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LEAN SIX SIGMA  
PRESENTATION TO CAMA

# Overview



- Traditional ways to balance the municipal books
- Some of our proactive tools
- Lean Six Sigma
- Fredericton's Lean Journey
- 5S – one of the Lean tools
- Our plan:
- Our commitment:
- Council's perspective
- Results to date:
- Questions

# Traditional ways to balance the municipal books

	Leads to
Cut services	<ul style="list-style-type: none"><li>• Dissatisfied customers</li><li>• Doesn't really address the issue of value for money</li></ul>
Defer infrastructure repairs	<ul style="list-style-type: none"><li>• Bigger problems in the future</li><li>• Doesn't really address the issue of value for money</li></ul>
Raise taxes	<ul style="list-style-type: none"><li>• Dissatisfied customers</li><li>• Doesn't really address the issue of value for money</li></ul>

# Some of our proactive tools:



- BPIs
- IT projects
- QMS (formerly ISO)
- Lean Six Sigma

# What is Lean Six Sigma?

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## Lean Sigma

- Improve System Efficiency
- Improve Flow and Stability
- Eliminate Waste
- Method of Operation
- Focus on Value for Customer

## Six Sigma

- Improve Process Effectiveness
- Reduce Variation
- Improve Yield
- Problem Solving Method
- Focus on Quality for Customer

We will use combination of Lean Sigma and Six Sigma

# Lean

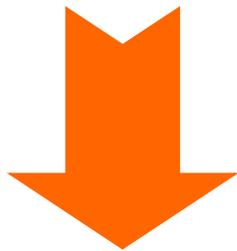


- Focuses on maximizing the flow of value by eliminating waste
- Provides tools for analyzing process flow and the identification of waste
- Centers on the separation of "value-added" from "non-value-added" work

# How is Lean different from Six Sigma?

## Lean

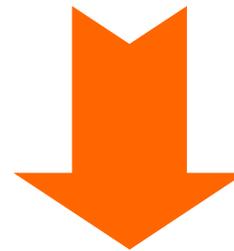
- ▶ Waste Elimination
- ▶ Standard Work
- ▶ Customer Pull



SPEED

## Six Sigma

- ▶ Variation Reductions
- ▶ Rework Elimination
- ▶ Process Control



STABILITY & ACCURACY

# Common Types of Waste in Organizations

- **Over Production** -Producing more than what is needed
- **Waiting** - Downtime
- **Transport** - Items transferred from one location to another
- **Motion** – Poor Layout
- **Extra Processing** - Rework - Handling
- **Defects** – Defective items
- **Excess Inventory**
- **Underutilization** of staff

# Goals of Lean Sigma

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**R  
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- ✓ Lead Time
- ✓ Cost
- ✓ Rework Required
- ✓ Space
- ✓ Inventory
- ✓ Defects

**I  
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S  
E**

- ✓ Customer Responsiveness
- ✓ Capacity
- ✓ Employee Satisfaction
- ✓ Flexibility – Demand Flux

# Lean/Six Sigma is NOT:

- A Cost Cutting Exercise
  - \* □ Job Cutting
  - An easy thing to do
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- \* Although positions may be eliminated through attrition or changed.

