	2000	309.0
HSBC Arena	Buffalo, NY	1996	293.3
New Penguins Arena	Pittsburgh, PA	2010	290.0
Xcel Energy Center	St. Paul, MN	2000	272.3
NHL Only Average			\$364.5
Average - All Arenas			\$328.5

Comparable Arena Construction Costs

(1) Adjusted to 2007 dollars assuming an annual inflation rate of 7.5 percent for construction costs, and adjusted to represent the estimated cost if the facility were built in Hartford based on the relative building cost indices for each market.

(2) Includes an arena and convention center.

As shown, the average project cost of the arenas included in the analysis was approximately \$328.5 million in 2007 dollars, adjusted to reflect the building cost indices of the respective markets. Adjusted project costs range from a low of \$163.1 million for the Ford Center in Oklahoma City to a high of \$508.6 million at the BankAtlantic Center in Sunrise, Florida.

Based on factors such as the costs of comparable arenas built in other markets, the relatively high building cost index of the Hartford market and the rapid inflation of construction costs throughout the country, it is estimated that a new, NHL-ready facility in Hartford could range from approximately \$300.0 million to \$400.0 million, while an AHL facility is estimated to cost between \$250.0 million and \$300.0 million. The actual project cost and resulting economic impacts could vary greatly depending on the final project design. The following table summarizes the range of economic impacts estimated be generated during the construction period. The impacts represent the estimated gross economic impact related to arena construction.

	AHL Arena	NHL Arena
Project Cost	\$250,000,000	\$400,000,000
Adjusted Local Spending	\$187,500,000	\$300,000,000
Total Output Earnings Jobs (1)	\$338,277,000 \$166,378,000 3,200	\$541,243,000 \$266,204,000 5,100

Estimated Economic and Fiscal Impacts Construction - One-Time Impacts

(1) Includes full- and part-time jobs. A factor of approximately 80 percent can be applied to this number to determine FTEs.

As shown, it is estimated that approximately \$187.5 million to \$300.0 million would be spent locally for arena construction. This spending is estimated to generate approximately \$338.3 million to \$541.2 million in total output and between \$166.4 million and \$266.2 million in earnings, supporting approximately 3,200 to 5,100 jobs during the construction period.

Non-Quantifiable Benefits

In addition to the economic effects of money spent on arena construction and at arena events, the Hartford market could receive additional benefits from the development of a new arena through the development of restaurants, bars, hotels and other establishments in the area surrounding the new arena. Several communities have found that the development of entertainment facilities can spur new business growth and revitalize the immediate area in which the arena is developed.

The effects of attracting patrons to a concentrated area will impact numerous industries and enhance economic activity throughout the market area. It is possible that the development of a new arena in Hartford could attract various commercial and retail developments to vacant or under-utilized parcels in the downtown area. Such developments could include office, hotel, restaurant, retail and related developments that could benefit directly from the operations of the proposed arena. Indirect impacts can benefit support industries including transportation, wholesale, manufacturing, warehousing and other such industries. However, it should be noted that the development of a new arena could have an adverse impact on businesses located near the HCC should the Center cease operations. In addition to the quantified benefits generated from the construction and on-going operations of the proposed arena, there are other benefits that cannot be quantitatively measured. Potential qualitative benefits for the local and regional market area could include:

- Enhanced growth and ancillary private sector development spurred by the operations of an arena;
- Diversified entertainment alternatives for families in the local area;
- New advertising opportunities for local businesses;
- Enhanced community pride, self-image, exposure and reputation; and
- Other such benefits.

VIII Construction Cost Estimates for New Facility





Construction Cost Estimates for New Facility

Turner Construction Sports was asked to prepare a construction cost model range for the New Hartford Arena. To prepare the cost model, we studied the construction costs from seven recently completed National Basketball Association (NBA) arenas. The costs were all escalated to a construction start in 2007 (current pricing) by using the Turner Index, a nationally recognized cost indexing system that tracks price changes due to escalation and other market forces. The costs were then relocated to the Hartford marketplace using the Means Relocation Factors, another nationally recognized index which accounts for differences in material and labor costs from city to city in the United States.

Next, we adjusted the costs to the specifics of the Hartford site and program. For example, money was added for demolition of the existing civic center and for relocation of the utilities that we expect to find on this urban site. Money was deducted due to the limited amount of site work for the buildings plaza on this site compared to other projects in the sampling of jobs studied.

The result of our study is a prediction of the range of construction costs that one could expect for a new NBA arena in current costs in Hartford, CT consistent with the quality of the seven projects we included in the sample. The Arenas included in our sampling were:

American Airlines Arena (Miami, FL) Nationwide Arena (Columbus, OH) AT&T Center (San Antonio, TX) Bobcats Arena (Charlotte, NC) American Airlines Center (Dallas, TX) Fed Ex Forum (Memphis, TN) Verizon Center (Washington, DC)

Construction Cost Estimates for New Facility on Existing Hartford Civic Center Site

	Low Range		High Range		
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Demolition & Site Clearing	\$8.60	\$7,000,000		\$8.60	\$7,000,000
Utility Relocation and New Services	\$5.83	\$4,700,000		\$6.47	\$5,300,000
Excavation and Foundation	\$19.20	\$15,600,000		\$21.31	\$17,300,000
Structural Frame	\$71.11	\$57,900,000		\$78.93	\$64,200,000
Roofing and Waterproofing	\$4.10	\$3,300,000		\$4.55	\$3,700,000
Exterior Wall	\$20.13	\$16,400,000		\$22.34	\$18,200,000
Interior Finishes	\$48.31	\$39,300,000		\$53.62	\$43,600,000
FF&E	\$4.68	\$3,800,000		\$5.19	\$4,200,000
Scoreboard	\$7.56	\$6,200,000		\$8.39	\$6,800,000
Ice Floor	\$1.63	\$1,300,000		\$1.81	\$1,500,000
Equipment	\$5.62	\$4,600,000		\$6.23	\$5,100,000
Food Service Equipment	\$13.02	\$10,600,000		\$14.45	\$11,800,000
Seating	\$8.82	\$7,200,000		\$9.79	\$8,000,000
Vertical Transportation	\$5.00	\$4,100,000		\$5.55	\$4,500,000
Plumbing	\$9.16	\$7,500,000		\$10.17	\$8,300,000
Fire Protection	\$2.47	\$2,000,000		\$2.74	\$2,200,000
HVAC	\$25.42	\$20,700,000		\$28.22	\$23,000,000
Electrical	\$29.45	\$24,000,000		\$32.69	\$26,600,000
Audio Visual	\$9.06	\$7,400,000		\$10.05	\$8,200,000
Plaza and Site	\$5.26	\$4,300,000		\$5.84	\$4,800,000
Direct Work Subtotal	\$304.44	\$247,900,000		\$336.96	\$274,300,000
Indirect Costs	\$45.67	\$37,200,000		\$50.54	\$41,100,000
Construction Total	\$350.11	\$285,100,000	•	\$387.50	\$315,400,000
Cost per Seat	\$15,411	-		\$17,049	-

Notes:

- The above data has been adjusted for a construction start in 2007 in the Hartford, CT marketplace.

- Study based on the current pricing of 7 Professional Arenas

- Both ranges include demolition of the existing Civic Center and the Chruch St Garage.

- Research on specifics of the sites has yet to be complete; consider this as an order of magnitude study

- Above costs do not include project soft costs such as design fees, financing, land, project contingency, etc.

- Gross area of project is 814,000 sf with 18,500 seats for basketball

Turner Construction \equiv Sports

Construction Cost Estimates for New Facility at Sites 2 and 3

[Low Range			High Range	
Demolition & Site Clearing	\$4.00	\$3.300.000	\$4.44	\$3.600.000	
Utility Relocation and New Services	\$5.83	\$4,700,000	\$6.47	\$5.300.000	
Excavation and Foundation	\$19.20	\$15,600,000	\$21.31	\$17,300,000	
Structural Frame	\$71.11	\$57,900,000	\$78.93	\$64,200,000	
Roofing and Waterproofing	\$4.10	\$3,300,000	\$4.55	\$3,700,000	
Exterior Wall	\$20.13	\$16,400,000	\$22.34	\$18,200,000	
Interior Finishes	\$48.31	\$39,300,000	\$53.62	\$43,600,000	
FF&E	\$4.68	\$3,800,000	\$5.19	\$4,200,000	
Scoreboard	\$7.56	\$6,200,000	\$8.39	\$6,800,000	
Ice Floor	\$1.63	\$1,300,000	\$1.81	\$1,500,000	
Equipment	\$5.62	\$4,600,000	\$6.23	\$5,100,000	
Food Service Equipment	\$13.02	\$10,600,000	\$14.45	\$11,800,000	
Seating	\$8.82	\$7,200,000	\$9.79	\$8,000,000	
Vertical Transportation	\$5.00	\$4,100,000	\$5.55	\$4,500,000	
Plumbing	\$9.16	\$7,500,000	\$10.17	\$8,300,000	
Fire Protection	\$2.47	\$2,000,000	\$2.74	\$2,200,000	
HVAC	\$25.42	\$20,700,000	\$28.22	\$23,000,000	
Electrical	\$29.45	\$24,000,000	\$32.69	\$26,600,000	
Audio Visual	\$9.06	\$7,400,000	\$10.05	\$8,200,000	
Plaza and Site	\$5.26	\$4,300,000	\$5.84	\$4,800,000	
Direct Work Subtotal	\$299.85	\$244,200,000	\$332.80	\$270,900,000	
Indirect Costs	\$44.98	\$36,600,000	\$49.92	\$40,600,000	
Construction Total	\$344.82	\$280,800,000	\$382.71	\$311,500,000	
Cost per Seat	\$15,178		\$16,838	}	

Notes:

- The above data has been adjusted for a construction start in 2007 in the Hartford, CT marketplace.
- Study based on the current pricing of 8 Professional Arenas
- Research on specifics of the sites has yet to be complete; consider this as an order of magnitude study
- Above costs do not include project soft costs such as design fees, financing, land, project contingency, etc.
- Gross area of project is 814,000 sf with 18,500 seats for basketball








Funding Analysis

The intent of this section is to summarize the typical funding sources that have been used to fund public assembly facilities in other communities as well as to quantify potential sources of funds that could be used for a new arena in Hartford. This section is divided into the following sub-sections:

- Financing Techniques and Vehicles
- Comparable Facility Funding
- Summary of Potential Hartford Funding Sources

Financing Techniques and Vehicles

An important consideration in evaluating the financing options available to finance the proposed arena development must include a determination of which municipal entity will issue the bonds. Whenever public debt is issued, the financial standing of the issuer is important in determining the interest rate that will be paid on the bonds. For a project that is anticipated to cost several hundred million dollars, the interest rate paid can have a significant impact on the annual debt service expense. At present, the State of Connecticut has a rating of AA by Standard and Poor's and Aa3 by Moody's, while the City of Hartford has ratings of _____ and ____ by Standard and Poor's and Moody's, respectively.

Another consideration when developing a facility funding plan relates to the Federal Tax laws that govern the tax-exempt status of municipal bonds issued for a project when a private user, such as an NHL franchise, will be the primary beneficiary of the new facility. The majority of similar facility development projects around the country have involved some form of joint public and private partnership. Depending on the final structure of the agreement, the tax-exempt status of any bonds issued for the project may be impacted, potentially resulting in significantly higher interest rates and debt service payments.

General Obligation Bonds

General obligation bonds are backed by a pledge of ad valorem taxes of the issuer. This pledge is generally supported by a commitment from the issuer to repay the principal and interest through whatever means necessary, including levying additional taxes. Advantages associated with general obligation bonds revolve around the strength of the credit, typically resulting in lower interest rates. General obligation issuances typically result in a simple financing plan that lowers the cost of issuance and reduces the overall bond size, since a debt service reserve fund is often not required. Also, the strength of the public sector pledge provides a higher credit rating and therefore a lower overall cost of financing the project.

General obligation bond financing projects may be structured with a lower variable interest rate in the early years of the project, with conversion to a fixed rate in later years, although such a structure could require specific legislation. The primary disadvantage associated with general obligation indebtedness is that the bonding capacity for other capital needs is reduced. Projects financed with general obligation bonds may also require voter approval. The public may perceive a sports and entertainment facility project as less essential than improved streets, libraries, education or other public services, especially if the project will require increased property taxes.

In addition to unlimited general obligation debt, the State or other entities could issue Special Tax Obligation debt for the project. This debt is similar to general obligation debt in that it is backed by the credit of the public entity. However, this type of debt requires a specific funding source that is not tied to ad valorem taxes. For instance, the majority of the State's transportation spending is funded through a special tax on vehicles and petroleum products, such as gasoline or diesel fuel.

The State of Connecticut currently budgets approximately \$1.2 billion per year in new debt for a variety of projects, including education projects and other such projects. While the State has capacity for upwards of \$2.5 billion per year, exceeding the current budgeted amount would require specific revenue sources to back the debt, whether an increase in ad valorem taxes or a special tax source. Similarly, while the City currently has approximately \$300 million in debt outstanding, the City could issue up to \$1.45 billion in total debt. However, as with the State, in order to do so the City would likely need to identify specific revenue sources to be able to repay any additional debt.

Revenue Bonds

A frequently used method of facility financing is the issuance of revenue bonds. Revenue bonds are special obligations issued by municipalities or other public agencies for which payment is dependent upon a particular source of funds, such as revenues generated by the project, to provide the amount needed for bond repayment. The issuer of such bonds pledges to the bondholders the revenues generated by the project being financed. No pledge of state or local ad valorem tax revenues is required. However, other taxes may be assessed and/or pledged, in whole or in part, by a public entity to provide funds necessary to pay off the revenue bond offering. As will be discussed later in this section, in many cases, any change in tax rates for such an issuance requires public referendum or legislative approval. The major disadvantage associated with revenue bonds relates to interest rates that are typically higher than those associated with general obligation bonds. This is largely due to the fact that revenue bonds are not backed by the full faith and credit of the issuing entity. In addition, funding of a debt service reserve and other credit enhancements out of bond proceeds typically make the required bond size larger, with higher annual debt service payments.

