



Office of Inspector General | United States Postal Service

## Audit Report

# Network Operations Continuous Improvement Processes

Report Number NO-AR-18-001 | October 17, 2017



ANALYSIS

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SERVICE SCORES

DMAIC

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# Highlights

## Objective

Our objective was to evaluate the U.S. Postal Service Greensboro District's fiscal year (FY) 2016 Define, Measure, Analyze, Improve, Control (DMAIC) Priority Air/Surface continuous improvement process project. We will also summarize our prior continuous improvement audit work.

## What the OIG Found

Greensboro District management did not comply with DMAIC process requirements or meet its Priority Air/Surface service goal of 96 (out of 100) percent. In the last 20 weeks of the project the achieved service score was 94.01 percent, an improvement of only .02 percent.

The DMAIC process is a Lean Six Sigma (LSS) problem-solving method, which includes defining a problem and implementing solutions to establish best practices.

***“Greensboro District management did not comply with DMAIC process.”***

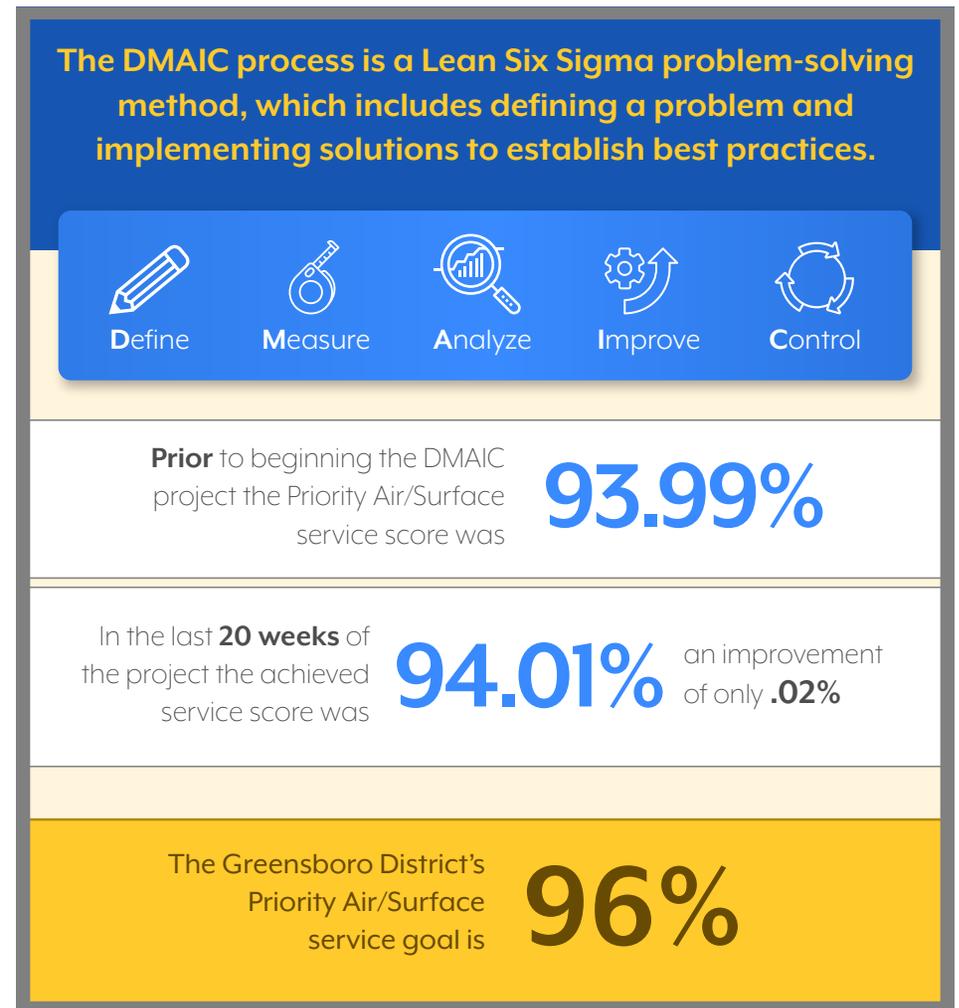
Between April 15, 2016, and February 16, 2017, the Greensboro District conducted a DMAIC project to improve its on-time Priority Air/Surface service score. Prior to beginning the DMAIC project the score was 93.99 percent.

The Greensboro District DMAIC team did not notify or involve the required benefit validator that is supposed to independently validate DMAIC project benefits, have a signed project charter, or ensure project documentation was consistent and updated. In addition, the LSS Green Belt candidate did not lead or complete the entire project and the LSS Black Belt candidate was certified prior to a required post-project interview by the Manager, Continuous Improvement Office. The Postal Service awards LSS Green and Black Belts to employees when they meet project leadership requirements.

We identified opportunities to save almost \$11,000 in salaries, training, and travel costs for the Greensboro project team. We also made a referral to our Office of

Investigations concerning the Greensboro District's lack of compliance with the DMAIC process for a Green Belt candidate to lead and complete the LSS project.

While performance marginally improved during the Greensboro project and in the three prior projects we audited, none met their goal. We also identified recurring project management issues such as:



- Lack of leadership and independent supervision;
- LSS belt certifications awarded without required documentation or proper project completion;
- Project benefit validation process not followed and validator not independent of the project;
- Lack of segregation of duties;
- Missing or incomplete documentation;
- Absence of core project team members' involvement; and
- Inaccurate documentation of project goals, targets, and results.

Since 2007, the Postal Service has documented over 7,000 LSS continuous improvement projects in its national LSS project tracker database and over 6,800 employees have attended LSS training, with about 3,490 becoming belt-certified. There are currently about 1,700 active projects.

In all four of our continuous improvement audits, we found inadequate project management due to a lack of oversight. The Manager, Continuous Improvement Office, delegated oversight responsibility to the area Master Black Belts. They are responsible for the continuous improvement projects in their Postal Service area; however, the manager did not put controls in place to ensure there were effective oversight reviews.

Because we found process issues in these and prior continuous improvement project audits, we analyzed a random sample of 150 of 567 Network Operations projects from the national LSS project tracker database for FYs 2015 through

2017. Overall, we found 130 projects had missing or incomplete documentation, 107 had members with improperly awarded belt certifications, and 46 did not report savings/costs in the LSS project tracker database.

When LSS processes are not followed, the estimated service and financial benefits cannot be measured and realized.

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***“When LSS processes are not followed, the estimated service and financial benefits cannot be measured and realized.”***

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## What the OIG Recommended

We recommended management:

- Ensure benefit validators are notified and involved throughout the benefit validation process.
- Ensure all LSS projects have signed charters and are consistent.
- Ensure project documentation is consistent, updated, and validated.
- Ensure LSS belt candidates complete entire projects properly with all required documents before receiving belt certifications.
- Develop and implement a control process to ensure that all LSS process requirements are followed.
- Ensure project costs and savings are independently evaluated and reported.

