




# Process Flow Analysis

Westgate Facility

# Tools Available

- Process Flow (Spaghetti) Diagram
  - Value Stream Map
  - Process Map
  - Operation Process Chart
  - Standard Work Observation
  - Process Flow Chart
  - Cross-functional Process Map (Swimlane Diagram)
  - Standard Worksheet
  - Man-Machine Chart
- 

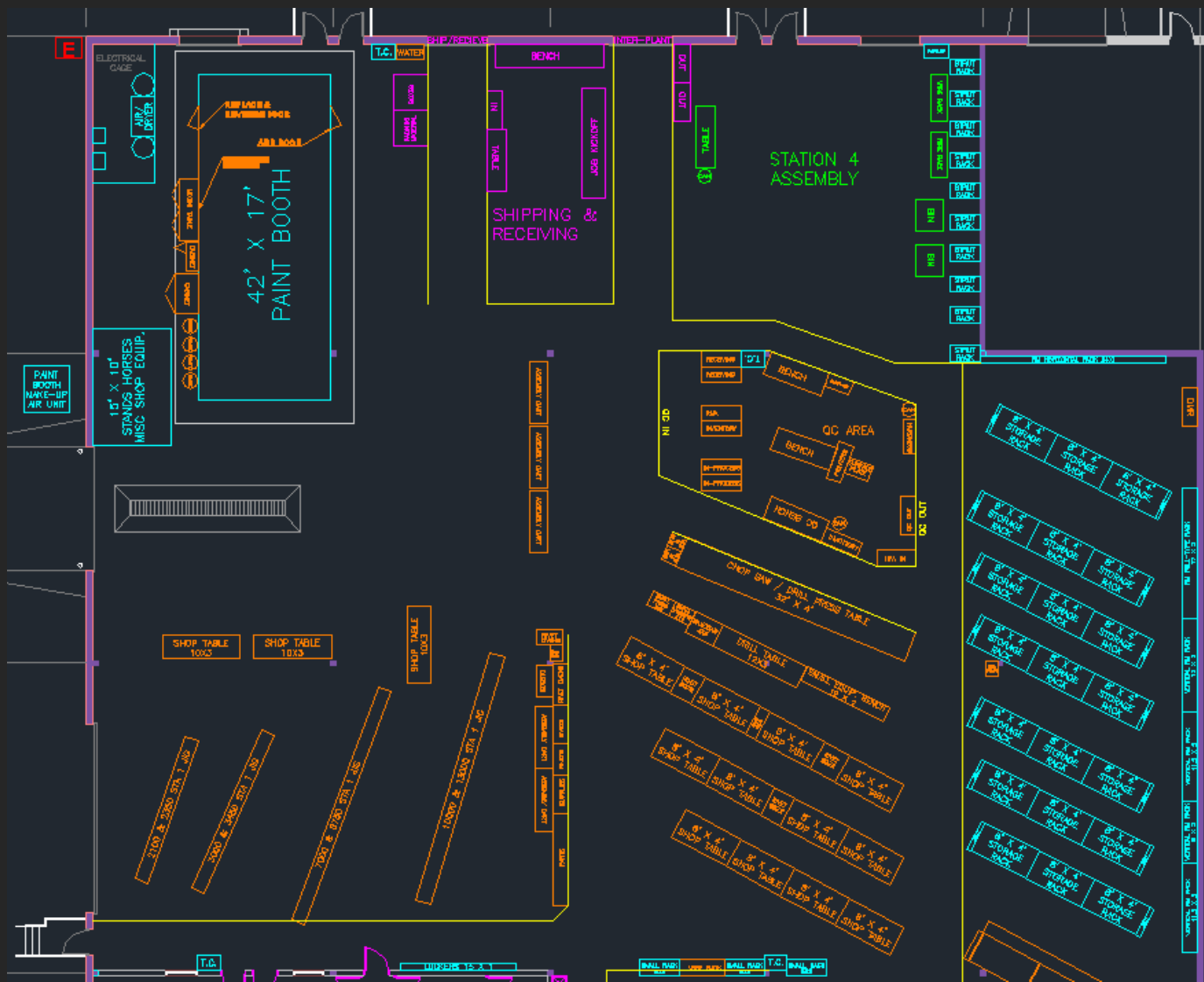
# Spaghetti Diagram

- A spaghetti diagram is a visual representation using a continuous flow line tracing the path of an item or activity through a process. The continuous flow line enables process teams to identify redundancies in the work flow and opportunities to expedite process flow.
- Another benefit of the visual drawing is to highlight major intersection points within the room. Areas where many walk paths overlap are causes of delay
- By Ron Bialek, Grace L. Duffy, and John W. Moran, American Society for Quality
- Downloaded 6/17/2013 from:
  - <http://asq.org/learn-about-quality/process-analysis-tools/overview/spaghetti-diagram.html>

# Process Flow (Spaghetti) Diagram

- Focus on material movement vs. people & information
- Focus on Final Assembly initially
- Map each major model (based on station 1 jigs)
- Baseline is distance travelled; watch for crossing paths
- Evaluated various what-if scenarios to:
  - Reduce distance
  - Eliminate crossing paths
- Distance is a predictor of multiple factors
  - Number of transactions
  - Walk time & interruptions
  - Visual control
  - Non-value activities (wait, motion, excess inventory, defects)

