

Wisconsin Department of Transportation



Lean Government Annual Report

Fiscal Year 2015

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Lean Government Initiative Annual Report

"Measurement is the first step that leads to control and eventually to improvement. If you can't measure something, you can't understand it. If you can't understand it, you can't control it. If you can't control it, you can't improve it." - H. James Harrington

Significant funding issues exist at the state and federal levels, while ongoing transportation needs continue to be present in all modes. Wisconsin's economic vitality depends on a safe and efficient multimodal transportation network to move Wisconsin's citizens to work, and to support industry, agriculture and tourism.

The Wisconsin Department of Transportation (WisDOT) is taking on this challenge by actively employing Lean Six Sigma, in alignment with the department's MAPSS performance improvement program, to assist in meeting our mission to provide leadership in the development and operation of a safe and efficient transportation system.

WisDOT is committed to continuing to make our processes better and more efficient, while showing accountability and transparency for results. Since July 2012, the department has completed 43 projects aimed at improving customer service, maximizing efficient operations, saving costs, streamlining processes, and informing data-driven decisions.

To date, the department has generated project savings in excess of \$1.5 million and improved the time spent on these processes by nearly 30,000 hours. The dollars and staff hours will continue to be redirected to other department activities and priorities.

I am pleased to present the Fiscal Year 2015 Lean Government Annual Report.



Mark Gottlieb, P.E.
Secretary
Wisconsin Department of Transportation

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How Lean Government aligns with WisDOT's overall performance improvement system

WisDOT's mission is to provide leadership in the development and operation of a safe and efficient transportation system, with a vision of dedicated people creating transportation solutions through innovation and exceptional service. The department achieves its mission employing the values of accountability, attitude, communication, excellence, improvement, integrity, respect and teamwork. The department's performance improvement system provides the framework for getting it done.



Performance measures are a tool to help the department assess our progress in achieving outcomes that align with our strategic goals - mobility, accountability, preservation, safety and service. WisDOT's MAPSS Scorecard represents those corporate measures identified as of greatest interest to the public in demonstrating wise stewardship for the performance of the transportation system.

In addition to the high-priority Scorecard measures, there are additional metrics at management levels of review and reporting. The strategic measures directly support the core MAPSS goals; the operational measures are intended to support program areas in making progress toward meeting the overall mission.

Each quarter, business areas provide key updates showing how the system is trending and whether the department is meeting established targets. The schedule for review and reporting on individual measures is based on pertinent program cycles, the availability of data and the department's business need for the information.

Strategic initiatives, including the Lean Government Initiative, provide a mechanism for ongoing progress toward meeting performance targets, through the implementation of process improvements aligned with MAPSS core goal areas. There are process metrics associated with these projects to quantify improvements. WisDOT's Lean projects are focused on their ability to contribute to the overall organizational MAPSS goals and progress toward moving performance targets in a positive direction. In short, Lean Government supports the department's overall performance measurement system maturation growth toward using leading metrics to better plan, predict and monitor trends.

MAPSS CORE GOAL AREAS

Mobility – Delivering transportation choices that result in efficient trips and no unexpected delays.

Accountability – The continuous effort to use public dollars in the most efficient and cost-effective way.

Preservation – Protecting, maintaining and operating Wisconsin's transportation system efficiently by making sound investments that preserve and extend the life of our infrastructure, while protecting our natural environment.

Safety – Moving toward minimizing the number of deaths, injuries and crashes on our roadways.

Service – High quality and accurate products and services delivered in a timely fashion by a professional and proactive workforce.

WisDOT Executive Offices are tracking project progress and implementing a review process to ensure projects are completed successfully and in compliance with the requirements identified in Executive Order #66. WisDOT reports these results regularly to the Governor's Office. Annually, a report is compiled and published to the public. Project results are published to the Internet at: <http://wisconsindot.gov/Pages/about-wisdot/performance/lean-gvmt/leangovt-practice.aspx>.

The Lean methodology

WisDOT Lean Six Sigma teams use the DMAIC process to complete their projects. DMAIC is an acronym that refers to the five phases: Define, Measure, Analyze, Improve and Control. The DMAIC process provides teams with a methodological framework to work logically through a process improvement from issue identification through solution implementation and improvement control.

- In the Define phase, teams will have a completed project charter, including an assessment of customer needs, and a high-level representation of the current state.
- In the Measure phase, teams will drill down into the process and produce the baseline data that will be used to measure progress.
- The Analyze phase looks at the linkages between cause and effect. This step also includes an evaluation of the value-added and non-value-added steps and identifies "waste." In Lean, waste is something that uses resources but does not add value to the customer. The goal of Lean Six Sigma is to eliminate waste and enable staff to focus on mission-critical tasks of value to WisDOT customers.
- In the Improve phase, teams brainstorm and prioritize potential solutions. At this stage, the team may pilot or actually implement the selected improvement option.
- Finally, the Control phase marks project closure and ongoing controls to ensure the improvement "sticks." The team produces documentation and comparative measures to assess the value-added through the improvement. This is also the time to share the results and acknowledge the work of the team!