# Transmittal Letter



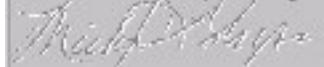
OFFICE OF INSPECTOR GENERAL  
UNITED STATES POSTAL SERVICE

October 17, 2017

**MEMORANDUM FOR:** LINDA M. MALONE  
VICE PRESIDENT, CAPITAL METRO  
AREA OPERATIONS

JEWELYN HARRINGTON, CONTINUOUS  
IMPROVEMENT MANAGER

RUSSELL D. GARDNER, JR.  
GREENSBORO DISTRICT MANAGER

E-Signed by Michael Thompson  
VERIFY authenticity with eSign De  


**FROM:** Michael L. Thompson  
Deputy Assistant Inspector General  
for Mission Operations

**SUBJECT:** Audit Report – Network Operations  
Continuous Improvement Processes  
(Report Number NO-AR-18-001)

This report presents the results of our audit of the U.S. Postal Service's Network Operations Continuous Improvement Processes (Project Number 17XG017NO000).

We appreciate the cooperation and courtesies provided by your staff. If you have any questions or need additional information, please contact Margaret B. McDavid, Director, Network Processing, or me at 703-248-2100.

Attachment

cc: Postmaster General  
Corporate Audit Response Management  
Vice President, Network Operations  
Chief Operating Officer and Executive Vice President

# Results

## Introduction/Objective

This capping report presents the results of our self-initiated audit of the U.S. Postal Service's Network Operations Continuous Improvement Processes (Project Number 17XG017NO000). Our objective was to evaluate the Postal Service Greensboro District's fiscal year (FY) 2016 Define, Measure, Analyze, Improve, Control (DMAIC) Priority Air/Surface continuous improvement process project. We will also summarize our prior continuous improvement audit work.

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***“Since 2007, the Postal Service has documented over 7,000 LSS projects in its LSS project tracker database and over 6,800 employees have attended LSS training with over 3,400 becoming belt-certified.”***

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Lean Six Sigma (LSS) is a continuous improvement method organizations use to improve business efficiency. The DMAIC process is a LSS problem-solving method, which includes defining a problem and implementing solutions to establish best practices. Since 2007, the Postal Service has documented over 7,000 LSS projects in its LSS project tracker database and over 6,800 employees have attended LSS training with over

3,400 becoming belt-certified. There are currently about 1,700 active projects. The Postal Service awards LSS Green and Black Belts to employees when they meet project leadership requirements.

In May 2017, the Postmaster General described the need for a “continuous improvement mindset to compete for today’s customers and anticipate the needs of tomorrow’s customers.”

We previously reviewed continuous improvement projects in Atlanta, Denver, and Phoenix and analyzed a random sample of 150 of 567 Network Operations projects from the Postal Service's LSS project tracker database that spanned seven areas<sup>1</sup> plus headquarters. See [Appendix A](#) for additional information about this audit.

Between April 2016 and February 2017, the Greensboro District conducted a continuous improvement DMAIC project to improve the on-time Priority<sup>2</sup> Air/Surface service score to a district goal of 96 (out of 100) percent. Prior to the DMAIC project the score was 93.99 percent for the week of April 9-15, 2016.

## Background

The audit is self-initiated in response to the Postal Regulatory Commission (PRC) Chairman's Information Request No. 11,<sup>3</sup> issued February 8, 2016, which stated that Kaizen events were conducted at the 22 facilities with the highest impact.

The Postal Service uses continuous improvement and lean methodologies, which rely on collaborative team efforts to analyze data to improve performance and systematically remove defects. To improve performance, a clear understanding and identification of the root cause, supported by data analysis, is needed to identify solutions and correct the problem.

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***“The Postal Service uses continuous improvement and lean methodologies, which rely on collaborative team efforts to analyze data to improve performance and systematically remove defects.”***

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<sup>1</sup> The seven Postal Service areas include Capital Metro, Eastern, Great Lakes, Northeast, Pacific, Southern, and Western.

<sup>2</sup> Priority Mail is an expedited shipping service for mail, subject to certain standards such as size and weight limits.

<sup>3</sup> The Postal Service testified before the PRC and discussed Kaizen service improvement teams sent to the highest impact facilities in 22 cities. *Annual Compliance Review 2015* (Docket No. ACR2015), Filing ID 95015, dated February 16, 2016.

To assess the effectiveness of the Postal Service’s use of continuous improvement processes, we completed the following three audits of individual continuous improvement events:

- *Kaizen Event Review: Fiscal Year 2016 Atlanta Processing and Distribution Center Surface Visibility Scanning* (Report Number NL-AR-17-003, dated April 18, 2017).
- *Kaizen Project at the West Valley Processing and Distribution Center, Phoenix, AZ* (Report Number NO-AR-17-005, dated March 8, 2017).
- *A3 Events at the Denver, CO, Processing and Distribution Center* (Report Number NO-AR-17-002, dated November 2, 2016).

To complete our assessment, we reviewed a continuous improvement DMAIC project the Postal Service completed in the Greensboro District on improving the district’s on-time Priority Air/Surface Composite performance. The Postal Service publicized the success of the project in the fall 2016 issue of the *Capital Metro Area Update*. We also evaluated management’s oversight of the network operations continuous improvement processes and projects nationally.

The Office of Continuous Improvement has five contracts related to LSS consulting support services and training and has committed about \$10 million since March 2016.

## Finding #1: Inadequate Lean Six Sigma Project Compliance

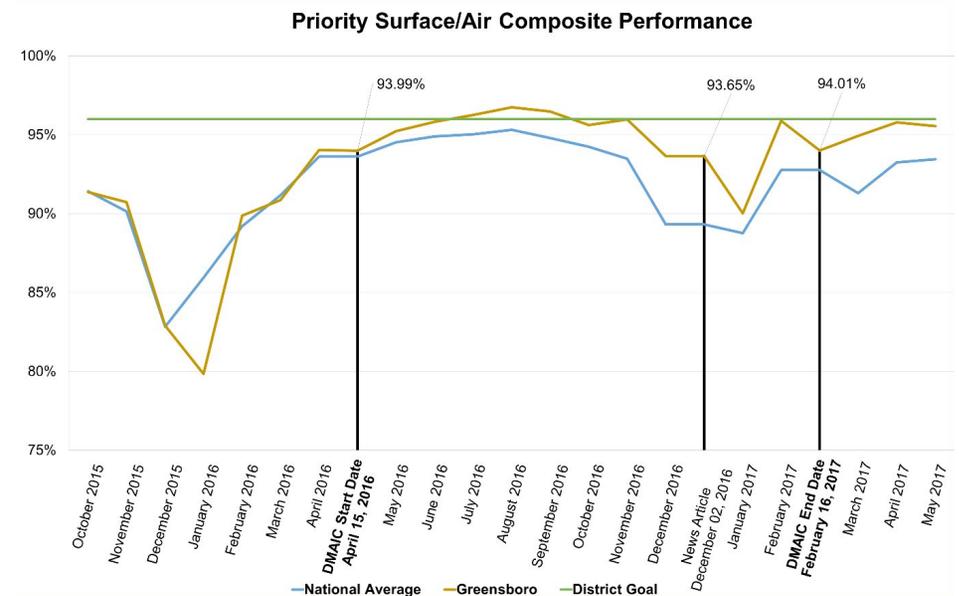
### Define, Measure, Analyze, Improve, Control Process

Greensboro District management did not comply with the DMAIC project process in its entirety or meet its Priority Air/Surface goal of 96 percent.

