1.1 - Signify Dock Consolidation

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The rising STAR of Texas

signify

Problem Statement

Signify's two receiving areas, located on opposite sides of the facility, are perceived to be redundant, inefficient, underutilized, lead to increased lead times on certain shipments, and require an unnecessary amount of labor to operate.

Project Purpose

- Maximize capacity in order to have efficient receiving shipments along with gaining plant space for other operations in warehouse.

Project Objectives

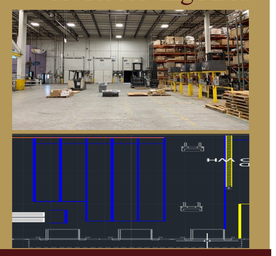
- Provide conclusive validation that a consolidated receiving area will meet delivery demands.
- Provide a layout design and corresponding operating procedures for the new, consolidated receiving area.
- Perform a labor analysis demonstrating that the consolidated area and operating procedures will reduce labor requirements.

Current State

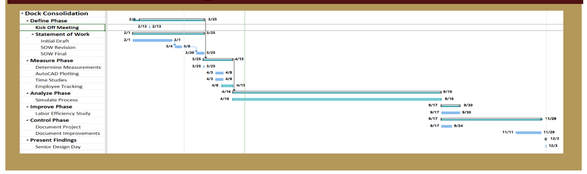
- Two operational receiving area.
- 3 people required to operate both docks .
- Inefficiencies due to low utilization and travel time between the two receiving areas.
- East dock has 4 dock doors (3 levelers).
- West dock has 3 dock doors (all levelers).

East Receiving Area

West Receiving Area



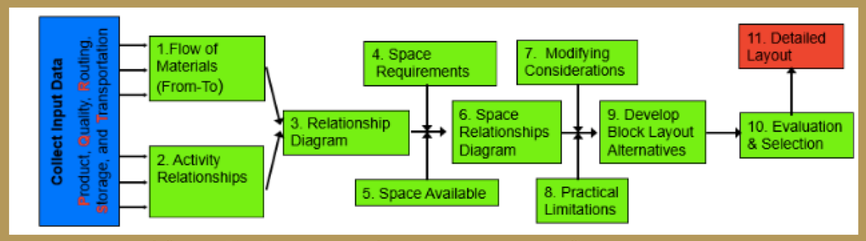
Project Schedule



Problem-Solving Methodologies

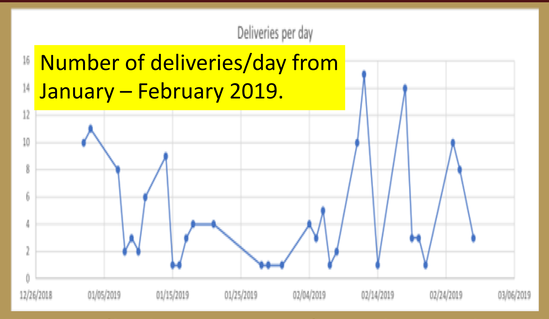
DMAIC

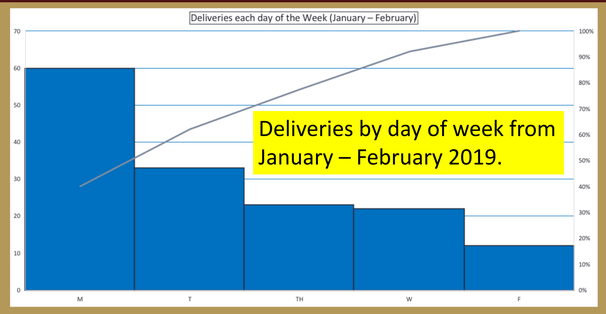
Systematic Layout Planning (SLP)



- DMAIC is a data-driven strategy derived from Six Sigma used to improve specific processes.
- SLP is a tool used to design a facility by locating areas with high frequency and logical relationships close to each other.

Measure Phase





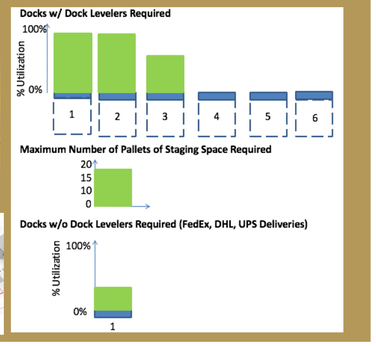
- Time studies in progress to determine: carrier arrival rates, unload times, frequency of dock leveler requirements, and staging area requirements.

Analyze Phase

Arena simulation software will be used to simulate carrier arrivals, dock leveler requirements, and staging capacity so as to determine the number of docks (by type) and staging capacity required to satisfy demand.

- Consolidating the two receiving areas will only be possible if demand is less than the capacity of the smaller of the two receiving areas (West side).
- Arena simulation inputs:
  - Carrier Arrival Rate (# per day)
  - Unloaded Time (Dock Occupied)
  - Dock type
- Arena simulation outputs:
  - Number of Docks required (by type)
  - Staging capacity required (by # of pallets)
- No levelers required for overnight carriers

Docks with levelers



Future Plans

- Use company GOPROs to collect full day's worth of incoming shipments
- Collect feasible information from Arena telling us how many docks with levelers and docks without levelers are needed
- Use the SLP approach to modify the facility to produce an efficient layout
- Obtain future time study data

Evaluation Criteria

Performance	Test Conditions	Max	Min	How is this tested?
Dock Utilization	% reduction of time utilized	<90%	>98%	% time dock utilize/time available
Space Availability	% of available space (ft^2)	100%	≤ 96%	Direct measurements of total space being used
Receiving Personnel Requirements	Number of operators required	Only 2 needed	3 always needed	Simulate operator flow using ARENA
Space Requirements	% reduction of space (ft^2)	60% reduction of square footage	No Reduction	Direct measurements of reduced space
Operating Procedure	Was is provided?	Yes	No	N/A

Team Members

Acknowledgements

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