STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

Raul Pino, M.D., M.P.H.
Commissioner

Dannel P. Malloy
Governor
Nancy Wyman
Lt. Governor

Office of Health Care Access

Certificate of Need
Final Decision

Applicant: **Hartford Hospital**
80 Seymour Street
Hartford, CT 06115

Docket Number: **16-32062-CON**

Project Title: **Acquisition of a Computed Tomography ("CT") Scanner and a 3 Tesla Magnetic Resonance Imaging ("MRI") Scanner for Hartford Hospital in Hartford, Connecticut**

Project Description: Hartford Hospital ("Applicant" or "Hospital") seeks authorization to acquire a new computed tomography ("CT") scanner and a new 3T magnetic resonance imaging ("MRI") scanner for its main campus Bone & Joint Institute ("Institute"). The total capital expenditure associated with this proposal is $2,787,021.

Procedural History: The Applicant published notice of its intent to file a Certificate of Need ("CON") application in *The Hartford Courant* on December 14, 15 and 16, 2015. On January 15, 2016, the Office of Health Care Access ("OHCA") received the initial CON application from the Applicant for the above-referenced project and deemed the application complete on April 19, 2016.

OHCA received no responses from the public concerning the Applicant's proposal and no hearing requests were received from the public per Connecticut General Statutes ("Conn. Gen. Stat.") § 19a-639a(e). Deputy Commissioner Addo considered the entire record in this matter.

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Findings of Fact and Conclusions of Law

1. The Applicant is an 867-bed[1] hospital located at 80 Seymour Street, Hartford, Connecticut and provides primary, secondary and tertiary acute care services. The Applicant is a member of the Hartford Healthcare, an integrated health care delivery system. Exhibit A, pp. 11, 42.

2. The Hospital is constructing a Bone & Joint Institute ("Institute"), a department on the main campus, dedicated to providing comprehensive and coordinated diagnostic and treatment services integrated with research and educational services for musculoskeletal disorders. Exhibit A, p. 11, 21.

3. The Institute will be a patient-centered facility with medical subspecialties in foot, ankle, hand, shoulder and upper extremity, sports medicine, spine, joint, urgent care, arthritis and pain management, embedded with orthopedics and neurological services. Docket No.13-31851-CON.

4. Since musculoskeletal disorders typically involve more than one body system, the Institute will utilize a multidisciplinary approach for diagnosis and treatment, which will contribute to better patient outcomes. Docket No.13-31851-CON.

5. OHCA authorized the Hospital to establish an orthopedic ambulatory surgery center as a critical and central component of the Institute (Docket No.13-31851-CON) as well as to remove one of the Hospital's existing operating rooms from service (Docket No. 16-31851-MDF). Due to severe weather delays, construction of the Institute commenced on January 7, 2015 with anticipated completion and opening dates in December 2016. Exhibit A, p. 13.

6. The Applicant is proposing the acquisition of two new scanners to be located at the Institute for inpatient and outpatient care with the following special features resulting in better images for improved patient diagnosis and treatment:
    1. A General Electric (GE) 750HD 64-slice CT scanner with 3D dose modulations for managing or reducing radiation doses, dose-reducing reconstruction and dual energy scanning to alleviate severe artifacts associated with scans of anatomic areas containing metal; and
    2. A GE SIGNA Pioneer 3.0T MRI scanner optimized with orthopedic coils, capability for imaging near metallic devices and advanced imaging techniques to reduce image degradation due to the presence of metal for better images, higher accuracy and sensitivity.

    Exhibit A, pp. 11-12, 221.

[1] Includes 48 bassinets.

7. The following table lists the Applicant's CT and MRI scanners currently in use. All the scanners are operating at or near capacity and heavily scheduled.