Revenue bond financing may also be structured in such a way that payments may be tied to a lower variable rate in the initial years of operation and converted to a higher fixed rate in later years. This is often advantageous in situations where the particular revenue stream or streams that are pledged to debt service are expected to increase annually.

Certificates of Participation

Certificates of Participation (COPs) represent another financial instrument that has been used to finance sports facilities in markets around the country. COP holders are repaid through an annual lease appropriation by a sponsoring governmental agency. COPs do not legally commit the governmental entity to repay the certificate holder beyond the annual appropriations, and therefore do not typically require voter approval. Further, this type of instrument is not subject to many of the limitations and restrictions typically associated with general obligation bonds. As COPs generally offer the issuing authority less financial risk and more flexibility than other financing instruments, they tend to be more cumbersome, due to the reliance on a trustee for appropriations while also typically carrying a higher coupon rate relative to traditional general obligation bonds.

COPs could allow the City or State to enhance a revenue source with a pledge to make up any revenue deficiencies from other City or State funds. This issue would be subject to annual appropriation. The certificates usually imply that some other security, such as revenue from operations or a sales tax, will be relied upon as the primary source of credit worthiness.

The primary advantage associated with COPs is that the obligation enhances the issue, resulting in an interest rate more favorable than standard revenue bond issues. The disadvantage associated with COPs is that primary credit must still be established, and the issuance is typically more costly than general obligation or revenue bonds. Because of these issues, the City and State have historically not utilized COPs for major development projects.

Tax Increment Financing (TIF)

Tax Increment Financing (TIF) essentially involves capturing assessed valuation growth within a specific area (i.e. TIF District) related to a particular development. TIF often requires the enactment of legislation to allow an entity to establish a TIF District. Typically, a redevelopment agency delineates a project area and declares a base year. The existing base-assessed valuation is taxed as before by each overlapping taxing entity covering a portion of the project area. The additional assessed valuation, or additional tax revenue generated within the district, added to the tax rolls over the base is then taxed at the same rate as the base valuation. However, those revenues attributed to the incremental assessed valuation or the incremental tax revenues are remitted to the redevelopment agency and used to pay debt service on the project. While TIF typically involves the capture of incremental tax revenues, this type of financing may also be used to capture incremental sales tax revenues or other similar taxes generated within a specific District.

The City recently established its first TIF District as part of their investment in the Colt Gateway project. In this and most other cases, the City's policy states that 50 percent of the incremental property tax revenues generated within in the district are allocated to repayment of the City's project debt. Similarly, the CDA has established several brownfield TIF districts throughout the State, including one in Hartford. With this project, the City Council elected to increase the share of incremental property tax revenues allocated to project debt to 60 percent, rather than the normal 50 percent noted above. In order to establish a TIF District, the City or other entity would be required to hold public hearings and bring the plan through the appropriate planning or redevelopment agency. The plan would then be brought to the City Council for approval and determination on the percentage of incremental revenues that could be used for the specific project.

Private/Public Equity

In addition to the public funding sources noted above, most public assembly facilities require some level of private equity. Private sources of equity can include cash equity contributions, land contributions, and revenues generated at the facility. These facility related revenues may include up-front revenues, such as suite deposits, seat license fees, pouring rights or concessionaire contributions. Other facility revenues may include ongoing, contractually obligated income sources such as annual suite and club seat payments, naming rights revenues or long-term sponsorship contract revenues. In addition, equity contributions have been received from local businesses and other entities that perceive benefit from the development of an arena.

As shown in the previous section, for purposes of this analysis, it is assumed that revenues from naming rights, premium seating, sponsorship and other sources that could be used for facility financing have been included in facility operating revenues. To the extent available, any excess revenues generated from these or other private revenue streams could potentially be used to cover a portion of the facility debt service requirements.

Comparable Facility Funding

Among the primary considerations in the potential development of a new arena in Hartford are the construction costs and associated funding sources to be used for facility development. In evaluating potential funding sources that could be used for the proposed arena, it is helpful to understand the funding structures used for the development of comparable facilities around the country. The following table summarizes the total construction costs and the portion of the costs covered by public and private sector revenue streams. All dollar figures are stated in 2007 dollars and have been adjusted to reflect the estimated project cost if the facility were to be built in Hartford, based on the relative building cost indices of each market.

Comparable Arena Funding Summary (U.S. Facilies Only)

		Year	Total	Adjusted	Amo	ount	Percer	itage
Facility	Location	Opened	Cost	Cost (1)	Private	Public	Private	Public
Municipal Facilites								
BOK Center	Tulsa, OK	2008	\$183.0	\$224.4	\$0.0	\$224.4	0%	100%
Veterans Memorial Coliseum	Jacksonville. FL	2003	130.0	226.1	0.0	226.1	0%	100%
Ford Center	Oklahoma Citv. OK	2002	87.0	161.3	0.0	161.3	0%	100%
Wells Fargo Arena (2)	Des Moines, IA	2005	216.7	292.7	26.3	266.3	9%	91%
Qwest Center (2)	Omaha, NE	2003	291.0	462.9	111.1	351.8	24%	76%
Sprint Center	Kansas City, MO	2007	276.0	282.9	93.4	189.6	33%	67%
Municipal Average			\$197.3	\$275.0	\$38.5	\$236.6	11%	89%
NHL-Only								
Jobing.com Arena	Glendale, AZ	2003	\$207.0	\$334.1	\$43.4	\$290.7	13%	87%
BankAtlantic Center	Sunrise, FL	1998	217.7	508.5	106.8	401.7	21%	79%
Xcel Energy Center	St. Paul, MN	2000	170.0	272.3	70.8	201.5	26%	74%
RBC Center	Raleigh, NC	1999	176.3	436.8	139.8	297.0	32%	68%
Nationwide Arena	Columbus, OH	2000	166.0	308.9	278.0	30.9	90%	10%
			¢407.4	¢070 4	¢407.0	¢044.4	200/	C 40/
NHL Only Average			\$187.4	\$372.1	\$127.8	\$244.4	30%	64%
			¢400.0	\$040 C	A70 (* 040.4	000/	770/
Average - All Arenas			\$192.8	\$319.2	\$79.1	\$240.1	23%	77%

(1) Adjusted to 2007 dollars assuming an annual inflation rate of 7.5 percent for construction costs, and adjusted to represent the estimated cost if the facility were built in Hartford based on the relative building cost indices for each market.

Municipal facilities are generally funded with a majority of public sources, average approximately 89 percent of the total project cost. After adjusting for inflation to current dollars and for the cost of construction in each market, the estimated average cost of this facility type in Hartford would be approximately \$275.4 million.

While private contributions make up a somewhat larger share of the average NHL facility, the public sector still contributes approximately 64 percent of the total project cost for these facilities. The overall average project cost for an NHL facility in Hartford is estimated at approximately \$372.1 million.

As shown, based on the comparable facilities included in this analysis, it is likely that at least some level of public funding will be required for the development of a new NHL arena in Hartford. However, if a new arena is built without an NHL tenant, as has been the case in Oklahoma City, Tulsa, Kansas City and other markets, the public share is likely to be significantly higher. In many cases, the public has contributed the entire cost of the project after evaluating the overall benefits that can be derived from the development of such a facility. Specific information about the development and funding of each of these facilities is provided on the following pages.

Municipal Arena Case Studies

BOK Center

The 18,000 seat BOK Center is scheduled to open in Tulsa in September 2008. The project includes the development of the arena as well as the expansion of the existing Tulsa Regional Convention Center. The total project cost is currently estimated at approximately \$243.9 million, of which approximately \$190.0 million is directly related to the development of the BOK Center.

The overall project, including both the convention center and the arena, is being funded primarily through a portion of revenues generated by a new 1.0 percent county-wide sales tax. The tax was implemented in 2004 and is slated to be in place for 13 years. The remaining cost of the BOK Center is being supported through private revenues, including naming rights, founding partner sponsorship and founding partner suite sales.



Sprint Center Funding

The Sprint Center project will open in the fall of 2007 at an estimated cost of approximately \$276 million. The City of Kansas City will contribute \$184 million initially and up to \$16 million more if needed. The City's share will be from revenues resulting from a \$1.50 business fee applied to hotel rooms and a \$4.50 increase in the daily car rental tax. There will also be a 2.275 percent user fee on all ticket sales.

Private funding will include \$50 million from Anschutz Entertainment Group (AEG). AEG will also cover any cost overruns. Sprint Corporation has agreed to pay \$2.5 million per year over 25 years for naming rights. The present value of these

payments is approximately \$32 million (assuming a 6% interest rate). The final piece of private funding is a \$10 million contribution from the National Association **Basketball** of Coaches (NABC). The arena will house the NABC's executive offices and the NABC Hall of Fame.



Wells Fargo Arena

The Iowa Events Center in Des Moines, Iowa includes the 17,170-seat Wells Fargo Arena, along with a new exhibit hall and a renovated Veterans Memorial Auditorium. The total project cost for the complex was approximately \$216.7 million, consisting of the following specific costs:

- \$91.7 million arena construction
- \$45.0 million exhibit hall construction
- \$2.4 million Auditorium renovation
- \$9.4 million land
- \$42.1 million soft costs
- \$12.3 million soft/infrastructure
- \$8.8 million contingency/reserves
- \$5.0 million to cover construction cost increases due to construction delays

The majority of project funding took the form of \$153.0 million in general obligation bonds issued by Polk County. In addition, \$19.5 million of the bonds were backed by naming rights and other private contributions, while \$10.8 million of the bonds were backed by contributions from local municipalities, including \$7.5 million from the City of Des Moines, \$1.3 million from the City of West Des Moines and less than \$1.0 million from each of 12 other municipalities. The remaining cost was backed by general County funds.

In addition to the County general obligation bonds, other revenue sources included a \$53.3 million grant from the Vision Iowa program, a state program that contributes economic to development projects throughout the \$10.4 million state. and from miscellaneous sources such as sales tax reimbursements and utilities rebates.



Qwest Center

The Qwest Center in Omaha, Nebraska opened in 2003 and includes a 17,000-seat arena and an adjacent convention center. The construction cost for the complex approximated \$291.0 million, including \$208.0 million in arena and convention center construction and \$83.0 million in infrastructure improvements.

The primary source of funding for the project was \$198.0 million in City-issued general obligation bonds. A portion of bonds are being repaid through parking revenue generated by events at the complex, but the majority of debt service is being derived from general city revenues.

The second source of public funding includes \$18.0 million from a State turnback tax, which refunds sales taxes generated by out of state visitors using the complex. Each year, estimates are developed concerning the percentage of out-of-state attendees and the amount each attendee spends in the City. The estimated taxes generated by this spending are then returned to the City.



The final funding source consisted of \$75.0 million raised from private corporations and individuals in the Omaha area. According to project representatives, the entire \$75.0 million was raised within a 60-day period. The private contributions were essentially donations rather than investments in the arena, as the private contributors do not receive any arena revenues or other financial benefits from the facility.

The arena project was approved through a city-wide referendum. Two issues were approved: the issuance of bonds to fund construction and infrastructure, and the development of an authority to build and operate the facility in lieu of City government. As a result of the vote, the Metropolitan Entertainment and Convention Authority (MECA), a 501-C-3 organization, was formed. The MECA has a 99-year lease to operate the facility and receives a \$2.0 million annual operating subsidy from the City to cover potential operating losses.

New Jacksonville Coliseum

Opened in 2003, the new Jacksonville Veterans Memorial Coliseum replaced the original Veterans Memorial Coliseum, which was built in 1959 and lacked many of

the features and amenities found in modern arenas. In 2000, Jacksonville voters approved the Better Jacksonville Plan, which utilizes a half-cent sales tax to support approximately \$2.2 billion in total spending, including the \$130 million Coliseum. The entire cost of the Coliseum was funded by revenue generated through the half-cent sales tax implemented as part of the Better Jacksonville Plan.



Ford Center

Oklahoma City voters approved the MAPS Program in 1993. The MAPS Program imposed a city-wide, one-cent sales tax over a 66-month period to finance convention, cultural and sporting facilities, including the new Ford Center, which opened in late 2002. The sales tax portion of the MAPS program generated

approximately \$309 million in revenues. Interest revenue earned on this revenue generated an additional \$52 million, while various projects in the program were eligible for an additional \$40 million in federal funds. In total, the MAPS program generated approximately \$400 million for various projects throughout Oklahoma City. The Ford Center was built for a cost of approximately \$87 million, with funding coming directly from the MAPS program funds.



NHL Arena Case Studies

Jobing.com Arena

The 17,500-seat Jobing.com arena opened in 2003 as the home of the Phoenix Coyotes. The \$207.0 million facility is located in the Westgate City Center in Glendale, a mixed-use retail, entertainment and office development being developed by the owner of the Coyotes. The City of Glendale contributed a total of \$180.0 million toward the project cost, including the issuance of \$150.0 million in Municipal Property Corporation bonds backed by existing City sales tax revenues. The remainder of the City's contribution consisted of \$30.0 million in G.O. bonds used to fund infrastructure improvements. The City expects to recoup its investment in arena construction through incremental sales and property taxes generated by the Westgate City Center development.

