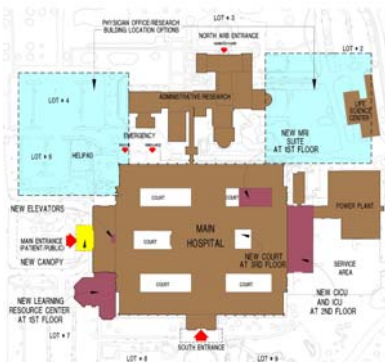


ALFRED I. DUPONT HOSPITAL FOR CHILDREN

Master Plan Wilmington, DE



With facilities totaling over 1 million GSF, the Alfred I. duPont Hospital for Children—a division of Nemours—operates one of the nation's largest subspecialty group practices devoted to pediatric patient care, teaching, and research. Located just outside of Wilmington, Delaware, duPont has experienced tremendous growth and engaged Array to develop a Facilities Master Plan that would assist the organization in setting expansion priorities.

Project Information

- 300-acre, 150-bed site
- Service lines evaluated included Pediatrics, Cardiology, Ambulatory Services, Emergency Department, Surgery, and Oncology
- Over 130 surveys were distributed among clinical, support and management personnel to obtain a user perspective of the current facility
- Projects were prioritized by need and a detailed phasing plan was included to ensure that any disruption to ongoing operations was minimized
- Areas were identified for improvement in site organization and access to create a more welcoming, safe and child-friendly campus
- The final plan included alternate schemes that investigated off-site locations for non-mission critical elements
- Collocating of departments was recommended to create functional zones that would improve operational efficiencies and enhance key functional relationships

Fast Facts

- Construction cost: N/A
- Design Start: March 2004
- Construction Completion: N/A

WHEATON FRANCISCAN HEALTH SYSTEM

Facilities Master Plan

Metropolitan Milwaukee, WI



In 2002, Array was hired to produce master plans for each of the 4 main hospital campuses of Wheaton Franciscan (formerly Covenant) Health System in greater Milwaukee. Those hospitals include St. Joseph's Regional Medical Center, Elmbrook Memorial Hospital, St. Francis Hospital, and St. Michael's Hospital. In 2005, Array was again hired to review the previous master plans and determine if new recommendations were appropriate. In the intervening time since the first master plans, the Hospital system had constructed several major projects and needed to assess the impact of those projects on the current business plans. Also, the volume projections from the first master plan were compared to actual volumes that had been achieved.

The revised master plans have been completed for St. Joseph's and Elmbrook. In both cases, the master plans had significant revisions because of new priorities and major revisions to the volume projections. During the earlier master plan, administrators at both hospitals had estimated future growth rates at a much more aggressive rate than actually occurred. Consequently, the revised rates of growth were more modest.

St. Joseph's priorities included an expanded Heart Center, and major renovations to the nursing units. The expansion for the Heart Center was easily accommodated because of available space at the lower levels of the hospital. However, future plans for an ED expansion presented greater challenges. The existing ED was bounded by a Cancer Center/MOB on the west side, the kitchen/cafeteria on the south side, and general infrastructure on the east side. After careful review of the planning options presented by Array, the Medical Center decided the best alternative was to construct new space at an interior courtyard for the ED expansion. New entrances for both ambulance and walk in patients are included as part of the new master plan. This option facilitates less interruption for the existing ED during the construction process and in future construction of a new bed tower.

The construction of new patient beds was a priority in the earlier master plan. However, the future patient volumes were not beyond the existing capacity at the Medical Center. Also, the space of the existing patient rooms was not needed to accommodate other programs. Consequently, the Administrative Leadership decided to do a major renovation of the existing patient rooms. This renovation would include reconfiguring double occupancy rooms into single occupancy rooms, adding nursing substations, and standardizing the West Wing Nursing Units into a 24 bed unit.

Phasing for this renovation could be easily accomplished with the relocation of a Long Term Nursing Unit that was renting space from the hospital.



Pre-masterplan Aerial



Current Aerial / Master plan

Array has been Somerset's architect of choice for more than two decades. The Northern New Jersey suburb Somerset serves increased extensive growth over recent years, prompting numerous capital expansion plans. The success of Array's master plan and subsequent revisions for the 355-bed hospital are realized through the strength each has had despite numerous changes in executive leadership.