Projects completed, under a Control Plan:

1. Milestone and resource tracking (FY 2013)
2. Crash scene mapping (FY 2013)
3. Telecommunications long-term action plan (FY 2013)
4. Skills testing availability (FY 2013)
5. School bus inspection process (FY 2013)
6. Transit procurement improvement (FY 2013)
7. Timely aeronautics payments (FY 2013)
8. Let project closeout process (phase 1 – Kaizen event) (FY 2013)
9. Purchasing Card project (FY 2013)
10. Phone bank quality assurance (FY 2013)
11. Post-crash inspection process (FY 2014)
12. Let project closeout process (phase 2) work group 1 – Glossary (FY 2014)
13. Let project closeout process (phase 2) work group 2 – Flowchart (FY 2014)
14. Let project closeout process (phase 2) work group 3 – Roles and responsibilities (FY 2014)
15. Let project closeout process (phase 2) work group 4 – Standardize team composition and roles (FY 2014)
16. Let project closeout process (phase 2) work group 6 – Let project sections in manuals (FY 2014)
17. Let project closeout process (phase 2) work group 5 – Project tracking (FY 2014)
18. Let project closeout process (phase 2) Material certification lead time (FY 2014)
19. Let project closeout process (phase 2) Payroll clear date (FY 2014)
20. In-custody arrest report review process (FY 2014)
21. Family and Medical Leave Act (FMLA) process (FY 2014)
22. Consultant contracts (FY 2014)
23. NW region purchasing (FY 2014)
24. Highway signing (FY 2014)
25. DMV agent performance reports (FY 2014)
26. Traffic simulation modeling for highway capacity analysis (FY 2014)
27. Late invoice payments (FY 2014 – report out delayed)
28. Simplify the IT hardware purchase process (FY 2014)
29. Operating budget process (FY 2014)
30. Trns.port 1st priority funding (FY 2014)
31. Bureau of Aeronautics wage determination requests (FY 2015)

32. Delivery route optimization (FY 2015)
33. DMV out-of-state document sorting (FY 2015)
34. DMV weekly work reports (FY 2015)
35. Federal inactive projects reduction, Phase I (FY 2015)
36. Let project closeout process, Phase II – Reduce material certification lead time (updated results FY 2015)
37. Let project closeout process, Phase II – Reduce payroll clear date lead time (updated results FY 2015)
38. Major item approval process (FY 2015)
39. MAPSS quarterly update process (FY 2015)
40. Project audit backlog reduction (FY 2015)
41. Research quarterly progress report review and acceptance (FY 2015)
42. State Trunk Highway Network data processing (FY 2015)
43. Transit grant application process (FY 2015)

Individual project summaries for FY 2015 projects are included in this report.

Active and planned projects for FY 2016

44. Family and Medical Leave Act (FMLA), Phase II
45. DOT building inventory processing and reporting
46. Financial responsibility hearing scheduling
47. State Patrol digital dashboard
48. Leasing/use agreements of communication towers
49. State trooper recruiting/hiring process
50. Motorcycle safety program payment processing
51. Signing page process for local grants
52. Functional classification (FC) update process
53. State Trunk Network (STN) log identification and collection
54. Federal prevailing wage modifications
55. Transportation Economic Assistance (TEA) grant application process
56. Wisconsin Highway Research Program (WHRP) processing
57. Achieving Technical Services plan specification and estimates (PS&E) milestones and reducing number of projects advertised with holds
58. Contracts approval process for let projects

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Part One – Completed Process Improvement/Redesign Projects

WisDOT Lean Summary Reports developed for each completed project include a comprehensive summary of the project, a description of the improvement(s), the Lean process used to achieve the improvement and next steps, if any, for implementation. The summary report also includes the MAPSS (an acronym that stands for Mobility, Accountability, Preservation, Safety and Service) Performance Improvement program goal areas on which the project focused, as well as the applicable statewide Lean Government Initiative goal areas. Each project title listed below includes a hyperlink to the project’s report on the [WisDOT Lean government internet page](#):

1. [Bureau of Aeronautics wage determination requests](#)
2. [Delivery route optimization](#)
3. [DMV out-of-state document sorting](#)
4. [DMV weekly work reports](#)
5. [Federal inactive projects reduction, Phase I](#)
6. [Let project closeout process, Phase II – Reduce material certification lead time](#) (updated results)
7. [Let project closeout process, Phase II – Reduce payroll clear date lead time](#) (updated results)
8. [Major item approval process](#)
9. [MAPSS quarterly update process](#)
10. [Project audit backlog reduction](#)
11. [Research quarterly progress report review and acceptance](#)
12. [State Trunk Highway Network data processing](#)
13. [Transit grant application process](#)

Please note that this report also includes an appendix that provides the complete set of FY2015 Lean Summary Reports as one .PDF document.

Following is a table that aggregates and summarizes the quantitative results from WisDOT’s projects over the past fiscal year. Please note that this table includes only a subset of the Lean metrics the department has collected on completed Lean projects. For more information about metrics on a project-by-project basis, please see the Lean Summary Reports.

Totals:				
Number of Completed Projects	Time Saved	Steps Eliminated	Backlog Reduction	Rework Reduction
13*	1,814 hours of process time; 232 days of lead time	343	57%	27%**

**This number includes eleven new projects and two updates of previously completed projects to incorporate additional Lean Six Sigma analysis of results.*

***Rework reduction was calculated by averaging documented values for quality improvement (i.e., error/defect rate reduction, increase in completeness and accuracy).*

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Part Two – Projects Planned

The following table and list includes projects that are in progress or in the planning stages. Projects with an “LDP” beside the title denote Leadership Development Program projects. All LDP projects are chartered by business areas experts and WisDOT’s Office of Policy, Finance and Improvement, then carried through the Analyze phase of the DMAIC methodology as capstone projects for emerging leaders within the department. The final deliverables are presented to WisDOT’s Board of Directors, then project materials and recommendations are handed off to the responsible business areas for implementation. Please note that these projects are primarily intended to provide participants with a challenging project on which to apply their new skills. Their secondary purpose is to produce implementable recommendations.