The Coyotes agreed to assume responsibility for any cost overruns over the initial budget of \$180.0 million. Upon completion, the Team was responsible for an additional \$27.0 million toward the total project cost of \$207.0 million. In addition to

their responsibility for cost overruns, the team's owner is responsible for developing the Westgate City Center complex. As part of the overall agreement to bring the Coyotes to Glendale, the team's owner agreed to develop the Westgate complex over several years, with specific development guidelines and requirements included in the overall agreement.



Xcel Energy Center

The \$170.0 million Xcel Energy Center opened in 2000 as the home of the expansion Minnesota Wild. The Center is part of the RiverCentre complex in downtown St. Paul, which includes a convention center and a secondary auditorium.

The final development agreement for the arena included a City contribution of \$65.0 million. All of this amount will repaid by the Wild through annual rent payments as well as PILOT payments. In addition, the State of Minnesota provided an interest-free loan for an additional \$65.0 million. Like the City's contribution, a portion of this amount will be repaid to the State through the Team's rent payments.

The Team did not contribute any up-front cash to the project, but has agreed to may annual rental payments of approximately \$3.5 million per year for the first 25 years of the lease. In addition, the Team pays to the City an amount in PILOT to offset the City's contribution. The present value at the time of the construction of the team's repayment of the City's contribution and a portion of the State's loan was estimated to be approximately \$85.3 million.



Nationwide Arena

The Columbus Blue Jackets moved into Nationwide Arena upon its completion in 2000. The \$166.0 million arena features a capacity of approximately 18,100 seats and is located in an area of Columbus now known as the Arena District. The Arena District has been redeveloped into a vibrant, mixed-use development featuring a variety of residential complexes as well as retail, dining, entertainment and office space.

The City of Columbus contributed approximately \$12.0 million to the project in offsite infrastructure improvements, financed through City G.O. bonds. In addition, the Franklin County Convention Center Authority contributed land for the project, valued at approximately \$4.0 million.

Nationwide Arena L.L.C., a subsidiary of Nationwide Insurance, provided the remaining \$150.0 million for the project through an equity contribution. After several failed attempts to obtain public funding for a new arena, Nationwide elected to proceed with a privately funded arena, while also pushing the redevelopment that has taken place in the Arena District.



RBC Center

The RBC Center in Raleigh was completed prior to the start of the 1999/2000 NHL season and is now the home of the Carolina Hurricanes of the NHL and N.C. State basketball. The Center was originally planned and designed for N.C. State University basketball only. However, when the then Hartford Whalers elected to relocate to Raleigh, the arena plan was updated to be able to accommodate an NHL franchise.

The Centennial Authority, who owns the Center, issued \$60.0 million in revenue bonds supported by City of Raleigh lodging taxes. The City and Wake County also contributed an additional \$22 million from lodging and prepared food tax revenue, while the State of North Carolina provided an appropriation of \$22.0 million for the project. In addition, \$11.6 million in interest income was provided by the Authority, along with a sales tax refund on construction materials of \$1.5 million. The Authority contributed an additional \$840,000 from their operating fund to the project.

The Carolina Hurricanes contributed \$28.3 million to the project through rental payments and other arena revenues. The remaining \$28.1 million in project funding was provided by the NCSU Wolfpack Club through private contributions.



BankAtlantic Center

The BankAtlantic Center (originally called National Car Rental Center) opened in 1998 as the home of the NHL Florida Panthers. Broward County issued approximately \$184.0 million in bonds for the arena, secured by arena revenues, lodging taxes and a State sales tax rebate. Approximately \$110.8 million of the County contribution will be supported through an increase in the local hotel/motel tax rate, while the State sales tax rebate will generate approximately \$27.7 million. Current lodging tax collections provided an additional \$14.9 million for the project, along with approximately \$10.8 million in investment income, \$4.0 million in current sales tax collections and \$4.0 million in easement revenue.

development The agreement between the County and the Panthers calls for the team to fund the difference between annual debt service associated with the County's bond issuance and \$10.0 million. Based on the final project cost of approximately \$217.7 million, the Panthers contribution is estimated to total approximately \$45.5 million.



Summary of Potential Funding Sources

CSL has conducted a detailed evaluation of the potential funding sources that could be available to assist in the development of the proposed arena in Hartford. Specific information related to each of the most likely potential sources, including estimates of the potential debt that could be supported, is provided on the following pages.

Private Funding Sources

While the majority of recent arena funding has been derived from public sources, in certain instances significant private funding can be found to support a portion of project development. For instance, in Columbus, after failing to obtain public funding for a majority of the project costs, the ownership of the Blue Jackets elected to privately fund the development of Nationwide Arena. In this case, the private investment in the arena was justified by the owners' additional investment in the redevelopment of the Arena, which is now called the Arena District. In other instances, facility revenues have been allocated to debt service as part of a tenant franchise's contribution to the project.

In the financial analysis related to this project, all typical operating revenues are allocated to the facility. However, it may be possible to earmark specific revenue streams for debt service. Any such allocation of revenues would need to be weighed against the impact on facility operations. The following pages provide a summary of those private sources considered most likely to provide a source for project funding.

Contractually Obligated Income

Certain facility revenues have been used to finance portions of facility development costs in a variety of projects around the country. While any source of facility revenue could theoretically be allocated for project debt, contractually obligated income streams, such as naming rights, suite revenues, and advertising, provide a higher level of security for financial markets. As noted above, all such revenues have been allocated to facility operations for purposes of this analysis. However, it may be possible to capture some revenues for debt service through the arena development negotiation process. The following exhibit summarizes the estimated revenues from specific contractually obligated income streams and the level of debt service that could be supported by each.

Revenue Source	Annual Revenue	Interest Rate	Term	Coverage	Debt Supported
Municipal Arena					
Suites	\$4,638,000	6.00%	20 years	1.75	\$30,399,000
Naming Rights	\$750,000	6.00%	20 years	1.75	\$4,916,000
Advertising	\$1,250,000	6.00%	20 years	1.75	\$8,193,000
NHL Arena					
Suites	\$17,375,000	6.00%	20 years	1.75	\$113,880,000
Naming Rights	\$3,000,000	6.00%	20 years	1.75	\$19,663,000
Advertising	\$5,000,000	6.00%	20 years	1.75	\$32,771,000

Funding Potential - Contractually Obligated Income

As shown, capturing revenues from suite sales under either scenario would result in significant debt support for arena development. Due to the magnitude of these revenue streams in proportion to overall facility and team revenues, it is unlikely that any NHL franchise would allocate all of this revenue to debt service, although a portion could potentially be used. Similarly, while the suite revenues from a municipal arena could support approximately \$30.4 million in project debt, the facility owner would need to account for the loss of these revenues from operations, which would result in a significant operating subsidy.

Naming rights or sponsorships could also be captured for debt service related to the facility development, potentially supporting approximately \$4.9 million and \$8.2 million in a municipal arena, respectively. These revenue sources could support approximately \$19.7 million to \$32.8 million in debt for an NHL facility. However, as with suite revenues, the impact on facility operation under both scenarios must be considered before allocating such revenues to debt service.

Admission Surcharge

The Hartford Civic Center currently imposes a surcharge of between \$1.75 and \$2.00 per paid admission for Civic Center events. While these revenues historically have been allocated to the operations of the Civic Center, with a new facility development it may be possible to allocate these revenues to debt service. The following exhibit summarizes the estimated revenue from the surcharge, assuming a maximum surcharge of \$2.50 per paid admission, and the estimated debt that could be supported by this revenue source.

Revenue Source	Annual Revenue	Interest Rate	Term	Coverage	Debt Supported
Municipal Arena					
\$1.75 to \$2.50 (1)	\$1,613,000	6.00%	20 years	1.50	\$12,334,000
NHL Arena					
\$2.50 per Paid Admission (1)	\$3,453,000	6.00%	20 years	1.50	\$26,404,000

Funding Potential - Admission	Sur char ge
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(1) Excludes attendance at community and other non-ticketed events.

At a municipal arena, the admissions surcharge is estimated to generate approximately \$1.6 million per year, which could support approximately \$12.3 million in project debt. With an NHL tenant, the surcharge is estimated to generate approximately \$3.5 million per year, which could support approximately \$26.4 million in project debt.

As with the contractually obligated income items discussed previously, this revenue source is currently allocated to facility operations. Therefore, the impact of removing this revenue from operations and allocating to debt service must be thoroughly evaluated.

Concessionaire/Vendor Rights

Concession and novelty sales at public assembly facilities are typically provided by outside contractors such as ARAMARK, Centerplate, SportsService, Levy Restaurants and other such entities. The revenues generated by the sale of a facility's concession and merchandise operating rights to such entities has provided an additional funding source for a number of arena projects around the country.

Concessionaire fees provide the concessionaire the right to the concession profits for a specified period of time. The concessionaire fee represents a portion of the capitalized revenue streams that are anticipated to be received by the concessionaire over the term of the agreement. Such agreements may range from several hundred thousand dollars to several million dollars, depending on the ultimate agreement. While such an agreement may provide a needed funding source for facility development, it may be less desirable than other sources. Should a concessionaire rights agreement be reached that provides upfront funds, the amount of concession and merchandise revenues retained by the facility would likely be reduced, impacting the overall operating revenues presented previously in this report.

Other Private Sources

The private revenue streams presented above generally represent the most likely facility-related revenue sources that may be available for arena financing. Other potential private sources that could be available include owner's equity contributions, local foundations, donations, parking surcharges, seat license sales, land contribution, investment income and other such sources. The level of funding available from these sources varies greatly depending on the project scope and specific market conditions.

Public Funding Sources

In addition to the private funding sources, public revenues are often used to fund the majority of arena development projects. The following is an analysis of public funding sources that have been used to fund arena construction in comparable markets, and the potential ability of those sources to contribute to the funding of a new arena in Hartford. This analysis focuses solely on those sources deemed to be viable in Hartford at the present time, based on conversations with project representatives, current statutes and other such information.

Tax Increment

As mentioned previously, several communities have used tax increment financing as a funding source for the development of arenas and other sports facilities. In Hartford, the City or another public agency (i.e. the Capital City Economic Development Authority) could potentially establish a tax increment district that would include the arena and potentially surrounding areas. If the City Council approves such a development, a portion the incremental tax revenues generated within the district over the base revenues could be allocated to project financing. In most cases, the contribution of such revenues is limited to 50 percent of the increment, however the Council can elect to allocate a larger portion of the increment in certain cases. While this technique may be an attractive funding source, tax increment financing presents certain challenges as well. For instance, if the financing is reliant on property tax increases from development surrounding the arena, unless such development is completed prior to the completion of the arena, the incremental revenues available for financing would likely take several years to be generated. If the arena is included as part of a larger development project, with specific commitments to development milestones that will enable accurate projections of estimated tax revenues, this issue can be mitigated somewhat. In addition, it may be possible to create a tax increment district that captures only sales taxes generated at the arena, which would begin generating revenues immediately upon project completion.

In addition, while property tax rates are not directly increased through this type of project, the individual taxing entities that generate revenues from the specific district will need to be considered. Each entity must consider the potential opportunity cost of allocating these incremental revenues to the project rather than to the individual entity's funds. To address this it may be possible to only allocate a designated percentage of the overall incremental revenues, or only those revenues from specific taxing entities, to the project.

For purposes of this analysis, the following estimates have been developed to represent the estimated revenues that could be generated through the implementation of a sales tax district that includes only the arena, as well as a district that would capture incremental property tax revenues. Because no specific site has been designated for the project, and no development plan has been presented at this point, the estimated revenues projected through the development should be considered as examples only. As the project moves forward and more specific plans are developed, this analysis should be revisited to determine the actual potential funding ability of these revenues.

Revenue Source	In-Arena Taxable Spending	Tax Rate	Annual Revenue	% Captured (2)	Coverage	Debt Supported (3)
Municipal Arena						
Taxable Sales (1)	\$27,366,700	6.00%	\$1,642,002	50%	1.50	\$6,278,000
NHL Arena						
Taxable Sales (1)	\$70,214,300	6.00%	\$4,212,858	50%	1.50	\$16,107,000

Funding Potential - In-Arena Sales Tax

(1) Includes gross spending on tickets, concessions and catering and merchandise within the arena.

(2) Represents portion of annual revenues to be allocated to the project, with remainder allocated to State general fund.

As shown, taxable spending within the arena is estimated to generate between \$1.6 million and \$4.2 million per year in sales tax revenues. Assuming 50 percent of these revenues would be captured for project financing, it is estimated that approximately \$6.3 million to \$16.1 million in project debt could be supported.

⁽³⁾ Assumes 20 year term with 6.0% interest rate.

The amount of revenue that can be generated through a property tax TIF district will be directly related to the amount and type of development that takes place within the district. The following table summarizes the property tax mill rates in place for the current fiscal year.

Private Property Type	Rate (1)
Residential	42.3000
Residential - Apartments	64.8200
Commercial/Industrial	74.5400

Current Millage Rates - City of Hartford

(1) Tax rate per \$1,000 of assessed value.

As shown, non-apartment residential property is taxed at \$42.30 per \$1,000 in assessed valuation, while apartments are taxed at \$64.82 per \$1,000 in assessed value and commercial and industrial property is taxed at \$74.54 per \$1,000 in assessed value. It is important to note that these rates are anticipated to decrease somewhat based on anticipated increases in property revaluations, however the final rates have not yet been determined at this time. It is also important to note that current policy states that the assessed value is calculated as 70 percent of fair market value. However this is also anticipated to change based on the results of the revaluations.