Various master plan updates and projects include:

- Public Spaces – 1980
- Circulation – 1980
- Critical Care Suite – 1983
- Imaging – 1983
- Surgical Services – 1983
- Lab – 1983
- Birthing Center – 1983
- Materials Management – 1983
- Central Sterilization – 1983
- Patient Services Center – 1990
- Parking Garage – 1990
- Private Bed Tower – 2001
- Oncology Center – 2001
- Surgical Center – 2001
- Emergency Department – 2001
- Parking Garage – 2001

FRANKLIN SQUARE HOSPITAL CENTER

Facilities Master Plan Baltimore, MD

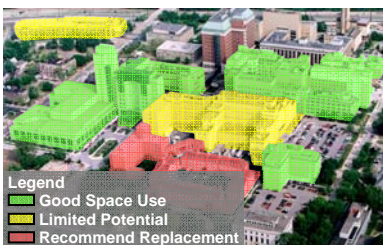


Franklin Square Hospital Center is a 385-bed acute care, full-service teaching hospital located in Northeastern Baltimore County. One of seven hospitals in the Medstar Health Group, the hospital was originally built in 1968 and has experienced significant growth over a 25-year period resulting in a number of expansions and additions that have contributed to the campus becoming increasingly fragmented. Recognizing that facility improvements and expansion were critical to enhancing their market position and growth, Array was engaged to develop a Facility Master Plan that would assist hospital administrators to determine the number, type and location of facilities that needed to be built. In addition, Array provided detailed cost estimates and phasing plans. The hospital determined that a new ED and patient tower was required, and Array worked closely with the hospital to secure their CON.

UNIVERSITY HOSPITALS OF CLEVELAND

Facilities Master Plan

Metropolitan Cleveland, OH



With more than 1,500 beds, University Hospitals of Cleveland is one of the largest and most respected health systems in metropolitan Cleveland, and is comprised of a full academic medical center in Downtown Cleveland, as well as two critical access hospitals, four community hospitals, and thirteen ambulatory care sites. With several facilities ranked among the top hospitals in the nation, University Hospitals Health System turned to Array to develop a facilities master plan that outlined system-wide growth to retain its world-class reputation for the next decade. The facility master planning exercise pinpointed areas for strategic growth, identified obsolete systems and departments, and developed a feasible phasing and implementation scenario that aligned with the health system's long-term growth goals.

- University Hospitals of Cleveland, Academic Medical Center Facilities Master Plan, Cleveland, OH.** Site-wide system planning and analysis for the 947-bed academic medical center. The hospital includes three specialty hospitals, for Oncology, Pediatric, and Women's health. The project includes complex restacking, relocation, and demolition plan to accommodate future growth, collocating similar departments, and simplifying wayfinding across the landlocked urban campus.
- Interior Design Standards Package, Cleveland, OH.** In redeveloping the system, it was imperative to create Interior Design Standards for each facility. This endeavor provided each hospital with a complete set of guidelines that establish a system-wide design vocabulary, quality level for all finish materials, and a family of colors and textures for the built environment.
- Ireland Cancer Center, Cleveland, OH.** The new Cancer Hospital will provide comprehensive cancer care in a nationally recognized, state-of-the-art, patient centered and safe facility that will support a compassionate approach to the latest advances in care, while providing the flexibility to accommodate new treatments and technologies in the future.
- Rainbow Babies and Children's Hospital, NICU Relocation, Cleveland, OH.** 30,000 SF renovation and expansion of a 42-bed Level III/IV NICU. The family-focused step-down nursery care facility is grossly undersized compared to national averages, but the expansion is expected to result in an even higher satisfaction rating. Rainbow is currently ranked among the nation's five best pediatric hospitals.
- New Emergency Department, Cleveland, OH.** Emergency Department to serve over 96,000 visits per year. The expanded facility will grow from 23,000 SF to 54,000 SF and will feature extensive improvements in amenities and efficiency technology.
- Replacement Hospital Facility, Chagrin Highlands, OH.** Full-service replacement hospital for a fast-growing community in southeastern Cuyahoga County.

- **Corporate Offices, Cleveland, OH.** This 32,400 SF renovation project consists of converting three floors of a building formerly used for processing laundry, into suitable office space for executive administration and office staff.
- **Urology Department Offices, Cleveland, OH.** This department relocation encompasses 6,800 SF of former medical/surgical space that was completely gutted and renovated.
- **Heart / Vascular and Transplant Center, Cleveland, OH.** 14,600 SF expansion of the hospital's non-invasive heart and vascular facility into shell space, as well as the creation of a new transplant center. The transplant center is the executive office and the donor organ procurement hub. It also serves as patient and donor screening, assistance and exam functions. Both the heart/vascular and the transplant center share the new exam rooms and lobby waiting area.
- **Air Handling Addition, Cleveland, OH.** As a complement to the newly renovated Heart/Vascular and Transplant Center, a new major air handling unit was necessary. It serves the renovated space but also provides for future expansion to lower areas of the building. The project consists of the custom design and installation of the air handling unit, as well as designing an exterior duct shaft in such a way as to make it look like an intentional part of the building.
- **Donor Apheresis, Cleveland, OH.** Renovations completed to this blood/platelet collection department.
- **Oxygen Tank Farm Relocation, Cleveland, OH.** Relocation of Oxygen Tank Farm to accommodate the sizable expansions planned throughout the hospital.
- **Bedford Hospital, Cardiac Catheterization Suite, Bedford, OH.** 11,588 SF renovation of the existing cardiac catheterization suite to provide a higher level of service. Areas include patient intake, non-invasive cardiology, catheterization prep/recovery, sterile procedure suite, and administrative support.
- **Richmond Heights Hospital, Cardiac Catheterization Suite, Richmond Heights, OH.** Vertical Building Addition encompasses a new catheterization suite and new ambulatory surgery unit prep and recovery area. The 10,600 SF addition also includes renovations to the lobby waiting area and expansion of the parking areas.
- **Geauga Regional Hospital, ICU and Med / Surg Renovations, Chardon, OH.** ICU and renovation to its step-down and Med / Surg area adjacent to the ICU.
- **Geauga Regional Hospital, Main Lobby, Chardon, OH.** Redesign of the main lobby at a 226-bed acute care hospital, to provide a more healing environment.

