Executive Summary

The Army National Guard Readiness Center project is a joint headquarters office building that will provide a workplace for hundreds of military employees. The project is located in Arlington, VA and consists of a 250,000 square foot office building and a 435 space parking garage. Both structures are being built on a site with an existing Army National Guard office building and parking garage.

This project is currently under construction and the general contractor is using Building Information Modeling (BIM) as a tool during the coordination phase of the mechanical, electrical, plumbing, fire suppression, and structural systems. For the general contractor and many of the subcontractors on the project, this is the first BIM project they have been involved with. The project management team has faced numerous challenges with the incorporation of BIM into their coordination process.

Two of the research topics proposed in this document deal with Building Information Modeling. The first is a research topic dealing with BIM and project deliverables, specifically deliverables that benefit the owner. Many owners are unaware of the capabilities of Building Information Modeling and the benefits that they can reap by paying for and requiring BIM on their projects. My first analysis topic will consist of a series of interviews of current owners and contractors using BIM and comparing that with a comprehensive list of deliverables that BIM is capable of.

The second analysis is developing a BIM Implementation Plan for projects that can be established early on in the planning of a project. The BIM Execution Planning group has developed an implementation plan that will be presented to the general contractor of Army National Guard Readiness Center to receive feedback on how it would/would not have helped them prepare for BIM on their project. Also, I hope to gain suggestions from the general contractor as to what can be added to the Implementation Plan based on their in-field experience with BIM.

The final two analysis topics presented in this document will cover the breadth topics for my thesis requirements: electrical loads from a photovoltaic system and structural redesign of a soil retention system. With the photovoltaic analysis, I hope to reduce the Army National Guard's reliance on local power companies to supply this project with power and to increase energy efficiency of the project. The structural redesign of the soil retention system, currently in the form of a secant pile wall, will have major cost and schedule impacts. These will be the main focus of this final analysis.