For purposes of calculating the potential revenues generated through a property tax TIF district surrounding the arena, it is assumed that the current mill rates will remain steady, but that the assessed value of property within the district will approximate 50 percent of the fair market value. The reduction in this calculation has been made to reflect the anticipated decreases in both the assessed value calculation as well as the anticipated decreases in the mill rates. In addition, it is assumed that the construction cost of each component will represent an approximation of the estimated fair market value of the property. Because no specific plans have been put forth regarding any additional development that could surround the proposed arena, the estimated revenues generated by each \$10.0 million in development of each type has been calculated and is shown in the following exhibit.

Funding Potential - Tax Increment Financing (TIF)

	Property Type		
	Residential	Apartments	Commercial/ Industrial
Construction Cost (1)	\$10,000,000	\$10,000,000	\$10,000,000
Assessment Rate	50%	50%	50%
Assessed Value	\$5,000,000	\$5,000,000	\$5,000,000
Millage Rate	42.300	64.820	74.540
Incremental Annual Revenue	\$211,500	\$324,100	\$372,700
% Available for Project Funding	50%	50%	50%
\$ Available for Project Funding	\$105,750	\$162,050	\$186,350
Funding Potential (2)	\$2,426,000	\$3,717,000	\$4,275,000

(1) Construction cost has been assumed to represent an approximation of the fair market value of the property.

(2) Assumes a 6.0 percent interest rate, 20 year term and 1.0x debt coverage

For every \$10.0 million in residential, apartments or commercial/industrial development, it is estimated that approximately \$2.4 million, \$3.7 million or \$4.3 million in project cost could be supported, respectively. Further analysis will be required to determine the actual anticipated increment that could be captured as the project site is determined and other key factors are identified. This analysis assumes that all such development will be private development and thus will be taxed at the rates shown herein.

Admission Tax

The State of Connecticut currently levies an admission tax of 10 percent of the face value of tickets for sports and entertainment events at certain facilities throughout the State. For instance, while admissions to events at Rentschler Field are subject to this tax, events at the Hartford Civic Center are not subject to this tax. With the development of a new arena, it may be possible to apply this tax to admissions at the new facility, with these revenues captured for project financing. However, if this tax is applied, it may not be possible to also charge the ticket surcharge discussed previously, potentially reducing operating revenues to the facility. In addition, the implementation of this tax would likely prohibit the application of the general sales tax (discussed above) to paid admissions. The following exhibit summarizes the estimated revenues and resulting supportable debt that could be generated through the implementation of this tax.

Funding Potential -	Admission Tax
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Revenue Source	Gate Receipts	Tax Rate	Annual Revenue	Coverage	Debt Supported (2)
Municipal Arena					
Taxable Sales (1)	\$18,841,000	10.00%	\$1,884,100	1.50	\$14,407,000
NHL Arena					
Taxable Sales (1)	\$52,870,000	10.00%	\$5,287,000	1.50	\$40,428,000

(1) Includes gross spending on all paid admissions to the arena.

(2) Assumes 20 year term with 6.0% interest rate.

A 10 percent admissions tax would generate approximately \$1.9 million to \$5.3 million per year. Assuming 20 year debt with a six percent interest rate, these revenues could support approximately \$14.4 million at a municipal arena to \$40.4 million at an NHL arena. This type of tax is often an attractive funding tool because the revenues generated are paid by those patrons who actually utilize the facility.

Sales Tax Increase

In addition to capturing the sales taxes generated from spending within the arena, it may be possible to implement an increase in the actual sales tax rate. In many cases, a local municipality has the authority to levy a local option sales tax to generate revenues for the general fund or for specific projects. However, the State of Connecticut has not provided legislation that enables municipalities to create such a tax. Therefore specific legislation would be required to enable the City of Hartford and other municipalities to levy such a tax. As an alternative, the State could raise the income tax rate across the entire state. The following exhibit summarizes the estimated revenues that could be generated through specific increases in either the local sales tax or the statewide sales tax rate.

Revenue Source	Retail Sales (1)	Rate Increase	Annual Revenue	Coverage	Debt Supported (2)
City of Hartford Tay					
City of Haniloru Tax					
	\$1,937,117,000	0.10%	\$1,937,117	1.25	\$17,775,000
		0.25%	\$4,842,793	1.25	\$44,437,000
		0.50%	\$9,685,585	1.25	\$88,874,000
		1.00%	\$19,371,170	1.25	\$177,749,000
Statewide Tax					
	\$52,157,700,000	0.10%	\$52,157,700	1.25	\$478,596,000
		0.25%	\$130,394,250	1.25	\$1,196,489,000
		0.50%	\$260,788,500	1.25	\$2,392,979,000
		1.00%	\$521,577,000	1.25	\$4,785,958,000

Funding Potential - Sales Tax Increase

Represents total estimated retail sales for fiscal year 2005/06 for the City of Hartford and the State of Connecticut
Assumes 20 year term with 6.0% interest rate.

Source: State of Connecticut, Department of Revenue Services, Annual Report Fiscal Year 2005-06

As shown, each 0.10 percent increase in sales tax rate for sales within the City of Hartford would generate approximately \$1.9 million in revenues per year. If the State provided legislation enabling the City to levy a local option tax of 1.0 percent, the related revenues could support approximately \$177.7 million in project financing.

Similarly, for each 0.10 percent increase in overall state sales tax rate, approximately \$52.2 million would be generated per year, which could support approximately \$478.6 million in project financing. Based on preliminary estimates, this would likely be sufficient to support the entire project cost for an arena in Hartford. However, by increasing the total state sales tax rate by 0.25 percent or more, significant additional revenues could be generated that could be used for a variety of other projects and funding needs. By providing additional revenues that could also be used for projects outside the City of Hartford, it may be possible to garner the needed political support to raise the tax rate across the state.

Occupancy Tax

Taxes charged one short-term lodging rentals (i.e. hotel stays) have become more and more popular as a potential funding source for public assembly facilities such as the proposed arena. These types of taxes are attractive because the majority of the revenues are derived from visitors to the market, rather than local residents. However, the lodging industry typically offers significant resistance to any such increases, unless a project using such funds can be shown to positively impact the lodging industry.

The State of Connecticut currently levies a total tax of 12 percent on all applicable short-term rentals, which includes the State's six percent sales tax. As with the sales tax discussed above, the State does not allow local municipalities to implement a local option occupancy tax. Therefore, any potential increase would likely need to be made state-wide or would require specific legislation to enable the City to enact such a tax to generate funds for the arena's development.

The following exhibit summarizes the estimated revenues that could be generated through a local or state-wide increase in the occupancy tax rate.

Revenue Source	Gross Receipts (1)	Rate Increase	Annual Revenue	Coverage	Debt Supported (2)
City of Hartford					
	\$41,975,000	0.10%	\$41,975	1.25	\$385,000
		0.25%	\$104,938	1.25	\$963,000
		0.50%	\$209,875	1.25	\$1,926,000
		1.00%	\$419,750	1.25	\$3,852,000
Statewide					
	\$633,333,000	0.10%	\$633,333	1.25	\$5,811,000
		0.25%	\$1,583,333	1.25	\$14,529,000
		0.50%	\$3,166,665	1.25	\$29,057,000
		1.00%	\$6,333,330	1.25	\$58,114,000

Fundina	Potential -	Occupancy	Tax	Increase

(1) Represents the total applicable lodging tax receipts for the City and State.

(2) Assumes 20 year term with 6.0% interest rate.

Source: State of Connecticut, Department of Revenue Services

For every 0.10 percent increase in the occupancy tax rate for lodging within the City of Hartford, approximately \$42,000 would be generated. If the rate was increased by a full one percent, the estimated revenues could support approximately \$3.9 million in project debt. Similarly, for every 0.10 percent increase in the state-wide occupancy tax, approximately \$633,000 would be generated each year. A one percent increase in the state occupancy tax rate could potentially support approximately \$58.1 million in project debt.

It is important to note that all revenues from the State occupancy tax are allocated to the State general fund. In most cases, this type of tax is collected by a separate agency (such as a Convention and Visitors Bureau) with the revenues used to fund the operations of convention facilities as well as tourism advertising initiatives geared towards increasing tourism in a specific area. In Connecticut, facilities such as the Connecticut Convention Center and groups such as the Greater Hartford Convention and Visitors Bureau must go through an appropriation process each year, with revenues from the State's general fund used to provide the required funds. If an increase in this tax is used for arena development, a segregated fund may need to be established for facility debt repayment.

Vehicle Rental Tax

As with the occupancy tax, several communities have levied a specific tax on shortterm vehicle rentals to provide funds for facility development. As the majority of the revenues derived from such taxes are paid by visitors to the community, this type of tax is often more appealing from a legislative perspective. At present, the State applies a Rental Surcharge of three percent on all vehicle rentals. Revenues generated from the Rental Surcharge are used to reimburse rental car companies for property taxes, licensing and other fees paid to the State. Because these revenues are earmarked for reimbursement of specific expenses incurred by the rental car companies, an increase in this rate is considered unlikely.

In addition to the Rental Surcharge, the State applies a Tourism Account Surcharge of \$1.00 per day on all short-term vehicle rentals originating within the State of Connecticut. An increase in this rate could potentially generate additional revenues that could be used by the State to fund the development of the arena. The following exhibit summarizes the estimated revenues and supportable debt generated through various increases in this surcharge.

	-					
Revenue Source	Gross Receipts (1)	Rate Increase	Annual Revenue	Coverage	Debt Supported (2)	
Statewide						
	\$4,751,000	\$0.25	\$1,187,750	1.25	\$10,899,000	
		\$0.50	\$2,375,500	1.25	\$21,797,000	
		\$0.75	\$3,563,250	1.25	\$32,696,000	
		\$1.00	\$4,751,000	1.25	\$43,595,000	

Funding Potential - Tourism Account Surcharge Increase
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(1) Represents the total gross receipts from car rentals throughout State of Connecticut.

(2) Assumes 20 year term with 6.0% interest rate.

Source: State of Connecticut, Department of Revenue Services

An increase of \$0.25 per day in the Tourism Account Surcharge would generate approximately \$1.2 million in revenue per year, which could support approximately \$10.9 million in project debt. Approximately \$4.8 million would be generated annually if the surcharge is increased to \$2.00 per day (from the current rate of \$1.00 per day). This amount could support approximately \$43.6 million in project financing.

It is important to note that information on revenues generated within a specific City were not available, therefore the information presented includes only state-wide revenues. As discussed previously, a state-wide tax that would generate revenues to be used for a project in Hartford may face significant political opposition.

Other Taxes

In addition to the public revenue streams identified above, it may be possible to generate revenues for project funding through several other taxes. Examples of other taxes used to fund similar projects include taxes on alcoholic beverages or on cigarette sales. These so-called "sin taxes" are often a popular funding source for a variety of projects, but have faced opposition in recent years due to the perception of singling out specific groups of people. However, the City and State may wish to explore potential opportunities for funding from such sources in order to develop a viable project financing plan.

Summary of Funding Sources

The intent of this analysis has been to provide the City with a preliminary understanding of the potential need for public contributions to the proposed arena development. In addition, a variety of both public and private funding sources have been identified that could potentially be used to help fund the development of a new arena in Hartford. As shown in the following exhibit, a combination of several potential funding sources may be required to secure project financing.

Detential Dublic Funding Courses

		Fotential Fu	blic Funding Sources	
Source	Incremental Rate	Estimated Annual Revenue	Estimated Debt Supported (1)	Comments
PUBLIC SOURCES				
TIF - In-Arena Sales Tax	n/a	\$1.6 million to \$4.2 million	\$6.3 million to \$16.1 million	May require approval from the City Council for implementation. Also, it may be possible to capture a higher percentage than the 50 percent used in this estimate for project costs, with Council approval.
TIF - Property Taxes (2)	n/a	\$106,000 - Residential \$162,500 - Apartments \$186,000 - Commercial	\$2.4 million \$3.7 million \$4.3 million	Assumes \$10.0 million of development for each property type. Also assumes 50 percent of increment is captured for project costs. With Council approval, this amount could be increased.
Admission Tax	10.00%	\$1.9 million to \$5.3 million	\$14.4 million to \$40.4 million	Would require legislative approval as Kalamazoo currently does not qualify under the Stadia or Convention Facilities Act of 1991. Would also require voter referendum for approval.
Sales Tax Increase - City	0.25%	\$4.8 million	\$44.4 million	The State of Connecticut currently does not allow municipalities to levy a local sales tax. Legislative action would be required to enable the City to enact such a tax.
Sales Tax Increase - Statewide	0.25%	\$130.4 million	\$1.2 billion	Legislative action would be required to increase the State sales tax rate.
Occupancy Tax - City	1.00%	\$420,000	\$3.9 million	The State of Connecticut currently does not allow municipalities olevy a local tax, therefore legislative action would be required. In addition, all revenues generated by the State's occupancy tax are currently allocated to the General Fund, therefore specific action to establish a segregated fund may be required.
Occupancy Tax - Statewide	1.00%	\$6.3 million	\$58.1 million	All revenues generated by the State's existing occupancy tax are currently allocated to the General Fund, therefore specific action to establish a segregated fund may be required to enable funds to be used for arena construction.
Tourism Account Surcharge	\$1.00 per day	\$4.8 million	\$43.6 million	Legislative action would likely be required to implement an increase in the Tourism Account Surcharge amount on rental cars. Information on rentals within specific municipalities is not available, therefore only a statewide estimate has been included herein.
PRIVATE SOURCES				
Suite Revenue	n/a	\$4.6 million to \$17.4 million	\$30.4 million to \$113.9 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered.
Naming Rights	n/a	\$750,000 to \$3.0 million	\$4.9 million to \$19.7 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered.
Advertising	n/a	\$1.25 million to \$5.0 million	\$8.2 million to \$32.8 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered.
Admission Surcharge	\$1.75 to \$2.50 per paid admission	\$1.6 million to \$3.5 million	\$12.3 million to \$26.4 million	These revenues are currently assumed to be allocated to the facility for operations. If captured for arena construction funding, impact on operations must be considered.