TABLE 1
APPLICANT'S EXISTING CT AND MRI SCANNERS

Location	Area	Service	Days/Hours of Operation	FY 2015* Utilization
Hartford Hospital 80 Seymour Street Hartford, CT 06102	Radiology Dept.	GE VCT 64-slice CT	Always open	16,029
Hartford Hospital 80 Seymour Street Hartford, CT 06102	Radiology Dept.	GE QX/I 8 slice CT**	Mon-Sat 7:00 am – 12:00 a.m.	4,927
Hartford Hospital 80 Seymour Street Hartford, CT 06102	Emergency Dept.	GE VCT 64-slice CT	Always open	26,803
Hartford Hospital 80 Seymour Street Hartford, CT 06102	Radiation Oncology	Toshiba Aquillion LB 16-slice CT	N/A	516***
Hartford Hospital 85 Jefferson Street Hartford, CT 06102	Radiology Dept., MRI Center	GE Signa Echospeed 1.5T (Closed)	Always open	6,802
Hartford Hospital 85 Jefferson Street Hartford, CT 06102	Radiology Dept., MRI Center	GE Signa Twinspeed 1.5T (Closed)****	Mon – Fri All hours Sat – Sun 7:00 to 10:30 p.m.	4,096
Institute of Living 400 Washington Street Hartford, CT 06102	Olin Center for Neuropsychiatry Research	Siemens SKYRA 3.0T	N/A	*****

* October 1, 2014 – September 30, 2015
**15 years old and used for lengthy CT guided interventional procedures.
***Year to date and used exclusively as CT simulator for radiation treatment planning.
****Used for longer anesthesia cases and breast biopsy exams.
***** Used exclusively for research studies per Docket Number 14-31901-CON.
Exhibit A, pp. 16, 17, 221, 236.

8. The 15-year old GE QX/I 8-slice CT scanner is used primarily for lengthy CT guided procedures (biopsies, aspirations, etc.) and scheduled for 90-120 minutes for three to five procedures per weekday. The scanner's higher radiation doses and older technology limit the type of conventional CT exams that can be performed on the unit and it cannot be relocated as it serves this specific and essential function. Exhibit A, pp. 32, 227.

9. The GE Signa Twinspeed 1.5T closed MRI scanner is used for longer anesthesia cases, usually taking four normal slots, and breast biopsy exams. Exhibit A, p 222.

10. There are no CT and MRI scanners in the Hartford Healthcare system that can be relocated to or repurposed for the Institute at present because each scanner is at or near capacity and is

needed in its current location or serves a specific purpose or patient population. Exhibit A, p. 228

11. Patients admitted with orthopedic injury or complex musculoskeletal pathology increased from 112 to 126 (or 13%) between FY 2013 and FY 2015, and is expected to increase. The number of patients with metal implants who undergo imaging is also increasing. Based on scholarly articles the Applicant provided, national overall inpatient orthopedic care is projected to increase by an average of 250% over the next fifteen years. Exhibit A, pp. 12, 230; Kurtz, M. Steven Ph. D et al, Future Young Patient Demand for Primary and Revision Joint Replacement: National Projection from 2010 to 2030, Clinical Orthopedics journal; Exhibit A, p. 256.

12. Orthopedic patients, who often have moderate to severe mobility limitations, currently receive consultation care at one location Hospital and medically necessary imaging diagnostic scans, treatment and rehabilitation at other Hospital locations. Exhibit A, pp. 11, 230.

13. Transport and personnel needs, handling and medical care, add-on critical exam scans and urgent requests for orthopedic inpatients frequently disrupt daily scheduling and lead to scheduling difficulties and substantial delays for outpatient scans. Exhibit A, pp. 12, 17, 231.

14. Timely CT and MRI scans are needed for standard orthopedic imaging and surgical planning and to evaluate pre- and post-discharge surgical patients for potential emboli and complications. Currently post-surgical patients needing rapid assessments are transferred to the main Hospital for angiography or CTA on the Hospital's primary, heavily scheduled inpatient scanners. Exhibit A, pp. 17-18, 231.

15. Grouping orthopedic, rheumatology, pain management and rehabilitation services and appropriate imaging streamline and expedite the care of acute injury and the management of complex chronic conditions. Exhibit A, p. 230.

16. Orthopedic surgery patients are at high risk for thromboembolic complications including deep vein thrombosis (DVT), pulmonary embolism (PE) and as a consequence, death. For example, the incidence of DVT is 40-84% for total knee replacement without prophylaxis and 39-74% for total hip replacement; the incidence of fatal PE following a total joint replacement is 0.19-3.4%. Imaging modalities are the most effective ways to diagnose PE with spiral CT scan providing 81-100% specificity. Kim, Han Jo et al, Detection of Pulmonary Embolism in the Postoperative Patient Using Spiral CT Scans, Section of Hospital of Special Surgery Journal, Exhibit A, pp. 67-68.

