



Process Improvements for Operations

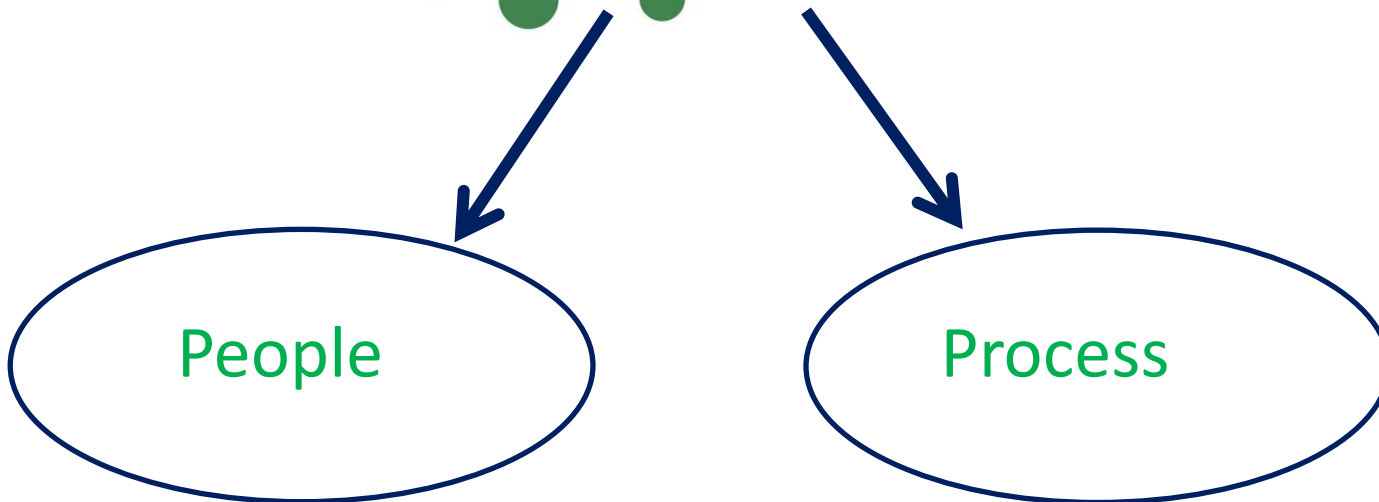
Donald D. Graab
Vice President - Mechanical

Process Improvements Continue

- Crew Redistricting
- Movement Planner- UTCS
- LEADER (Locomotive Engineer And Display Event Recorder)
- NGauge
 - Terminal Improvement Project
 - 24 Terminals Complete to Date
- **NSight**
 - Car and Locomotive Shops

Mechanical Department's “Lean” Program





People Side of Lean



- Respect for Employees
- Consensus Decision Making
- Developing Employee Engagement
 - Trust
 - Shared Goals
- Coming off a 3 Year Behavioral Leadership Initiative
 - Ideal Foundation for Advancing Lean Principles
 - Better Way to Manage



