



Public Works Department

LEAN

CONTINUOUS PROCESS IMPROVEMENT

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1. Lean Continuous Process Improvement -
Overview
2. Improvements & Results
3. Program Expansion

Economic Downturn resulting in:

- Hiring freezes
- Early retirements
- Position reductions
- Loss of institutional knowledge

Increase in service demands

- Annexations
- Increasing and aging infrastructure
- Increase in capital project funding through dedicated stormwater capital funds and local option gas tax

Work Force Impacts

- Economic pressures to evaluate outsourcing alternatives
- Pressure to take on more with loss of positions
- Flattened organizational structure
- Increase expectations for outreach and stakeholder involvement
- Learning curves associated with new technologies and ways of delivering service
- Reactive versus preventative service delivery

A more flexible and agile organization that is able to respond to the diverse needs/demands of customers and stakeholders

- Increased customer-focused problem-solving and innovative improvements
- Ability to meet and exceed customer expectations

A strategy and plan for doing “more with less” without impacting quality and effectiveness

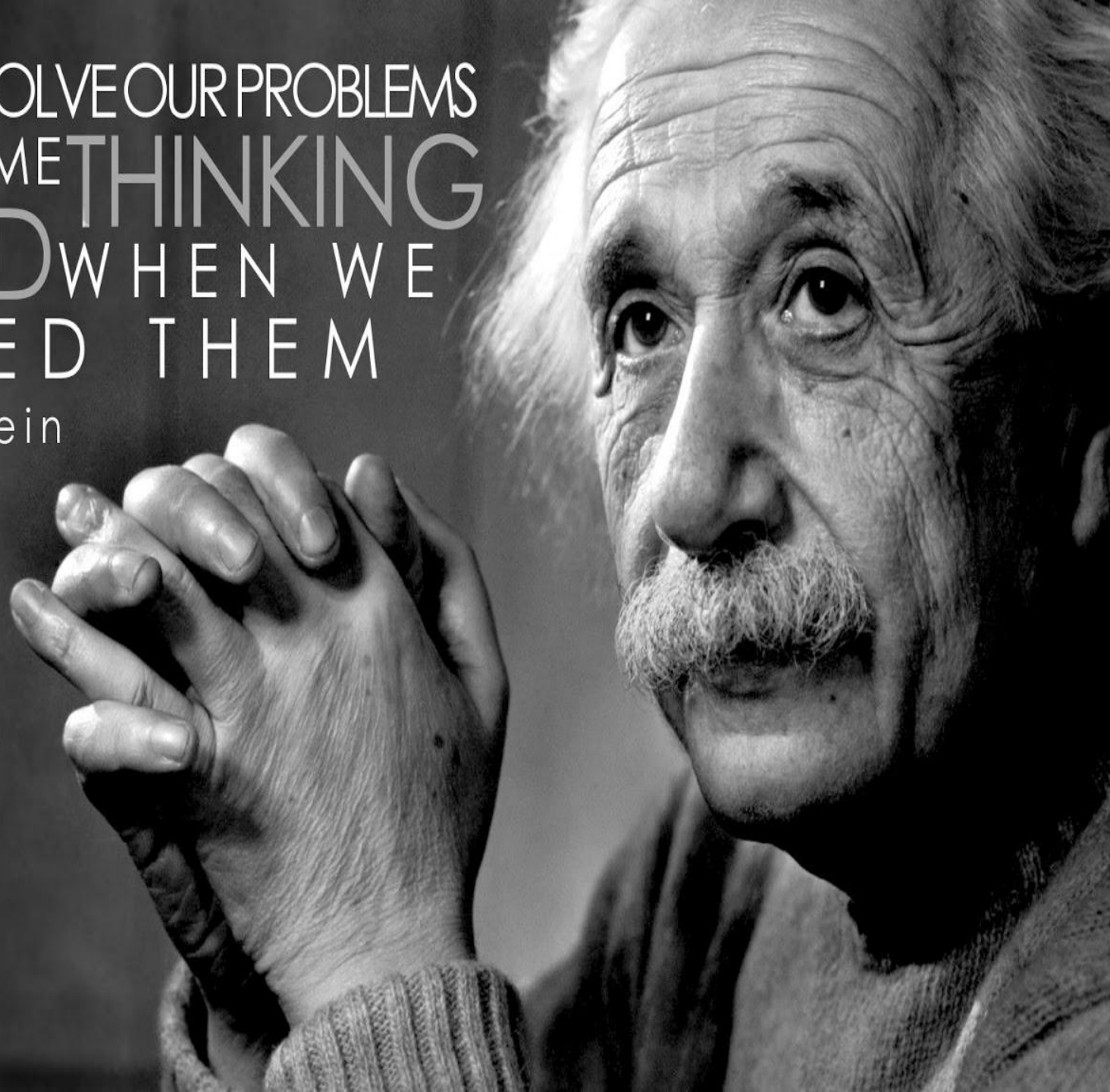
- Increase efficiency without impacting quality
- Reduce the time it takes to deliver value to customers
- Enhanced employee engagement