17. The main campus conventional CT scans for post-operative patients with metal hardware is frequently limited by beam-hardening artifacts which result in x-rays attenuation, gaps on CT projection data and streaking, making it challenging to evaluate such patients' skeleton. The proposed 3D CT scanner is most effective for post-surgical examinations of the integrity of the patients' hardware and healing. Exhibit A, pp. 14, 72; Fayad, Laura m. et al, Value of 3D CT Defining Skeletal Complications of Orthopedic Hardware in the Postoperative Patient, American Journal of Roentgenology, Exhibit A p.71; Pessis, Eric, MD et al, Virtual Monochromatic Spectral Imaging with Fast Kilovoltage Switching: Reduction of Metal Artifacts at CT, RadioGraphics Journal, Exhibit A, p. 80.

18. The proposed 3D CT scanner will provide:
    - surgical planning scans and CT angiography for rapid assessments in post-surgical follow-up of suspected lung and other emboli without scheduling delays; and
    - higher quality imaging scans for patients that have metal implants and prostheses that seriously degrade the quality of images on the existing scanners.

    Exhibit A, pp. 12, 18.

19. MRIs and ultrasounds are demonstrated to be the most valuable imaging techniques for assessing meniscal damage, the standard imaging modality for detecting disc pathology for lower back pain and important insight for the appropriate timing of surgical treatment. Exhibit A, p.15; Potter, Hollis G. MD, Koff, E. Matthew, Ph., MR Imaging Tools to Assess Cartilage and Joint Structures, Hospital for Special Surgery Journal, Exhibit A, p. 102; Suthar, Pokraj P. et al, MRI Evaluation of Lumbar Disc Degenerative Disease, MRI Degenerative Spine Journal, Exhibit A, p. 108.

20. The proposed optimized MRI scanner will be utilized:
    - for pre-discharge and timely post-discharge follow-up assessment of post-surgical patients exhibiting symptoms of complications, without scheduling delays; and
    - with advanced techniques to reduce image degradation due to the presence of metal.

    Exhibit A, p. 12.

21. Based on historical utilization, the Applicant projects increases of 8% to 10% per year in total utilization. The reduction in projected volumes for the existing CT and MRI scanners reflects all current non-ED outpatient scans, orthopedic CT and MRI inpatients scans and 50% of existing inpatient CT spine scans and MRI outpatient head scans expected to move to the proposed scanners.

TABLE 2
APPLICANT'S HISTORIC AND PROJECTED UTILIZATION

Equipment	Historical Volume			CFY Volume*	Projected Volume		
	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18	FY 19
CT Scanners							
GE VCT – Radiology Dept.	12,017	13,990	15,188	5,851	14,694	16,017	17,458
GE QX/I – Radiology Dept.	3,798	3,552	4,078	1,799	4,509	4,914	5,357
GE VCT – ED Dept.	23,195	25,929	28,793	9,784	32,478	35,401	38,587
GE CT750HD 64-slice CT	-	-	-	-	5,429	5,918	6,450
CT Total	**39,010**	**43,471**	**48,059**	**17,434**	**57,110**	**62,250**	**67,852**
MRI Scanners:							
GE Signa Echospeed 1.5T	6,077	6,269	6,802	2,211	6,002	6,464	6,958
GE Signa Twinspeed 1.5T	3,644	3,855	4,097	1,331	3,615	3,893	4,190
GE SIGNA Pioneer 3.0T MRI	-	-	-	-	3,013	3,244	3,492
MRI Total:	**9,721**	**10,124**	**10,899**	**3,542**	**12,630**	**13,599**	**14,640**

FY is October 1 to September 30.
* CFY is based on 4 months, that is, 10/1/2015 through 1/30/2016.
Exhibit A, pp. 15, 16, 25, 31-32, 228-229

22. Over 75% of the Hospital's scan volume is from the following primary service area towns: Andover, Avon, Berlin, Bloomfield, Bolton, Bristol, Burlington, Canton, Columbia, Coventry, Cromwell, East Granby, East Hartford, East Windsor, Enfield, Farmington, Glastonbury, Granby, Hartford, Hebron, Manchester, Meriden, Middletown, New Britain, New Hartford, Newington, Plainville, Portland, Rocky Hill, Simsbury, South Windsor, Southington, Suffield, Torrington, Vernon, West Hartford, Wethersfield, Windham, Windsor and Windsor Locks. Exhibit A, pp. 234-237, 242-244.