### Service Score Versus Project Goal

Between April 15, 2016, and February 16, 2017, the Greensboro District conducted a continuous improvement DMAIC project to improve the on-time Priority Air/Surface service score of about 86.39 percent for FY 2016, with a national goal of 94.80 percent and a district goal of 96 percent. For DMAIC project start and completion dates, see Figure 1.

Figure 1. DMAIC Project Dates & Service Scores



Source: Enterprise Data Warehouse (EDW), Postal Service management DMAIC project, and OIG calculations.

When the acting district manager/project champion assigned the project lead to the DMAIC project to earn a Black Belt, the service score was on an upward trend and had already improved to 93.99 percent for the week of April 9-15, 2016. In the last 20 weeks of the project, there was a marginal service score improvement to 94.01 percent, an improvement of only 0.02 percent that did not reach the goal of 96 percent.

The Postal Service publicized the success of the DMAIC project in the fall 2016 issue of the *Capital Metro Area Update*; however, the Greensboro project did not meet the district and national goals. The Postal Service's criteria for LSS belt certification states that improvement goals must be met for project completion (see [Appendix C](#)) and belt certification (see [Appendix D](#) and [E](#)). The Greensboro project did not meet these criteria for project completion and belt certifications.

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***“The Greensboro project did not meet these criteria for project completion and belt certifications.”***

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We also noted that prior to the start of the DMAIC project, the Priority Air/Surface scores had two significant declines to 73.90 percent on December 19, 2015, and 50.89 percent on January 23, 2016. We identified machine breakdowns and poor weather as potential causes for these lower scores.

### **Benefit Validator**

The missed opportunity to achieve the national and district goals can be attributed to the team not involving the benefit validator (BV).<sup>4</sup> The BV is responsible for validating the accuracy of project calculations and approving the documented financial benefits of a project in the Postal Service's LSS project tracker.

The Greensboro District BV is Green- and Black Belt-certified and was available during the DMAIC project through the first week of February 2017. She said she was not informed of or involved in the project. When the project lead was asked who the BV was, he identified the same person who told us that she was not the

BV during the DMAIC project. In addition, she was detailed as the district finance manager on February 11, 2017, when the project was almost complete.

The project lead is supposed to work with the BV, who validates both projected and actual financial benefits. When the BV has not been involved in the project, there is no independent determination to proceed or not to proceed with the DMAIC project. When the BV process (see [Appendix B](#)) is not followed the DMAIC process risks:

- Starting or continuing a project that yields little benefit;
- Inefficient use of project team members' time and/or funds;
- Inadvertently increasing costs in other areas;
- Creating costs for improving implementation or maintenance that outweigh the benefits the improvement provides;
- Neglecting to factor in costs of implementation and maintenance or sustainability costs; and
- Awarding LSS belt certification that was not earned.

### **Project Charter**

The project leader, who was also the operations industrial engineer detailed as the service coordinator, did not have the required signed project charter and provided the audit team a PowerPoint presentation that only referred to a tentative charter. A signed project charter was required to be uploaded to the LSS project tracker for all DMAIC projects. The PowerPoint presentation was incomplete because it did not include required signatures, role definitions,

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***“The project leader, who was also the operations industrial engineer detailed as the service coordinator, did not have the required signed project charter.”***

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<sup>4</sup> A Postal Service employee who has completed benefit validation training and is listed on the Office of Continuous Improvement website as an authorized BV.

and team members such as the project lead, BV, Green Belt candidate, and process owners.

A signed project charter serves as the required agreement by all LSS core team members (see [Appendix C](#)). The LSS project charter is supposed to identify the project name, location, National Performance Assessment<sup>5</sup> (NPA) agreement, office location, start and end dates, project overview, problem statement, goal statement, financial and/or non-financial benefits, scope, and LSS team role descriptions. The signatures of the project belt, project co-belt, project champion, LSS coordinator, Black Belt/Green Belt coach, BV, Master Black Belt, and vice president or designee are required on the project charter.

When the vice president and core team members do not sign a project charter, there is no agreement, as required, for an NPA service score improvement goal.

## Finding #2: Lean Six Sigma Project Documentation

We also found several inconsistencies with the project documentation:

- The project charter and BV form were never created or uploaded as required to the Postal Service continuous improvement LSS project tracker (now Postal Knowledge System),<sup>6</sup> yet both belt candidates were approved.
- LSS belt checklists<sup>7</sup> were signed by the incumbent BV who was detailed as the district finance manager on February 11, 2017, without having sufficient knowledge of the project. She also stated she was not involved with the DMAIC project.
- LSS belt checklist incorrectly reflected a project start date of July 1, 2016, when the project started April 15, 2016.
- The A3 final report goal and improvement date was not updated.

Without a signed charter, the team risks starting or continuing a project that yields little benefit and proceeding without proper approval.

### Recommendation #1:

**Vice President, Capital Metro Area, and Manager, Greensboro District,** ensure the benefit validator is notified and involved throughout the benefit validation process.

### Recommendation #2:

**Vice President, Capital Metro Area, and Manager, Greensboro District** ensure the project charter is signed and provided for all Lean Six Sigma projects.

- DMAIC tollgate presentations were not updated and reflected the same milestone dates and core team members throughout all five tollgates, but did not include the BV, Green Belt candidate, and all process owners.

The DMAIC process requires the project lead (belt candidate) upload Postal Service (PS) Form 777, Project Charter, the A3 Project Report, LSS tollgate (phase) presentations, BV form, and belt checklist to the LSS project tracker website for validation prior to certification (see [Appendix D](#) and [E](#)). The belt candidate is also responsible for notifying the Master Black Belt that all required documentation has been uploaded to the LSS project tracker database. The Master Black Belt is responsible for certifying the belt candidate has successfully completed the LSS project by ensuring all required documents are uploaded to the database and validated prior to emailing a belt certification form to the Continuous Improvement Office for belt approval.

5 A web-based system that collects performance-related metrics from source systems across the organization. These metrics are translated into web-based balanced scorecards that can be used to monitor the performance of both the entire enterprise and of individual units across the nation. NPA is a stand-alone program which supports the Pay for Performance (PFP) program and Performance Evaluation System (PES).

6 The Postal Knowledge System (PKS) project tracker was developed to replace the existing Continuous Improvement LSS project tracker to store all project information for LSS projects. PKS is projected to be fully implemented by FY 2018.