With 22 hospitals across North America, Shriners' Hospitals for Children is recognized as a leading provider of specialty pediatric healthcare. The Shriners' mission in Philadelphia provides specialized care for orthopedic conditions and spinal cord injuries. Array studied alternatives for the future facility growth due to changing staffing, volume increases and patient needs. To facilitate this growth, Array helped Shriners evaluate expansion of the Clinics, Operating Suites and Radiology services into adjacent areas by right-sizing inefficient or under-utilized space. To encompass this growth, planning called for several departments to relocate.

Project Highlights:

- Updates to the registration area required additional positions in addition to a functional design that enhances patient privacy on the first floor. By relocating this function to an under-utilized secondary entrance and Shriners display and memorabilia area, the existing lobby is regenerated into its original state. The Shriners' display areas are reincorporated into the lobby and 9th floor area.
- Prior to renovation, outpatient Clinic services were in an under-sized area. With volumes projected to increase within the next five years, the number of exam rooms needed to expand from 12 to 20 rooms with appropriate waiting support and office space. The clinic's adjacency to Orthotics and Prosthetics required that this department be relocated into the under-utilized Gymnasium on the 1st floor. In addition, increasing patient volumes for Outpatient Imaging dictated the need for adding a Digital Radiographic room.
- Decreased inpatient length of stay, required fewer inpatient beds. With the acuity of patients increasing, the current four-bed EPACU was under-sized and required increase to six beds. The new expansion is accomplished by converting six semi-private patient rooms on the 5th floor. An open bay unit with two and four beds each is planned, creating effective staff space and patient privacy.
- The increased outpatient surgery volumes and additional surgeons on staff required expansion of the Operating Suite. The design incorporates one new Operating Room and minimally-invasive procedures with contemporary technical modifications in addition to providing a compatible outpatient in process/recovery area.
- Relocated functions include Medical Records, Visual Media, play therapy, and conference space. SHC has been credited with becoming a Learning and Research Center of Excellence which has influenced the need for new office space. This is accommodated through a mixture of furniture systems and enclosed office space.



Jupiter Medical Center is a 30-year old comprehensive medical center located in an affluent area of Southeastern Florida. The 30-acre campus specializes in quality patient-centered services with a 5-star rated, 156-bed acute care hospital and patient pavilion and 120-bed facility specializing in rehabilitation, skilled nursing and long-term care. Array is helping Jupiter remain at the forefront of clinical innovation through a series of improvement projects to enhance the Medical Center's offering of specialty cancer care, vascular diseases treatment, orthopedics and joint replacement, digestive disorders, pain management, sleep disorders, wound care, women's and children's services.

Project Information

- **Emergency Department:** Array began working with Jupiter Medical Center when it was retained to complete stalled work on the emergency department. The 12,000 SF project includes 17 bays, dedicated and separate entrances for patients and staff, rapid response and triage areas, as well as private family respites for waiting. A dedicated upscale VIP emergency center caters to the wealthy and celebrity population in Jupiter's demographic. New physician dining and expanded visitor dining are included in the project scope.
- **Interior Design Standards:** In redeveloping the facility, it was imperative to create Interior Design Standards for the campus. This endeavor provided each hospital with a complete set of guidelines that establish a system-wide design vocabulary, quality level for all finish materials, and a family of colors and textures for the built environment.
- **Pharmacy:** Renovation of an existing Storage Room into an IV Admix Room with chemotherapy. This room meets ISO Class 8 regulations and has recirculating hoods for IV Admix and exhausted hoods for chemotherapy. The project is designed in accordance with the 2004 edition of USP 797 – Pharmaceutical Compounding–Sterile preparations.
- **Obstetrics / LDR Renovations:** Renovation of existing Physician On-Call rooms and Lounge into two (2) LDRP patient rooms with private toilet facilities. The renovation also includes the relocation of several additional core functions, including staff lounge and relocated on-call rooms.
- **Telemetry Unit:** Array provided interior finishes for the telemetry unit of Jupiter's heart center.
- **8 bed Step Down Unit Buildout:** Incorporating space within the second-floor shell-space above the new emergency department, the 8-bed transitional and step-down unit will serve the VIP population of the hospital.
- **Equipment Replacement:** Associated planning for replacement of 64-slice CT Scanner and Linear Accelerator.

Fast Facts

- Total Construction cost: \$11 million
- Design Start: November 2006