Total Number of Projects Planned
15

1. Family and Medical Leave Act (FMLA), Phase II

This project is an extension of the FMLA project completed in 2014 and will include the analysis done by the team leader to achieve her Lean Six Sigma Green and Black Belt certification. The Bureau of Human Resource Services (BHRS) currently receives many incomplete and/or inaccurate FMLA requests forms, causing processing delays. There are numerous handoffs and loopbacks under the current process. Incomplete and/or inaccurate form submissions generate these non-value-added loopbacks/handoffs and increase overall lead time. This phase will focus on solutions that will reduce the overall lead time in obtaining complete and sufficient FMLA forms and reduce the frequency of loopbacks and hand-offs.

2. DOT building inventory processing and reporting (LDP)

Within this process, there is a disconnect between the business area (Division of Transportation System Development (DTSD) Acquisition and Real Estate) that acquires/disposes/modifies buildings and the unit performing risk management (Division of Business Management (DBM) - Risk Management), which may lead to reporting inaccuracies and risk management issues, including over or under-insuring. In addition, reporting to the Department of Administration (DOA) is required and no central location for building information is available.

3. Financial responsibility hearing scheduling

The business area within the Division of Motor Vehicles (DMV) conducts up to eight hearings per week. When scheduling a hearing, the department is required by statute to notify all interested parties of these hearings. Throughout this process, there are several steps that may result in notifications. Failing to provide timely and accurate notification of or changes to hearings could cost our customers’ time and cost the department rework. The expected results

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of this project include improvements to the scheduling process that outline the criteria for notification, improved flow of communication and elimination of re-hearing requests.

4. State Patrol digital dashboard

The Division of State Patrol (DSP) creates manual reports with employee human resources and activity information for Sergeants to track trooper performance measures. This project will address process inefficiencies and reduce process time.

5. Leasing/use agreements of communication towers

The use agreements for DSP communication towers lack a formal process, take too long to finalize agreements between DSP and outside agencies, and lack standardization among various use agreements. In addition, there is no form for outside agencies to complete when requesting tower usage, leading to excessive email communication and loopbacks among DSP and outside agencies.

6. State trooper recruiting/hiring process

The state trooper hiring process has too many time-consuming steps, many of which are non-value-added. The process lacks consistency and effectiveness and may affect the quality of applicants and reduce the recruit retention rate.

7. Motorcycle safety program payment processing (LDP)

The Wisconsin Motorcycle Safety Program uses state and federal funds and incorporates a mobile training facility, THE REF (Transportable High-End Rider Education Facility), for public outreach. Consultants, REF staffers and motorcycle rider coaches are used to deliver services provided by the Motorcycle Safety Program. Processing payments to these parties is too complex and time consuming, resulting in excessive complexity, process time and lead time. Extensive lead times result in delays in reimbursing rider coaches. Quicker processing will help reduce the cost of delivering the motorcycle program and reallocate staff time to other strategic initiatives.

8. Signing page process for local grants

The DSP is the liaison between the federal government and localities for traffic safety grants. Grants are awarded roughly 500 times a year and grant dollars can range from \$5,000 to \$150,000. Each grant awarded requires a signature page that is to be signed by all responsible parties. The process to obtain all requisite signatures is too long and too complex with many

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handoffs, manual entry and undocumented status/location of the signature page. Improving the process will result in faster delivery of grant dollars and better security.

9. Functional classification (FC) update process

Functional classification refers to the type of roadway, areas the roadway serves and how it connects to the larger highway system. The goal of this project is to streamline the FC update process and implementation. It will establish standard operating procedures to define and improve the systematic implementation of FC changes to ensure they are aligned with federal compliance policies. The newly created and detailed documentation of the FC update procedures should also result in an efficient and time-saving process.

10. State Trunk Network (STN) log identification and collection

Responsibility for collecting annual State Trunk Network (STN) field data within a short timeframe changed in 2015. This project will address a number of shortcomings of this process by: streamlining methods to identify state construction projects, developing a comprehensive statewide list of current calendar year projects to support efficient scheduling and inventory of the STN, changing STN database attributes to better reflect what is in the field, and providing a means to identify if all state construction projects have been re-inventoried.

11. Federal prevailing wage modifications

The current WisDOT version of the federal wage determination document is missing certain important pieces of information, including how the wage rates are determined per classification, federal contact and conformity requests for information. This project should reduce the need for contract amendments due to incorrect wage determinations in the contract proposal.

12. Transportation Economic Assistance (TEA) grant application process (LDP)

The current TEA grant application process contains several elements that can result in delays. The length and complexity of the process presents a number of problems and sometimes leads to missed opportunities. This is an important issue for the department and local governments because delays can affect a local government's ability to obtain a grant. Therefore, a more refined and timely process would be a vital tool for local governments that will ultimately help them in their negotiations with companies to get projects underway in a timely manner to meet the needs of local businesses.

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13. Wisconsin Highway Research Program (WHRP) processing (LDP)

Too many WHRP projects are going over the original research timeframe. Improved processing and oversight will ensure accountability in the delivery of research projects, maximizing funding and resulting in timelier implementation of research findings and recommendations.