7 Keeps track of important information and milestones for receiving Green Belt certification. Green Belts are responsible for managing and leading improvement projects on a day-to-day basis, trained in basic problem-solving techniques, and receive regular guidance and direction from Black Belts assigned to their projects.

These inconsistencies occurred due to failure to follow the DMAIC process requirements and lack of management oversight.

### Green Belt Certification

The DMAIC project team included 16 employees. The project lead was awarded a Black Belt and another employee was awarded a Green Belt based on project completion. Through interviews, the Manager, Continuous Improvement Office, and the Greensboro District Manager agreed that the Green Belt candidate was improperly added to the DMAIC project team by the district LSS coordinator and did not lead as required (see [Appendix D](#)). The Green Belt candidate said he was added to the project in January 2017, did not lead the project, did not receive Green Belt certification, and did not know who led the project. The training record system showed he received his certification February 28, 2017.

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*“The Manager, Continuous Improvement Office, and the Greensboro District Manager agreed that the Green Belt candidate was improperly added to the DMAIC project team.”*

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The LSS coordinator stated that the Green Belt candidate was assigned several projects that did not get off the ground and felt the candidate had completed all work up to the Analyze phase for previous projects and, by working on the Improve and Control phases for this DMAIC project, should be belt-certified. The belt candidate is responsible for completing the project, demonstrating appropriate level continuous improvement/LSS analytical and project management skills, and team leadership. The belt candidate is also responsible for documenting all tollgates and additional information as required in LSS project tracker (see [Appendix C](#)). The Green Belt candidate did not satisfy these belt certification responsibilities for the Greensboro project. The Manager, Continuous

Improvement Office, and the Greensboro District Manager have taken corrective action to remove the Green Belt previously awarded; therefore, we are not making a recommendation.

We identified opportunities to save almost \$11,000 in salaries, training, and travel costs for the Green Belt candidate on the Greensboro project team.

### Black Belt Certification

The LSS Black Belt candidate was certified prior to a required post-project interview by the Manager, Continuous Improvement Office (see [Appendix E](#)). The candidate completed the DMAIC project on February 16, 2017, and was certified February 28, 2017, per the training record system. However, the Manager, Continuous Improvement Office, did not interview or approve the Black Belt candidate until April 4, 2017. The belt certification was improperly awarded prior to the required interview due to a lack of internal controls and management oversight.

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*“The Manager, Continuous Improvement Office, and the Greensboro District Manager have taken corrective action to remove the Green Belt previously awarded.”*

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#### Recommendation #3:

**Vice President, Capital Metro Area, and Manager, Greensboro District,** ensure project documentation is consistent, updated, and validated.

#### Recommendation #4:

**Vice President, Capital Metro Area, and Manager, Greensboro District,** ensure Lean Six Sigma belt candidates complete the entire project properly with all required documentation before awarding belt certifications.

## Finding #3: Prior Lean Six Sigma Audit Results and National Simple Random Sample Results

### Prior Lean Six Sigma Audit Results

While performance marginally improved during the Greensboro project and in the three prior projects we audited, none met their goals. Additionally, we identified the following recurring project management issues:

- Lack of leadership and independent supervision;
- LSS belt certifications being awarded without required documentation or proper project completion;
- BV process not being followed and BV not being independent of the project;
- Lack of segregation of duties;
- Missing or incomplete documentation;
- Absence of core project team members' involvement; and
- Inaccurate documentation of project goal, target, and results.

In all four of our continuous improvement audits, we found that the inadequate project management was due to a lack of management oversight. The Manager, Continuous Improvement Office, delegated oversight responsibility to the area Master Black Belts, who are responsible for the continuous improvement projects in their Postal Service area, and did not put controls in place to ensure effective oversight.

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*“In all four of our continuous improvement audits, we found that the inadequate project management was due to a lack of management oversight.”*

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The results of our continuous improvement audit work are summarized in Table 1.

**Table 1. Prior and Current Audit Compliance Breakdown**

Project	Missing Documents, Not Updated, or Missing Signatures	Goal Met	LSS Process Compliance
Kaizen-Atlanta	Yes	No	No
Kaizen-Denver	Yes	No	No
A3-Denver	Yes	No	No
DMAIC-Greensboro	Yes	No	No

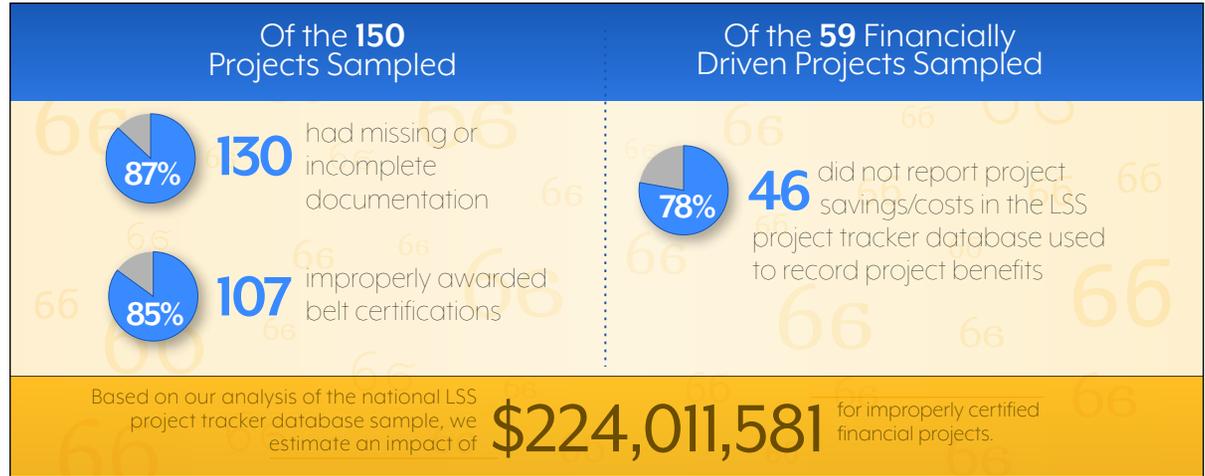
Source: OIG LSS audit reports.

When LSS processes are not followed, the estimated service and financial benefits cannot be measured and realized (see [Appendix C](#)).

### National Simple Random Sample Results

Because we found process issues in this and prior continuous improvement project audits, we analyzed a random sample of 150 of 567 (or about 26 percent) Network Operations projects from the national LSS project tracker database for FYs 2015 through 2017. Of the 150 projects sampled, 59 were financially driven and 91 were

non-financially driven. Financial projects are based on achieving specific financial goals, such as workhour reductions. Non-financial projects are based on achieving improvements that may not directly contribute to financial savings, such as service improvements (see [Appendix C](#)).



Overall, we found that 130 projects (or about 87 percent) had missing or incomplete documentation, 107 projects (or about 85 percent) improperly awarded belt certifications, and 46 of the financially driven projects (or about 78 percent) did not report project savings/costs in the LSS project tracker database used to record project benefits. Based on our analysis of the national LSS project tracker database sample, we estimate an impact of \$224,011,581 for improperly certified financial projects.

