Signature Company 1: Value Stream Map of Rail Department

Overview
The rail department had some inefficiencies related to the process flow of various types of railings. The rail department required a redesign of the floor layout and an evaluation of their storage methods. These problems were carefully evaluated and solutions were generated for Signature Company using simulation and CAD software.

Objectives
The goal of this project was to improve the rail department at Signature Company by focusing on determining their needs and maximizing efficiency while also conforming to the constraints.

Approach
- The current system was analyzed and translated into process flow charts for the simulation model
- Computer simulation software was used to evaluate the current rail department layout
- The model was validated by comparing results to sponsor provided data and by analyzing the flow of entities
- Multiple department layouts were generated based on constraints and the flow of products
- Feedback was obtained from the sponsor and layouts were altered accordingly
- Storage solutions were designed based on a set of desired features
- An initial cart design was generated in CAD software and feedback was obtained from the sponsor
- The proposed cart design was finalized after receiving feedback and making the needed changes
- The proposed cart design and improved layout were implemented into the simulation model
- Multiple simulation runs of the improved system were compared to the current system
- The improved system was evaluated using the simulation model to prove the increased performance
- Estimates on the improved throughput, time-in-system, and work-in-process were generated

Outcomes
- Throughput increased by 14.3%
- Time-in-system decreased by 14.8%
- Work-in-process decreased by 2.6%
- Decreased worker transit
- Increased linear flow of department
- Decreased safety concerns
- Increased space for movement between stations