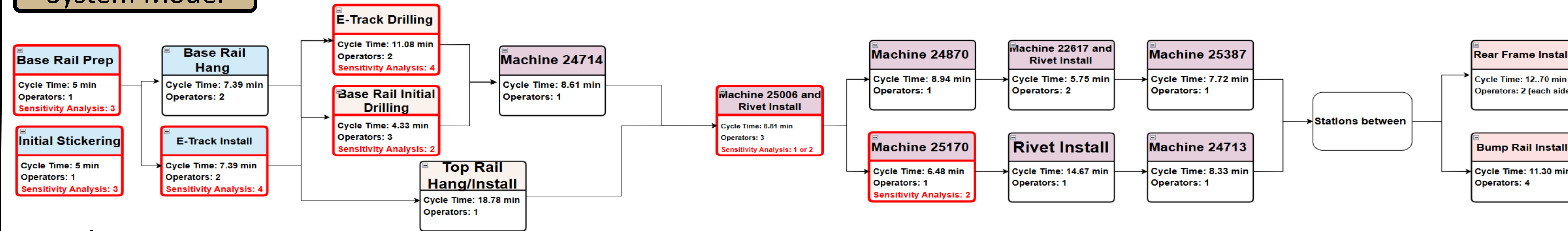


Client Background

Founded: 1985
Manufactures: Mainly Trailers – Amazon
Core Values: Team, Sustainability, Innovation
Line 2: Manual, flow, mixed product assembly