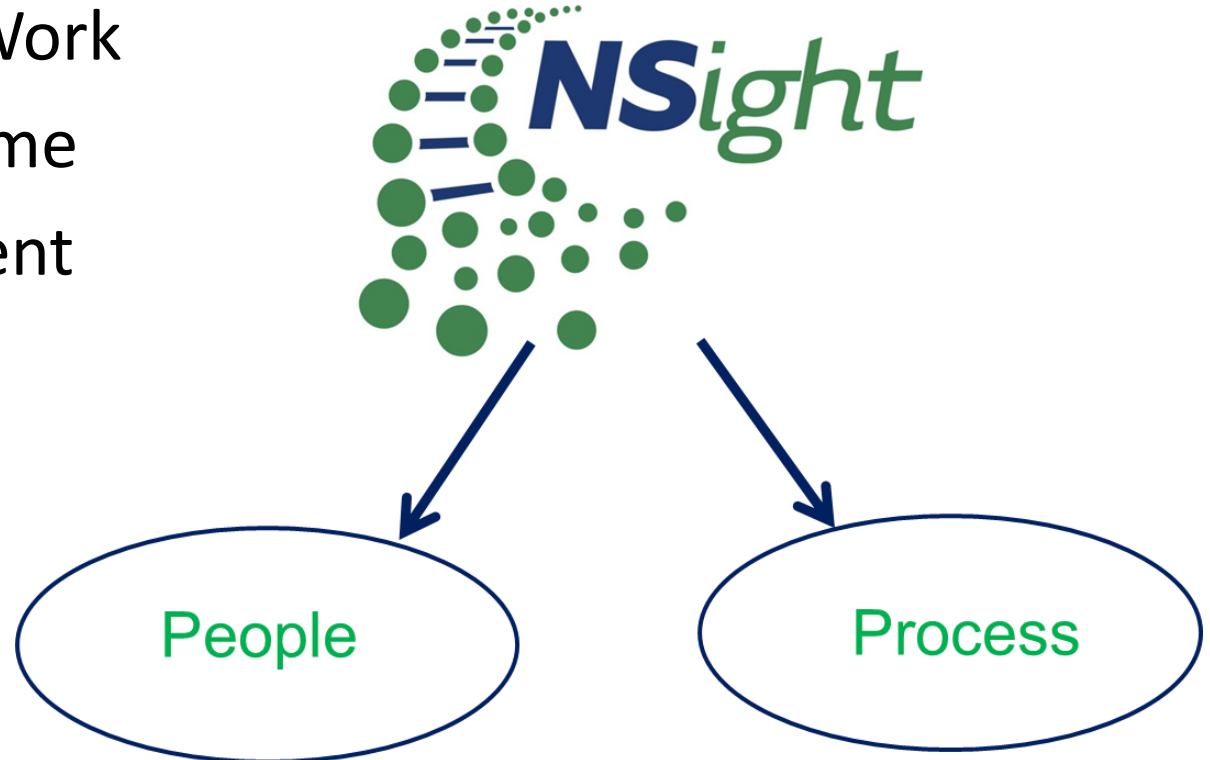
How Do We Adapt Principles Developed on an Automobile Assembly Line to a Locomotive Shop?

Begin By Teaching the Seven Wastes

- Waiting
- Overproduction
- Excess Inventory
- Unnecessary Transport
- Unnecessary Movement
