Executive Summary

Over the course of the 2013/2014 academic calendar year, The Mary J. Drexel Assisted Living Additions Project was analyzed and studied to identify areas in which alternate means and methods could have resolved any challenges or problems that may have affected the efficiency of the project. After careful investigation, four areas that could have improved the project include; re-sequencing the project schedule, implementing a green roof to improve value engineering efforts, utilizing MEP prefabrication, and altering the project delivery method. This final report presents the four analyses performed by including details of the challenge presented, suggesting solutions, and analyzing the solutions on the project. This report is not meant to critique the already effective project team but to study their project for educational purposes.

Analysis #1: Project Sequencing

The first analyses focused on reducing the overall project schedule duration by altering the original schedule sequencing. Any reduction to the schedule will result in general condition costs savings on the project. The goal of the analysis was to improve the schedule by two weeks; however the proposed project schedule resulted in a savings of four weeks. This was done without altering manpower and activity durations and resulting in savings of $57,000.

Analysis 2: MEP Prefabrication

The second analysis focused on implementing prefabricated MEP corridor racks. The MEP trades were brought onto the project at an early stage under the design-build contract. The goal of this analysis is determine the feasibility of allowing some of the MEP work to be fabricated at an off-site facility. This method of construction was feasible given project conditions and resulted in expediting the project schedule by one week and cost savings of $14,257 for general conditions and $20,875 in labor costs.

Analysis 3: Green Roof Implementation

The third analysis focused on implementing a green roof system design. A value engineering effort was made to reduce initial costs and not much consideration was taken into other factors such as lifecycle costs. The goal of the analysis was to provide a system that will be able to reduce noise levels and provide cost savings for the owner over its life. The proposed system did result in being feasible with the current structure and provided $41,723 in costs savings over 18 years and did not increase the project schedule duration.

Analysis 4: Alternate Delivery Method

The final analysis focused on providing an alternate delivery method that could have been used. A hybrid approach was used with a combination of Design-Bid-Build and Design-Build for the MEP systems. Due to many design changes throughout the construction of the buildings, many issues arose regarding the stakeholders communicating amongst each other. The goal of this analysis is to provide new information for the owner on an approach such as IPD that could have been used. Although IPD is a new approach to the design and construction of buildings, lower cost and lower risk are the greatest result of this approach. Integrating working relationships and sharing risk and reward among all members improves the exchange of information, thus leading to shorter design and construction schedules and overall improvement in the productivity and efficiency of the project.