14. Achieving Technical Services plan specification and estimates (PS&E) milestones and reducing number of projects advertised with holds

This is a Division of Transportation System Development (DTSD) Southwest region project aimed at identifying reasons why the region appears to be lagging behind other regions in getting technical services clearances obtained prior to PS&E and Advertise dates. This project will result in improved regional performance and fewer projects that are advertised with pending clearances.

15. Contracts approval process for let projects

An LDP group from the class of 2014/15 analyzed the contract approval process and recommended some possible solutions. This project's goal is to implement some of the recommendation by running a pilot with a few projects. The solution is expected to result in reduction in lead time from award to execution of a let contract by nullifying some process wastes such as waiting, handoffs and movements.

Part Three – Department Lean Infrastructure/Culture

1. Department Mission Statement

The department's mission is to "Provide leadership in the development and operation of a safe and efficient transportation system." For more information about WisDOT's vision, values and core goal areas, please visit the [MAPSS Performance Improvement webpage](#).

2. Number of Staff Trained in the Past 12 months

- 61 White Belt (team member) trainees
- 14 Yellow Belt (beginning team lead) trainees
- 9 Green Belts (advanced team lead) trainees
- 6 Black Belts (advanced Lean Six Sigma tools) trainees
- 7 Kepner Tregoe Problem Solving and Decision-Making participants
- 25 Value Stream Mapping (VSM) participants

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3. Cost of Training, including whether training was provided by internal staff or external vendor

All of the training listed above was facilitated by Waukesha County Technical College.

4. Percentage of Time Point of Contact Dedicated to Lean Activities

The Office of Policy, Finance and Improvement (OPFI) coordinates the development of WisDOT's biennial budgets; analyzes policy, management and financial issues; and manages the department's research and performance improvement programs, including the Lean Government Initiative.

OPFI staff strive to support the development of sound and innovative transportation, financial, and management strategies at WisDOT. To promote responsible stewardship of financial resources and sound decision-making, OPFI staff are organized into five functional areas:

- Administration and support
- Budget and policy development
- Federal-state policy and budget analysis
- Financial management
- Performance improvement (Research, library and policy analysis, including MAPSS and Lean)

WisDOT's Lean program is administered through the Performance, Policy and Research Section. The Lean Government Initiative within the department is fully integrated with its MAPSS Performance Improvement program and other strategic support provided by the business area. Three, full-time staff (including the section chief/statewide Lean POC and two program and policy analysts) support performance improvement and strategic initiatives within the department.

5. Description of How Lean Activities Have Contributed to Increased Worker Satisfaction/Safety

Most Lean Six Sigma projects improve the employee work environment or internal customer satisfaction by making processes easier and less time consuming. Completed projects that included as a statewide goal area "improving the employee work environment" include: DMV weekly work reports; Federal inactive projects reduction; MAPSS quarterly update process; Project audit backlog reduction; and State Trunk Highway Network data processing. Recent focus groups conducted within the department indicate that providing employee skill training can be viewed as a form of recognition and a way to reward staff and provide opportunities to advance. Lean Six Sigma training provided to employees who wish to participate and are given the opportunity to put it into practice is one example of skill training that could increase employee satisfaction and will also provide benefits to the agency in achieving departmental and statewide goals.

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None of the formal Lean projects completed over the past year specifically address employee safety; however, the department monitors employee safety on an ongoing basis through several MAPSS performance improvement measures, including: annual worker compensation claims, lost time claims and claims costs. There is an expectation with all MAPSS measures that business areas use the knowledge gained from the data to identify ways to continuously improve performance. For information about these measures, please see the [MAPSS Performance Improvement webpage](#).

6. Any Information about Your Agency's Lean Initiative Strategic Planning (the process used to choose projects, staff and leadership involvement, etc.)

As indicated above, the Performance, Policy and Research Section within WisDOT's Office of Policy, Finance and Improvement is responsible for administration of the Lean Government Initiative. Also indicated above, the initiative is fully integrated with the department's MAPSS Performance Improvement program, which is championed by the Secretary's Office and WisDOT Board of Directors. MAPSS, which is effectively the department's strategic plan in action, focuses on the five core goal areas of mobility, accountability, preservation, safety and service, and associated performance measures that guide us in achieving our mission.

OPFI's role is to ensure strategic alignment with this mission. The performance, policy and research section supports this mission by:

- Monitoring and promoting performance improvement results to demonstrate accountability and transparency
- Working with divisions to create a results-driven environment by using data to drive improvement and innovation
- Leveraging information provided through the integration of performance improvement, policy analysis and research to achieve rapid implementation of results
- Reviewing performance results with the Secretary's Office and Board of Directors to provide leadership and direction in the use of data-driven decision-making within the department
- Advising the Secretary's Office and Board of Directors on aligning research and performance improvement with other strategic, department-wide efforts
- Assisting with implementation of various strategic improvement activities
- Supporting management and staff use of process improvement methodology in daily operations
- Providing management and staff with library and information services needs
- Monitoring and supporting implementation of Lean Government projects and reporting

While OPFI administers the program, each of the five divisions within WisDOT have a division Lean lead who serves as a primary point of contact. In coordination with OPFI, the division contacts work with division senior managers to oversee the deployment of Lean Six Sigma and other process improvement projects within their respective divisions; assist teams in selecting high-priority projects and value streams; develop schedules and deployment plans; assist in documentation of projects; provide communication between OPFI and project teams; monitor project progress by conducting DMAIC stage gate reviews in

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conjunction with chiefs and supervisors and team leads; and provide any necessary resources or expertise required by a team. Annual Lean work plans are required of each division point contact, highlighting prior year division accomplishments and goals for the upcoming year.