System Model

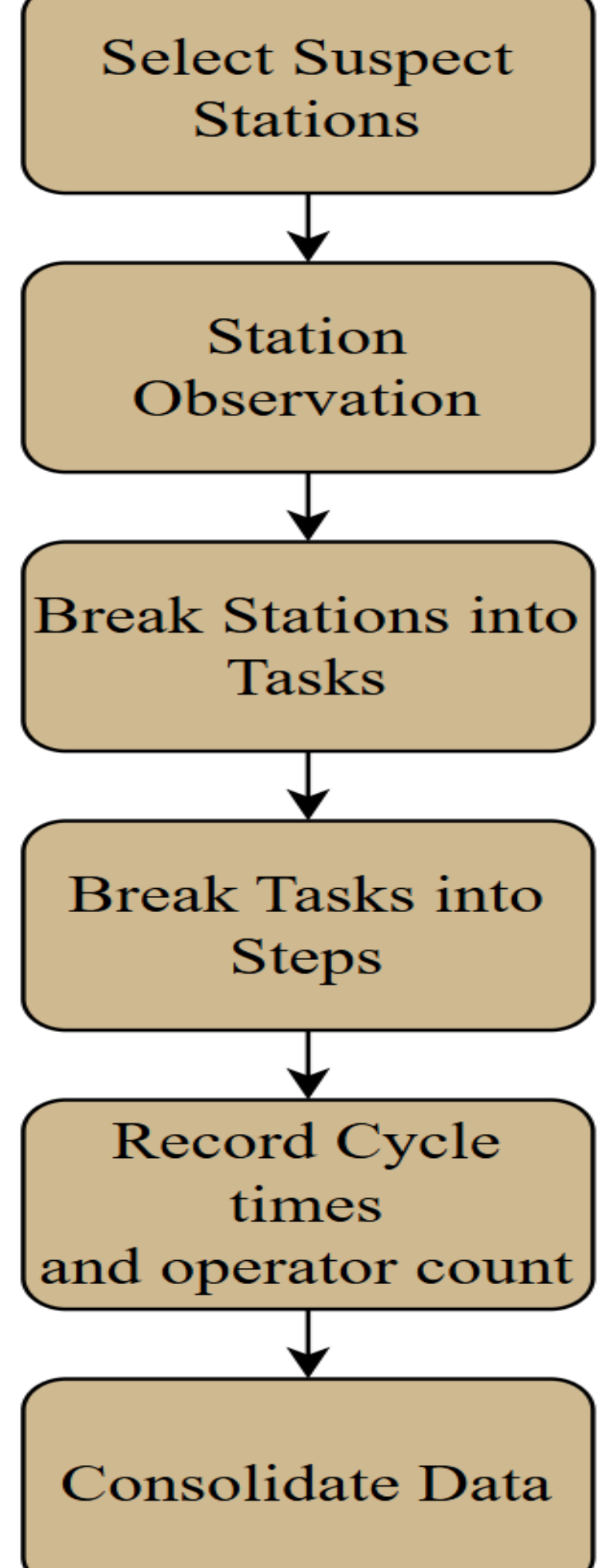


Problem Statement

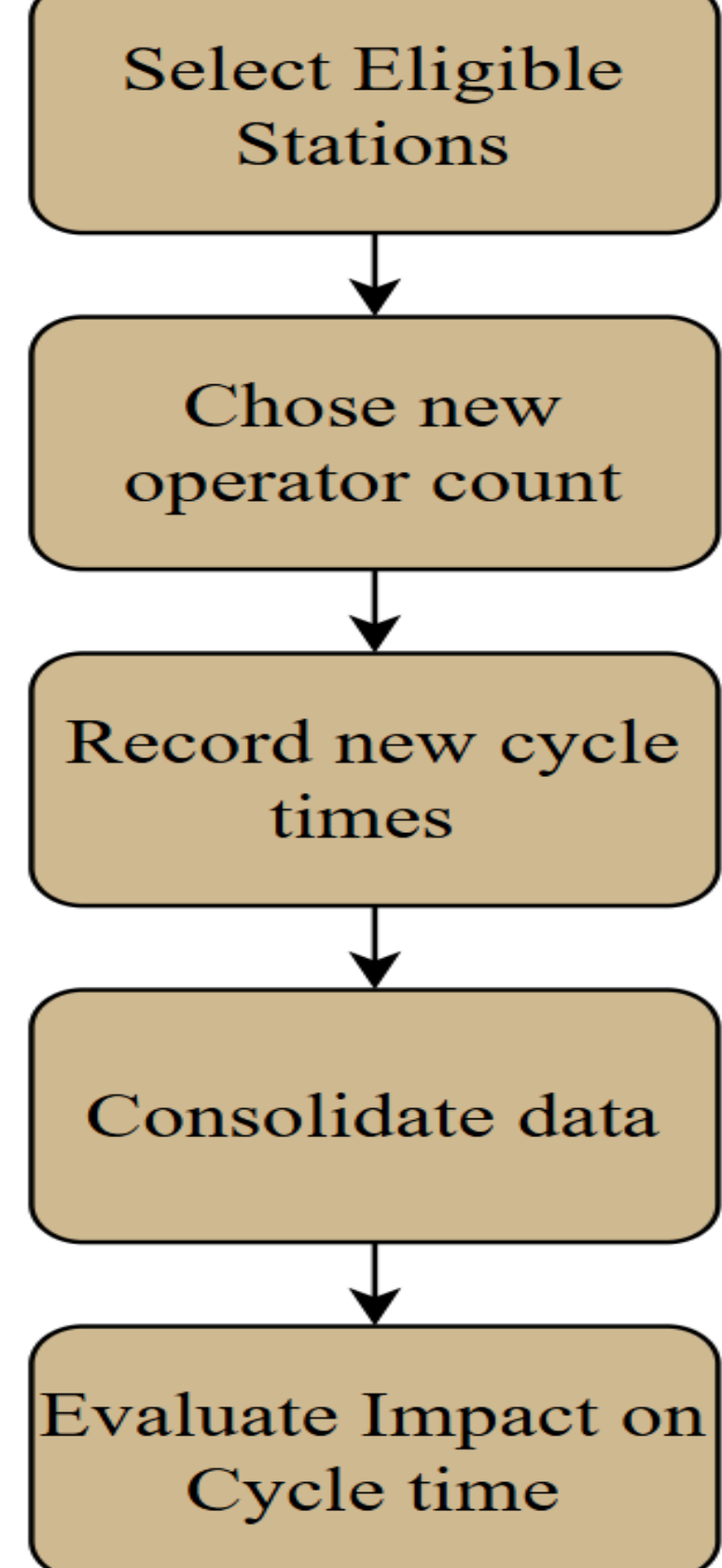
Line 2 produces 50 Amazon trailers instead of 56 trailers per day. Undefined staffing for each station results in inconsistent labor utilizations for both shifts on Line 2. No staffing documentation has been created in the past because of the low complexity trailers previously produced on Line 2. Currently, Wabash is relying on the experience of their soon to retire management to staff the line.

Methods

Time Study



Sensitivity Analysis



Challenges

- Changing SOPs
- Operator Acceptance
- Ergonomics
- Quality
- Space

Limitations

- Skill Matrix
- Non-linear Relationship

Results

Base Rail Recommended number of operators:

Before the Bridge		Cycle Time		
# of operator	Layout of Operators	Lower Bound	Upper Bound	Average
11	4 operators working on base rail (2 per side) 4 operator total tacking down etrack (2 per side) 3 operators stickering	332.23	341.11	336.67
7	4 operators working on base rail (2 per side) 2 operator total tacking down etrack (1 per side) 1 operators stickering	411.88	420.12	416.00

Top Rail Recommended number of operators:

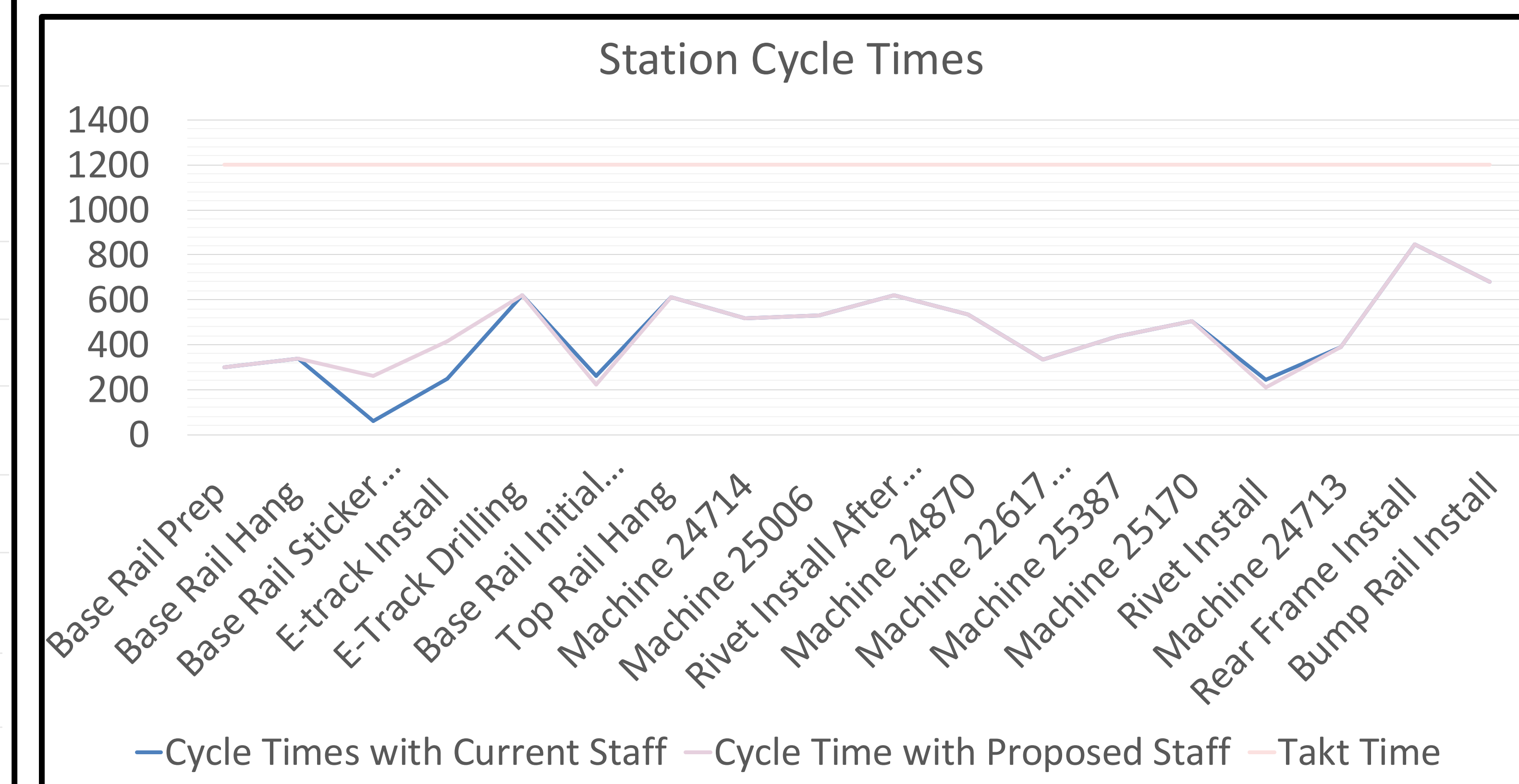
After the Bridge		Cycle Time		
# of operator	Layout of Operators	Lower Bound	Upper Bound	Average
8	3 operators performing initial drilling 4 operators drilling e-track (1 per side) 1 operator for top rail	631.23	640.77	636.00
5	2 operators performing initial drilling 2 operators drilling e-track (1 per side) 1 operator for top rail	616.56	619.44	618.00

ROI

Labor Cost Savings (Sensitivity Analysis)	
Current Staffing	23 operators
Proposed Staffing	15 operators
Hourly Wage per Operator	\$15/hr
Hours Worked Per Week	32 hours
Weeks Worked per Year	52 weeks
Labor Savings	\$199,680

Revenue Per Trailer	
Trailers per Day	56 trailers
Workdays per Week	4 days
Weeks Worked per Year	52 weeks
Total Labor Savings	\$199,680
Total Trailers per Year	14,560
Labor Savings per Trailer	\$13.71

Discussion



Before The Bridge	After The Bridge	Machine 25006	Machine 25170
Before: 7 operators Average Time 416s	Before: 8 operators Average Time 636s	Before: 1 operator Average Time 778.46s	Before: 2 operators Average Time 245.64s
Recommendation: 11 operators Average Time 336.67s	Recommendation: 5 operators Average Time 618s	Recommendation: 2 operators Average Time 618.68s	Recommendation: 1 operator Average Time 207.95s

Future Work

- 1. Focus Areas:** Expand time studies to identify bottlenecks.
- 2. Objectives:** Broaden workflow analysis. Develop holistic understand.
- 3. Enhanced Productivity:** Optimize staffing and reduce cycle times.
- 4. Strategic Plan:** Refine the staffing playbook with updated data