# Lean-Sigma Overview



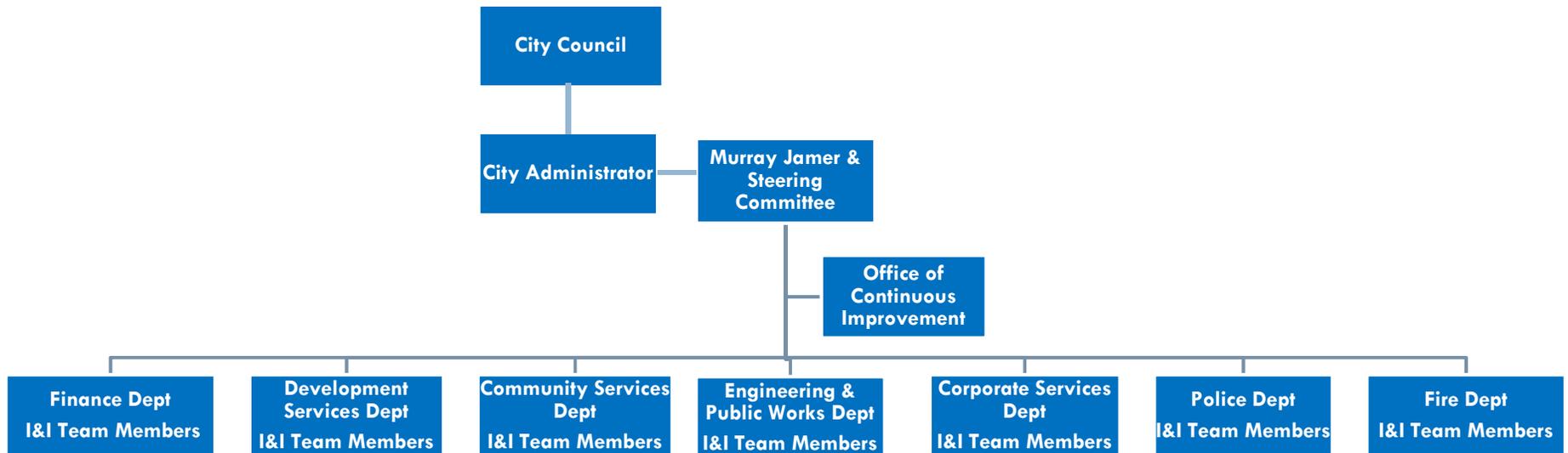
- Lean-Sigma is about creating a culture that demands continuous improvement and the pursuit of perfection
  - Gives employees the tools to:
    1. Enable them to pinpoint performance gaps
    2. Make the necessary improvements

# What about QMS?



- We still have QMS; not ISO
- QMS has provided:
  - ▣ Structure
  - ▣ Documentation
  - ▣ A culture of continuous improvement
- QMS is a foundation for Lean Six Sigma

# Lean Six Sigma Organization in City (Our Improvement & Innovation Team)



# Our “Green Belt” Training



- e-z sigma
- 9 day course
- lots of home work
- exam
- project

# Vision



We will improve the City's internal and external services by making them more efficient and better able to withstand scrutiny with the help of **Improvement and Innovation** teams using Lean Six Sigma tools and other change management tools, in order to enhance continuous improvement within the framework of the City of Fredericton's overall Management System.

# Objectives



## Long-term (5-10 years)

1. Every City service will have been the subject of an **Improvement and Innovation** project, where trained team members will use newly acquired Lean Six Sigma techniques.
2. Every City employee will be familiar with the Lean Six Sigma principles.
3. Every department will participate in Improvement and Innovation projects.
4. At least half (50%) of City employees will have participated on **Improvement and Innovation** projects where Lean Six Sigma techniques will be used.
5. 2 City staff will have Black Belt designation in Lean Six Sigma.
6. 10 City staff will have Green Belt designation in Lean Six Sigma.
7. **Improvement and Innovation Projects** (Lean Six Sigma projects) will have resulted in annual savings of \$5,000,000.

# Objectives

## Medium-term (3-5 years)

1. Improvement and Innovation Teams, made up of staff from all departments, will work on at least ten **Improvement and Innovation** projects per year, where trained team members will use Lean Six Sigma techniques.
2. Every City employee will be familiar with Lean Six Sigma principles.
3. Every department will participate in Improvement and Innovation projects.
4. 25% of City employees will have participated on **Improvement and Innovation projects** where Lean Six Sigma techniques are used.
5. 1 City staff will have Black Belt designation in Lean Six Sigma.
6. 6 City staff will have Green Belt designation in Lean Six Sigma.
7. **Improvement and Innovation Projects** (Lean Six Sigma projects) will have resulted in annual savings of \$2,000,000.

