# OPTIMIZING OPERATIONS

UTILIZING HUMAN CAPITAL MANAGEMENT AND SMALL INVESTMENTS TO GET THE MOST OUT OF YOUR ORGANIZATION

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### SPEAKER BACKGROUND

2002 – BS Civil Engineering, University of Maine

2002 - 2007: Project Engineer, Harry C. Crooker and Sons, Inc.

2007 – Professional Engineer

2006 – 2008: Project Manager, A.H. Grover, Inc.

2008 – 2010: Public Works Director, Town of Topsham

2010 – Present: Assistant G.M., Brunswick Sewer District

2015 – MBA, University of Phoenix

### SPEAKER BACKGROUND

- Anal Retentive Understatement!
- A full truck is a happy truck
  - Take something down  $\rightarrow$ 
    - bring something back up
- All actions should be efficient!
  - Move with a purpose
    - Like playing sports



### WHY BE EFFICIENT?

- What is the one thing in life that is limited?
  - Money?

# Time is Limited!

- Doesn't mean you can't relax
  - Leisure time is important too
  - Just stop "wasting" time



### THEORY ON SPEEDING

- Travel 15,000 Miles Per Year
  - Average Speed 45 mph
    - Total time in vehicle: 333. Hours
  - Average Speed 55 mph
    - Total time in vehicle: 272.7 Hours
    - Time Saved: ≈ 60 Hours!



### DO IT RIGHT THE FIRST TIME

- What is the cost of repeat work?
- Have you ever had to walk back to get a tool?
- Got the wrong item and need to go back to the store?
  - Missing one small thing?
- The Home Depot Conundrum
  - Which one do I buy?
  - BUY THEM ALL!



# **GENERAL EFFICIENCIES**

Principles and Theories to Help you Improve Operations

### VALUE ADDED

- "Of or relating to the estimated value that is added to a product or material at each stage of its manufacture or distribution." (The Free Dictionary, 2015)
- Lean operations
  - Systematic method for the elimination of waste
    - If the process does not add value to the project, don't do it!
  - Do I really need to check this pump station twice/week?
  - Am I just killing time waiting to punch out?
  - Ask this question every time you take on a task!
    - What value is being added?



### SIX SIGMA

- "Six Sigma refers to an approach and set of tools designed to drive improvements in business processes.
- Six Sigma uses the DMAIC (Define, Measure, Analyze, Improve, Control) approach to find out what is causing defects within a given process and to determine what changes are necessary to make it work better" (Holt, 2015)



### KAIZEN

- Kaizen is "the practice of continuous improvement."
- Kaizen guiding principles:
  - Good processes bring good results
  - Go see for yourself to grasp the current situation
  - Speak with data, manage by facts
  - Take action to contain and correct root causes of problems
  - Work as a team
  - Kaizen is everybody's business

(Kaizen Institute, 2015)

Act Plan
Kaizen
Check Do



### THE 80 - 20 RULE

- Pareto Principle 80% of outcomes from 20% of the causes (Investopedia, 2015)
  - 80% of wealth is controlled by 20% of population
  - 80% of water is delivered through 20% of the pipes
  - 80% of treatment happens in the first 20% of the cycle
    - @ 20% of the costs
- Use the 80/20 rule when making decisions
  - Tackle the low hanging fruit
  - Look for the biggest returns



### SHOULD WE BE 80% BUSY

\$25/hr

\$37.50

\$62.50

<u>\$25</u>

- Cost of being 80% busy
  - Pay \$25/hr
  - OH/Benefits <u>\$25</u>
  - Total Cost \$50/hr
  - Wasted Wage \$10/hr
  - 2080 Hours per year....
  - Total Value of Time Wasted
    - \$20,800

- Cost of Overtime
  - Pay
  - OT Pay
  - OH/Benefits
  - Total Cost
  - How many OT hours to equal Wasted Cost?
    \$20,800 / \$62.50
    - φ20,000/φ02.5
    - 333 Hours
    - 6.4 Hours/Week

#### Cost of Outside Help

P Pay	45/hr
• OH/Benefits	<u>\$0</u>
Total Cost	\$45/hr

- How may hours of outside help can you afford?
  - \$20,800 / \$45
  - 462 hrs
  - 8.9 Hours/Week

# **OVERTIME IS NOT THE ENEMY!**



### UTILIZE OUTSIDE RESOURCES

- Keep a lean workforce and sub-contract out uncommon, nonessential tasks
  - Pesticide spraying
  - Bookkeeping
  - Trucking
  - Engineering
  - Pipe installation
- Stick to what you're good at...
  - hire others who are good at the things you are not!
    - Cleaners, Yard Care
    - Staffing Companies
    - Payroll





### USE THE PROPER FORM OF COMMUNICATION



Source: Based on R. H. Lengel and R. L. Daft, "The Selection of Communication Media as an Executive Skill," Academy of Management Executive, August 1988, pp. 225–232; and R. L. Daft and R. H. Lengel, "Organizational Information Requirements, Media Richness, and Structural Design," Managerial Science, May 1996, pp. 554–572. Reproduced from R. L. Daft and R. A. Noe, Organizational Behavior (Fort Worth, TX: Harcourt, 2001), p. 311.

