



Carolinus HealthCare System

ROBINS & MORTON



# CHS NorthEast Modernization

ROBINS & MORTON – 2017 SYNCHRO DIGITAL CONSTRUCTION  
AWARDS

August 7, 2017

## Introduction

The Modernization Project at the Carolinas Healthcare System NorthEast is in Concord, North Carolina, 25 miles outside of Charlotte. The \$86 million project began in the Spring of 2016 and is expected to be complete in early-2019. The project scope includes an infrastructure upgrade to the hospital and a five-story Patient Bed Tower addition. The 165,000 sf building will house a Cardiology Center and (60) med-surgery beds.



Aerial Drone Photo (before construction)

## Uses and Challenges of 4D

The Robins & Morton team utilized Synchro Pro 4D for pre-construction planning, bid proposals, site logistics, and safety analysis. Members of the R&M team, subcontractors, designers and owners have diligently planned through the process of construction to ensure safety to all and to have high productivity. A great challenge has been having to maintain five emergency egresses throughout the life cycle of the project. The planning and phasing of work to maintain egress in a safe and efficient way has been greatly impacted by the implementation of Synchro 4D.

The R&M team has shared 4D animations to prospective subcontractors for reference in bidding the project. This has led to better communication and understanding of the project constraints, which provides more accurate and detailed bids.

The R&M team takes great pride in the safety and the well-being of every patient, every patron, and every worker on the hospital's campus. Hours of 4D safety review have taken place to implement safety provisions to help eliminate possible hazards. The Team has identified areas of safety focus and placed safety icons (fall hazards, electrical hazards, confined space, etc.) in the 4D Model. With the collaboration of the Division Safety Manager, we created the Pre-work Hazards Analysis Report. The project has also pursued and is approved for the North Carolina Department of Labor Occupational Safety and Health (SHARP) program. This program is a consultative OSHA collaboration with periodic OSHA visits and consultation. The 4D Developed Safety Model, with identified Safety hazards, were presented to the OSHA inspectors, who were very impressed with the amount of visual safety information that is provided by the model. The chief inspector stated "this would be a good tool for teaching safety awareness state-wide and could be used in their training center". The local Fire Department conducted a virtual training scenario using the 4D model for potential high-risk rescues during construction. OSHA and the Fire Chief had never seen a program like Synchrono and were thoroughly impressed by the planning power that 4D can present. These two visits and the measures that have been implemented will no doubt have a major impact on the success of the Modernization Project here at CHS NorthEast.

Robins & Morton, as a company, has implemented LEAN principles and sustainable processes. Synchrono/4D will be an integral part of our "Building Forward" process. In this process, we believe that to achieve a successful outcome, one of the biggest parts of any project is planning. The Superintendent created the schedule (Plan) in Synchrono, which was a new program to him, that he quickly picked up on. The Designers modeled the entire project including the foundations, structure, exterior and interior walls and finishes. Once the schedule was created, it was time to merge the model elements and assign them to the scheduled task. The Team brought the model to life. The draft schedule with the model now pointed out logistic issues and conflicts. In some cases, this made us think in greater detail of the exact timing of key elements; egress pathways, foundation phasing, notifications to the owner, scaffolding, crane placement, worker, and material access. It also flushed out critical activities that needed to be completed before the next activity could start. We reference our model as "The Time Machine", due to the ability to move forward to view the activities that are in progress in virtual real time.

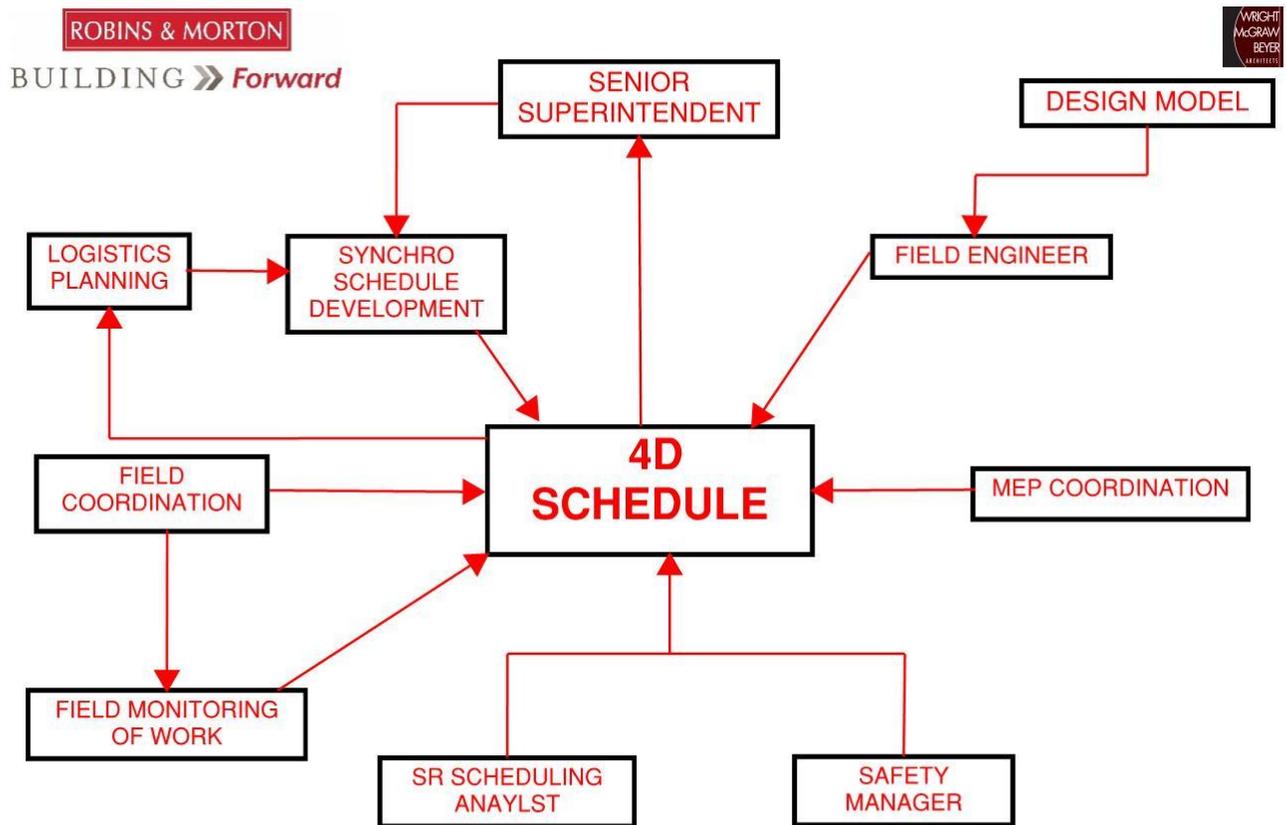


Safety Icons



Completed Project

## Workflow



The project was scheduled in Synchro from the beginning. The Senior Superintendent (first time Synchro user) built the schedule directly in the software. The Team has met several times each week since March of 2017, that has led to countless schedule revisions and phasing changes. The model continues to be updated on a day-to-day basis, to reflect what is currently happening in the field and to the schedule. The versatility and awareness that Synchro/4D provides has led to better forward planning and understanding of the challenges that may come up. Beginning in mid-July the project became a Synchro Workgroup project, with access being given to all subcontractors and owner reps. The SWP has allowed for great communication between scheduling/modeling and planning for our subs. Our mechanical and plumbing sub have greatly benefited from the use of SWP. They are going through the "Two-Week Look Ahead" with their teams to forecast current issues and to discuss possible safety hazards for the week.