# Objectives

## Short-term (1-2 years)

1. Improvement and Innovation Teams, made up of staff from each department, will work on at least four **Improvement and Innovation** projects per year, where trained team members will use newly acquired Lean Six Sigma techniques.
2. Every City employee will have been exposed to Lean Six Sigma principles.
3. Every department will participate in Improvement and Innovation projects.
4. 10% of City employees will have participated on **Improvement and Innovation projects** where Lean and Six Sigma techniques are used.
5. 1 City staff will have Black Belt designation in Lean Six Sigma.
6. 4 City staff will have Green Belt designation in Lean Six Sigma.
7. **Improvement and Innovation Projects** (Lean Six Sigma projects) will have resulted in annual savings of \$500,000.

# A Lean Six Sigma Project



- Select a project
- Select team
- **Define Phase**
- **Measure Phase**
- **Analyze Phase**
- **Improve Phase**
- **Control Phase**

# A Lean Six Sigma Project



- Similar to BPI
- Data is important
- Value Stream Mapping
  - ▣ Current State
  - ▣ Future State



# The 5S Process

# What is 5S

- An easy definition is:
  - ▣ *A place for everything and everything in its place*
  
- 5S is the foundation for Continual Improvement and Lean implementation
  - ▣ One tool in Lean Sigma
  - ▣ Reduces time waste (waiting & searching)
  - ▣ Reduces motion waste
  - ▣ Increases operational efficiencies
  - ▣ Helps increase value added time