- Over Processing
- Defects

Five *NSight* (Lean) Principles

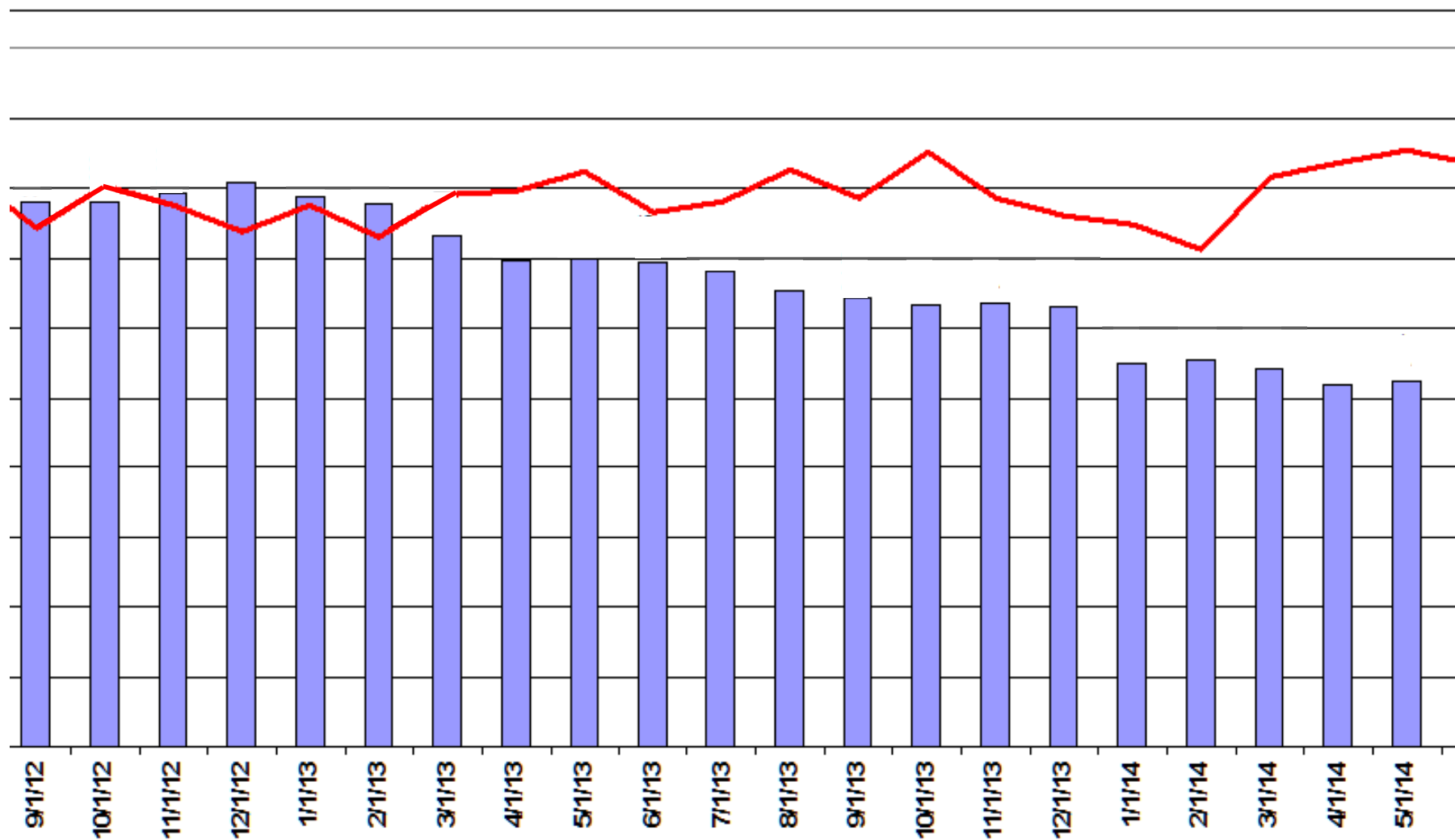
- **5S** (Sort, Straighten, Shine, Standardize, Sustain)
- Level the Load
- Standardize the Work
- Reduce Set Up Time
- Visual Management