For results of the national LSS random sample review for missing documentation or signatures and improperly awarded belt certifications, see Table 2.

**Table 2. Results of National LSS Random Sample**

Postal Service Area	Missing Benefit Validator Form	Missing Project Charter	Missing Belt Checklist	Missing A3	Missing LSS Presentation	Missing Required Signatures	Improperly Certified
Capital Metro	66.67%	100.00%	50.00%	33.33%	33.33%	83.33%	100.00%
Eastern	18.18%	22.73%	9.09%	4.55%	4.55%	63.64%	77.27%
Great Lakes	6.67%	13.33%	0.00%	0.00%	6.67%	93.33%	93.33%
Headquarters	0.00%	100.00%	100.00%	50.00%	0.00%	50.00%	100.00%
Northeast	80.00%	60.00%	0.00%	0.00%	20.00%	60.00%	100.00%
Pacific	71.43%	57.14%	57.14%	0.00%	14.29%	71.43%	100.00%
Southern	93.75%	75.00%	18.75%	18.75%	6.25%	68.75%	100.00%
Western	11.32%	32.08%	13.21%	1.89%	5.66%	52.83%	75.47%

Source: LSS project tracker database and OIG calculations.

**Recommendation #5:**

**Manager, Continuous Improvement Office**, develop and implement a control process that ensures all Lean Six Sigma process requirements are followed.

**Recommendation #6:**

**Manager, Continuous Improvement Office**, ensure project costs and savings are independently evaluated and reported for all Lean Six Sigma projects.

## Management's Comments

Management generally agreed with the findings and recommendations; however, they did not agree that the Greensboro DMAIC project was completely unsuccessful in reaching the 96 percent goal. Management stated the Greensboro District Priority Mail Composite year-to-date (YTD) score as of April 1, 2016, prior to the start of the project, was 87.14 percent and the district ranked 46th in the country. By the end of FY 2016, the project helped improve the district's composite score to 91.16 percent and the ranking to 36th nationally. For FY 2017, the Greensboro District ranked 2nd in the country with a composite score of 95.05 percent.

Management disagreed with the monetary impact of almost \$11,000 because they do not send employees to LSS training to complete only one project. Management stated that costs associated with training are an investment in their employees and in the future of the Postal Service and provide employees the ability to complete projects, manage with a continuous improvement mindset, and improve safety awareness.

Regarding Recommendation #1, management agreed to ensure the BV is notified and involved throughout the benefit validation process. Management implemented the benefit validation process by using the existing PKS, with continuous improvements that will add more controls to the LSS process. Management stated they took corrective action October 6, 2017.

Regarding Recommendation #2, management agreed to ensure the project charter is signed and provided for all LSS projects by using the PKS system. This system is designed to capture electronic approval signatures and track all projects from start to finish. Management stated they took corrective action October 6, 2017.

Regarding Recommendation #3, management generally agreed to ensure project documentation is consistent, updated, and validated for certification by requiring use of PKS. This system requires documentation to be uploaded before a project can be validated and this upload ensures that all requirements have been met. Management does not agree that all projects will have consistent documentation as the LSS process allows for a variety of problem-solving methods which may result in different project outputs. Management stated they took corrective action October 6, 2017.

Regarding Recommendation #4, management agreed to use PKS to ensure LSS belt candidates complete projects entirely and properly with all required documentation before they award belt certifications. Management stated that once a project is started and entered in the system, the only person who can add a new member is the Master Black Belt. This controls adding members to a project once it has started. Management stated they took corrective action October 6, 2017.

Regarding Recommendation #5, management agreed to develop and implement a control process that ensures all LSS process requirements are followed by establishing a process where all Master Black Belts must notify the Continuous Improvement Office of any certifications. Management stated that once the Continuous Improvement Office approves the training completion, only their staff can enter the completed LSS training status in the Learning Management System. Certification dates are verified against tracking documents of all required interviews to ensure completion. Management stated they took corrective action October 6, 2017.

Regarding Recommendation #6, management agreed to use PKS to ensure the independent evaluation and reporting of project costs and savings for all LSS projects. This system is designed to capture electronic approval signatures and track all projects from start to finish by including the BV throughout any project. Management stated they took corrective action October 6, 2017.

## Evaluation of Management's Comments

The OIG considers management's comments responsive to the recommendations and corrective actions should resolve the issues identified in the report.

Regarding management's disagreement that the Greensboro DMAIC project was unsuccessful in reaching the 96 percent goal, as noted in the report, the Greensboro team failed to meet the 96 percent goal at the project's completion. The timeframe management cited was both prior to when the project was chartered (April 15, 2016) and after the project was completed (February 16, 2017). We calculated the service scores based on when the acting district manager/project champion assigned the project lead to the DMAIC project to earn a Black Belt and when the project lead completed the project for belt certification purposes.

At the beginning of the DMAIC project we noted that the service score was on an upward trend and had already improved to 93.99 percent. During the last 20 weeks of the project, there was a marginal service score improvement of 0.02 percent to reach 94.01 percent instead of the 96 percent goal. As required per LSS Belt Candidate Certification Requirements ([Appendix C](#)), the improvement goals must be met for project completion.

Regarding management's disagreement with our identified opportunities to save almost \$11,000 in salary, training, and travel costs for the Greensboro project team, we believe our calculation is a reasonable estimate of Postal Service costs for a project that did not comply with the DMAIC process. We used the workhour estimates from the DMAIC LSS District Coordinator for the event's timeframe. We consider these costs questionable because the Greenbelt candidate did not complete the DMAIC event and, per management's agreement and corrective action taken, the removal of the Green Belt award.

All recommendations require OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. All recommendations should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

# Appendices

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# Appendix A: Additional Information

## Scope, Methodology, and Prior Audit Coverage

In order to accomplish our objective, we:

- Conducted observations at the Greensboro District the week of April 24, 2017.
- Evaluated Greensboro District compliance with the Postal Service's established continuous improvement processes for the Priority Air/Surface DMAIC project.
- Interviewed the acting plant manager and project lead and 14 additional team members to establish a timeline when the LSS DMAIC project was implemented and completed, determine the DMAIC project process compliance, and identify corrective actions taken and by whom and best business practices.
- Interviewed the Manager, Continuous Improvement Office, and staff.
- Analyzed the effectiveness of actions the Greensboro District implemented.
- Reviewed, evaluated, and summarized issues reported in our prior continuous improvement audits.
- Randomly sampled 150 of the 567 completed Network Operations continuous improvement projects to verify initial project savings, project costs, and realized project savings one year after completion of the project.
- Consulted with OIG operations research analysts to develop our monetary impact methodology.

