EXECUTIVE SUMMARY

During the 2013-2014 academic year, Sunnyvale Plaza was analyzed to determine several alternative solutions to create cost or schedule savings within the design or construction process. Through extensive research and coordination with the project team, four primary areas were determined for the focus of each analysis. The following report consists of four analyses conducted through the senior thesis project. It is important to stress that this report is strictly educational and is not intended to evaluate the project team or their efforts.

Analysis 1: Utilization of a Stormwater Harvesting System

The first analysis consisted of determining the possibility of implementing a stormwater harvesting system within the hotel to cut water utility costs over a large period of time. Due to the large roof area, a great amount of water can be collected and stored for use as a non-potable water source. Implementing the system would create an up-front cost of approximately $60,725 and an annual savings of approximately $27,765. This produces a payback period of approximately 2.5 years. After the payback period, the system will generate a savings of $27,765 per year.

Analysis 2: Analysis of Current Excavation Method

The second analysis consisted of researching and evaluating the excavation process utilized by the project team. It was determined that due to the complexity of the project site and surrounding public area that there was no other option that would benefit the construction process. The report also elaborates on the extreme safety concerns involved in the excavation process.

Analysis 3: Removal of Renovated Building Section - Structural Breadth

The southeast corner of the hotel consisted of a renovated Plumber's Union Building that was maintained due to historical requirements. This analysis examined the cost and schedule changes when utilizing façade retention to preserve the exterior façade while demolishing the existing structure. The steel utilized for the retaining structure can be designed to be recycled into the building once the façade is reconnected to the lower superstructure, creating very little material costs. It was determined that utilizing the façade retention method would create a cost savings of approximately $832,700. The façade retention method will also allow the hotel construction to finish approximately 30 days earlier than expected. This schedule decrease was evaluated in further detail within Analysis 4.

Analysis 4: Profitability of Early Scheduled Opening

The final analysis consisted of examining the profitability of forecasting an earlier opening date for the hotel. The original opening date fell just after The National Cherry Blossom Festival, a large festival with a large demand for tourism. Three similar hotels were examined throughout several months to determine the total average rate for a similar hotel room during the months of January, February, and March. Utilizing the 30 day decrease in the construction schedule from the façade retention method in Analysis 3 allowed the hotel to forecast an opening date just before the festival. This created a total revenue of approximately $14,482,000. After factoring an expected occupancy and profit margin, it was determined that the hotel can generate approximately $1,588,000 in profit during the festival. The two weeks of construction that was eliminated from the construction duration also created a general conditions savings of approximately $1,864,000. Thus, the total profit from opening approximately one month early is approximately $2,139,227.