23. There will be no change in existing referral patters as the Hospital will be utilizing the proposed scanners to serve the existing patient population referred to by an attending physician. Exhibit A, p. 26.

24. The Applicant's current and projected payer mix is shown below and projected to remain unchanged.

TABLE 3
APPLICANT'S CURRENT & PROJECTED PAYER MIX BY CT SCAN VOLUME

Payer	Current FY16		Projected*					
			FY17		FY18		FY19	
	Volume	%	Volume	%	Volume	%	Volume	%
Medicare*	7,589	44%	24,864	44%	27,102	44%	29,541	44%
Medicaid*	4,228	24%	13,851	24%	15,097	24%	16,456	24%
CHAMPUS & TriCare	125	1%	403	1%	439	1%	479	1%
Total Government	**11,942**	**69%**	**39,118**	**69%**	**42,638**	**69%**	**46,476**	**69%**
Commercial Insurers	4,417	25%	14,471	25%	15,773	25%	17,192	25%
Uninsured	1,074	6%	3,518	6%	3,835	6%	4,180	6%
Workers Compensation	1	<1%	3	<1%	4	<1%	4	<1%
Total Non-Government	**5,490**	**31%**	**17,992**	**31%**	19,612	**31%**	**21,376**	**31%**
Total Payer Mix	**17,434**	**100%**	**57,110**	**100%**	**62,250**	**100%**	**67,852**	**100%**

TABLE 4
APPLICANT'S CURRENT & PROJECTED PAYER MIX BY MRI SCAN VOLUME

Payer	Current FY16		Projected*					
			FY17		FY18		FY19	
	Volume	%	Volume	%	Volume	%	Volume	%
Medicare*	1,384	39%	4,936	38%	5,314	38%	5,720	38%
Medicaid*	733	21%	2,614	22%	2,814	22%	3,030	22%
CHAMPUS & TriCare	22	1%	78	1%	84	1%	91	1%
Total Government	**2,139**	**60%**	**7,628**	**60%**	**8,212**	**60%**	**8,841**	**60%**
Commercial Insurers	1,200	34%	4,280	34%	4,607	34%	4,960	34%
Uninsured	200	6%	713	6%	768	6%	827	6%
Workers Compensation	3	<1%	11	<1%	12	<1%	12	<1%
Total Non-Government	**1,403**	**40%**	**5,004**	**40%**	**5,387**	**40%**	**5,799**	**40%**
Total Payer Mix	**3,542**	**100%**	**12,632**	**100%**	**13,599**	**100%**	**14,640**	**100%**

* Projected payer mix is based on the observed historical payer mix from last full fiscal year distribution (FY 2015).
Exhibit A, p. 232

25. The proposal will have no impact on Medicaid and indigent persons. Currently 24% (CT) and 21% (MRI) of the scans the Applicant provides are for Medicaid recipients and this trend is not projected to change. Exhibit A, p. 232

26. As the Institute is a Hospital department, Medicaid and indigent patients will be subject to the Hospital Charity Care Policy which provides for free or reduced charge services to the poor or indigent on the basis of ability to pay. Exhibit A, p. 21.

27. There will be no changes to the Hospital's price structure for imaging services as a result of this proposal. Exhibit A, p. 22.

28. Total capital expenditure for the proposal includes approximately $454,314 for the CT scanner and $1,745,865 for the MRI scanner. The Hospital will finance the proposal with operational funds.

TABLE 5
TOTAL PROPOSED CAPITAL EXPENDITURE

Purchase/Lease	Cost*
Equipment (Medical, Non-medical Imaging)	$2,200,179
Construction/Renovation	$586,842
Total Capital Expenditure (TCE)	**$2,787,021**

*Numbers have been rounded.
Exhibit A, pp. 22-23.