A recent employee survey identified development of Lean culture as an opportunity for improvement within the department overall. Division managers are in the process of implementing actions plans specifically directed at ways they can address this opportunity through strategies specific to their operations and strategic priorities.

7. Final Comments Highlighting How Your Department’s Lean Initiative has Grown/Matured in the Past Three Years

It has been a challenge over the past year to sustain momentum and develop a queue of Lean projects given other competing priorities, including implementation of the statewide Enterprise Resource Planning System (STAR). Nonetheless, the department has continued to develop resources for teams and has become more effective at training the right people in the right place where real improvement can be made.

An extensive and growing list of resources, planning materials and tools for Lean Six Sigma are provided on WisDOT’s intranet and continuously routed to project teams, team leaders and project sponsors. New and improved resources are developed and distributed whenever gaps in the initiative are identified and as the program matures. Recently, a module to help business areas identify and develop substantive and strategic projects was created, tested and distributed to Lean division points of contact. Additional training modules and handouts related to data development and other materials are being developed to help managers and team members continuously have a better understanding of Lean Six Sigma to improve project involvement and delivery. Finally, the department recently launched an informal Lean Community of Practice, which meets regularly to help Lean participants within the department:

- stay connected with their Lean peers in the department;
- share and spread best practices;
- bridge organizational boundaries and learn about Lean projects in other business units; and
- provide a “sounding board” of peers to help brainstorm solutions to challenges on projects.

For additional information about the department’s Lean Government Initiative, please visit the [Lean Government homepage](#).

Number of Staff Trained in the Past 12 Months	Cost of Training	Percentage of Time Point of Contact is Dedicated to Lean Initiative
122	<i>Internal Expenditures =</i>	
	<i>External Vendor Expenditures =</i> \$27,583	

Appendices

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Wisconsin Department of Transportation

Bureau of Aeronautics Wage Determination Requests

Lean Summary Report



Project Summary

The Bureau of Aeronautics (BOA) is responsible for compliance of labor requirements for grant assurance to receive funding from the Federal Aviation Administration (FAA). Wage determinations are assigned to contract proposals per project for prevailing wage compliance on construction projects.

The goals of this project were to define roles and responsibilities, reduce the number of errors found in contract proposal wage determinations, improve process time for obtaining wage determinations during contract proposal development, reduce wait time for requesting determinations and project set-up, eliminate duplicated efforts and increase customer satisfaction.

Improvements

- Reduced contract errors by roughly 86 percent
- Eliminated wait time for contract corrections
- Reduced consultant costs by \$20,000
- Improved customer satisfaction by eliminating clerical errors and establishing roles and responsibilities in the process workflow

MAPSS Core Goal Area

- Accountability
- Service

Statewide Goal Area

- Culture of government
- Customer satisfaction
- Cost of government

Issue

The Bureau of Aeronautics (BOA) labor compliance coordinator checks for project award information on the airport bid letting website. Once award information is posted, the labor compliance coordinator meets with the BOA project manager to view the wage determinations in the contract. Determinations are scanned from the contract proposal and saved to an electronic folder so the project and assigned wage determinations can be uploaded into the electronic payroll system (Civil Rights Compliance System). The contract proposal is then taken apart so the labor compliance coordinator can create the copies needed to monitor the prevailing wage compliance. After all copies are made, the proposal is returned to the project manager. If errors are discovered in the wage determinations, the labor compliance coordinator notifies the project manager and consultant engineer that a change-order is needed to correct the issue.

Lean Six Sigma Process

Using the Lean Six Sigma methodology, the team mapped a value stream to identify roles and responsibilities during contract proposal development and estimated the amount of lead and process time for each step. The team identified steps in the process where duplicated efforts could be eliminated and brainstormed how to reduce total lead time by combining steps and changing roles and responsibilities. A cause and effect diagram was used to identify where issues may occur if there are clerical errors.

Results

Culture of government: Workflow improvements established roles and responsibilities in the workflow and eliminated wait time due to contract corrections. Clerical errors and errors in the Civil Rights Compliance System (CRCS) occurred in 52.5 percent of contracts. Project improvements eliminated any clerical errors and considerably reduced CRCS errors, thus reducing all contract errors by roughly 86 percent. Wage determination requests and project set-up in CRCS is now a task performed by BOA. The labor compliance section has created form 514.dev for submittal by project managers when wage determinations are needed for a new project.

Customer satisfaction: This improvement eliminated clerical errors in the project contract.

Cost of government: Upon full implementation the new process, consultants are no longer contracted for requesting wage determinations for approximately 40 projects per year. BOA was paying \$500 per contract, on average, saving BOA \$20,000 per year in consultant costs by performing this task in-house.

Next Steps

The labor compliance section will ensure process changes are sustained and requests are processed in a timely manner.

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Delivery Route Optimization Lean Summary Report



Project Summary

The Division of Business Management's (DBM) Distribution Unit provides centralized bulk material management and statewide distribution services for the Wisconsin Department of Transportation (WisDOT). In 2014, Distribution Unit vehicles logged 53,294 miles providing statewide delivery and pick-up service to customers on scheduled routes. The delivery routes and schedules were established many years ago and have not been updated or validated since, despite many program and operational changes.