# The 5S's



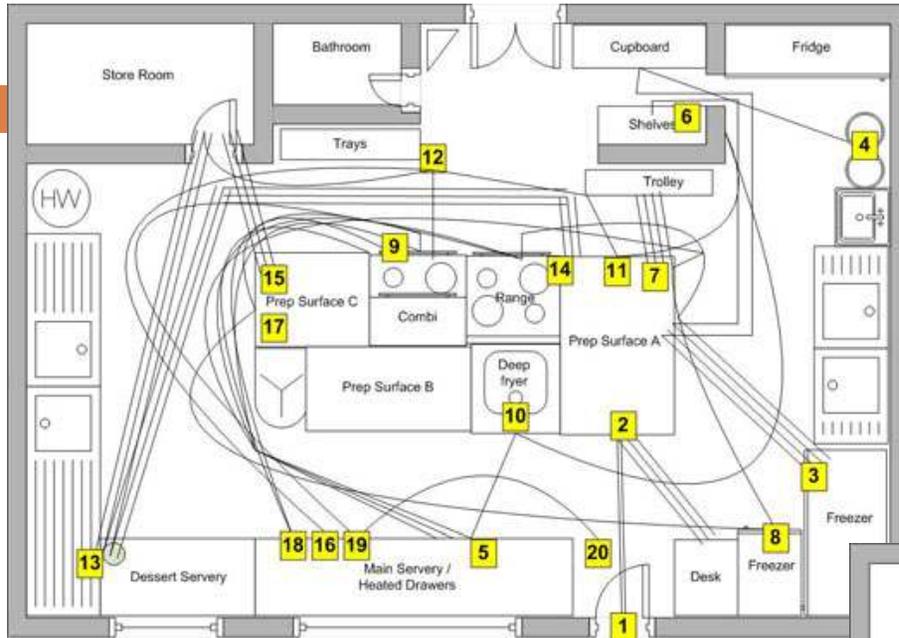
## **English**

- Sort
- Set In Order
- Shine
- Standardize
- Sustain

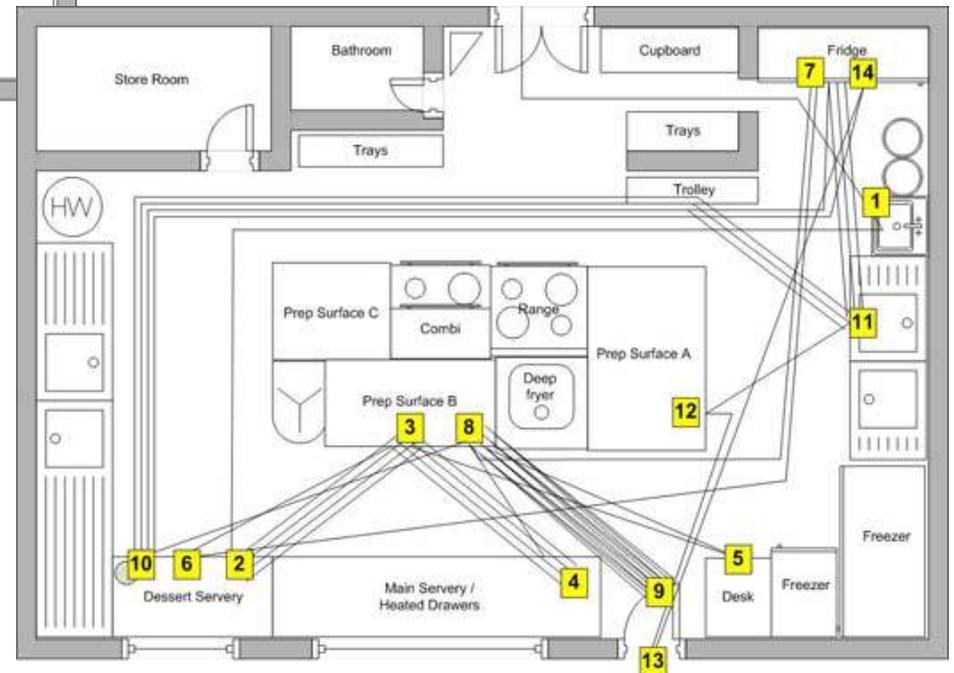
## **Japanese**

- Seiri
- Seiton
- Seiso
- Seiketsu
- Shitsuke

# Before



# After (Set in Order)



# Traffic Warehouse

**Before**



**After**



# Traffic Warehouse

**Before**



**After**



# Traffic Warehouse

**Before**



**After**



# Traffic Warehouse

**Before**



**After**



# Traffic Warehouse

**Before**



**After**



# Traffic Warehouse

**Before**



**After**



# Property Services

**Before**



**After**



# Property Services

**Before**



**After**



# Property Services

**Before**



**After**



# Property Services

**Before**



**After**



# POLICE GARAGE

BEFORE



AFTER



# POLICE GARAGE

BEFORE



AFTER



# POLICE GARAGE

BEFORE



AFTER



# POLICE GARAGE

BEFORE



AFTER



# Regent Depot

**Before**



**After**



# Regent Depot

**Before**



**After**



# Regent Depot

**Before**



**After**



# Regent Depot

**Before**



**After**



# Regent Depot

**Before**



**After**



# Fleet

**Before**



**After**



# Fleet

**Before**



**After**



# Water & Sewer

**Before**



**After**



# Water & Sewer

**Before**



**After**



# Water & Sewer

**Before**



**After**



# Water & Sewer

**Before**



**After**



# Water & Sewer

**Before**



**After**



# Our plan:



- Make changes before we are asked to make changes
- Involve our staff
- Involve every department (cross departmental teams)

# Our commitment:



- No layoffs as a result of a Lean Six Sigma Project (staff savings through attrition)
- We will honestly measure results and cost savings

# Council's perspective



- Didn't like our previously proposed cuts
- Don't want higher taxes
- Concerned about simply deferring infrastructure expenditures
- Pleased we are trying Lean Six Sigma

# Results to date:



- 5S done in 7 workplaces
  - Curbed requirement for more space
  - Curbed requirement for more staff
  - Established foundation for Lean Six Sigma Projects (and staff reductions / other efficiencies?)

# Results to date:



- 2 major Lean Six Sigma Projects completed:
  - Reduction of 2 FTEs
  - Foundation for further reductions in FTEs
- 1 major HR project underway
- Several projects in initiation stage

# Summary



- Looks like this is a good methodology
- Our team in place
- Employees are motivated / engaged
- We are well underway
- Hard staff reduction targets?

# Questions