Actions being taken:

- Implementation of CityWorks to manage assets and work flows
 - First work units went live March 2015
 - Currently have 5 of 8 work units on-line
 - Mobile devices employed
- Organizational Assessment
 - Introduced to LEAN
 - Identification of in-house volunteers for training
 - Stefan Broadus and Eric Milch – training in February 2015

WE CANNOT SOLVE OUR PROBLEMS
WITH THE SAME THINKING
WE USED WHEN WE
CREATED THEM

-Albert Einstein



"The difficulty lies not so much in developing new ideas as in escaping from old ones."

John Maynard Keynes

Denver's Peak Performance Initiative

- Change aimed at improving the citizen's experience with government
- All change is measured for its value to the customer, such as reduced wait times, or its savings of tax payer dollars

Peak's goal is to transform government from antiquated, bureaucratic, and wasteful systems into a customer-driven, creative, sustainable, and data-oriented government.

Making a Difference

Paint Shop Finds Savings in Unused Paint

Total Projected Annual Savings = \$13,390

Department of Finance Improves Reporting Process

Total Projected Annual Savings and Recoverable Funds = \$207,161

General Services Improves Response Time for Work Orders

Total Projected Annual Savings = \$15,600

53 hours/month saved on work orders

Office of Economic Development Refines Contracts Execution Process

Total Annual Projected Savings = \$6,945

Reduced time from 6 to 5 months

Public Works Develop Standard Work for Manhole Adjustments

Total Projected Annual Savings = \$178,677

Reduced time/manhole from 54 to 31 minutes

Lean thinking is Lean because it provides a way to do more with less – less human effort, less equipment, less time, less space – while coming closer to providing exactly what the customer wants.

Dr. James P. Womack,
Lean Enterprise Institute

- Is a continuous improvement methodology
- Focuses on improvements that deliver customer value with little or no waste (anything that does not provide value to customers is waste)
- Creating more value for customers (internal and external) with fewer resources
- Is driven by our colleagues, it is NOT top-down
- Identify waste
- Eliminate waste



Process:

1. Value Stream Analysis (VSA)
- 2. Metric Gathering**
- 3. Rapid Improvement Events**
4. Implementation
5. Tracking

Metric Gathering

- Data Driven
- Q1: How many do we make?
- Q2: How Long Does it Take?
- Q3: How Many Are Right The 1st Time?