(1) Assumes 20-year debt with a six percent interest rate and various coverage ratios. However, depending on the type of tax, a higher coverage ratio may be

required, reducing the amount of debt supported accordingly.

(2) Revenue and supported debt are based on \$10.0 million of development for each property type.

As shown, it is likely that a combination of both public and private sources will be required to secure adequate project funding. In addition, it is important to note that several of the public sources identified would require legislative approval for implementation.

Addendum Review of Hartford Civic Center





Hartford Civic Center

Facility Analysis - Evaluation and Comments June 2, 2006



SPORT

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Hartford Civic Center – Facility Analysis June 2, 2006



INTRODUCTION

The Hartford Civic Center Veterans Memorial Coliseum in Hartford, Connecticut, opened in January of 1975. It is owned by the city of Hartford, leased by the Connecticut Development Authority (CDA), and has been managed by Madison Square Garden since 1997. The 16,500-seat arena has nearly 1 million visitors come through its doors every year for a variety of events including concerts, family shows, ice-skating spectaculars, sporting events, and consumer events and trade shows. In its 30-year history, the Hartford Civic Center has hosted over 550 concerts played by more than 250 different performers. Visitors to the Hartford Civic Center enjoy such amenities as 16,500 new seats, a state-ofthe-art video board, 46 luxury suites and a 310-seat

The Hartford Civic Center, Connecticut's home for premier sports and entertainment, has been the home ice for the American Hockey League's Hartford Wolf Pack since 1997 and is also the home-away-from-home for the University of Connecticut's Men's and Women's basketball teams.







2006	Glossary
Term	Definition
360 degree fascia/ribbon board. 720p/1080p production	LED communication medium encompassing the entire arena bowl. (See LED board). HD (high definition) television production formats. With 720p production, the picture resolution is 1280×720 pixels, sent at 60 frames per second. With 1080p production, the picture resolution is 1920x1080 pixels, sent at 60 frames per second.
AC power	
ADA	current reverses, or anermates, or unites per second. Americans with Disabilities Act of 1990 forbids discrimination of those that are disabled.
AHUaspect ratio	Air Handling Unit – part of the mechanical systems of the arena that includes the fans, filters, and coils in the HVAC system. A method of describing proportions of a TV picture in terms of width and height. For example, in analog TV, the aspect ratio is 4:3, meaning
air curtain	the picture is four units wide by three units tall. The HD format for digital TV has a 16:9 aspect ratio. A mechanical device that creates an invisible barrier of high velocity air to ston cold or warm air from infiltrating interior areas
attic stock	Extra units of finish material or furniture that is stored for later use as replacements for deteriorated or damaged units.
A I S hack-of-house	Automatic Transfer Switch – a device that automatically switches to emergency power on a loss of normal power. A non-public facility operations area
baffle	A free hanging acoustical sound absorbing unit, normally suspended vertically in a variety of patterns to introduce sound absorption into a
	space so as to reduce reverberation and noise levels.
biometric door locks hollards	A door lock that controls access by identifying users based on physical traits, using sensors, computers, and software. Δ series of nots that measures vehicle access into the facility.
broadband	A communications network in which the bandwidth can be divided and shared by multiple simultaneous signals (as for voice or data or video).
building program	The general purpose and detailed requirements of a building, including a list of rooms, their sizes and uses, special facilities, etc.
bus duct	Copper or aluminum bars, enclosed in a metal housing, that carry electrical power and are used instead of wire and conduit.
cam lock	A type of electrical connector that allows quick and safe connection of temporary cables to an electrical supply panel.
circuit interrupter CHW	A safety device that interrupts the flow of electricity in a circuit whenever there is too much current flowing through that circuit. Chilled Water – water that has had some heat removed so that it acts as the coolant as it is distributed in a building cooling system.
control joint	
1111000	of different parts of the structure.
conduitCP	A metal or plastic pipe that houses electrical wiring. Chiller Central Plant - The area where chilled water is produced for use in building cooling systems. It includes equipment such as chillers.
	pumps, and water treatment systems.
crash bars	Metal and/or plastic rail systems that protect corridor walls from damage in high traffic areas.
dry type transformer	An air-cooled electrical device that changes voltage from one level to another (e.g. 480 volts to 120 volts).
dt FMCS	delta T – the temperature difference between supply and return water in a chilled water system. Energy Management Control System – a system that controls electrical and mechanical devices to maximize the efficiency of the HVAC system
	Demand and/or peak shaving of electrical power systems may be included.
	A O K

Hartford June 2, 2



berations. made of acrylic chips or colored quartz sand in an epoxy medium, and sealed with a clear coat. al television combined with Dolby Diaital surround sound. Also known as HiDef.
n network. System used to condition the air in the arena
הקרינון מסרמ הל כלומוניסון מול מו זו מול מונומי
anel utilizing light emitting diodes. ction of design disciplines in the contract and/or bid documents that includes, but is not limited
on of light fixtures, surge protection, fire protection, water supply and draining, etc. at most closely approximates davlight. Always used for sports events or TV coverage.
mes, cabinetry, etc. Normally does not include flooring, ceilings, or siding.
e tread is the horizontal surface of a step; the riser is the vertical face of a step.) Is or expert analysis, to be used as information only.
ifety and health regulations.
of telephone connections in which each telephone has an extension, and multiple phones share TN) outside.
ng air in a Heating Ventilating and Air Conditioning system.
of regular and systematic inspection, cleaning, and replacement of worn parts, materials, and
order, so as to help prevent lanare. sales and product usage.
ad into four quadrants, usually starting with Quad A at the top right and continuing clockwise.
of the inclined beams (raker beams) that support the seating bowl.
nen supplied to an antenna, creates an electromagnetic neid that propagates through space. adium, or amphitheater, that is open to the event floor or playing field.
ource other than the vehicle's batteries.
ed soil, serving as a floor or pavement. He that allow for multiple choices of operation
ids below the main ceiling surface.
ed out. r to an electrical panel, that is normally used for main distribution or large feeder circuits.
or precast and ground smooth; used as a decorative surfacing on floors and walls.
ision screens arranged in a mosaic pattern.
HOK
berations. made of acrylic chips or colored al television combined with Dol n network. system used to condition the air system used to condition the air ction of design disciplines in the on of light fixtures, surge protec at most closely approximates d armes, cabinetry, etc. Normally d e tread is the horizontal surface is or expert analysis, to be used tety and health regulations. of telephone connections in whit TN) outside. TN) outside. TN outside. age ir in a Heating Ventilating of regular and systematic inspe order, so as to help prevent failu sales and product usage. bed into four quadrants, usually of the inclined beams (raker bea hen supplied to an antenna, crei adium, or amphitheater, that is ource other than the vehicle's b ad soil, serving as a floor or pa its that allow for multiple choic ds below the main ceiling surfa e d out. To an electrical panel, that is r r to an electrical panel, that is r r to an electrical panel, that is r to an electrical panel, that is r r to an electrical panel, that is r to an electrical panel, that is r to an electrical panel in a mosting the surface.

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Civic Center – Facility Analysis 006	4 Glossary
Term	Definition
VAV boxes	Variable Air Volume Boxes – used for zone control in an HVAC system. A speed control device for induction motors that controls the speed of the motor by changing the frequency of the applied voltage. .Vinyl Composition Tile – a commercial-grade type of vinyl flooring that is less flexible than vinyl tile or sheet vinyl flooring. An entrance or opening into the seating area of an arena, stadium, or amphitheater. .Generally referred to as a toilet. .A brand name of multicolor textured paint that is applied in a two-step process with a pressure spray system that atomizes the product.





EXECUTIVE SUMMARY: OVERVIEW METHODOLOGY ARCHITECTURE & FACILITY FOOD SERVICE MAJOR SYSTEMS Recommendations EVENT OPERATIONS

EXECUTIVE SUMMARY: OVERVIEW

HOK Sport was engaged by Convention Sports & Leisure International to assess the condition of the exterior walls, roof, windows, public restrooms, premium areas, concession stands, dressing rooms and interior finishes of the Hartford Civic Center. A survey of mechanical systems including HVAC, plumbing, and fire suppression to assess their respective general conditions was performed as part of the review as well. The review team did not assess the condition of every mechanical room or piece of equipment, but did review a representative sample on each level of the facility. The facility's technology including scoreboard, back-lit panels, audio and video systems, data and phone systems were reviewed by HOK Sport to assess their condition and whether the appropriate preventive maintenance has been performed. The assessment team has established some

The assessment team has established some recommendations based on the observed condition of the facility. The information contained in this document represents the professional opinion of the assessment team comprised of representatives of HOK Sport.

METHODOLOGY

HOK Sport assessment personnel performed an on-site review of the Hartford Civic Center on April 20 & 21, 2006. Patrick Delly, a 20 year veteran of arena operational and engineering systems, was engaged to survey the facility's mechanical, electrical, plumbing and fire safety systems.

ARCHITECTURE & FACILITY

Overall, the entries and concourses are in relatively good condition, clean and well maintained for a facility of this type and age. While there are some improvements that could be made to improve the facility's appearance and others that could result in increased revenue, we do not

believe the revenue generated through these improvements is enough to justify the capital investment required.

As it relates to concourses, the main entrances are small by today's standards and in good condition. We recommend that the event merchandise kiosks in these 4 areas be converted to concession stands to increase revenue and result in more queuing space. To help increase the fan experience and bring more energy to the concourse, the concourse walls should be painted in brighter colors that would help reflect the light, rather than the current monochromatic scheme. Also, the concrete floor needs a new concrete coating that would help improve the light quality and conceal the large quantity of shrinkage cracks. Due to the structural limitations of the 300 level concourses and the limited number of seats it serves, it is not economically feasible to make significant capital improvements to this level.

The premium spaces of the Hartford Civic Center are clearly the facility's strongest assets. The level of finish, lighting and amenities in these spaces is on par with many newer facilities of similar capacity. Some carpet and seating upholstery in the suites are beginning to show signs of wear, but this does not yet warrant replacement. The Director's Club is the most appealing of the three premium spaces, with a condition and level of maintenance equal to or better than that of the suites. The Coliseum Club's finishes are consistent with those of the other premium spaces, but it appears to be the most utilized premium spaces, but it due to the amount of wear shown in the seats.

The arena seating areas were very clean and facility management mentioned that the seats and associated hardware were replaced approximately eight years ago. The aisle ways were clean and non-skid had been applied to the aisle way steps to help prevent slip and falls. The arena staff has a program to re-coat the non-skid treated areas once a year. There was few spalling and cracks noted in the lobby



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concrete but nothing out of the ordinary. Only one expansion

outside the facility where there was significant delamination

of concrete steps and pads.

observed to be well maintained. However, there were areas

good, while the overall condition of the exterior was also

The condition of the catwalks was observed to be

oint was observed and it appeared to be normal

The portable concession stands on the main and upper concourse are generally in good condition with the graphics viewed to be concise and eye catching. The major issue is the lack of queuing line space, which is true for the fixed stands as well.

impossible to add an adequate number of points of sale for a system does not currently accept credit cards and the system points of sale for concession stands. The physical limitations company studies have shown that consumers will spend 15% terms of current standards for numbers and distribution of accepted at all sales areas, as customers expect that of all positive customer experience. The current Point of Sale The Hartford Civic Center currently falls short in system was installed in 1999 and is a Di/An model. The retailers, even at smaller fast food chains. Credit card to 25% more with a credit or debit card versus a cash should be upgraded so debit or credit cards could be of the concourse space, however, make it virtually transaction.

significant increase in event revenue, the work would need to

conclusion is that for an extensive renovation to result in

spaces that could benefit from minor improvements, our

While there are areas of the public and premium

include additional concession points of sale, new shops and

done to improve the overall appearance, it is unlikely that it

would result in enough increased revenue to justify the

capital investment

FOOD SERVICE

these types of amenities. While there is work that could be

there is little or no opportunity for expansion to include

significantly more toilet rooms/fixtures. Unfortunately,

restaurants that are found in newer facilities, and

The Civic Center's only kitchen, located on the suite clubs, as well as the place where catering is prepared and kitchen was observed to be clean and of sufficient size to distributed for the exhibit space on the service level. The level, serves as the food preparation area for suites and handle the demand for the above mentioned spaces.

maintained and operating under a high standard of sanitary

facilities to be old but in good operating condition, well

In general, we found the foodservice equipment and

condition. Due to the space limitations and original design

of the permanent concession stands, the food offerings are

very limited and not to the standards that are currently

observed in today's municipal facilities. Currently, there is

only one stand with grills and fryers which limits the facility's ability to produce fresh and higher revenue

MAJOR SYSTEMS

The facility's mechanical equipment inside and outside are well maintained; however, most of the HVAC equipment regulating control valves and insulation are failing. Some of is deteriorating and seems to have reached the end of its systems such as the cooling water pipes and hot water / useful life and will need to be replaced. Not only is the HVAC equipment in danger of failing, but the support steam pipes and their shut off valves, air compressors,

costs associated with expansion and venting systems will not

provide the return on investment over the long term.

sound investment due to the cost of renovation. Significant that 50% of the stands can grill and fry food may not be a

producing product. However, it appears that converting so

these components have been or are scheduled for

as necessary. This is evidenced by the lack of water pressure replace, leaving the maintenance crews to replace or repair in upper level suites due to pipes that have corroded inside Simply boosting pressure in these systems will not help the The plumbing and associated systems such as flush outdated, and it would not be cost effective to completely valves inside the restrooms and potable water piping are and caused restrictions of the water flow to these levels. flow of water and would tax the system more than replacement.

system in the arena has been updated properly and appears The lighting systems in lower level meeting areas is outdated and in need of replacement. The current system uses one large lamp to span a large area, creating areas that become washed out and dingy looking. The lighting to meet the needs of the sports team and other entertainment activities. necessary.

walk-through. All of the steel supports and roof trusses were no evidence of leaks from the roof were observed during our The building and roof structure appeared sound and in good condition and no rust or corrosion was observed.