### AVOID MEETINGS

- And if you can't avoid them...
  - Limit attendees
    - Only need decision makers
    - Read the minutes
    - Establish a time budget Stick to agenda
    - Shut out late comers
  - Avoid time fragmentation
    - Schedule back to back, then have big blocks of time for work (Fisher, 2015)
  - Utilize technology
    - Video conferencing
    - Electronic notes
    - Use the big screen!



Source: Fortune.com

### WORK FROM HOME

- Avoid office interruptions
- Have a comfortable space
- Eliminate your commute
- Flexibility Schedule your day
  - Get the hours in when you can
- Reduce sick days
- Kids have been doing it for years!
  - Remember doing homework?



### DO YOU WASH YOUR OWN VEHICLES?

### What's the real cost of a car wash?

- At the Car Wash
  - Cost \$10-\$15
  - Time 5 minutes @ \$45/hour

- At the shop
  - Operator Cost (w/overhead) \$45/hour
  - Soap, water, brushes, etc \$1/wash

25 minutes to wash

• Total Cost \$13.75 to \$18.75

• Total Cost \$19.75

# If there is a Car Wash Nearby, Use it!

# EXAMPLES FROM THE BRUNSWICK SEWER DISTRICT

Steps taken by BSD to optimize operations

### STILL USING A FLIP PHONE?

- <u>All</u> Operators utilize smart phones and tablets
  - All forms of communication are legitimate and useful
  - Use Google (or Apple if you must, even Microsoft products can work.)
  - Integrate your:
    - Files
    - Calendar
    - Email
    - Conversations
    - Voicemail
    - Task management
    - Any device, any where, any time





### STILL WORKING 5 DAYS PER WEEK?

- More production working four 10's
  - Reduce setup and take town time
  - Reduce travel time to job sites
  - Reduce changing time
  - Reduce the number of breaks
  - Less commute for employees

- Do the math
  - 30 Minute lunch break
  - 15 minute a.m. break
  - 15 minute p.m. break
  - 40 minutes of travel time
  - 20 minutes setup time

## <u>I04 hours</u> more production per Employee per year

#### 5 – 8 Hour Days

6 hours Production/day 75% Efficiency Production: 30 Hours/Week

#### <u>4 – 10 Hour Days</u>

8 hours Production/day 80% Efficiency Production: 32 Hours/Week



### UPDATE YOUR POLICIES

- Sick Time Buy-back
  - Incentive to come to work
  - Eliminate organizational liability
  - Annualize the costs of the benefit
- Bonus/Goals Program
  - Money Talks!
  - Make goals achievable Make rewards sufficient
- Education Assistance UP TO \$5,000 per YEAR!
- Policies from 1970 do not apply to todays work force
  - Working hours Get rid of the clock
  - Give employees their freedom

### BSD CASE STUDY: HAVE THE POLICY CHANGES AND SCHEDULE CHANGES OPTIMIZED OPERATIONS?

Let's find out!

#### BSD CASE STUDY-EMPLOYEE ABSENCES



#### Employee Absences by Day of the Week

#### BSD CASE STUDY-EMPLOYEE ABSENCES



#### Sick Hours Per Employee

BSD CASE STUDY-COLLECTION CREW IMPROVEMENTS



# **COMPLETED IN-HOUSE**

Transaction and

#### BSD GOALS/BONUS PROGRAM

- 3 Goals per employee
- I% bonus for each goal achieved
- Individual, team, department

Year	Prog	gram Cost	Pro	gram Benefit	Net Value
2012	\$	14,269	\$	49,534	\$ 35,265
2013	\$	17,486	\$	55,406	\$ 37,920
2014	\$	21,254	\$	87,720	\$ 66,466
2015	\$	19,385	\$	87,180	\$ 67,795
2016	\$	21,750	\$	85,923	\$ 64,173
2017	\$	22,749	\$	75,100	\$ 52,351
Total	\$	116,893	\$	440,863	\$ 323,970



### BSD CASE STUDY-TREATMENT PLANT EFFICIENCIES

- Reduction in plant walks
  - How many problems are discovered?
    - What is the benefit of discovering a problem early?
- No longer staffed 365 days/year
  - Why come in to test ph?
- Beyond policy changes...
  - Reduced power consumption
  - Reduced heating costs
  - Reduction in chemical usage

Saves 104 hours/year \$5,200

Saves 104 OT hours/year \$6,500

\$50,000/year \$20,000/year \$25,000/year

#### BSD CASE STUDY

Have the policy changes and schedule changes optimized operations?



### THANK YOU!

• Questions?





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