# Westgate North Current



The floor plan illustrates the layout of the 2010 National Horse Show arena. Key areas include:

- PAINT BOOTH:** A large central area labeled "42' X 17' PAINT BOOTH" with a red line tracing a path through it.
- SHIPPING & RECEIVING:** A large area on the right side of the plan.
- STATION 4 ASSEMBLY:** A green-shaded area on the right side of the plan.
- Storage Racks:** Numerous racks labeled "STORAGE RACK" are arranged in rows on the right side.
- Booths and Tables:** Various booths and tables are labeled, including "SHOP TABLE", "BOOTH", "TABLE", and "STAND".
- Equipment:** Labels for "ELECTRICAL CASE", "AIR CONDITIONER", "PAINT BOOTH MAKE-UP AIR UNIT", and "MISC. SHOP EQUIP." are present.
- Pathway:** A red line traces a path through the central area, starting from the bottom left and moving towards the top right.

[illegible]

# Distance Travelled

Model	Current (feet) *
2100, 2350	3492
3000, 3450	2870
7000, 8750	2944
10000, 13000	2470

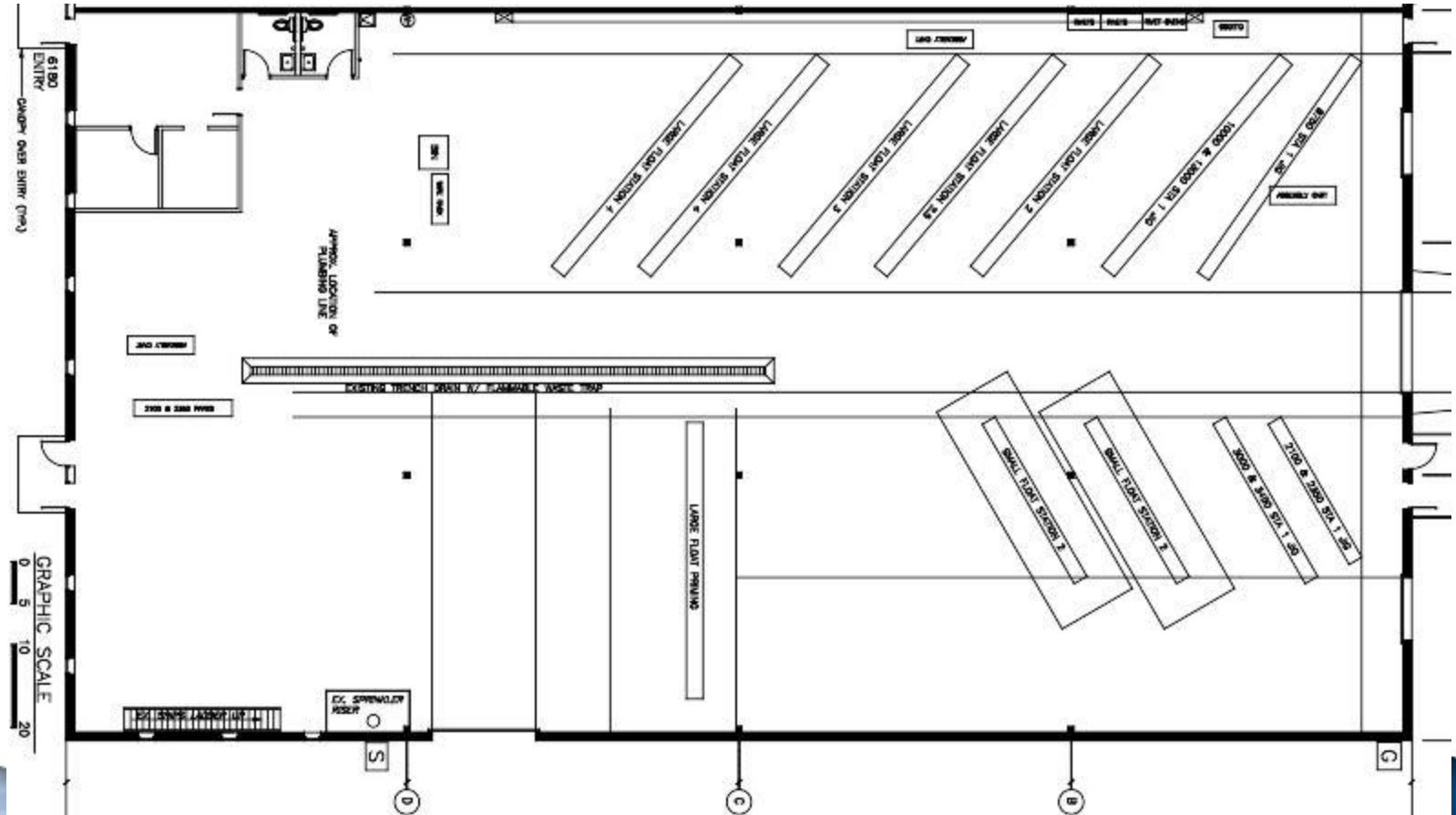
\* Does not reflect unnecessary moves that are common



# Current Assembly



# Future Final Assembly





# Future Final Assembly



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