Recommendations

equipment into one or possibly two locations of the facility. determine the feasibility of installing all new air handling mechanical support needed to house these units, reduce energy costs and reduce the amount of maintenance An engineering study should be commissioned to This would eliminate the large number of units and currently needed.

corrosion inside the piping. An industrial plumbing company The potable water system is failing in the upper parts of should investigate the severity of this problem using a fiber the building. The probable cause of this is buildup of



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Executive Summary

Executive Summary

optic camera system. Should the problem be too extensive to repair, a booster pump with a bladder type tank system can be installed in various areas to help assist with water flow problems.

All of the primary and secondary electrical equipment should be evaluated & properly tested by a qualified electrical contractor that specializes in commercial and industrial electrical systems. As mentioned later in the electrical portion of this report, the manufacturer of the existing electrical equipment is no longer in business and parts for the larger distribution systems and switch gears are no longer readily available.

expectations.

An electrical engineer should be retained to write testing specifications and review all the testing results.

Most of the elevators are controlled by the older type relay control systems. During our walk-through we did not observe any other type of control systems for the elevators or escalators. The electrical circuitry for these systems looks to be at the end of its useful life. Plans should be made to begin some type of retrofit for all of these systems. A structural engineer should be retained to inspect all of

A structural engineer should be retained to inspect all of the building support structures and seating support systems. Replace all of the old air compressors used for the

pneumatic control systems. Evaluate and add as necessary new lighting in the meeting areas and the main lobby entrances to the arena from the street levels.

EVENT OPERATIONS

Event operations at the Hartford Civic Center are conducted at a significant disadvantage due to the lack of a dedicated loading dock and marshalling space, as well as a lack of overall space and functional event-related facilities located on the event level.

The fact that the Hartford Civic Center continues to do the type and number of events that it does is a testimony to the effects of facility management and operations staff. As show requirements and technical requirements continue to increase, the Hartford Civic Center will find it increasingly difficult to meet promoter and producer



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ARCHITECTURE & FACILITY: OVERVIEW

300 Level Concourses SEATS & SEATING AREA Main Entry Lobbies Concourse Lighting Public Restrooms EXTERIOR CONDITION Concourse Floors Concourse Walls Director's Club Coliseum Club PREMIUM SPACES CONCOURSES Suites CATWALKS

ARCHITECTURE & FACILITY: OVERVIEW

through of the arena, illustrated with snapshots of the issues included are recommendations and alternatives to aid in the observations and recommendations made during the walkdescribing the condition of the architectural spaces and This document is a field investigation narrative facility equipment at the Hartford Civic Center. Also long term operation of the facility. Following are being discussed.

existing indirect lighting, a brighter color palette will reflect merchandise kiosks to concessions. Fan experience can be with a new, more inviting color scheme. The current color good condition, clean and well maintained. The two main Overall, the entries and concourses are in relatively entrances could be better utilized by converting the event enhanced by updating the finishes on the walls and floors scheme makes the concourses appear dim. With the more light and raise the overall lighting level.

Coliseum Club) are clearly the facility's strongest assets. The level of finish, lighting and amenities is on par with The premium spaces (suites, Director's Club and many newer facilities of similar capacity.

Main Entry Lobbies CONCOURSES

The main entrances for ticketed fan entry are

entry doors. Because queuing space is limited in front of the are typically higher than merchandise sales, we propose that to be paid to avoid conflicting with high volume entry traffic concourse concession stands, and because concession sales concession items upon entry. Careful attention would have moderately spacious and in good condition. Large kiosks would present immediate opportunity for fans to purchase for event merchandise are located directly in front of the the CDA consider converting these kiosks to concession points of sale that would allow more queuing space. It

prior to events. The additional POS would reduce the

areas. A smaller concession stand in the concourse could be amount of queuing in the very narrow concourse concession converted to a memorabilia stand.



Concourse Walls

condition, the wall color is a bit dim, causing the concourses multiple colors in lieu of the current monochromatic scheme will help to energize the space and improve fan experience. While the existing CMU walls and paint are in good to appear less inviting. New paint in brighter colors will help reflect more of the existing indirect light. Using

Concourse Floors

The existing floor is sealed concrete and is in need of Next, if a seamless, built-up coating were to be installed to updating. Application of a new concrete coating will serve quality in the corridor in concert with the new wall colors. multiple purposes. First, it will help to improve the light Stonhard are relatively cost effective when compared to shrinkage cracks would be concealed. Coatings such as a thickness of approximately 1/4'', the large quantity of



of spanning most concrete control joints and cracks without very durable and easily maintained. They are also capable more premium coatings such as tile or terrazzo, and are telegraphing through to the surface.

Main concourse:





Concourse Lighting

Currently, the main source of lighting in the concourse areas is indirect fluorescent fixtures that reflect light off the bottom of the precast seating bowl above. These fixtures, in proposed new color scheme for walls and floors is all that is combination with lighted sponsorship, concession and wayfinding signage provide an adequate and comfortable level of light throughout the concourse areas. We believe the needed to improve concourse lighting.

Concourse lighting fixture:



300 Level Concourses

restrooms. However, additional way-finding and concession limited number of seats served by these concourses, it is not overall feel of the spaces. Beyond that, there is little that minimal amenities. Due to structural limitations and the can be done to increase revenue generated in these areas. The 300 Level Concourses are very narrow with signage may be added at minimal cost to improve the improvements which might include larger concourses, expanded concession stands and increased number of economically feasible to invest in significant capital

improvements in the Main Concourse areas may help to

concessions by possibly offering better food and merchandise draw upper level ticket holders to the Main Concourse amenities.

300 level concourse:



Public Restrooms

maintained. Fixtures were observed to be working properly in the sinks and toilets. Paper towel and soap dispensers concourse are in excellent condition and have been well The public restrooms off the main and upper were observed to be functioning properly as well.



Women's restroom outside Section 114/115 is clean and well maintained:



The number of restrooms, water closets and urinals does not currently meet today's standards for public assembly facilities or guests expectations.

		Non	nen		Men	
	Capacity	мc	Lav	мс	Urinal	Lav
Hartford CC	16,500	50	42	29	64	44
Average (14						
arenas)	16,850	140	47	39	109	40

Significant renovation to the concourse would be required to study would be required to determine costs which we believe As the table illustrates, the Hartford Civic Center has what exists in newer generations of facilities of similar size. 54 fewer water closets for women and 45 less urinals than achieve parity with current generation facilities. Further would be significant and probably prohibitive.

PREMIUM SPACES Suites

consistent with industry standards for comparable facilities. The quality, level and condition of the suites is

While some carpet and seating upholstery is beginning to show signs of wear, their condition does not yet warrant upgrade or replacement.

Director's Club

number of accessible seating should any work in this area be The Director's Club is clearly the jewel of the facility any upgrading/renovation work be done here, is the lack of Its condition and level of maintenance is equal to or better than that of the suites. One concern for this space, should Accommodations will need to be made for the minimum ADA compliant wheelchair-accessible seating. considered.

Director's Club:



Coliseum Club

Club. The finish on the wooden cup holders and flip-up trays finish is consistent with the other premium areas. Due to premium space in the building. Its condition and level of more extensive use, the seating in the front of the club is The Coliseum Club appears to be the most utilized showing more wear than seats in the suites or Director's is beginning to deteriorate and the upholstery is showing

signs of wear, though probably not yet to the point of

code should allow for a minimum height of 26" in lieu of the would enhance the site lines and improve the fan experience. lowering of the rails in front of the club seating. Current current height of approximately 36". This improvement One improvement that should be considered is the needing to be replaced.

Coliseum Club seating:



Coliseum Club bar:





5 Architecture & Facility

Architecture & Facility

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CATWALKS

The condition of the catwalks was generally observed to be good. Carpet has been laid to cover the grate flooring, an obvious attempt to accommodate use of the area by people other than the facility's operations and engineering crews. The catwalks were generally observed to be free of debris and equipment. We did, however, observe a spotlight platform that had poor access capability that would probably constitute an OSHA violation. Spotlights were also observed not to be safetied to the platforms which may constitute another OSHA violation. All sports lighting fixtures on the catwalk were observed to safetied to the railing of the catwalk.

Spotlight platform at SW corner – 2x8 inch board used to access platform from the catwalk:



SEATS & SEATING AREA

All of the seats in the seating area have been replaced within the last ten years. The seats and aisle ways are in very good condition and have been well maintained. The aluminum retractable risers for the seating area

I he aluminum retractable risers for the seating area were being used and were set up during our tour for the ice show. The decks are in good condition and the pieces we

observed being operated were in good condition and seemed to operate smoothly.

EXTERIOR CONDITION

The condition of the exterior is generally well maintained, but there were areas where there was significant delamination of concrete steps and pads, especially at the designated smoking area. The main entrance to the facility along Trumbull Street is accessible and clearly marked by the presence of the LED marquee. Northwest entrance of the facility where the steps have been reconcreted in the past year. The metal paneling on the backside is still left over from original construction. The facility management has talked about re-doing this back side to make it more appealing:



Southwest corner of the building used as a smoking section. There is significant wear and delamination of the concrete steps and pads:









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FOOD SERVICE: OVERVIEW GENERAL FINDINGS POINT OF SALE EQUIPMENT OFFICES CONCESSIONS PORTABLE CONCESSION STANDS PREMIUM FOOD SERVICES

FOOD SERVICE: OVERVIEW

These observations were gathered during two days of touring the Hartford Civic Center, on April 20 and 21, 2006. We toured the HCC with facility staff and performed a survey of the conditions of fixed concession stands and kitchen areas.

GENERAL FINDINGS

In general, we found the foodservice equipment and facilities to be old but in good operating condition, well maintained and operating under a high standard of sanitary condition. Due to the space limitations and original design of the permanent concession stands, the food offering is very limited and not to the standards that are currently observed in today's municipal facilities. Currently, there is only one stand with grills and fryers which limits the facility producing fresh and higher revenue product. On the other hand, it appears that converting so that 50% of the stands can grill and fry food may not be a sound investment due to the cost of renovation. Significant costs associated with expansion and venting systems may not provide the return on investment.

Current Permanent POS Ratios:

As the table above illustrates, the Civic Center does not meet current standards for numbers and distribution of points of sale for concession stands. Although attempts

have been made to increase points of sale with portables, the sheer lack of concourse width makes it virtually impossible to add an adequate number of points of sale for a positive customer experience.

POINT OF SALE EQUIPMENT

The current Point of Sale system was installed in 1999 and is a Di/An model. The system does not currently accept credit cards and should be upgraded so cards could be accepted at all sales areas, as customers expect that of all retailers, even at smaller fast food chains. Visa and MasterCard studies show that credit card transactions are 15% to 25% greater than cash transactions, so adding credit card capabilities can increase sales. In observing the long lines at the Center's ATM machines, it is obvious that customers do not carry enough cash, and making it inconvenient to use their credit and debit cards only impedes sales and lessens the fan experience.

Di/An POS terminal in Brigham's Ice Crème stand:



Credit card transactions, if engineered correctly with Ethernet or wireless broadband, will also be quicker than a cash transaction, since there is no change and most



merchants do not require a signature for purchases under a specified amount.

The latest developments in POS technology is the contact-less transaction, where a customer just waves their credit card in front of a reader and the transaction is complete, using RFID readers and activated cards. Likewise, many facilities want to implement customer loyalty or frequent purchase programs, as well as customer discount programs, which can all be built into a modern POS system.

The four permanent merchandise booths currently are equipped with credit card machines.

OFFICES

The management staff indicated the foodservice offices were sufficient in size.

KITCHENS

The Hartford Civic Center has one kitchen on the suite level for food preparation for suites and clubs. The kitchen was observed to be clean and of sufficient size to handle the demand for the above mentioned spaces. The kitchen also is the place where catering is prepared and distributed for the exhibit space on the service level.

Kitchen on suite level has enough space to accommodate large scale cooking for premium areas and catering activities:



Pantry on the suite level used to service the suites is in good condition:



The kitchen has sufficient storage and the remote condensers for coolers and freezers work well and reduce heat and noise inside the kitchen. Management indicated that the current equipment is functioning well and being repaired or replaced when necessary.

CONCESSIONS

the concession stands up to today's standards may in fact be assembly facilities. Due to the physical constraints relating vast majority of consumers today is to view fresh food being to charge more and in return increase revenue. The amount operators are hindered from being able to provide fans with cooking of food product in the stand, while the other stands therefore, must store it in warmers. The expectation of the prepared in an open area which does allow for the operator of remodeling and construction that it would take to bring so large that any return on investment may take 10 to 15 to the size of the stands and the lack of grills and fryers, Center is not consistent with today's standards in public a diverse menu. Only one stand currently allows for the The current concession food offered by the Civic are only able to receive prepared food product and, years to realize.

PORTABLE CONCESSION STANDS

The portable concession stands on the main and upper concourse are generally in good condition with the graphics viewed to be concise and eye catching. The major issue is the lack of queuing line space, which is true for the fixed stands as well. There is currently no course of action that can taken by facility management that can remedy the situation.



Ice crème portable outside section 113/114 is in good condition and properly placed on the concourse:



PREMIUM FOOD SERVICES

The premium food areas and services were viewed as strengths of the food and beverage operation at the Hartford Civic Center. The Nextel Club and the Director's Club were as good as what one might see in a facility 25 years younger. The kitchen is appropriately sized to service 40+ suites and a restaurant.





