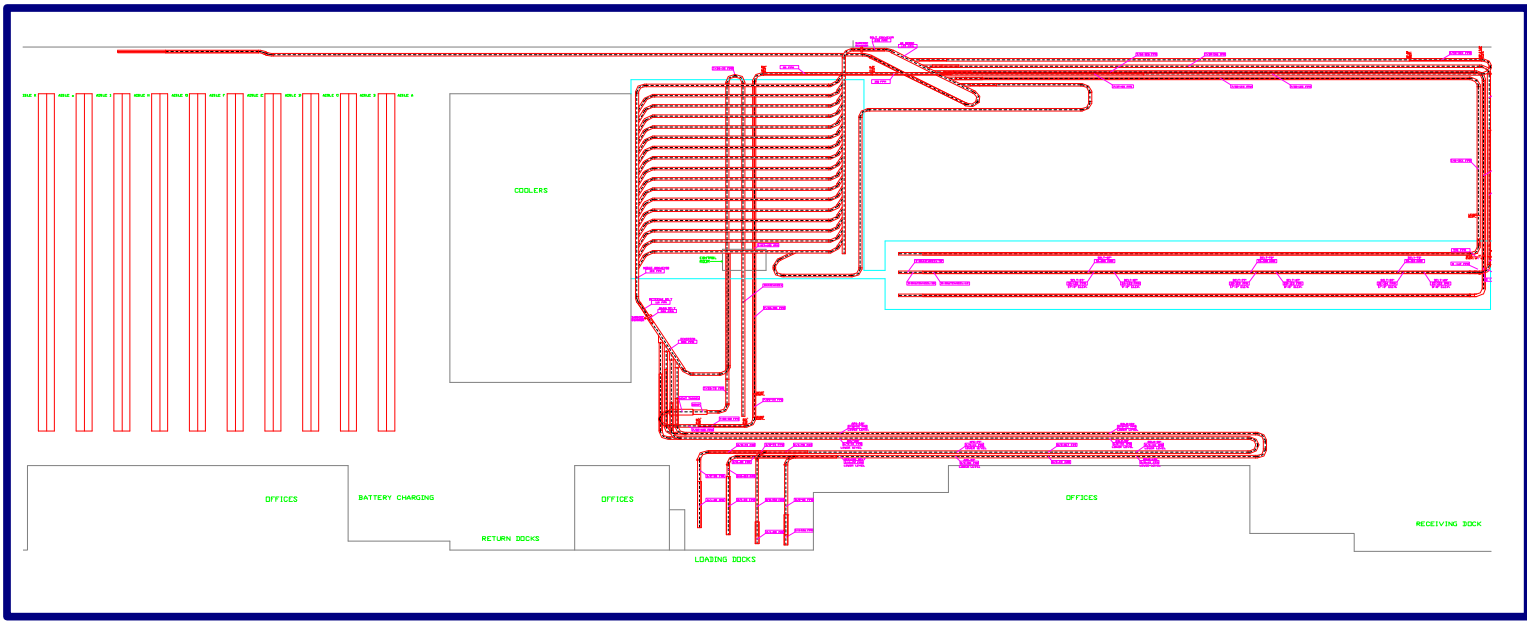
Beverage Distributor

Aurora, Colorado

Facility Planning & Analysis Services

- Facility Layout Design and Optimization
- Simulation Modeling
- Cost Estimating



In order to increase production by 40%, the Design Team analyzed the current operation and recommended process changes in scheduling and resource quantities. To accomplish this task, a simulation model of the automated conveyor system was developed (illustrated above). Through simulation, the design team was able to identify bottlenecks that would transpire when production was increased.

A beverage distributor desired to increase, by 40%, the order picking and loading throughput of their warehousing facility in Aurora, Colorado. The objectives of this study were to:

- Analyze the current system and identify factors that are limiting throughput
- Develop alternatives to meet expected growth (2,000 cases / hour)
- Recommend a specific combination of changes to meet the desired capacity
- Provide a plan for implementing the proposed system

The warehousing system consists of several modules connected by a system of conveyors. The modules include three product pick areas (Mezzanine, Bottle Line, and Oddball Line), a central sorting system, and the dock doors. The system performance was dependent on each module working in a balanced system. A simulation model was developed to study this warehousing system. The current system was relatively balanced at approximately 1,350 cases per hour. However, increasing the amount of cases in the system from the present level to the desired level of 2,000 cases per hour created bottlenecks in the system due to a lack of capacity in several areas. Alternative system designs were developed and tested using the simulation model. The following recommendations increased system capacity by 50% and provided for future system reliability during the next decade.

1. Increase staffing on the bottle line to support the desired capacity.
2. Increase staffing at the dock for loading trucks.
3. Reduce mezzanine outages through a revised mezzanine stocking plan.
4. Move highest volume items from the mezzanine by installing an in-feed conveyor from the cooler.
5. Add two truck docks and the related conveyors.
6. Replace the IBM Series 1 with Windows NT PCs, programmed with Wonderware Intouch Graphics to provide control, communication and reporting.