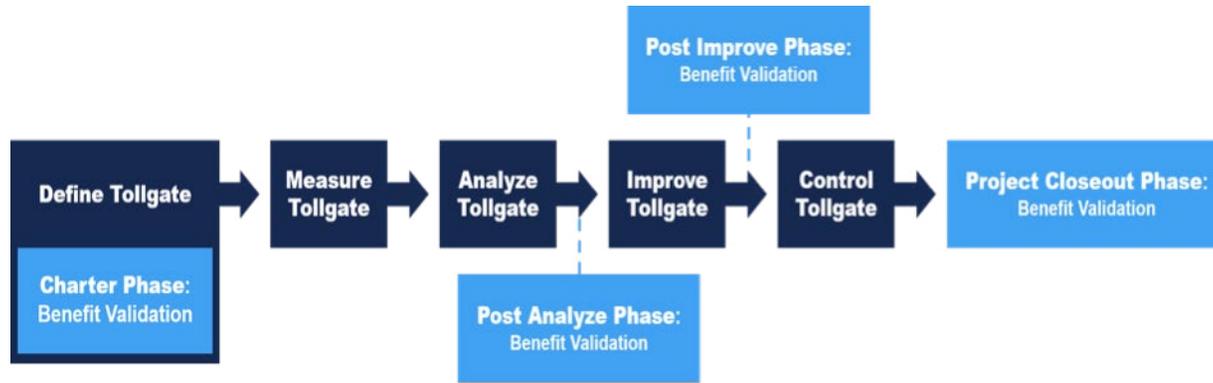
We conducted this performance audit from April through October 2017, in accordance with generally accepted government auditing standards and included such tests of internal controls as we considered necessary under the circumstances. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. We discussed our observations and conclusions with management on September 13, 2017, and included their comments where appropriate.

We assessed the reliability of privileged account user data by interviewing knowledgeable agency officials about the data and reviewing related documentation. We used data from the Postal Service's EDW, Web Management Operating Data System, Continuous Improvement LSS project tracker, and the Postal Service payroll database when performing our analysis. We determined that the data were sufficiently reliable for the purposes of this report.

## Prior Audit Coverage

Report Title	Objective	Report Number	Final Report Date	Monetary Impact
<i>Kaizen Event Review: Fiscal Year 2016 Atlanta Processing and Distribution Center</i>	Determine effectiveness of the Kaizen process to improve surface visibility load and unload scan percentages at the Atlanta P&DC.	NL-AR-17-003	4/17/2017	\$14,000
<i>Kaizen Project at the West Valley Processing and Distribution Center, Phoenix, AZ</i>	Determine whether the Postal Service complied with the Kaizen process for the Scan Where You Band project and met its workhour reduction goal.	NO-AR-17-005	3/8/2017	\$12,000
<i>A3 Events at the Denver, CO, Processing and Distribution Center</i>	Evaluate Postal Service compliance with and effectiveness in using the A3 process to eliminate First-Class Mail on-hand at 3 p.m. at the Denver P&DC.	NO-AR-17-002	11/2/2016	None
<i>Mail Processing and Transportation Operational Changes</i>	Determine timeliness of mail processing and transportation since the January 5, 2015, service standard revisions and whether the Postal Service realized the projected cost savings from the operational window change.	NO-AR-16-009	9/22/2016	None

# Appendix B: Benefit Validation Process



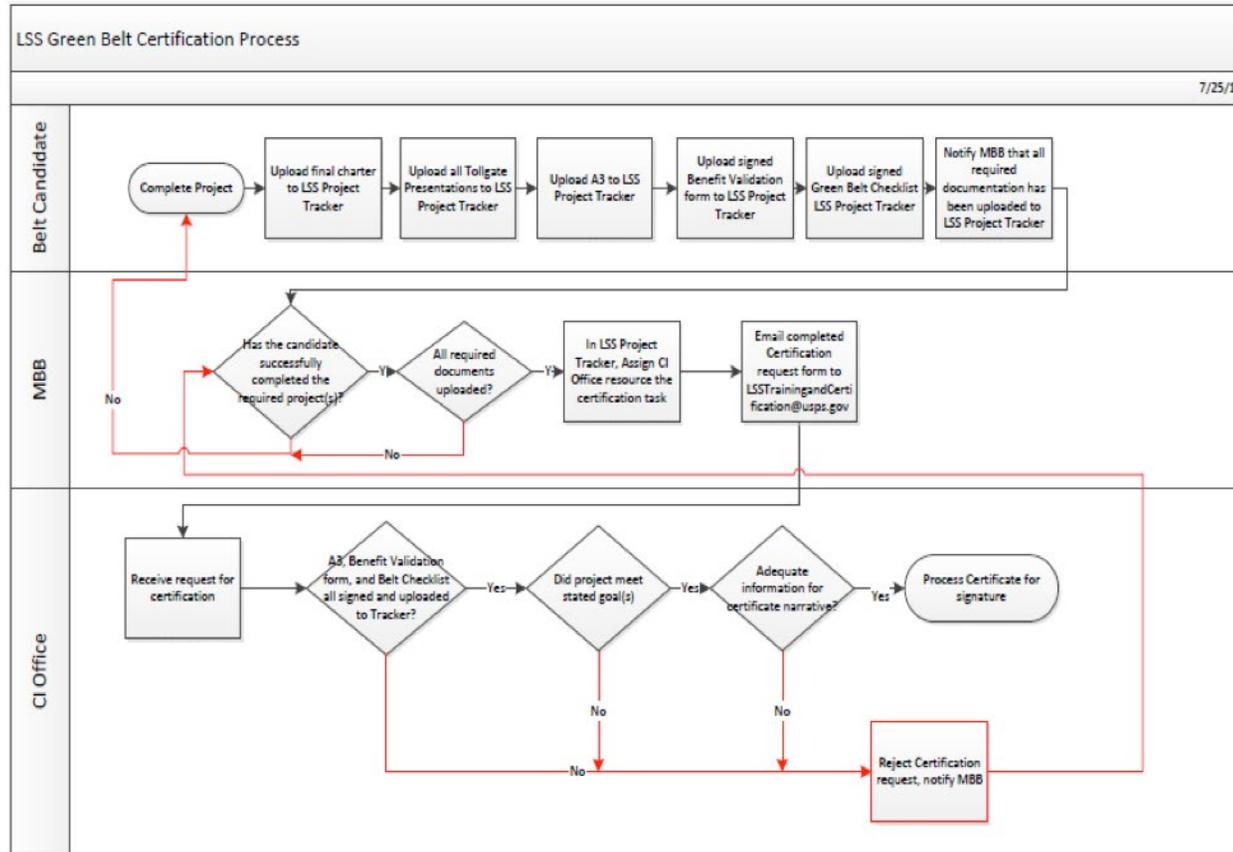
Source: Postal Service Continuous Improvement website

