

# Strategic Lean Project Report



**For Reporting Period:** July 1, 2015 through December 31, 2015

## I. General Information:

Lead agency name: Washington State Patrol

Partner agencies: Results Washington-Darrell Damron provided project mentorship

**Improvement project title: Improving the Effectiveness of Forensic DNA Testing Services through the Application of Lean Principles**

**Date improvement project was initiated: 10/27/2014**

**Project type: New Project**

**Project is directly connected to:**

Results Washington performance measure

Agency Strategic Plan

Other

**If applicable, specify the alignment:**

Goal 3.3: Maintain quality and enhance the agency's forensic and investigative services.

2014 Crime Laboratory Division Operational Plan

Objective 1.8: Decrease time from request submission to finished report for all disciplines while maintaining excellence.

**Report reviewed and approved by: /S/ Larry D. Hebert, Director, Forensic Laboratory Services Bureau**

## II. Project Summary:

The Washington State Patrol Marysville Crime Laboratory increased efficiency by 26% after improving the process of forensic DNA testing. The process improvements resulted in the highest case output in the lab's history. The number of completed requests increased from 436 to 550 requests. This Lean Project has been shared with the leadership team of the WSP's seven additional Crime Laboratories to determine how this process or some variation of it can be implemented statewide for increased performance.

## III. Project Details:

**Identify the problem:**

Before the process improvements, the Washington State Patrol Marysville Crime Laboratory's DNA unit faced average turnaround times exceeding three months. Other crime labs across the nation face similar untested inventories. Forensic DNA testing, which involves the generation of DNA profiles from genetic material collected from crime scene evidence, provides investigative leads to law enforcement to help identify and prosecute perpetrators of violent crimes and to exonerate the wrongfully accused. Timely DNA typing results are essential elements of many criminal investigations ranging in severity from homicides and sexual assaults to property crimes, and serve ultimately to enhance the public's safety. The

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effectiveness of forensic DNA testing is directly related to the quality of the scientific testing as well as the timeliness of that testing. The Marysville Crime Laboratory's DNA unit's effectiveness was being challenged due to a constant increase in demand for services under constrained resources.

The process for DNA testing and the management of the DNA unit is a very complex situation with multiple points of cause contributing to the timeliness and capacity shortfalls. Problems were rooted in administrative and laboratory-based processes, including the inconsistent case assignment and prioritization system, interrupted casework flow, unbalanced workloads, little to no emphasis on accountability for monthly productivity and turnaround times, insufficient communication of performance goals and meaningful metrics, a lack of a team-based mentality, a reluctance of scientists to adopt newer and more efficient methods out of habit, and a confusing, redundant, and non-specific case supplemental form causing incoming requests to be incomplete and require extra communication with the customer.

**Problem statement:** Historically, the DNA section completes only 436 requests annually compared to our target of 504 requests, which we want to reach by 12/31/2015.

**Improvement description:** In an attempt to improve the effectiveness of DNA testing for customers of the Marysville Crime Laboratory, a Lean project was conducted in 2015 with the goals of increasing overall productivity and decreasing the turnaround time for DNA typing results. Several Lean principles and tools were implemented to analyze and modify the workflow and management of DNA casework. Root cause analysis led to the identification of twelve improvement strategies. These new strategies were systematically implemented over ten months and impacted both the laboratory and administrative aspects of the DNA testing process. Changes included a new case assignment system, leveling the work load, hiring a laboratory technician, visual management, team huddles, modifying the case supplemental information form the customers fill out to provide case information, simplifying worksheets the scientists use to document their evidence examinations, and optimizing laboratory procedures with already validated methods.

The Lean process improvements led to a decrease in the average turnaround time for DNA lab request from 88 days to 70 days. This was a 20% decrease. The process also decreased the average age of pending, untested DNA lab requests from 87 days to 49 days which was a 44% decrease.

**Customer involvement:** Over four hundred end-user customers such as detectives, other law enforcement representatives, and prosecuting attorneys were surveyed at both the start and end of the project to collect feedback on turnaround-time, service capacity, and quality of services.

Internal customers consisting of the entire Marysville DNA unit (7 scientists total) were involved throughout the project with constant communication via weekly huddles and periodic group meetings to set goals, monitor current metrics, and to brainstorm and decide on process improvements. Collaboration was regularly obtained between the project facilitator and the DNA unit supervisor before any process changes were proposed to the group. Any changes affecting other DNA units throughout the state were discussed with the DNA Management liaison and then the entire DNA functional area.

