Executive Summary

Cost Impacts and Schedule constraints are essential factors for the delivery of the Sears Centre**.** Estimates and schedules produced will reflect the typical construction model used for building structural systems and assemblies. This report will address (5) main issues related to the cost analysis for the Sears Centre. Issues that will be evaluated in this report are as follows:

Cost Method & Analysis:

- Precast Panel Erection Site Layout & Planning
- Detailed Project Scheduling
- HVAC Assemblies Square foot cost determination
- Detail Quantity takeoff & structural systems estimate
- General Conditions cost evaluation

Three precast erection layouts were evaluated for the placement of building envelope systems and main trusses assemblies. One layout will be selected to determine the crane scheme which minimizes remobilization and maximizes load placement. Lattice boom crawler cranes were chosen for the placement of critical members of the superstructure systems. (1) Steel Beams & Columns (2) Concrete Beams & Columns (3) PCI & ACI Precast Panels. 200 Activities were composed to form the construction sequence for all building tasks. Specific emphasis were placed on construction activities and sequences directly related to site balancing & infrastructure, building excavation, masonry, foundation & superstructure systems and MEP rough in with distribution.
Two factors worth further evaluation are the time constraints attributed to architectural finishes, FF&E installation and asphalt production "winter shutdown." In the Chicago area, asphalt production operations for road construction are suspended during winter months due to frost temperatures. Asphalt placement typically occurs in 50 º F temperatures. Quality Assurance prohibits material placement in temperatures below this limits. It is for this reason a 96 day winter shutdown is reflect in the exterior construction schedule.
The Sears Centre air distribution network is composed of (3) separate ventilation systems. An assembly estimate was based off of the largest component of the HVAC system, the Variable Air Volume (VAV) system. The systems services 240,000 CFM @ 95,789 SF. Quantity takes were generated concrete foundation, precast & steel superstructure systems. The previous parametric estimate of technical report (1) was the milestone used to generate an accurate arena takeoff. In addition to all structural elements, raker beams and FF & E seating risers were computed in the total cubic yards of concrete. Detailed structural system estimates in MS^2 software referenced live production rates and labor cost for all line items.
General conditions estimates were generated off of RS. Means values and factored with Chicago, IL labor and production rates. *Total Estimate Cost* ***∑ (Mechanical, Structural, General Conditions)*** *= $ 3,912,624 + $ 10,798,798 + $ 2,158,728 = $ 16,870,150.* It is the intent of this technical document to provide the frame for Sears Centre cost reporting.