

## Bottlenecks and Inefficiencies

### Handling Increasing Order Profile Complexity

**Problem:** The existing picking layout was created for order profiles that had predictable associated SKUs. Order complexity has increased where order profiles are not predictable and the routing of orders through the system has created bottlenecks and difficulty balancing the workload.

The following are key drivers for the reconfiguration of the picking layout and optimizing operator productivity using software to balance the picking activity.

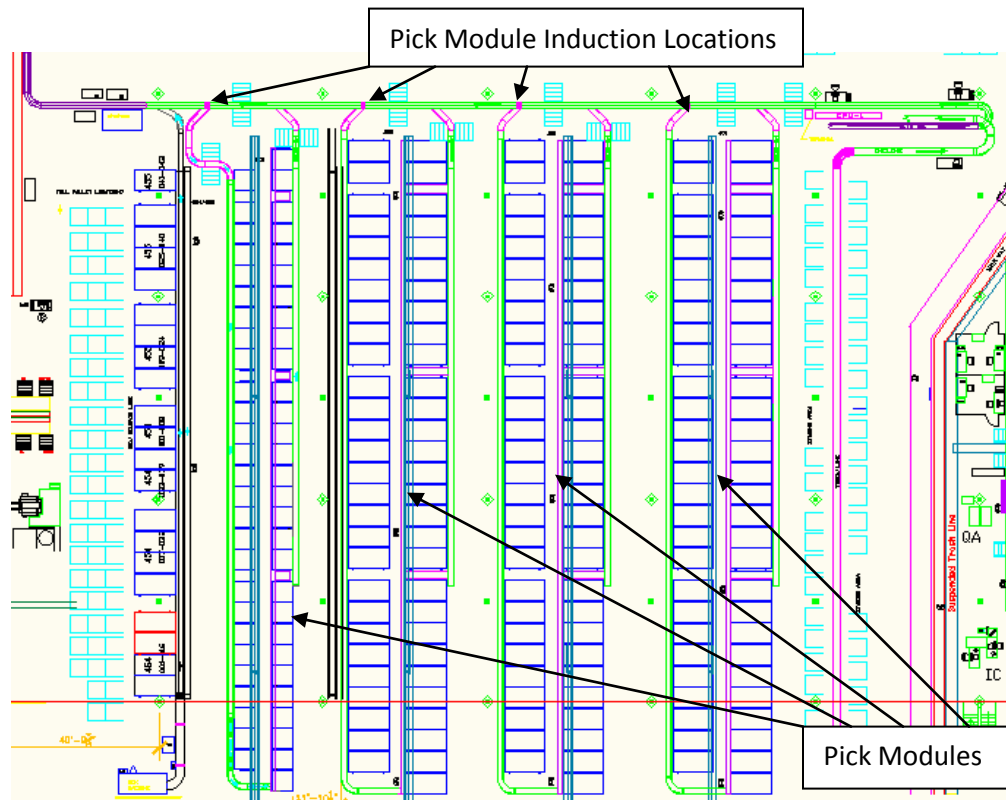
- Increased order complexity is creating congestion in the pick zones, due to single direction order flow.
- Flexibility is needed to balance picking activity between pick zones.
- Order tracking within the system is needed to identify if all of the items have been picked.
- The number of open orders in the system needs to be throttled to ensure efficiencies are not lost due to congestion.



**Solution:** Implement a central order induction point with software orchestrating order routing and recirculation capability.

The details of the system solution are described below:

- Additional conveyor was added to the Mainline Conveyor to allow orders to reticulate past the pick modules.
- Automatic carton erectors may be provided at the start of the pick line with automatic label print/apply stations.
- WCS software functions include: Host and equipment control integration, container management, pick zone management, order selection/release, auto-label print and apply, pack list auto print and insert, weigh check, quality inspection control and pack station diverts.



**Conceptual Pick Module Routing Layout**

- Benefits
  - Flexible opportunistic routing of cartons for picking
  - Pick Zone balancing through order release management

**Links:      More Supporting Information**

- [HK Case Conveyor Options](#)
- [HK CHEC Carton Handling and Routing Control Software](#)
- [HK Simulation Engineering Services](#)
- [HK Analysis of Each Picking Efficiencies](#)
- [ID Technology Automatic Printer/Applicators](#)