



ImpleMentors of Manufacturing Solutions

Warehouse and Transportation Industry

Warehouse Layout, Order Fulfillment, and Inbound Receiving

Project Start Date: September 17, 2008

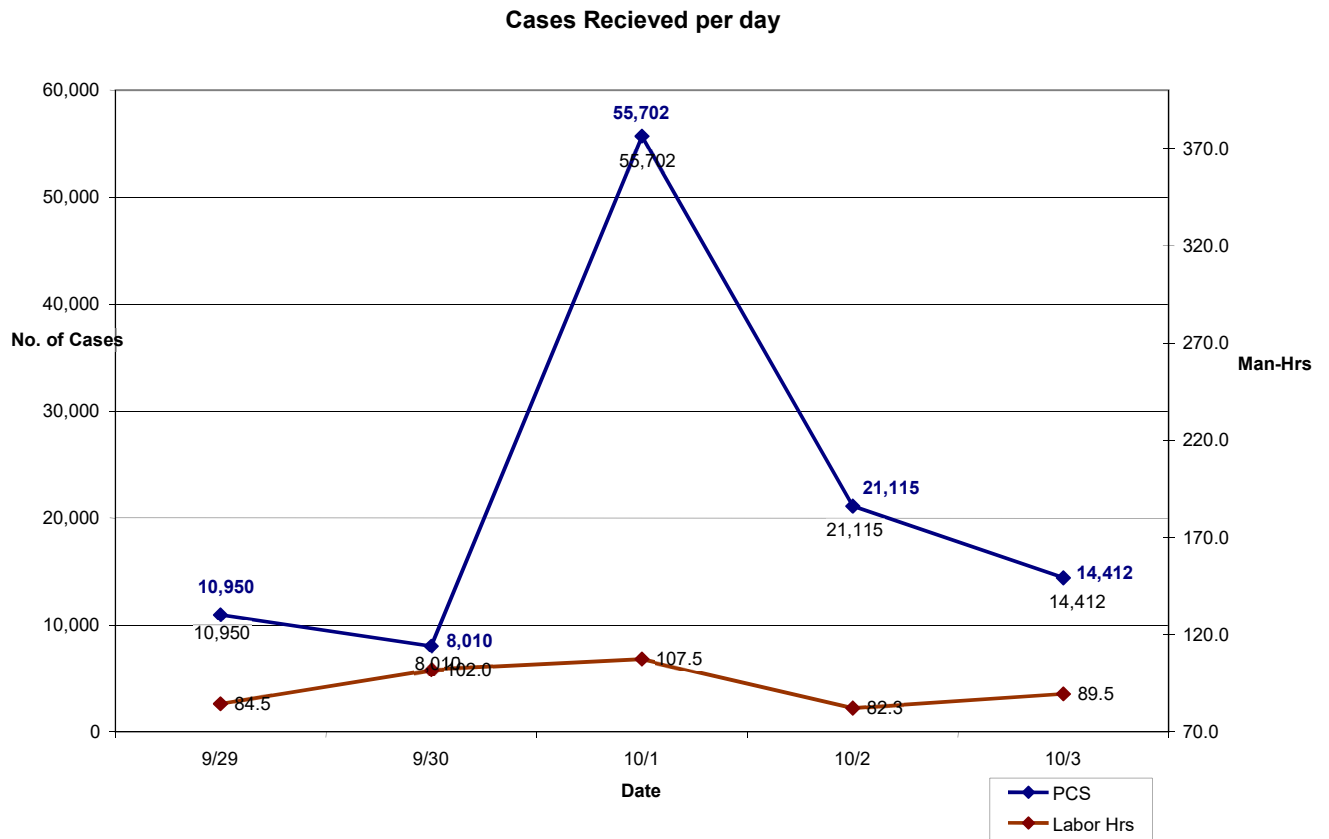
Project End Date: January 30, 2009

Company profile

This client is a warehousing/distribution company that provides food and paper supplies to several mid-western food restaurants and chains. The company purchases, warehouses, sells, and eventually delivers products ranging from fast food to chemicals and cleaning compounds. The company operates 6 days a week with two shifts, and over 40 unique truck routes.