The goal of this project was to identify opportunities to reduce delivery route miles driven, reduce the time needed to complete the routes and reduce operating costs.

This project was completed January 2015.

Improvements

- Adjusted route schedules based on customer feedback to reduce DBM mileage costs and driver travel time while continuing to meet customer needs.
- Adjusted annual scheduling template to standardize the timing of delivery service and customer ordering cycles.
- Added monthly delivery service to Shawano and Black River Falls Division of Motor Vehicles (DMV) service centers to reduce travel costs and staff time devoted to logistical operations.

MAPSS Core Goal Areas

- Service
- Accountability

Statewide Goal Areas

- Customer satisfaction
- Cost of government

Issue

Delivery routes and schedules were established many years ago to meet WisDOT program obligations in effect at the time. Since then, there have been several significant changes to WisDOT business operations without corresponding changes to or validation of the distribution services provided.

The team's purpose was to ensure routes and schedules are justified by current business needs and identify opportunities to reduce costs.

Lean Six Sigma Process

Using Lean Six Sigma methods, the team collected time and mileage data on current routes and calculated baseline averages for each route. Interviews were conducted with managers from four WisDOT divisions and a questionnaire was sent to two different customer constituencies. This Voice of the Customer feedback was analyzed to identify customer priorities and expectations, gauge their receptiveness to potential changes in scheduled delivery services, and identify customer priorities for service expansions or realignments.

Through root cause analysis, the team identified an apparent correlation between business needs, frequency of service, and miles driven that suggested current customer service levels could be maintained through selectively modifying current practices. Three potential improvements were identified:

- Reduce frequency of service to selected locations that represent a disproportionate share of miles driven to customer service required.
- Standardize delivery service to 12, 24 or 48 times per year for all locations, depending on their demand, to eliminate unintended trips.
- Redirect a small portion of mileage and time savings to add service to two DMV locations, enabling better customer service and reductions in DMV staff time and supply delivery costs.

Results

The improvements are estimated to reduce annual miles driven by 6,372 and annual driver hours by 171, saving approximately \$8,300 in vehicle expenses and reallocating driver hours for other assignments. In turn, the Distribution Unit can reestablish delivery service to two DMV locations identified through customer input, enabling DMV to achieve annual savings of approximately \$1,000 and 60 staff hours.

Next Steps

Revise route itineraries and notify customers so they can adjust their business practices. Distribution Unit staff will monitor route performance data to ensure savings are realized and customer business needs are met. The Distribution Unit will monitor future service request and ordering trends to better understand customer business operations and identify additional improvement opportunities in delivery service.

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DMV Out of State Document Sorting

Lean Summary Report



Project Summary

The Wisconsin Department of Transportation (WisDOT) is responsible for maintaining up to date driver records, including any conviction that occurred outside of Wisconsin.

The Citations Unit in the Division of Motor Vehicles (DMV) is responsible for sorting state documents prior to processing. In some instances, information is time sensitive and federal guidelines require entry of this information into the driver's record within 10 days.

To identify, verify and sort the wide variety of documents the unit would sort one document at a time, resulting in variation of sorting time, employee training difficulties, and the inability to prioritize work.

By structuring the process to more closely resemble an assembly line, the team standardized the steps that required less time and allowed employees to train on smaller steps without having to learn the whole process.

Improvements

- Clear queue within five days (FMCSA requirement is within ten days)
- Reduced processing backlog by 67.5 percent
- Increased staff trained from one to four

MAPSS Core Goal Area

- Accountability
- Safety

Statewide Goal Area

- Cost of government
- Customer satisfaction

Issue

The Wisconsin Department of Transportation is responsible for maintaining an accurate and up to date driver record for each license holder. This includes any convictions that a driver may receive from another state. The Division of Motor Vehicles' Citations Unit is responsible for receiving out of state documents and sorting them for processing. In some instances, this information is time sensitive and federal guidelines require updating the driver recorded within ten days.

There is a range of documents received from other states and foreign countries. To accommodate the wide variation in these documents, the process was structured as a "signal product batch" process where an employee completed one document at a time by determining the infraction, verifying information, identifying missing information, and sorting it for processing before moving on to the next document.

This informal process caused significant variation in the time each document took to sort because each employee determined the necessary steps. Additionally, the process did not allow prioritization of time sensitive work, and required that an employee have extensive training on the different kinds of documents and how to handle potential challenges.

Lean Six Sigma Process

The team began by identifying the processes for sorting the different documents and mapping the current state. These process maps identified steps that were similar between documents and could be combined into a single step. The team was also able to use the maps to put the steps in an order that would limit redundant sorting. As a result, the rearranged process resembled an assembly line where a single step was done on all documents at once. This allowed the Citations Unit to standardize each step, prioritize time sensitive work, and make staff training easier, since employees could gradually learn steps as opposed to the entire process at one time.

Results

Once the process changes were implemented and staff became accustomed to the new way of doing business, the work area was able to realize several benefits:

- The queue for out of state documents is cleared within five days
- Time saved in the sorting process was reallocated to processing resulting in a backlog reduction of 67.5 percent
- The number of trained staff has increased from one to four

Next Steps

With the project complete, the Citations Unit plans to continue with training additional employees on more steps in the process. To help maintain consistency and facilitate training future employees, the unit is going to create a processing manual that will outline the expectation for each step. This document will be updated periodically to incorporate best practices.