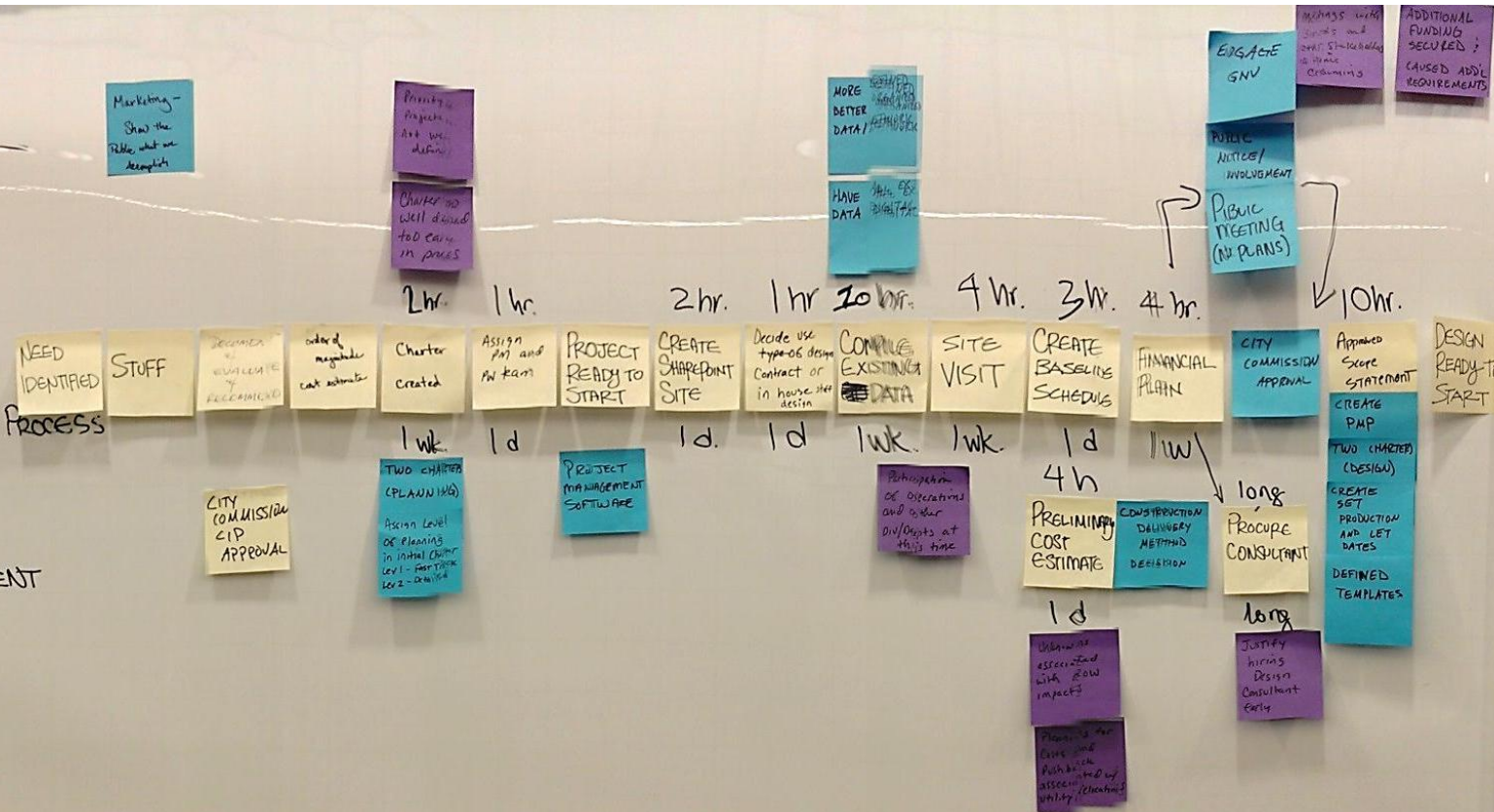
Rapid Improvement Events:

1. Process Mapping
2. Time Identification
3. Waste Identification
4. Improvement Proposals



IMPROVEMENT EVENT: Pre-Design

1. VALUE STREAM MAP
2. CURRENT PROCESS
3. KEY METRICS / TIME ID.
4. POTENTIAL IMPROVEMENTS
5. GAP ANALYSIS / TARGET PROCESS
6. IMPLEMENTATION
7. TRACKING
8. CONTINUOUS IMPROVEMENT



Improvements:

1. Time Reduction
2. Cost Savings
3. Product Improvement

Results:

- Improved customer experience
- Increased employee satisfaction with value driven work efforts

Business Units

1. Engineering
2. Solid Waste
3. Administration

Improvement Events = 18

Improvement Initiatives = 54

PERMITTING

Previous Condition:

4 Separate Forms

Maintained in 4 separate systems

Approval time ~ 5.5 days

Current Condition:

1 Form

Maintained in 1 system.

Approval time ~ 4 days
= 27% improvement

PRE-DESIGN (PROJECT PLANNING)

Previous Condition:	Current Condition:
Inconsistent Project Management Processes	Standardized Project Management Processes
11% of Projects in Standard Project Management Plan for Schedule, Budget, & Scope	80% of Projects in Standard Project Management Plan for Schedule, Budget, & Scope

PROJECT REPORTING

Previous Condition:

Current Condition:

Project Managers provided custom updates

Project Managers maintain one centralized database - Staff Assistant compiles reports