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Hartford Civic Center – Facility Analysis June 2, 2006		15 Major Systems
MAJOR SYSTEMS: OVERVIEW DPERATIONS / MAINTENANCE STAFF HVAC Air Handling Units Building Automation System Central Plant / Pump Room Central Plant / Pump Room Central Plant / Pump Room ELECTRICAL Primary Systems Secondary Systems Secondary Systems Primary Systems PLUMBING Overview De-Ionizer / Ice Making Water System Ice Floor / Hockey Rink System	MAJOR SYSTEMS: OVERVIEW This document is the result of an on-site field investigation that categorizes the major systems of the facility and the condition of the equipment inside the building including HVAC, Mechanical Electrical & Plumbing (MEP), Ice Making Systems and Ancillary equipment used for various shows and entertainment purposes at the Hartford Civic Center. This document does not include an engineering evaluation; however, there are several recommendations throughout this document for system alternatives that could lead to a more efficient operation of the facility.	equipment was noticeably dingy and had an aged look. This "dingy" look is due to the actual age of the equipment, a result of human contact over the past thirty-one years of operation and from normal maintenance procedures. It should be noted that most of the mechanical equipment has been well maintained in the past but is now showing signs of deterioration due to its age and will need to be completely replaced in the near future. This issue and other issues concerning outdated and worn out equipment will be addressed in more detail in the HVAC sections of this report Air Handling Units
FIRE PROTECTION SYSTEMS Fire Extinguishers and Cabinets Sprinkler Systems ELEVATORS / ESCALATORS CATWALK & CATWALK AREA Overview Spotlights ROOF & ROOF SYSTEMS TECHNOLOGY Telephone System Sound System	OPERATIONS / MAINTENANCE STAFF The maintenance staff should be commended for their efforts for maintaining all of the mechanical systems inside the facility. It is immediately obvious that the staff is concerned about the equipment in the facility, as well as the outward appearances in the public areas and the service levels of the facility is well kept and free of debris and there appears to be a regular program to maintain the painted areas of the facility. The overall appearance of the inside of the entire facility is well kept and free of debris and there appears to be a regular program to maintain the painted areas of the facility. The janitorial staff is managed in-house through the Operations Department and seems to be maintaining the building properly. During the walk-through, no bad odors were noticed in the service area. The public areas including the lobby floors, seating area, restrooms and concession areas were clean and mostly free of debris or loose trash. The dumpster in the service area is the only area where a bad odor was noticed; however, the janitorial staff and the maintenance staff seemed to have some measures in place to help contain the area around the dumpster and keep the odor to a minimum.	There are over twenty separate air handling units for There are over twenty separate air handling units for the arena, associated concourses and meeting areas. These units use chilled water for cooling and steam / hot water for heating. There is also numerous DX type Freon units that cool areas in the service level and primarily the dressing rooms. All of the DX units we observed were in good condition and most were operating. The units were obviously well maintained and were very clean. The condensing units were relatively free of dirt and dust build-up on the condenser fins and none were making any unusual noises or compressor straining sounds. Generally, most of the units were in fair condition. As mentioned earlier, the maintenance staff has done a great job maintaining these units; however, due to the age of these units, it will be necessary to begin planning some type of retrofit for new units in the future. Most of the units observed appeared to be working properly and we were advised by the staff that all are used regularly for heating and cooling. During our observations we did not find many dirty filtere and there was eval and not filtere in most storade

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rooms indicating a good filter maintenance program. The

mechanical equipment throughout the facility, most of the

maintenance staff was actively working in two of the air handling units as we toured the facility and there were three units scheduled for cleaning and filter replacement during the next week.

As with most venues in this age range there are numerous problems in the mechanical and plumbing systems. Several serious problems are cooling coil deterioration, pipe and baton insulation in and outside the units, control / shut off valve deterioration and corroded steel piping.

On almost all units we observed piping insulation deterioration and insulation that has been removed for maintenance and repair purposes. There were several units that had saturated insulation with some type of liquid, most of which seemed to be condensation from CW pipes and possibly concession stand leakage. The staff informed us that the coils are also steam cleaned on a yearly basis. Many of the AHU's coils on both the cooling sides and the heating sides were damaged due to "mashed coils", this usually results from normal maintenance and these coils can be repaired to some extent.

AHU #s S3, S4 and S5 are units that have exposure to the outside air used to pressurize the building; they contain repaired coils which were previously damaged by freezing temperatures. The maintenance staff was able to repair the coils by simply plugging it with copper and solder. AHU # S3 cannot be used for cooling any longer due to extensive freeze damage to the cooling coils; the unit is now used for heat only.

Many of the air handling units observed have broken access door latches and hinges or were simply not closed. Also, many of the lights in the AHU's were not operating properly. The broken door latches can cause massive air leaks depending on which side of the AHU it is located. It was also observed that there were no door seals on many of the units to stop the flow of unwanted / nontreated air from

entering the facility. The outdoor louvers appeared not to be functioning, leaving equipment exposed to the low temperatures during winter months and hot temperatures during the summer months causing higher utility costs.







Building Automation System

The facility has added a Carrier Comfort Works building automation system. This system is not a true Energy Management System, but the system allows the operator to monitor all of the main air handling units and set temperature parameters as well as on / off capabilities. The system is also tied into the Ice Plant and its associated systems such as Glycol temperature & slab temperature.

Electrical usage can be monitored by the staff but only on a limited basis. Daily electrical usage readings are manually recorded at the building KWH meter in the mail electrical room.

This system is currently being utilized by the staff but it has limitations, such as true verification monitoring. Examples would be turning on an AHU and the computer gives you the indication the unit is running; however, the unit did not turn on and the operator cannot verify proper operations of the unit until a visual check is completed. This would also be true with the controlling of temperature. The unit is connected to alarms in the security office should any type of emergency arise during off hours. The ice plant alarms are also tied into the system in case of an emergency.



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Central Plant / Pump Room

The central plant in this facility is maintained by the in-house maintenance personnel and does not contain chillers for production of chilled water nor boilers for hot water or steam production. All of the chilled water, steam and hot water are purchased from an off-site plant and piped into the facility.

The central plant contains two pumps for the chilled water circulation throughout the facility. The steam comes into the facility at high pressure and then the steam pressure is reduced or "stepped down" before being regulated at different locations. According to the staff, the primary steam regulator was recently replaced.

The central plant room and its equipment have been well maintained and we noticed that several pieces of equipment such as small pumps and regulating valves have been replaced. However, as the picture below illustrates, the equipment and its support system is old and showing signs of deterioration such as numerous leaks, evidenced by the buckets catching water leaks from overhead pipes and previous leaks around the chilled water pump pads.



ELECTRICAL Primary Systems

Primary Electrical service for the facility is provided by three separate pad mounted utility transformers located inside the facility. These transformers are owned and operated by the local utility company. The transformers are original equipment and seem to be operating properly and are rated for 3,000 amps each 0 480 Volts. There was no evidence of PCB testing and the operations staff did not know if a load test had ever been performed.

Due to the age of these transformers, it is recommended that proper documentation be obtained from the utility company to determine if the equipment meets local and federal standards. It is also recommended that a written contingency plan be instituted to insure a replacement transformer can be obtained in a timely manner should a failure be encountered.



Secondary Systems Most of the electrical rooms consist of 277/ 480 volt lighting panels and dry type transformers serving 120/208 volt branch circuit panels. It appeared that most of the 277/480 Volt panels and dry type transformers were fed

Major Systems

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from the bus ducts; however, no electrical prints were reviewed to confirm this assessment

Most of the electrical rooms appeared clean but some rooms had a build-up of dust and were currently being used for storage of event equipment and various items.

All of the secondary electrical equipment in the facility, excluding the dry transformers, was manufactured by Federal Pacific Electrical (FPE). FPE has been out of business for more than twenty years, thus creating a problem with replacement parts. The smaller breakers and low amperage parts are usually available and not too difficult to obtain through local electrical distributors. Most of the high amperage parts, however, are very difficult to secure in a timely manner.

Should part of a low voltage or high voltage electrical box be partially destroyed due to a failure, the entire panel box or feeder box will have to be replaced. The low amperage electrical panels should not pose much of a problem; however, the high amperage distribution and feeder panels could cause the facility to be shut down for several days or possibly weeks depending on severity and location of the problem.





Hartford Civic Center – Facility Analysis June 2, 2006		18 Major Systems
Note the storage of event equipment and the dust / grease residue coming out of the vents in this panel:	Emergency Generator:	In addition to the AHU's having a VFD, the ice floor glycol circulating pumps and the main chilled water circulating pumps also have a VFD installed.
· · · · · · · · · · · · · · · · · · ·		PLUMBING Overview
		The restrooms in the lobby, service level and the suites were generally in good condition. The "flushing systems" we observed were operated by a manual system utilizing a
		vacuum breaker and all of these fixtures seem to be in good working order.
		Uther areas observed were the ice making / snow pit area and various parts of the service level where janitorial
Emergency Electrical Power	Fuel Storage Tank:	personnel were working, must of the potable water piprig was not accessible; however, some of the pipe observed were
Caterpillar Engine 500 KVA Generator The emergency generator is original equipment and		of the steel galvanized type and were generating sufficient water pressure in the service levels. The water closets in the
seems to be in good working order. The maintenance staff evertises the unit orde a week as evidenced in the loce		public areas seemed to operating properly also. The higher levels of the huilding seemed to have less pressure and the
placed near the generator. According to the staff, the		building staff confirmed that low water pressure during high
generator runs well and has no apparent problems. H.O. Penn & Company is hired to maintain, repair		usage periods in these areas becomes a problem. The lower water pressure in the upper areas indicates restrictions in
and test the entire unit once a year. It appears that there		the piping due to corrosion and scale and is not uncommon
have been several modifications to the unit such as a secondary fuel filter system and fuel distribution hoses.	No.	in buildings of this age. This also indicates possible future pipe failure and all of the piping should be inspected by a
The generator is air cooled, thus causing a heating problem inside the room housing the generator. There are	Variable Frequency Drive Units	qualified plumber that has experience with this type of problem.
two large ventilator units that remove the hot air produced by the heat from the engine. These two units are	Most of the large and medium sized motors on the maior systems in the facility have a VFD installed. These	Please see the recommendations section for possible short term solutions.
automatically engaged as soon as the engine starts. Adiacent to the generator system is a 400-gallon	units are of great assistance to reduce the electrical energy heinor under the monotone and the monotone and the form	De-Ionizer / Ice Making Water System
diesel fuel tank to feed the generator fuel. According to the staff, a larger tank located outside the generator room was recently removed due to snace constraints	low load demand events and off event days. Many of the air handlers and associated pumps have these units installed.	A Jet Ice water treatment system is being used to clean and condition the water for the hockey floor. These systems have been used with good results and produce a
		hard sheet of ice. The system used here seems to be in need of general maintenance and cleaning. We have been advised
		HOK

SPORT

the system is working properly but did not test any of the ice making water. The covers on the automatic mixers were missing and the internal piping was exposed. Both tanks of acid and caustic soda are stored in front of the unit and could cause problems should there be a leak and maintenance personnel need to make emergency repairs quickly.



[ce Floor / Hockey Rink System

The chillers and all ice making systems were being used and there seemed to be no apparent problems with any of the equipment.

The dasher wall and Plexiglas were in good condition and the staff advised us the dasher wall had been replaced three or four years earlier. The glass was in good condition but needed cleaning which is always the case after a full season.

The ice floor is cooled and maintained by two Carrier skid mounted "Screw Type" chiller packages. The two pumps that circulate the cooling medium Ethylene Glycol throughout the ice floor seemed to be operating properly. The two pumps have Variable Frequency Drives connected to them for electrical efficiency, and the chiller packages are

connected to the building controls system and alarms are mounted inside the security office in case of an emergency

The facility is using two ice floor re-surfacers that are manufactured by Olympia. One of the units is older than the other and was in need of cleaning and maintenance. The newer unit seemed to be in good operating condition and we were able to observe the unit in operation after the practice concluded.

FIRE PROTECTION SYSTEMS Fire Extinguishers and Cabinets

All of the fire hose cabinets and dry type chemical fire extinguishers in the facility have been properly tested and tagged accordingly by a licensed inspection company. All of the fire hose cabinets were clean and free of debris and none appeared to have any type of leaking which indicates a good maintenance program. There were, however, some hand-held chemical extinguishers that were not properly hung on the wall and had no marking indicating their location.

Sprinkler Systems

All of the fire protection systems seemed to be maintained to a high standard and the dry system was observed to be almost new. There were four separate locations we observed, though none of the systems we observed had any type of inspection tags indicating testing dates or any type of flow certification associated with any of the units. There were also numerous pieces of equipment stored in some of these areas leaving little access to the units or controllers in case of an emergency. According to the staff, plans were in place to start a bid process to have this work completed by a licensed testing company. The main water backflow-preventer had been recently repaired and has a current certification tag attached.





ELEVATORS / ESCALATORS

The elevators and escalators observed are operated and controlled by relay type systems. The elevators and escalators seemed to be of original equipment and were observed while operating. Considering the age of the equipment, there was nothing noted out of the ordinary concerning the elevators other than normal wear and tear and the age of the entire systems.