# Appendix C: Lean Six Sigma Belt Candidate Certification Requirements

	Green Belt	Black Belt
<b>Training Nomination</b>	By Senior Executive with concurrence of Area MOS or Functional VP	Recommendation from MBB with concurrence of Area MOS and approval by the Office of Continuous Improvement
<b>Test Scores</b>	Must score minimum of 70% on the classroom test	
<b>Project Selection</b>	Project must align with USPS strategic objectives	
<b>Project Charter</b>	Charter must be signed by Project Champion prior to attending training	
<b>Project Type</b>	Project should reflect the appropriate complexity for the belt level Belt candidate must lead at least one project that follows the DMAIC methodology	
	Best candidates must lead two Kaizens	
<b>Total Net Benefits</b>	<b>All Benefits, Financial or Non-Financial need to be Validated and Approved by the projects BV</b>	
	<b>Financial</b>	
	Minimum of \$100,000 per GB	Minimum of \$1,500,000 per BB
	<b>Non-Financial</b>	
	National Performance Assessment score - improvement goal agreed upon by vice president, champion, project lead, coach, benefit validator, and process owner  Area/function-specific scores - Improvement goal agree upon by vice president, champion, project lead, coach, benefit validator, and process owner  Improvement goals must be met for project completion	
<b>Certification Max</b>	1 or 2 GB certifications may be awarded per DMAIC project  1 GB certification may be awarded per 2 Kaizen project requirements	1 BB certification will be awarded per project  1 GB certification may also be awarded per project
<b>Project Tracking</b>	Belt must enter and update progress and benefits from charter to close-out in the Postal Knowledge System (PKS)	
<b>Demonstrated Skills</b>	Candidates must demonstrate appropriate level CI/LSS analytical, team leadership and project management skills. Black Belt candidates must also undergo a post-project interview after project completion.	
<b>Certification Review and Approval</b>	Project, Financial Validation, and certification checklist must be submitted within a specified time after training to CI Office and will be approved by the Area MBB or the CI Office	
	180 working days for GB	270 working days for BB

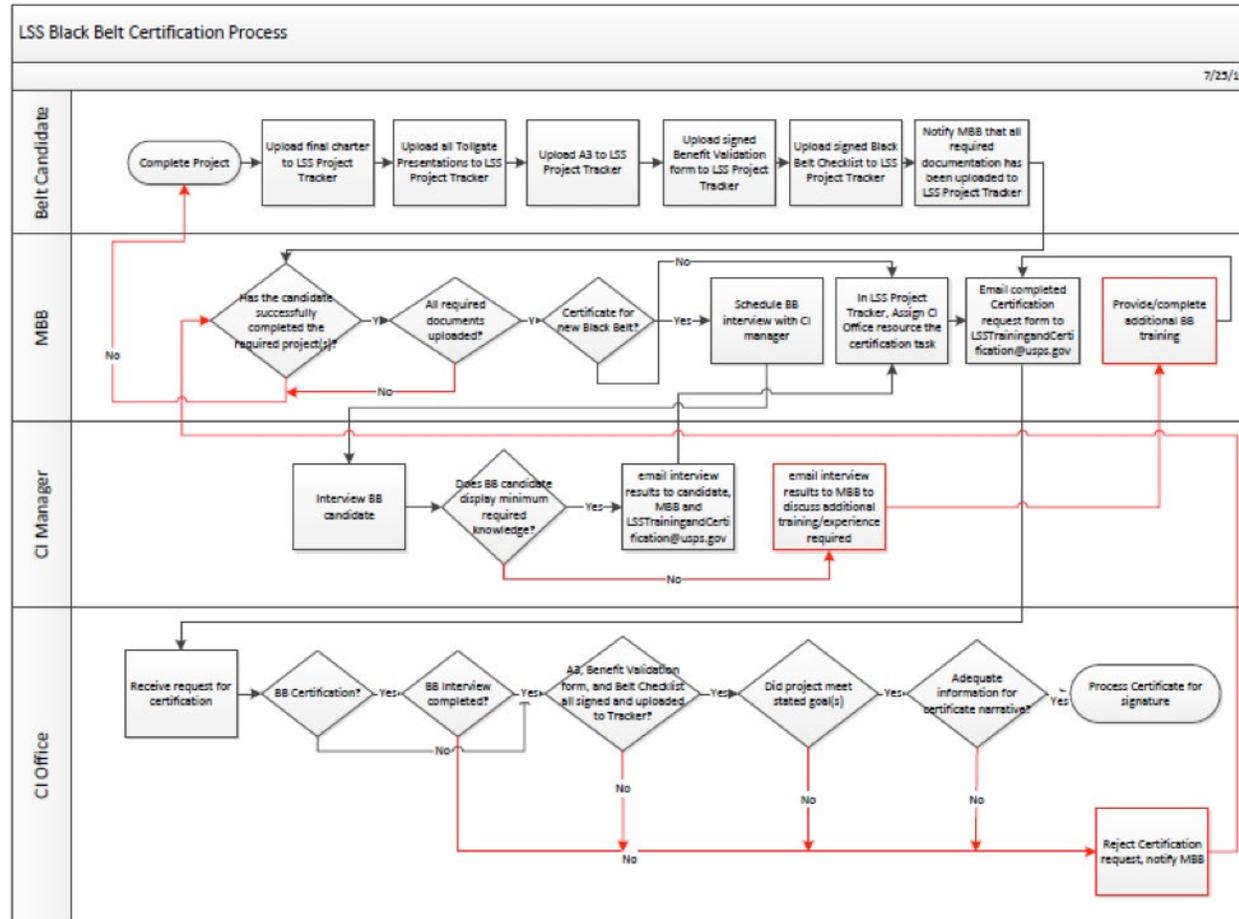
Source: Postal Service Continuous Improvement website.

# Appendix D: Lean Six Sigma Green Belt Certification Process



Source: Postal Service Continuous Improvement website.

# Appendix E: Lean Six Sigma Black Belt Certification Process



Source: Postal Service Continuous Improvement website.

# Appendix F: Management's Comments



October 6, 2017

Lori Lau Dillard  
Director Audit Operations  
Office of Inspector General  
United States Postal Service

**Subject:** Response to Draft Audit Report – Network Operations Continuous Improvement Processes- Report Number NO-AR-18-DRAFT

Thank you for the opportunity to respond to the OIG Audit of Network Operations Continuous Improvement Processes. Headquarters Office of Continuous Improvement, Capital Metro Area Operations and Greensboro District Management generally agree with the findings and recommendations noted in the audit report related to the Lean Six Sigma process being completed properly though each stage of a project and properly documented and validated.

Management, including the acting district manager at the time of the project and audit, does not agree that this project was completely unsuccessful in reaching the goal of 96%. It should be noted, the goal of the project was to improve the service that is provided to the customers in the Greensboro District and clearly based on the improvement in both scores and ranking, the Greensboro District is now providing service that has greatly improved. The headquarters goal for Priority Mail Composite is 94.80% which was listed as the first goal in this project with a stretch goal at the district level being 96.00%.