29. The Applicant projects incremental gains largely due to increasing revenue from an 8% to 10% increase in scan volumes in each of the three fiscal years following implementation of the program.

TABLE 6
APPLICANT'S PROJECTED INCREMENTAL REVENUES AND EXPENSES

	FY 2017	FY 2018	FY 2019
Revenue from Operations	$4,985,765	$5,376,344	$5,796,921
Total Operating Expenses	$829,750	$1,157.038	$1,180,581
Gain/Loss from Operations	**$4,156,015**	**$4,219,306**	**$4,616,340**

Assumptions:

- Increasing net patient revenues from average increases of 8% to 10% in scan volumes.
- Operating expenses include annual depreciation of approximately $22,000 per year for the two scanners over 10 years, annual depreciation for space renovation of $58,684 per year over 10 years, FY 2018 and forward annual equipment maintenance expense of the scanners for $304,000 and competitive salaries and benefits for 2 CT techs, 2 MRI techs and 1 registration/receptionist.

Ex. A, p. 30.

30. OHCA is currently in the process of establishing its policies and standards as regulations. Therefore, OHCA has not made any findings as to this proposal's relationship to any regulations not yet adopted by OHCA. (Conn. Gen. Stat. § 19a-639(a)(1)).

31. This CON application is consistent with the Statewide Health Care Facilities and Services Plan. (Conn. Gen. Stat. § 19a-639(a)(2)).

32. The Applicant has established that there is a clear public need for its proposal. (Conn. Gen. Stat. § 19a-639(a)(3)).

33. The Applicant has demonstrated that its proposal is financially feasible. (Conn. Gen. Stat. § 19a-639(a)(4)).

34. The Applicant has satisfactorily demonstrated that its proposal will improve quality and accessibility of health care delivery in the region and that Medicaid services would not be affected. (Conn. Gen. Stat. § 19a-639(a)(5)).

35. The Applicant has shown that there will be no change in access to the provision of health care services to the relevant populations and payer mix. (Conn. Gen. Stat. § 19a-639(a)(6)).

36. The Applicant has satisfactorily identified the population to be served and has satisfactorily demonstrated that this population has a need. (Conn. Gen. Stat. § 19a-639(a)(7)).

37. The utilization of existing health care facilities and health care services in the Applicant's service area supports this proposal. (Conn. Gen. Stat. § 19a-639(a)(8)).

38. The Applicant has satisfactorily demonstrated that this proposal would not result in an unnecessary duplication of existing services in the area. (Conn. Gen. Stat. § 19a-639(a)(9)).

39. The Applicant has satisfactorily demonstrated that the proposal will not result in a reduction or change in access to services for Medicaid recipients or indigent persons. (Conn. Gen. Stat. § 19a-639(a)(10)).

40. The Applicant has satisfactorily demonstrated that the proposal will have not negatively impact the diversity of services providers in the area. (Conn. Gen. Stat. § 19a-639(a)(11)).

41. The Applicant has satisfactorily demonstrated that the proposal will not result in any consolidation or adversely affect health care cost or accessibility to care. (Conn. Gen. Stat. § 19a-639(a)(12)).

Discussion

CON applications are decided on a case by case basis and do not lend themselves to general applicability due to the uniqueness of the facts in each case. In rendering its decision, OHCA considers the factors set forth in Conn. Gen. Stat. § 19a-639(a). The Applicant bears the burden of proof in this matter by a preponderance of the evidence. *Jones v. Connecticut Medical Examining Board, 309 Conn. 727 (2013).*

Hartford Hospital is an 867-bed hospital located at 80 Seymour Street, provides primary, secondary and tertiary acute care services and is a member of Hartford Healthcare. *FF1.* In December 2016, the Hospital will open, on the main campus, a newly constructed patient-centered Institute which will house an ambulatory surgery center and provide medical subspecialties in foot, ankle, hand, shoulder and upper extremity, sports medicine, spine, joint, urgent care, arthritis and pain management, embedded with orthopedics and neurological services. *FF3, FF5.* The Institute will integrate comprehensive and coordinated inpatient and outpatient diagnostic and treatment services with research and educational services in musculoskeletal disorders for better patient outcomes. *FF2, FF4.*