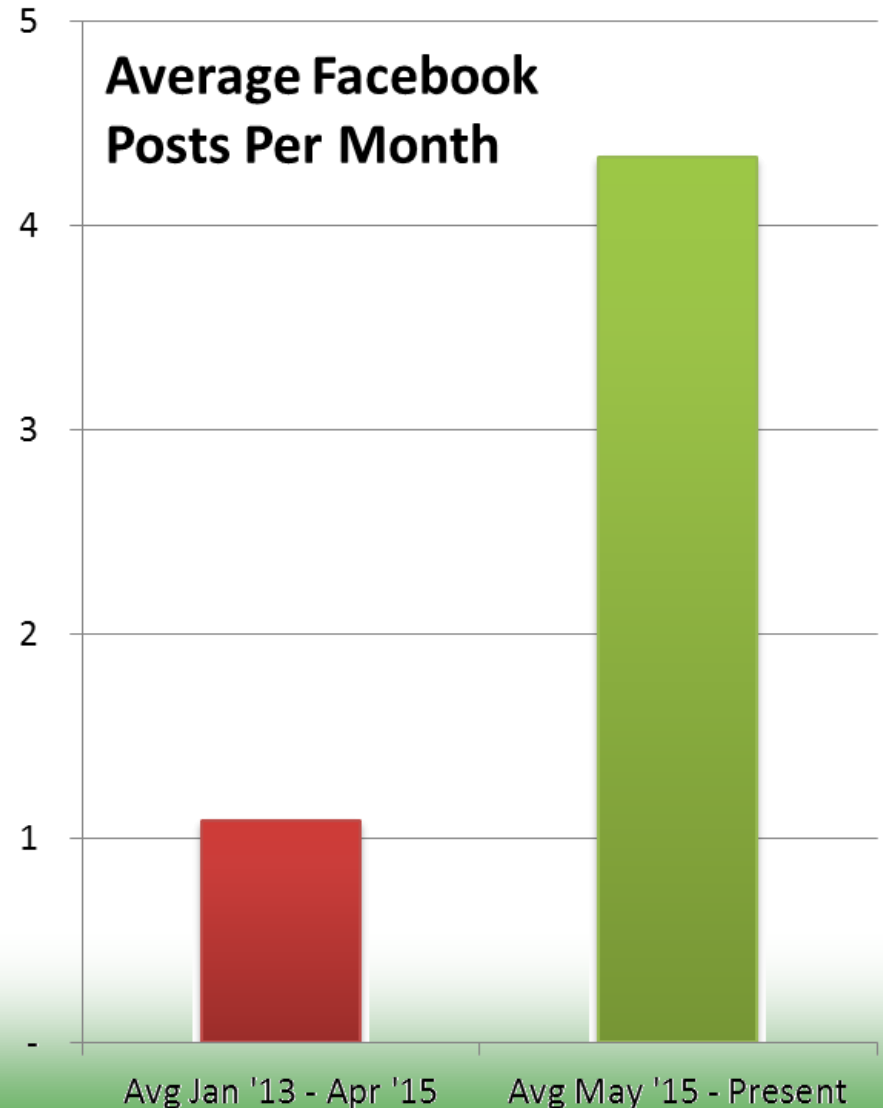
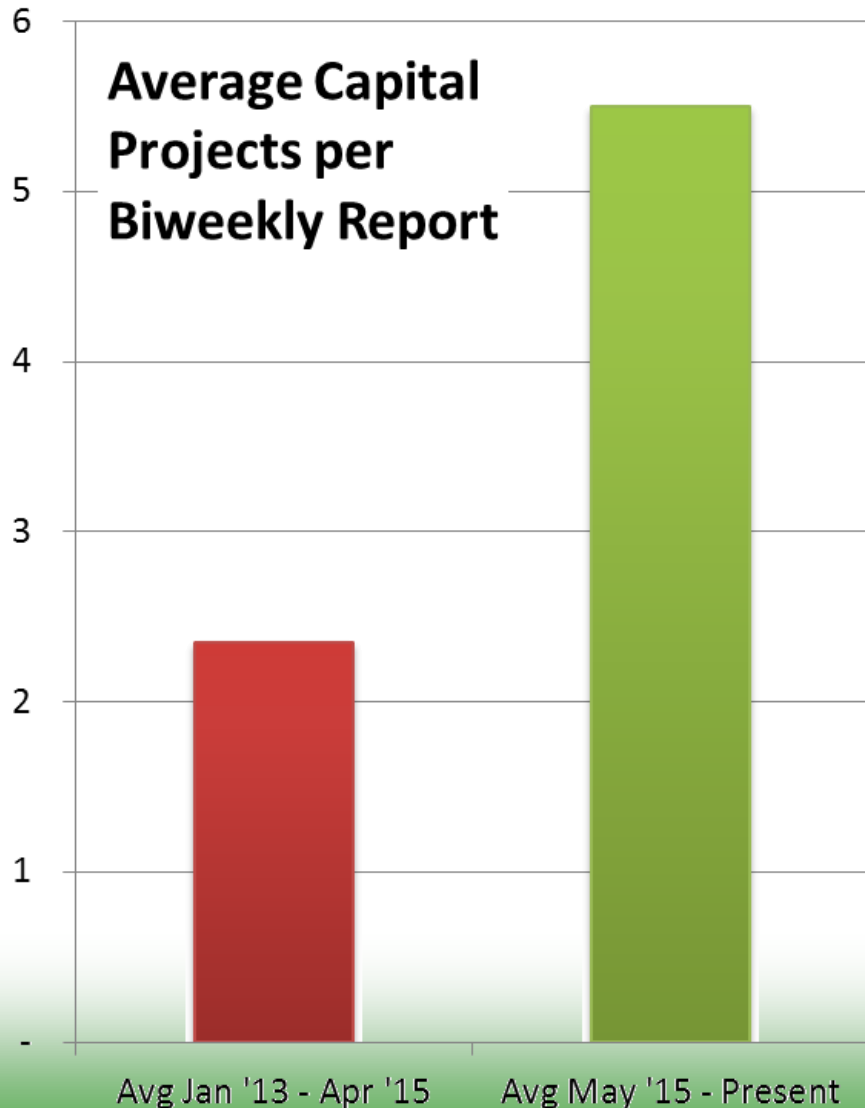
2.3 Project Updates per Biweekly Report