Business situation

The client needed a warehouse that functioned efficiently, where operators and warehouse pickers could pick orders for a route and travel minimal distances. Likewise, the company needed a planning tool that would most efficiently utilize labor for any given day. The daily inbound units received altered dramatically due to the supplier delivery schedule. Rather than having a level-loaded inbound schedule, the company instead staffed the inbound team for the peaks of the business to compensate even for the valleys of the business (see graph below). Strategy3 identified the need for a new supplier delivery schedule that evened out the inbound load on a daily basis.



For order fulfillment, the pickers had to constantly backtrack the path they took through the warehouse to pick and collect orders. Each aisle was a random configuration of items not dedicated to any particular customer. Crews for each warehouse area (Dry, Cooler, Freezer) all began at the same time, creating a congested flow of material movement.

Once routes were picked, they were loaded onto a truck, where the truck would leave the dock early the next morning. Once on the road, the truck drivers had similar frustrations with their routes. Many times a driver would pass another driver in his own territory. This meant that routes needed to be looked at for optimization so that each driver would own an entire territory.

Implementation Approach

Strategy3 started with an aerial view of the warehouse operation. By color coding each product to a specific customer in the warehouse on a matrix, each aisle soon became a multi-colored array or blend of end users. Strategy3 quickly realized that each aisle needed specific ownership to one or two customers only. This would reduce the distance traveled for a picker to pull orders. Strategy3 took into account for each aisle: customer, pick frequency, weight, cube of case, and item type, ie food or chemical. Strategy3 next proposed several future state warehouse layouts which became a main focal point for the team. Minor changes were made to the layout proposals before

implementation began. Once total agreement was made between all parties, Strategy3 took a very focused approach of re-laying out one aisle per week. 9 aisles in total received a re-engineered layout.

For items picked that were less than a case size, often times these would be mis-picked due to the picker not knowing if the order called for cases or eaches. Strategy3 consolidated all items that were eaches into one zone inside of the warehouse to remove any ambiguity.

Furthermore, Strategy3 staggered the time that each crew started picking inside of each warehouse zone. Doing so created less congestion inside the warehouse, and allowed for ease of loading trucks. To arrive to the exact crewing needed, Strategy3 followed the pickers through their routes to understand pick times, order fulfillment times, and overall cycle times. Strategy3 then published a goal tracking board for the department. This goal tracking board also allowed the management team to calculate the required crewing each week, by day.

To improve the inbound load, Strategy3 focused on the repeating orders that were received weekly. Doing so, Strategy3 was able to reach out to the purchasing team to connect back to the suppliers of these weekly loads. By pushing some deliveries out later in the week and others being pulled in closer to the beginning of the week, the “peaks and valleys” leveled off.

For the routes, Strategy3 mapped out all of the customer locations of the client. Strategy3 recommended that since the trucks leaving the dock were 20% under capacity in terms of weight and cube that a route consolidation occur. Doing so would reduce overall trucks sent out, overall miles traveled, and overall transportation cost.

Results

Labor overtime decreased from 10% OT to less than 1%. Labor utilization during picking orders increased 15% through staggered start times and reduced distances traveled. Warehouse flow became less congested as trucks were loaded more timely. Route consolidation led to a savings of **\$91K** the first month of implementation. Trucks that left the dock with 20% capacity now had only 5% capacity left open for exceptions. Cases per man-hour increased from 129.5 cases/man-hr to 140 cases/man-hr. Each single increase in cases / man-hr yielded \$15, 500 in annual savings for an **overall**

labor savings of \$162,750. Level-loading of the inbound allowed for staffing to be reduced to now accommodate an even load daily (see graph below).