The Greensboro District Priority Mail Composite year-to-date (YTD) score as of April 1, 2016, prior to the start of the project, was 87.14% and the district ranked 46<sup>th</sup> in the country. By the end of FY 16, the project helped improve the district composite score to 91.16% and the ranking improved to 36<sup>th</sup> nationally. For FY 17, the Greensboro District ranked #2 in the country with a composite score of 95.05%. The baseline for this project was based on performance for weeks 1 through 23 of FY 16 and calculated to an unadjusted mean of 87.36%. As with all statistically based analysis, there are factors outside of the control of the project team that impact the results and are deemed outliers including the largest outlier from the baseline period, which is the week 17 score of 50.89%. Excluding week 17 the mean of the baseline increases to 89.02%. Using the same logic there were two outliers affecting the results of this project during the control and sustain phases. The unadjusted control phase mean of this project was 95.14% performance. When outliers related to the ice storm that occurred in week 15 where the district's composite score dropped to 76.05% are removed, the mean improves to 95.70%.

After project completion the scores have continued to trend upward. The sustain phase mean, without eliminating the outlier of 92.13% for week 24, was 95.78% and

eliminating that point improves the mean of the sustain phase to 95.90%, which is 1.10% above the corporate goal for priority mail composite of 94.80%. Over the time since the improve phase of the project, the Greensboro District has scored above 95.75%, 47 times in the 75 weeks, or 63% of the time and above 96.00% 36 out of those same 75 weeks, or 48% of the time. The only district with a better percentage over that same time period was Western Pennsylvania District. The Greensboro District did not hit 96.00% once prior to the implementation of this project. It should be recognized that the Priority Mail Composite score for the Greensboro District improved from 87.14% for FY 16 YTD as of April 1, 2016, to 95.05% for FY YTD as of September 30, 2017. This is an improvement of 7.91%. The goal established for this project was aggressive based on past performance but management believes the achievements made were beneficial to the postal service and improvements would never have occurred had it not been for this project which focused on standardizing the processes.

As this was not the first project the LSS belts contributed to, it should be noted that the training some participants received was taken in 2014 and the process for LSS projects has evolved since then. Also, as this project was more related to service improvement there are many factors that can contribute to sustained success of a project which may be out of the control of the team working on the project.

Regarding the Monetary Impact listed as questioned costs, we do not agree that any of the \$10,935 identified in the report is questionable as we do not send employees to Lean Six Sigma training to only complete one project. Cost associated with training is an investment in our employees and the future of the postal service and provides employees the ability to complete projects, manage with a continuous improvement mindset and improve safety awareness. In regard to the workhours spent on this project, those involved did not simply stop their normal work routine and work solely on this project but instead worked on this project while still meeting the requirements of their positions without additional compensation.

**Recommendation #1**

We recommended the Vice President, Capital Metro Area, and Manager, Greensboro District ensure the benefit validator is notified and involved throughout the benefit validation process.

**Management Response/ Action Plan**

Management agrees with this recommendation and has implemented by utilizing PKS (Postal Knowledge System) which is already in use, with continuous improvements being made by headquarters to add more controls on the LSS process. This system is designed to capture electronic signatures for approvals by leadership and provide tracking of all projects from start to finish. This includes inclusion of the Benefit Validator throughout any project, giving them the ability to concur or reject any project at each phase. Additionally, training has been and will continue to be provided to all current and future benefit validators.

**Target Implementation Date**

October 6, 2017

**Responsible Official**

Headquarters Office of Continuous Improvement

**Recommendation #2**

We recommended the Vice President, Capital Metro Area, and Manager, Greensboro District ensure the project charter is signed and provided for all Lean Six Sigma projects

**Management Response/ Action Plan**

Management agrees with this recommendation and has implemented by utilizing the PKS system which is already in use with continuous improvements being made by headquarters to add more controls on the LSS process. This system is designed to capture electronic signatures for approvals by leadership and provide tracking of all projects from start to finish.

**Target Implementation Date**

October 6, 2017

**Responsible Official**

Headquarters Office of Continuous Improvement

**Recommendation #3**

We recommended the Vice President, Capital Metro Area, and Manager, Greensboro District ensure project documentation is consistent, updated, and validated for certification. A3 template, tollgates, benefit validation forms uploaded

**Management Response/ Action Plan**

Management generally agrees with this recommendation, and has implemented by requiring use of the PKS system where required documentation must be uploaded before the project can be validated and used to ensure all requirements have been met. We do not agree that all projects will have consistent documentation as the LSS process allows for a variety of problem solving methods which may result in different project outputs.

**Target Implementation Date**

October 6, 2017

**Responsible Official**

Headquarters Office of Continuous Improvement

**Recommendation #4**

We recommended the Vice President, Capital Metro Area, and Manager, Greensboro District ensure Lean Six Sigma belt candidates complete the entire project properly with all required documentation before awarding belt certifications.

**Management Response/ Action Plan**

Management agrees with this recommendation and has implemented by utilizing the PKS system. Once a project is started and entered in the system, the only person that

can add a new member to the project is the master black belt. PKS documents everything and certification only occurs once the system contains all of the information and the champion signs off. Only the master black belt can change the lead or co-lead in PKS. This provides control over allowing anyone to be added after a project has been started.

**Target Implementation Date**

October 6, 2017

**Responsible Official**

Headquarters Office of Continuous Improvement

**Recommendation #5**

We recommended the Manager, Continuous Improvement Office develop and implement a control process that ensures all Lean Six Sigma process requirements are followed.

**Management Response/ Action Plan**

Management agrees with and has implemented this recommendation by establishing a process where all master black belts must notify the Continuous Improvement office of any certifications. Once approved by HQ, only Continuous Improvement staff can enter the completed LSS training status in the Learning Management System. Certification dates are verified against tracking documents of all required interviews to ensure completion. The date of certification reflects the date of final interview and not the date of project completion which may have occurred with previous projects.

**Target Implementation Date**

October 6, 2017

**Responsible Official**

Headquarters Office of Continuous Improvement

**Recommendation #6**

We recommended the Manager, Continuous Improvement Office ensure project costs and savings are independently evaluated and reported for all Lean Six Sigma projects.

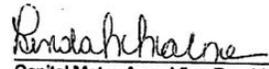
**Management Response/ Action Plan**

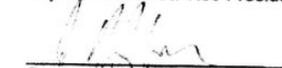
Management agrees with this recommendation and has implemented by utilizing PKS which is already in use, with continuous improvements being made by headquarters to add more controls on the LSS process. This system is designed to capture electronic signatures for approvals by leadership and provide tracking of all projects from start to finish. This includes inclusion of the Benefit Validator throughout any project, giving them the ability to concur or reject any project at each phase. Additionally, training has been and will continue to be provided to all current and future benefit validators. Updated BV training, required to sign off on forms, must be uploaded in PKS.

**Target Implementation Date**

October 6, 2017

**Responsible Official**  
Headquarters Office of Continuous Improvement

  
Capital Metro Area Vice President

  
Continuous Improvement Manager

  
Greensboro District Manager

CC: Sally K. Haring, Manager, Corporate Audit Response Management



OFFICE OF  
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UNITED STATES POSTAL SERVICE

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