The Applicant is proposing the acquisition of a 64-slice 3D CT scanner and a 3.0T MRI scanner to be located and utilized at the Institute for inpatient and outpatient orthopedic care. *FF6.* Currently the Hospital operates four CT and three MRI scanners that are heavily scheduled, at or near capacity or dedicated to cancer treatment or neuropsychiatry research. *FF7.* Two existing scanners, with lower volumes, are utilized primarily for needed highly specialized procedures, such as biopsies, aspirations and anesthesia cases that require relatively longer time slots per patient. *FF8, FF9.* None of the CT and MRI scanners in the Hartford Healthcare system can be relocated to or repurposed for the Institute at present as each scanner is at or near capacity, is needed in its current location or serves a specific purpose or patient population. *FF10.*

At present, services for orthopedic patients are decentralized at the Hospital. *FF12.* As these patients often have moderate to severe mobility limitations, inpatients need transport and personnel assistance which, in addition to unscheduled add-on exam scan requests, cause substantial scheduling delays and disruptions in obtaining medically necessary imaging diagnostic scans for outpatients. *FF13.* These delays prevent timely scheduling of surgery, rapid assessment to detect and to care for potential emboli and complications for pre- and post-surgery orthopedic patients at high risk for thromboembolic complications. *FF16.* Currently, post-surgical patients needing rapid assessments are transferred to the main Hospital for angiography or CTA on the Hospital's primary, heavily scheduled inpatient scanners. *FF14.*

Locating the proposed scanners at the Institute will improve access to care as medically necessary imaging and coordinated comprehensive services will become more available and accessible to orthopedic patients who often have moderate to severe mobility limitations. *FF12, FF15.* Acute injury care and complex chronic condition management will be streamlined and expedited. *FF15.* The proposal will improve the quality of orthopedic care at the Hospital as the proposed CT scanner provides higher quality images than existing scanners for patients with metal implants or prostheses. *FF18.* The proposed scanner corrects for existing scanner image attenuation that makes evaluating patient skeletons, hardware integrity and healing, challenging.

FF17. The proposed MRI scanner will also reduce image degradation due to the presence of metal and provide important insight for the appropriate timing of surgical treatment and assessment of post-surgical patients. *FF19, FF20.* The Applicant has satisfactorily demonstrated that the quality of care for orthopedic patients in the proposal's service area will be improved.

The Hospital projects its total scan volumes will grow by nearly 10%, annually, between FY17 and FY19, based on historical volume. *FF21.* Demand for orthopedic care at the Hospital increased by 13% between FY13 and FY15 and is anticipated to continue to increase. Based on national estimates the Hospital projects demand for inpatient orthopedic care will increase by an average of 250% over the next fifteen years. *FF11.*

The proposal will not impact Medicaid patients' access to care. The Applicant anticipates treating the same payer mix following implementation of the proposal, with 24% (CT) and 21% (MRI) scans being for Medicaid insured from FY17 through FY19. *FF24, FF25.*

As a result of the proposal, the Applicant projects incremental gains of $4,156,015 to $4,616,340 from FY17 through FY19 and a capital expenditure of $454,314 for the CT scanner and $1,745,865 for the MRI scanner. *FF28, FF29.* Thus, the Applicant has demonstrated that its proposal is financially feasible.

The proposed scanners will allow timely comprehensive and coordinated diagnosis and treatment of orthopedic patients at the patient-centered Institute. The Applicant has demonstrated clear public need for this proposal as access to and quality of care will be improved. These benefits are consistent with the Statewide Health Care and Facilities Plan.

Order

Based upon the foregoing Findings of Fact and Discussion, the Certificate of Need application of Hartford Hospital for the acquisition of a CT scanner and an MRI scanner is hereby **APPROVED**.

All of the foregoing constitutes the final order of the Office of Health Care Access in this matter.

By Order of the
Department of Public Health
Office of Health Care Access

7/22/2016
Date

Yvonne Addo
Yvonne T. Addo, MBA
Deputy Commissioner