5.5 Project Updates per Biweekly Report (+240%)

1.1 Facebook Project Updates / Month

4.3 Facebook Project Updates / Month (+400%)

Estimated \$2,350/yr. salary savings



RESOURCE RECOVERY

Previous Condition:

Material at end of useful life is often taken to the landfill at a cost

Data collection needed for past performance

Potential Condition:

Material can be reused internally, auctioned, or scrapped for revenue

Performance will be monitored to determine savings

RESOURCE RECOVERY

Resource Recovery

This will track the items in the resource recovery program with 2 purposes. 1. Provide a catalog of available items in surplus. 2. Track the savings from repurposing instead of disposing as waste.

New ▾ Actions ▾ Settings ▾

View: **All Issues** ▾

Issue ID	Title	Category	Recovery Type	Disposal Cost	Recovery Amount	Recovery Savings
1	Steel Work Bench	Furniture	1. Internal Repurpose	\$50.00	\$3,000.00	\$3,050.00
2	Lockers	Hardware	1. Internal Repurpose	\$500.00	\$2,500.00	\$3,000.00
3	Dell XP 2350	Electronics	2. Auction	\$10.00	\$100.00	\$110.00
4	Conference Table	Furniture	1. Internal Repurpose	\$250.00	\$3,500.00	\$3,750.00
5	Misc Metal	Other	3. Scrap	(\$10.00)	\$35.00	\$25.00
6	Shelving	Furniture	1. Internal Repurpose	\$1,000.00	\$5,000.00	\$6,000.00



CHANGE MANAGEMENT

Previous Condition:

Change Orders must be formally approved regardless of total amount

195 days of construction delays for change order approval

\$100,000/yr. in construction delays

Potential Condition:

Project Manager authority can reduce change order (and project) duration

80% reduction in construction delays due to change orders

“Our Department is working hard to identify issues that we can work on to improve the way we do business. It is very satisfying to be a part of this and be able to share my ideas and views with my coworkers.”

Shirley Hunt, Customer Service Support Specialist
Solid Waste

“The LEAN process has positively impacted Survey Operations. A Work Order request form was developed and implemented that will help us track and perform tasks more efficiently.”

Pat Durbin, Surveyor

“Lean allows individuals to question how something is currently being done in their department while removing the fear of negative repercussion. The lean process prevents employees from acting robotically and promotes adaptation and active participation. Lean is a catalyst for positive change.”

Betsy Waite, Engineer

A LEAN Organization

- Expand into Public Works Operations
- Expand into other departments
 - The Hiring Process

We need more Black Belts!

- 1. Discuss your interest with us**
- 2. Commit to continuous improvement**
- 3. Review Black Belt Criteria for Success**
- 4. Select several Black Belt candidates**
- 5. Send candidates to Green Belt training sessions**
- 6. Black Belt cohort selected**
- 7. Black Belt training (Classroom + OTJ)**
- 8. LEAN Continuous Process Improvement launches in your area**

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