EXECUTIVE SUMMARY

The Charles E. Smith Center is an athletic facility for the George Washington University located in downtown Washington, DC. It is open year round and is home to many of GWU's sports teams. Included in the Smith Center are a natatorium, multiple gymnasiums, multiple offices and locker rooms, fitness and weight rooms, and suites.

The purpose of this report is to propose viable alternatives to the current systems in place. The goal of these alternatives is to increase energy efficiency, decrease costs, and work towards the highest level of sustainability available.

The two mechanical alternatives proposed include replacing the current boilers with a combined heat and power plant and replacing the current second and third floor AHU's with an energy recovery system that implements an energy recovery wheel. These systems were chosen to help meet the goals of this report stated above.

Two other alternatives were proposed for electrical and construction management. For electrical, the combined heat and power plant would be analyzed to determine how much electricity could be produced and ultimately how much money could be saved. The construction management alternative was chosen to increase construction efficiency and decrease construction time and cost for the implementation of the new system alternatives.

Due to the complexity of this proposal and the problems that accompany it, several specific tools have been chosen to evaluate the proposed systems. These tools include eQuest, Trane TRACE, Engineering Equation Solver, Microsoft Excel, Microsoft Project, RS Means, and the valuable knowledge of current industry professionals. With these tools, an accurate analysis of this proposal should be obtained.