

# Utilities



# CPI Legacy

A record of improvements made by the City of  
Salina, Kansas, since November 2012

# CPI Improvements

November 2012 thru November 2016

## **CITY OF SALINA 38 Improvements**

### **Utilities Department** (W-MEDIATE)

#### **Administration**

##### Waiting

1. Improved effectiveness of Lean Champion meetings by asking each Lean Champion to read the monthly list of improvements prior to the meeting, and to come prepared to identify from their reading the principles that could be applied to the Utilities Department.
2. Reduced costs and increased capacity by outsourcing the printing of project manuals in lieu of printing in-house.

##### Mistakes

##### Excess movement or motion of workers

1. Reduced costs and increased capacity by scanning and emailing the quarterly VOC Report to the recipients by using a group distribution list created in Outlook in lieu of mailing individual copies.

##### Do it right the first time

##### Inefficient Processes

1. Increased capacity by discontinuing the collection of data recording temperature, precipitation, and water readings for Kanopolis Lake and Mentor Gage. The data is only needed during times of a Water Watch/Warning/Emergency for use in news releases to the public.

##### Always do the right thing

##### Transporting work

##### Excess Inventory

### **Plant Operations Division**

##### Waiting

##### Mistakes

##### Excess movement or motion of workers

1. Reduced costs by changing intrusion alarm points, where the call goes, and by using existing SCADA alarm features.
2. Reduced costs by removing the flag pole at the Water Treatment Plant.

#### Do it right the first time

1. Increased capacity at the Water Treatment Plant by eliminating the requirement to record run time hours on CO<sub>2</sub> storage tanks. This information is no longer used.
2. Increased capacity and reduced costs at the Water Treatment Plant by eliminating the requirement to perform a Phenol analysis test. These tests were no longer being used for operational decisions or reporting.

#### Inefficient Processes

1. Increased capacity and reduced costs by reducing the number of required well tests from monthly to quarterly. This has been approved by the Kansas Department of Health and Environment.

#### Always do the right thing

1. Avoided costs to repair structural problems with the Scour Key in the Smoky Hill River. After a flood event on July 13, 2013, the City argued that this project, along with the bank stabilization project, qualified for 100% federal funding, rather than a 65/35 split. This argument was also accepted and included in the November 21, 2014 Cooperation Agreement signed between the City and the Corp of Engineers.
2. Reduced costs by restructuring staffing (vacant positions) as follows:
  - Eliminated:
    - a. Wastewater Treatment Plant Laboratory Technician
    - b. Wastewater Treatment Plant Operation II
    - c. Water Plant Operator I
  - Created:
    - a. Plant Operations Controls System Technician
    - b. Utility Division Engineering Technician II
  - Contracted:
    - a. Lab work for the Wastewater Treatment Plant
3. Reduced costs by working with the Kansas Department of Health and Environment to reduce energy consumption. This required taking the Trickling Filter Process off line, and removing four pumps and two clarifier drives from service for a total of 56 horsepower (HP). These changes required extensive testing that allowed the plant to meet permit limits with the Trickling Filters off line. In September, they also took one (of two) Pre-Aeration/Grit Handling systems off line, removed one compressor, conveyor, pump and washer for a total of 48 HP. These changes will also decrease maintenance costs, reduce man-hours, reduce landfill costs, and will take eight major structures, two buildings, eight pumps and four drive units out of the maintenance/replacement schedule for the foreseeable future.
4. Avoided anticipated Capital Improvement costs by restructuring the contract for the lime sludge removal from the lagoons to over a five year period, and thereby, providing the contractor an opportunity to use the lime for other purposes (agriculture, road fill, cement production, scrubbing agent in coal fired power plants, or wastewater neutralization).

### Transporting work

1. Increased capacity by contracting a monthly trash pickup for the transportation of lime cinders instead of loading the cinders in a pickup and employees hauling them.

### Excess Inventory

## **Utility Division**

### Waiting

1. Increased capacity by automating bypass pumping during construction. Modifications were made for float control and telemetry alarms to be utilized as two stations are rehabilitated each year.
2. Increased capacity by purchasing more efficient equipment used for potholing utilities. It requires only one person to operate, instead of two.
3. Increased capacity and efficiency by replacing an existing nozzle used for high pressure line cleaning with a more efficient one.
4. Reduced costs by retrofitting an underutilized trailer and equipped it with a mini-excavator and concrete breaker attachment, trench box and shoring for working in excavations and some signage.

### Mistakes

1. Reduced mistakes and increased capacity by using standardized templates for water service tap recording, eliminating the duplicate transfer of data.
2. Increased capacity by using new process tools that automatically plot all specified defects for CCTV inspections, making the process faster and more efficient and minimizing input errors and helping to prioritize defects.

### Excess movement or motion of workers

1. Increased capacity and ease of use by reorganizing Water Distribution's stock yard and creating a space for a covered topsoil stock pile.
2. Reduced costs by identifying locations with repeated water service flow issues and scheduling preventative maintenance at those sites.
3. Increased capacity for sewer line inspections by programming the "hot keys" buttons for the most repetitive observations (i.e. tap positions and types). By programming these buttons, the operator only has to click one button per observation instead of typing in multiple pieces of information.
4. Increased capacity by maximizing the use of automated hydrant flushers in lieu of manual flushing, which requires an employee to be present during the day.
5. Reduced costs and increased capacity by raising a wall on the grit drying pad, enabling the ability to clean up debris without any spilling over the wall and reducing the extra time to clean the spillage, as well as reducing excess work and repair to the access drive.
6. Reduced costs and increased capacity by changing the style of meters from 2-inch compound to a 2-inch straight read meter.
7. Increased capacity by purchasing wire connectors in bulk online, in lieu of driving to a local company to purchase the wire connectors.
8. Increased capacity by taking the money from the Bulk Water Stations directly to the bank, instead of counting and taking the money to Water Customer Accounting.

9. Increased capacity by purchasing a used combination sewer jet and vacuum trailer unit to clean small and large lift station wet wells, resulting in less travel time to empty debris.

#### Do it right the first time

1. Increased capacity by establishing a primary point of contact for customer complaints, creating electronic field notes in Excel to document problems and provide a reference history, thus improving the relationship with the public and resulting in fewer customer complaints.

#### Inefficient Processes

1. Increased capacity by completing a utility locates request form in MS Word, and emailing them as an attachment in lieu of fax. Increased capacity by an additional seven hours by establishing an email user account that would automatically forward emails to the staff in the field
2. Increased capacity by creating an ArcGIS Model/Tool that brings attributes information into a Utilities Web App (pipe size, materials, length, ID's), so system information can be identified in the field by using iPads.
3. Increased capacity by changing the drafting procedures for capital improvement projects. This accommodates automatic ArcGIS updating to the City's GIS without additional drafting or editing.

#### Always do the right thing

1. Reduced wages and benefits by replacing the vacant administrative position at the Water Treatment Plant with a temporary employee until it was determined whether or not to hire a full-time employee and share them with Community Relations and Parks & Recreation, or hire a part-time intermittent employee on the Utilities Department staff. While the savings identified is based on temporary wages, they are a close approximation to the final Utilities cost.
2. Reduced costs of sewer jet hoses by purchasing through a pre-assembled vendor instead of purchasing custom made sewer jet hoses locally.

#### Transporting work

1. Increased capacity by manually electronically sending hydrant flow tests instead of manually delivering.

#### Excess Inventory

1. Increased capacity and ease of use by reorganizing parts inventory and removing unusable inventory at the Water Distribution shop.