

Executive Summary

This report contains a proposal for the following semester's thesis work. It reviews critical industry issues and identifies problems related to the Washington County Regional Medical Center. These issues will serve as a basis for future research under each topic. The topics were selected from numerous sources, but contain information that can be analyzed from a cost and schedule viewpoint as well as value engineering and constructability. The proposal also contains two breadth concepts that will allow a more in depth look at each effected topic from another option area. The following are the topics of which I intend to study in the spring semester:

Analysis 1: Risks of Site Selection, Financing, and Sources of Funding

Critical Industry Issue

This analysis will focus on the changing economy and how it affects construction projects. It will also look into risks associated with site selection and project funding. The topic will also address alternate sources of funding. The goal is to educate owners and developers of the fragile economic impacts of their decisions to proceed with construction projects.

Analysis 2: Deep Foundation System

Structural Breadth

MAE Requirement

This analysis will focus on the deep foundation system located beneath the three bed towers on the project. Currently there are 150 caissons spread out over the three towers. The current system has many constructability issues related to the existing site conditions. The subsurface rock, which each caisson must adequately bear on, does not facilitate use of this drilled pier foundation system. An alternative system will be researched and designed to provide a more efficient construction process while maintaining a similar budget. A production analysis will also be conducted to review the crew's affect on the overall construction process. It will also provide insight on how to accelerate the foundation system work to reduce future schedule impacts.

Analysis 3: Precast Panel Units

Mechanical Breadth

This analysis will focus replacing the existing masonry cavity wall unit with one single precast element. It will look at initial system costs and address schedule impacts. The thermal properties of the precast wall system will be researched to provide greater economic advantages. Also, with a more efficient precast wall unit in place, a mechanical load analysis will be conducted to see if the air handling units can be reduced in size and allow for reduced upfront unit costs and lower lifecycle costs.