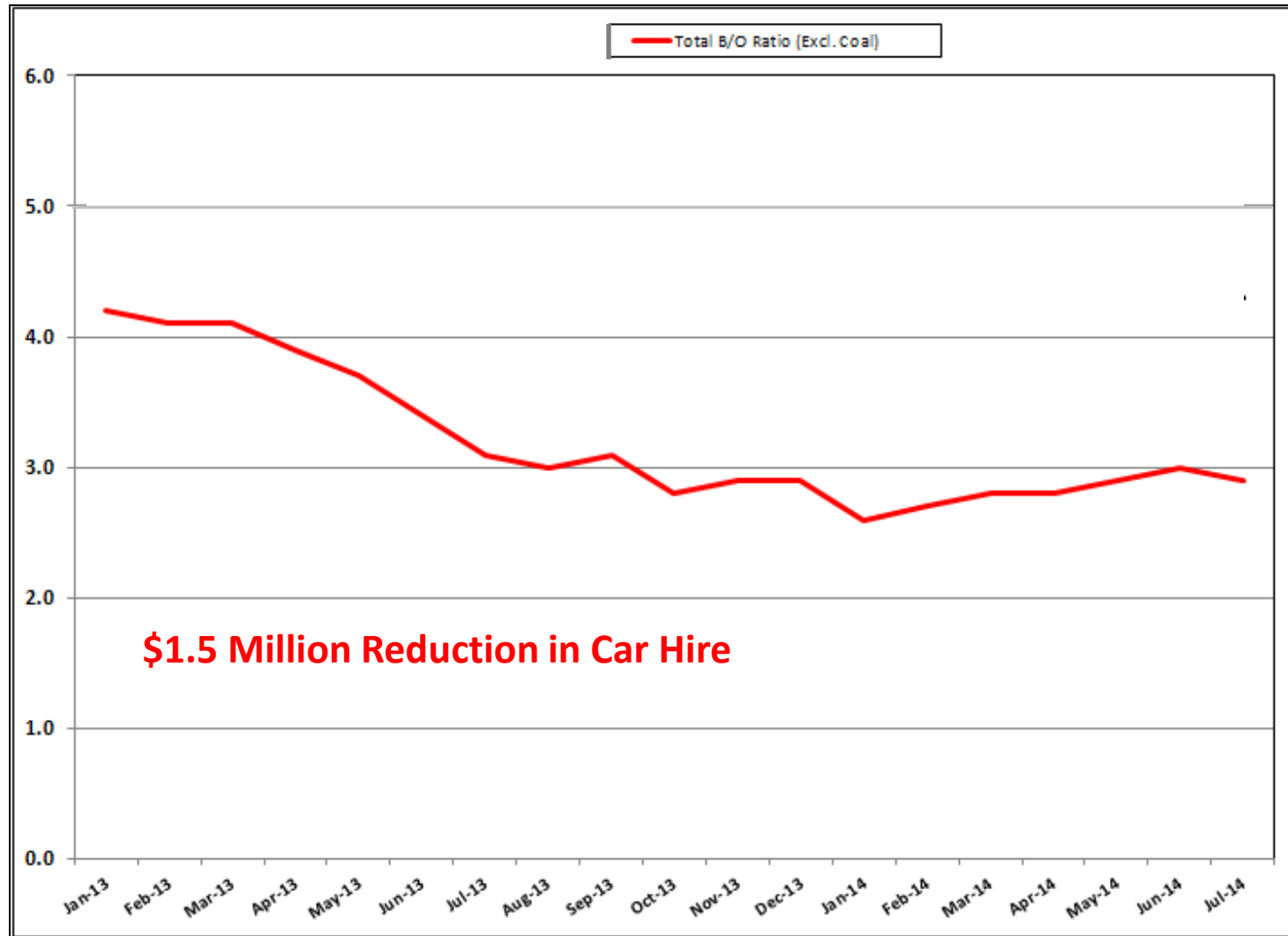
Level the Load – Car Maintenance

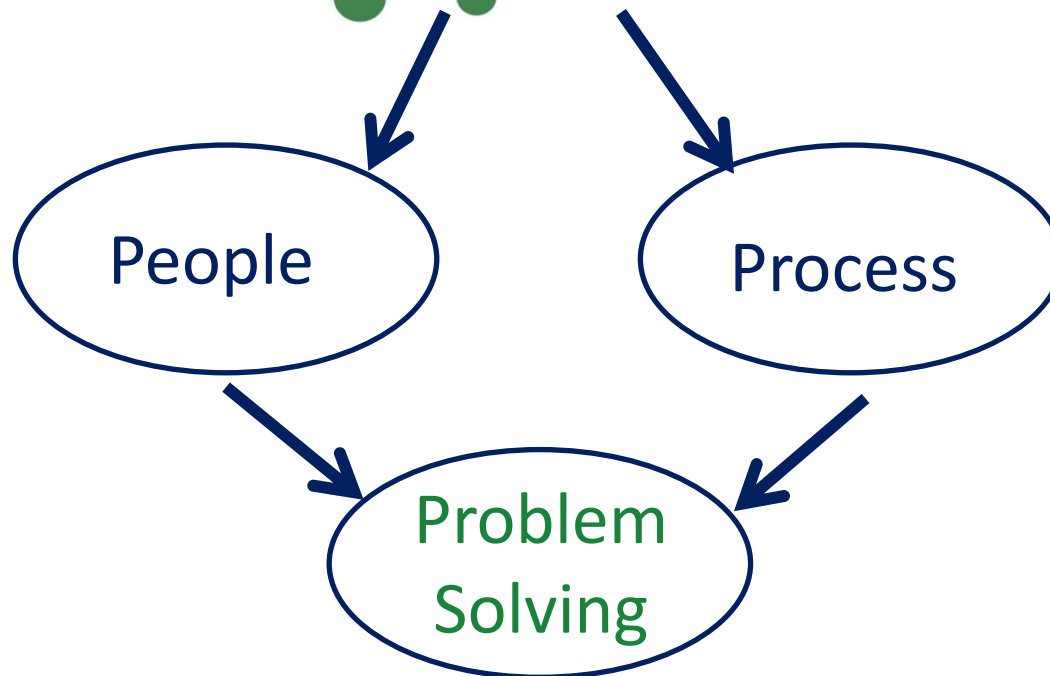
- Stabilize the flow of cars to the repair tracks
 - Regular Predictable Switching
 - Sort Cars for Shop Efficiencies
- Adjust headcount for >median - not the peak
- Balance the workforce
 - Seven Days per Week Operation

Car Maintenance Personnel



Cars Out of Service for Maintenance





NSight - A Problem Solving Environment

- No One knows the Work Better than the Employees
- **NSight** engages Employees in the Work Place
- The Eighth Waste – **Unused Employee Creativity**

In Closing...

- NGauge – Terminals
- **NS***sight* - Shops