Wisconsin Department of Transportation

DMV Weekly Work Reports

Lean Summary Report



Project Summary

The Wisconsin Department of Transportation (WisDOT) is responsible for maintaining up to date driver records by processing large volumes of work.

To allow management to allocate resources, prioritize work and ensure accountability, it is important to have timely and accurate information on the quantity of work completed and the amount remaining in the queue.

The amount of time needed for collecting, aggregating and reporting this information resulted in work reports containing redundant and sometimes inaccurate data.

Analyzing the process flow identified where value was added, allowing the team to remove non-value-added steps from the process and reduce processing time through automation.

Improvements

- Processing time used for compiling data each week was reduced by 92 percent
- Data is available on a daily level, opposed to a weekly aggregate
- Performance data is available three (3) hours earlier

MAPSS Core Goal Area

- Accountability
- Service

Statewide Goal Area

- Cost of government
- Employee work environment
- Government work culture

Issue

Within the Wisconsin Department of Transportation's Division of Motor Vehicles (DMV), the Bureau of Driver Services (BDS) is responsible for maintaining up-to-date driver records. Work examples include processing citations, removing suspensions and reviewing medical documents, all of which requires processing a large volume of work each week. To properly allocate resources, prioritize tasks and ensure accountability, it is important to have timely and accurate weekly work reports.

Bureau management had concerns related to weekly reporting of how much work was completed, how long it took to complete the work, and how much work was on hand. Weekly reports were complicated and contained useless information while not always including necessary information. Compiling the information for the weekly report required manual entry of self-reported data and manual manipulation of formulas/algorithms, potentially causing the reports to be incorrect.

Lean Six Sigma Process

To address the issues, the team's first step was to create a value stream map detailing process tasks, lead time, processing time and the value each task added to the final reports. Information on the process tasks provided baseline data and allowed the team to identify potential gains. A detailed swim lane map outlining each step within the tasks was developed to identify redundancies, manual entries, and sources of the non-value-added steps. This allowed the team to use databases to eliminate reports, reduce manual entries, and ultimately reduce the amount of time spent collecting, aggregating and reporting this information to the BDS management.

Results

The team was able to quantify the improvements by implementing the process change in one section of BDS.

Cost of government and Government work culture: Processing time used for compiling data each week was reduced by 92 percent (377 minutes to 20 minutes). These timesavings allow staff to focus on the various ad-hoc data requests received by the Bureau. Data is available on a daily level as opposed to a weekly aggregate with performance data available three (3) hours earlier and backlog data available when entered by staff.

Employee work environment: Staff has reported the new process as much more user friendly.

Next Steps

This project is being replicated in other sections within the Bureau of Driver Services. Additionally, during the initial scoping of this project, several objectives were postponed until later implementation phases in order to address issues with the core framework. The Division of Motor Vehicles is planning to address these objectives after the first round of replication.

Wisconsin Department of Transportation

Federal Inactive Projects Reduction, Phase I

Lean Summary Report



Project Summary

The Wisconsin Department of Transportation (WisDOT) receives funding from the Federal Highway Administration (FHWA) for transportation improvement projects. To improve efficiency in the administration of Federal-aid highway programs the department is required to review, on a quarterly basis, estimates and charging activity on FHWA funded transportation projects. Projects without active charging or expenditures for 12 months are flagged as Inactive.

FHWA requires state departments of transportation to limit Federal funded Inactive projects to less than two percent of the total annual federal obligation received.

This project was chartered to examine the underlying causes of process delay and to identify impediments to project closeout in order to reduce the number of inactive projects and meet FHWA performance standards.

Improvements

- Identified key areas of inactivity in the process
- Identified causes of delays at the points of inactivity
- Recommended areas for future process improvement initiatives across divisions

MAPSS Core Goal Area

- Accountability

Statewide Goal Area

- Customer Satisfaction
- Employee Work Environment
- Cost of Government

Issue

States with greater than two percent of the total annual Federal-aid obligation authority authorized on projects with 12 months of inactive charging may have federal funds reduced on respective projects, may be withheld payments, or may be withheld approval of new Federal-aid funded projects.

Lean Six Sigma Process

The cross-divisional team included staff from the Division of Transportation System Development (DTSD), Division of Investment Management (DTIM), Division of Business Management (DBM), and the Office of Policy, Finance and Improvement (OPFI).

- The team held a one day kaizen to define the process and create a current state process map with metrics
- The team held a series of brainstorming sessions and identified “points of pain” with significant impact on the process
- The “5 whys” technique for root cause analysis on major causes of delay was utilized

Results

Customer satisfaction: In order to meet FHWA’s performance expectations, DTSD standardized a statewide monthly review process to address projects prior to them being flagged as inactive by FHWA. The division tracks and monitors the Federal Inactive project count and funding percentage in performance measure reports and regional discussions. FHWA’s final report for FFY 2014 shows 1.8 percent inactive.

Employee work environment: This project provided a clear understanding and clarification of roles of cross-divisional work tasks. The team identified major areas of delay in the process and analyzed causes of inactivity at these points. The team decided to pursue subsequent division projects individually, and all materials gathered during this project were transferred to respective division leads.

Cost of government: This effort aligns with the FHWA goal to efficiently administer the Federal-aid programs. The value of the 1.8 percent of projects that are inactive is \$13,251,606 for FFY 2014. As the department continues to implement process improvements, staff time will free up and be redirected towards other critical efforts.