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## IV. Project Details:

Improved process as measured by: <i>(Click those that apply)</i>	Specific results achieved: <i>(Complete the narrative boxes below)</i>	Total Impact: <i>(Actuals; Current Reporting Period)</i>	Results status:
<input checked="" type="checkbox"/> <b>Safety</b>	Increased the number of DNA profiles entered into the CODIS (Combined DNA Index System) database <b>from 117 to 175</b> . -Increased the number of CODIS database hits <b>from 49 to 81</b> .	The number of CODIS-generated investigative leads provided to law enforcement to identify criminals increased by 65%	Final
<input checked="" type="checkbox"/> <b>Cost</b>	Decreased the number of hours that DNA staff spent conducting overtime for casework <b>from 156 hours to 68 hours</b> .	>\$5000 avoided in grant money expenditures for overtime	Final
<input checked="" type="checkbox"/> <b>Quality</b>	Decreased the backlog (pending DNA requests that are older than 30 days) <b>from 48 requests to 43 requests</b> . -Increased annual productivity of the DNA section for the number of completed DNA requests <b>from 436 requests to 550 requests</b> . -Increased the number of samples processed for DNA <b>from 1308 samples to 1548 samples</b> . -No significant change to error rate observed.	DNA results were provided to law enforcement in an additional 114 requests, and the backlog was reduced by 10%, all without compromising the integrity of testing results.	Final
<input checked="" type="checkbox"/> <b>Time</b>	Decreased the average turnaround time for a DNA lab request <b>from 88 days to 70 days</b> . -Decreased the average age of the pending, untested DNA lab requests from 87 days to 49 days.	DNA results were provided to customers 18 days sooner on average, and the average age of a pending request is now 1.6 months old instead of 3 months old.	Final
<input checked="" type="checkbox"/> <b>Customer Satisfaction</b>	Increased the percentage of end-user customers who rate the turnaround time for DNA services as “satisfactory” or “excellent” <b>from 73.4% to 81.2%</b> .	<input checked="" type="checkbox"/> N/A (or) <a href="#">Click here to enter text.</a>	Preliminary

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<input checked="" type="checkbox"/> <b>Employee Engagement</b>	Increased DNA scientist retention rate <b>from 86% to 100%</b> .	<input checked="" type="checkbox"/> N/A (or) Click here to enter text.	Final
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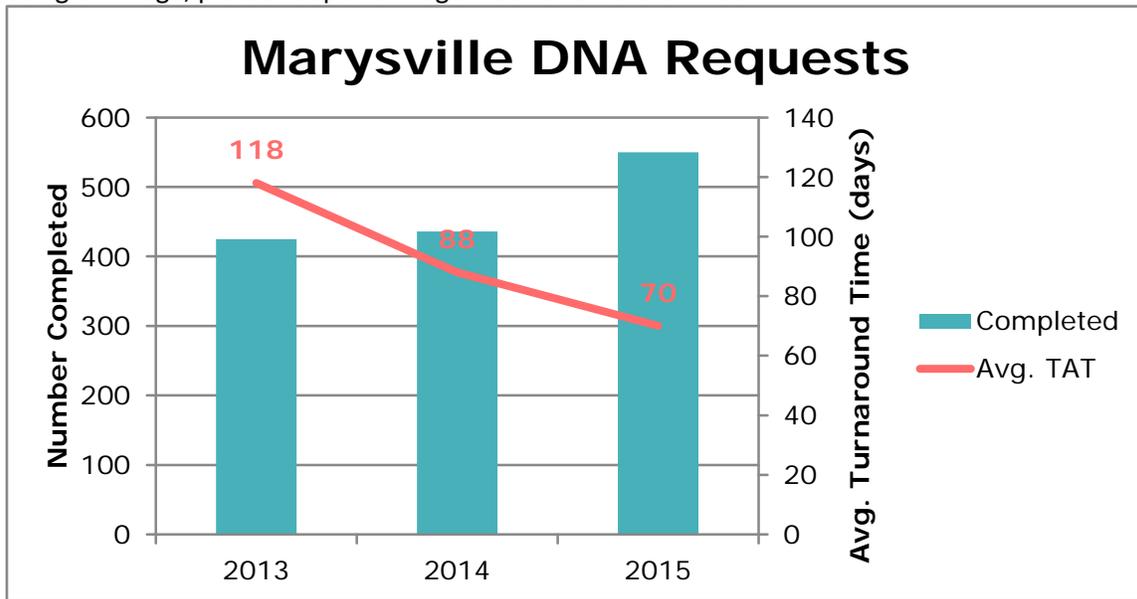
## V. Contact information:

**Name:** Kristina Hoffman

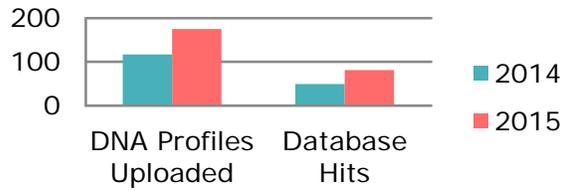
**e-mail:** Kristina.Hoffman@wsp.wa.gov

**Phone number:** 360-654-1197

**VI. Optional Visuals:** Delete section if not using. Provide before and after photos or simple charts. If using an image, please keep the image file size fewer than 100KB.



## CODIS Utility in Marysville



## Age of Pending Requests in Backlog