The escalators are showing signs of deterioration due to usage and age, especially the escalators near the entrance to the main office. They were observed to be loose and



Hartford Civic Center – Facility Analysis June 2, 2006		20 Major Systems
making noises near the top of the landings. These noises may be an indicator of loose or worn out roller bearings and guides in the steps and the support railings.	consistent with the current condition of a facility of this type and age. Metal Halide lighting manufactured by Musco Lighting was installed for arena lighting. There are no blackout shutters or instant re-strike bulbs installed on this system. The lights and associated fixtures are properly installed and safetied to the catwalk railing to prevent accidental falling. Mounted on the cetwalk railing to prevent scoreboard / video and its winch system. The center hung scoreboard / video and its winch system. The scoreboard is a four-sided system manufactured by Daktronics and is operated by a control system in the lobby. The control system for the video production is also housed in the lobby and can accommodate almost any type of video production. There are also patch panels and feeders for video feeds from production trucks outside the facility.	though the scoreboard system was not operating at the time of our tour, building personnel indicated that the system was operating properly. Spotlights There are numerous areas on the catwalk and adjacent areas that support the spotlights for entertainment purposes. The Supertrooper spotlights are manufactured by Strong Industries and powered by a Xenon electronic lighting system. Most of the spotlights were observed to be in good condition. All of the spotlight platforms we observed were dangerous and none of the spotlights were safetied to the catwalk. The platforms were dirty and there were large amounts of garbage accumulated around and inside many of these platforms. Some platforms had little railing, thus
Montgomery Elevator & Otis Systems is currently contracted to maintain the elevators and escalators. There are numerous elevator parts and escalator parts in many of the elevator mechanical areas indicating that the systems are being repaired and maintained on a regular basis. A complete mechanical survey conducted by an independent contractor is advised due to the age & condition of these systems. It would not be unusual for complete replacement in the near future due to the age. Other problems can arise when new components are incorporated with older components causing conflicts with electronic and mechanical parts and systems resulting in a shut down.		making the potential for falling objects, equipment or operators a threat, especially as some of the operators must traverse areas over the audience to get to the platform. There was also no evidence that spotlight operators are using a safety harness nor was there any evidence that any type of fall protection is being used in these areas. Some of the spotlight platforms had arena chairs for the operators to sit in during shows, though none of the chairs were safetied. ROOF & ROOF SYSTEMS A visual inspection of the roof was conducted and there were no evident problems noted with the roofing system. The roof was clean of debris and some of the
CATWALK & CATWALK AREA Overview The catwalk area was clean and obviously a program was in place to maintain the areas in and around the catwalk. There were some miscellaneous cables and wiring on the catwalk floor but this would be considered to be	Fall protection cables have been installed within the catwalk system. According to the staff, the system is checked annually and had been inspected in March of 2006. The system is clean and looks well maintained. According to the staff, the scoreboard system and winch are inspected annually by a certified company. Even	exhaust fans were turned on and operating properly. There was some minor patching but nothing out of the ordinary.

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TECHNOLOGY Telephone System

The telephone system is of the analog type. There is one fiber optic cable system inserted into the main telephone room, but it is not utilized at this time. All of the offices and other systems that require telephone service use the analog system. Since the fiber optic cabling is inserted into the facility, there may be a chance to utilize it should upgrades require a fiber optic system.

Sound System

The sound system for the arena is controlled in the catwalk. The system is spread throughout the arena in a series of speaker clusters hung from the ceiling trusses and some of the support beams. There are also numerous speakers in the public areas tied to the system for announcements and event activity. According to the staff, the system works properly and the arena has a full time sound engineer. The arena staff demonstrated a pre-recorded emergency message and the system worked very well. There are also numerous connections in meeting areas and the facility has several independent small portable

systems for smaller events. There are also controllers on walls in the meeting areas for sound and lighting control.





CONCOURSE CONGESTION / RESTROOMS LOADING DOCK & BACKSTAGE SPACES EVENT OPERATIONS: OVERVIEW BOX OFFICE

EVENT OPERATIONS: OVERVIEW

attending Champions on Ice and the Billy Joel concert at the The following observations were made as a result of a facility walk-through at the Hartford Civic Center and while facility on April 20 and 21.

LOADING DOCK & BACKSTAGE SPACES

event operations at the Hartford Civic Center are conducted Due to the lack of overall space and functional eventtechnical requirements continue to increase, the Center will find it increasingly difficult to meet promoter and producer related facilities located on the event level, as well as the lack of a dedicated loading dock and marshalling space, at a significant disadvantage. As show requirements and expectations.

trucks must be loaded and unloaded with ramps, which increases labor Roll up door from loading dock to marshalling area. Production costs and time for loading and unloading equipment:



BOX OFFICE

Street is sufficient to handle crowds purchasing tickets or picking up will call. The area/lobby provides a sufficient

space for a large crowd to gather in cases of inclement weather.



CONCOURSE CONGESTION / RESTROOMS

were observed throughout the night at the Billy Joel concert. standards for public assembly facilities for public restrooms whose numbers were designed to accommodate 10,000, are require upgrades to all facility's spaces to ADA compliance. The one public concourse is not sufficient to accommodate renovation of the facility to meet current code and design pedestrian flow of a crowd of 15,000. Public restrooms, Long lines at the restrooms and concession stands may be prohibitive. The renovation would consequently woefully deficient in servicing a crowd of 15,000. A





One line for a Women's restroom. This was typical of most restrooms at the HCC:









23 Event Operations

Hartford Civic Center – Facility Analysis April 5, 2007		1 Addendum to Major Systems
ADDENDUM TO MAJOR SYSTEMS: OVERVIEW OPERATIONS / MAINTENANCE STAFF HVAC Air Handling Units Building Automation System Central Plant / Pump Room ELECTRICAL Primary Systems Secondary Systems Energency Electrical Power Variable Frequency Drive Units PLUMBING De-Ionizer / Ice Making Water System Ice Floor / Hockey Rink System FIRE PROTECTION SYSTEMS Fire Extinguishers and Cabinets Sprinkler Systems ELEVATORS / ESCALATORS CATWALK & CATWALK AREA SPOIL GHTS	ADDENDUM TO MAJOR SYSTEMS: OVERVIEW Approximately one year ago the Major Systems of the Hartford Civic Center underwent an evaluation and visual inspection of the mechanical systems and sub-systems. The facility analysis was prepared for the Connecticut Development Authority and a copy is enclosed with this report. In February 2007, HOK Sport was contracted by the City of Hartford to perform a study of a new civic center to include an update of our previous document and determine changes that have taken place since our last review. The follow-up visit was scheduled and took place with previously involved HOK staff. The following changes, or lack thereof, are noted and presented below. Please note that the format was not changed from the original report so that direct comparisons could be made to the past year.	problem that will not stop unless steps are taken to repair the cold air leaks around the units. The units were taken out of service and not operational. It was also noted that some new water shut off valves have been installed in some of the AHU's supply lines. Some of the rusted/corroded piping around the new shut off valves have been cleaned and new pieces of insulation have been installed. As mentioned in the first report, many of the air handling units observed have broken access door latches and hinges or were simply not closed, and many of the lights in the AHU's were not operating properly. The broken door latches cause massive air leaks depending on which side of the AHU it is located. We noticed none of these have been repaired since our last visit. Overall, the conditions of the Hartford Civic Center air handling units have deteriorated since our last visit.
ROOF & ROOF SYSTEMS TECHNOLOGY Telephone System Sound System SUMMARY	OPERATIONS / MAINTENANCE STAFF The maintenance staff was commended for their efforts for maintaining all of the mechanical systems inside the facility in the previous report. Again, they have worked to do there best with the resources and manpower they have. Many of the systems are at or near their useful life expectancy. The limited capital funding and resources have made replacing equipment difficult for the staff. As equipment has failed, repairs have been and are continuing to be made.	Building Automation System No changes were noted with this system. According to the staff, the system is working as was the case last year. The system is a Carrier Comfort Works building automation system. Staff stated that no updates have been made to this system since our last visit. Upgrades should be considered to the building automation system as no software upgrades or training has been made in the last year. A fully operational building automation system with well trained staff would improve efficiency of existing systems.
	HVAC Air Handling Units Our investigation included most of the air handling rooms and we observed most of the facility's air handling units. Generally, the units continue to be in fair condition. Two units were found to be in poor condition due to frozen coils during this winter season. The broken coils have been capped off to stop the leaks; however, this is a re-occurring	Central Plant / Pump Room The central plant was operational as we toured. Other than a few new pneumatic valves in the chilled water system, nothing was noted that would indicate a change in the operations of this facility. Several water pipe unions were leaking and were scheduled for future replacement. The main air compressors for the pneumatic systems were being repaired and a new air storage tank was being
		HOK

Hartford Civic Center –

Hartford Civic Center – Facility Analysis April 5, 2007		2 Addendum to Major Systems
installed at the time of our visit. This was being repaired	visit was that the fans that cool the units needed to be	Sprinkler Systems
due to a total failure of one compressor and a rusted out	cleaned. Keeping the fans clean will extend the life of these	A new dry sprinkler system was installed in the
tank since our last visit.	drives by protecting them from overheating.	service area due to a rupture since our last visit. No changes
The chilled water and hot water piping insulation has		were observed or noted except for the new dry system
deteriorated from last year. This is a result of peing distrution by major major maintenance to the units and	PLUMBING Water mercure iccure continue to alonue the facility	Installed in the service area. All inspection tags were current and the equipment appeared to be in good working order
deterioration attributed to age of the material.	No changes were observed or noted in equipment, but the	מוומ ניוב בלתולווובוור מלהבמובת רח אב ווו להסת אסו אוווא סו מבו.
	staff informed us that the problems of low water pressure on	ELEVATORS / ESCALATORS
ELECTRICAL	the suite and concourse level is getting worse. The	Since our visit last year, the escalators at the main
Primary Systems	reduction in flow is due to the age of the piping in the	entrance were flooded. None of the units were working at
No changes were observed or noted.	facility and the corrosion buildup inside the piping. This	the time of our visit and there were no firm plans for repairs
Serondary Systems	problem is common for a facility of this age. No changes have been made since our last visit to remedy the flow	or replacement. The reparks of these units will be expensive and require some major downtime
There were numerous electrical breaker panels being	problem. Corrosion within the piping will continue to	The escalators leading to the service floor from the
systematically replaced on the service and the event level.	worsen until piping is systematically replaced. Catastrophic	main entrance are running; however, these are also in need
All of the new panels were replacing the old FPE systems	failure or blockage is possible with the aging of the piping.	of major repair due to wear. All escalators were observed
that were original equipment. All of the new breaker panels		to be in poor condition since our last visit. Major repairs
we observed were low voltage type 120 /220 volts. The FPE	De-Ionizer / Ice Making Water System	are not taking place due to cost. These units should be
equipment has not been manufactured or supported in over	The existing water treatment system no longer works	assessed for replacement.
twenty years. As this equipment fails, it must be replaced	and has been taken out of service. A good water treatment	Elevators were observed to be functioning with no
by completely new non-compatible equipment. In other	Professional of this metal word consistent sheet of ice.	major issues.
words, complete replacement of breaker boxes must occur	Replacement of this unit would need to be complete as no	CATWALK 8 CATWALK ADEA
and the old parts are used as attic stock of the older	part of the old system is salvageable. A new Jet Ice system	UAIWALK & UAIWALKAKEA No changes upper cherminal of mated
equipment. This is a very expensive way to maintain the equipment.	WOULD FOR APPLOATTACED 477,000.	NO CHAINGES WELE OBSELVED OF HOLED.
	Ice Floor / Hockey Rink System	SPOTLIGHTS
Emergency Electrical Power	No changes were observed or noted. According to	No changes were observed or noted. Please see the
Caterpillar Engine 500 KVA Generator.	staff, the system is working well.	2006 report for proposed changes.
This generator is original equipment and is at the end		
of its expected useful life. They continue to maintain the	FIRE PROTECTION SYSTEMS	ROOF & ROOF SYSTEMS
equipment and have it on a maintenance program with an	Fire Extinguishers and Cabinets	No inspection of the roof systems was performed due
approved vendor.	No changes were observed or noted. All of the	to weather conditions. According to the staff, the roof is in
No changes were observed or noted.	inspection tags were current and all the systems appeared to	good condition and no leaks were reported.
Variable Frequency Urive Units	be in good working order.	
and the VFU was observer to be operating properly and		
no changes were observed. The only issue noted at our last		
		SPORT

Addendum to Major Systems

FECHNOLOGY

Telephone System No changes were observed or noted

Sound System

No changes were observed or noted.

SUMMARY

Maintenance staff continues to maintain aging equipment with limited resources for replacement. Undoubtedly, the challenges facing the maintenance staff due to the age of the building and its systems are formidable. The mechanical systems are showing more wear and are going to require much more maintenance and/or eventual replacement. Many of the major systems are at or past their useful life expectancy. Systems such as chilled water piping and shut off valves are failing on a regular basis. Leaking of unions and valves were observed in the central plant/pump room. Ongoing repairs and replacement are being made on an as-needed basis or upon complete failures.

The escalators are showing major signs of wear and will require significant funding going forward. AHU's are susceptible to significant failures due to age and breakdowns of systems to protect units from freezing winter air infiltration.

The overall piping in the facility is experiencing flow reduction due to internal corrosion. This problem is causing major issues in the upper levels of the facility during events. Problems with flush valves are common because of pressure reduction. Unfortunately, this problem cannot be remedied without systematic replacement of piping throughout the facility.

Although some recommendations offered from last year's report are proceeding, there have been no noticeable efforts to address the larger issues for long term operation

of this facility. Overall conditions are continuing to deteriorate with age. Replacement of aging equipment will need to continue as outdated equipment fails. Repairing equipment may not be an option for many pieces of equipment. Current building staff is now replacing major components on a regular basis.

Catastrophic failures should be expected in the major systems of this facility. All equipment is at the end of its expected usable life. Failure to replace major systems will result in significant equipment down time and may impact events.