Next Steps

Additional related Lean Six Sigma projects will reduce the total number and Federal-aid fund percentage of inactive projects. A recent DTIM Lean project focused on reducing the number of Inactive projects that are closed but require a department audit. An upcoming DBM Lean project will focus on projects that are closed but not closed to project charges.

Wisconsin Department of Transportation

Let Project Closeout Process Lean Initiative

Reduce Material Certification Lead Time Summary Report



Project Summary

The Division of Transportation System Development (DTSD) oversees highway construction projects statewide. One of the responsibilities of DTSD is to oversee the closing out of road construction projects and making final payment to the contractor.

The let project closeout process requires material quantities and tests to be certified before the contract can be closed out and final payment made to the prime contractor.

More than 50 percent of contracts completing work during 2011 and 2012 took more than six months to receive their materials certification.

The goal of this project is to reduce the lead time from "Substantially Complete" to "Materials Certification," which was previously identified at one of the major impediments preventing Let projects from meeting the six-month closeout goal.

Improvements

- Established procedures to complete interim materials review during the construction process
- Identified fields to be added to the Materials Tracking System and Project Tracking
- Recommended online training for the WisDOT and Contractor Designated Materials Persons
- Reduced average lead time from "Substantially Complete" to "Materials Certification" by 49 percent (180 days to 91 days)

MAPSS Core Goal Area

- Accountability

Statewide Goal Area

- Customer satisfaction
- Cost of government

Issue

During 2011 and 2012, only 30 percent of regional and local program construction projects closed within six months of all construction work being completed. Material certification lead time is a significant factor in determining whether regional or local program projects are able to achieve the six-month let project closeout goal.

Thirty-nine percent of regional construction projects that reached "final estimate submitted" during 2011 and 2012 had a material certification lead time greater than six months measured from "All Contract Work Complete" through "Material Certification." Thirty-four percent of completed projects took three to six months to issue material certification; making it likely that 50 percent or more of all completed projects did not achieve the closeout lead time goal of six months due to long material certification lead times.

Lean Six Sigma Process

- Reviewed and analyzed material certification data for 2011, 2012, and 2013
- Created swim lane process map for materials certification pre- and post-construction
- Identified sources of process variation and time bottlenecks using data and analysis

Results

Cost of Government: Reducing the average "Materials Certification" lead time to 91 days helped realize a 54 percent reduction (307 days to 141 days) in the average lead time for the entire let project closeout process, outperforming the 180-day lead time goal. Fiscal year 2015 also saw 900 hours of process time saved and redirected toward other departmental initiatives.

Customer satisfaction: The team, advisory personnel and staff involved with the process indicated increased employee satisfaction due to the clearer goals of each step and a better understanding of the process itself.

Next Steps

- Provide results to lean work group working on implementing changes to Project Tracking, Field Information Tracking, and Materials Tracking
- Provide results to the lean work group working on updating the "2015 Standard Specifications" and "Construction and Materials Manual"
- Develop curriculum for the online training for project materials coordinators
- Develop interim materials review process documentation guidelines

Wisconsin Department of Transportation

Let Project Closeout Process Lean Initiative

Reduce Payroll Clear Date Lead Time Summary Report



Project Summary

The Division of Transportation System Development (DTSD) oversees highway construction projects statewide. One of the responsibilities of DTSD is to oversee the closing out of road construction projects and making final payment to the contractor.

The let project closeout process requires all payrolls and payments to be reviewed and cleared before the contract can be closed out and final payment made to the prime contractor.

During 2011 and 2012 a significant number of contracts, possibly greater than 50 percent, took more than six months to receive a "Payroll Clear Date."

The goal of this project is to reduce the lead time of 60 percent of all projects, from "Substantially Complete" to the "Payroll Clear Date," to 60 days in support of the six-month lead time goal for the let project closeout process.

Improvements

- Implemented process for assigning reasons why payrolls and payments are not reviewed weekly
- Reduced average lead time from "Substantially Complete" to "Payroll Clear Date" by 63 percent (165 days to 61 days)

MAPSS Core Goal Area

- Accountability

Statewide Goal Area

- Customer satisfaction
- Cost of government

Issue

During 2011 and 2012, only 30 percent of regional and local program construction projects closed within six months of all construction work being completed. The "Payroll Clear Date" lead time is a significant determining factor whether regional or local program projects are able to achieve the six-month let project closeout goal.

Of the let projects which had final estimates submitted in 2011 and 2012, the "Payroll Clear Date" lead time measured from "All Contract Work Complete" through "Payroll Clear Date" was greater than six months for 45 percent of the projects. An additional 28 percent of completed projects took three to six months to issue a "Payroll Clear Date." This means long "Payroll Clear Date" lead times were likely to have been a major impediment to the closeout process in 50 percent or more of all Let projects that did not closeout within six months of completion during 2011 and 2012.

Lean Six Sigma Process

- Created a current state process map
- Developed a timeline for achieving a "Payroll Clear Date" within a 60 day timeframe and incorporated it into the process map
- Utilized an interrelationship digraph to identify high leverage issues
- Utilized a two-by-two matrix to evaluate the effort versus impact for potential projects
- Identified time lag for notification of all project work complete as a significant contributing factor to long "Payroll Clear Date" lead times

Results

Cost of government: Reducing the average "Payroll Clear Date" lead time to 61 days helped realize a 54 percent reduction (307 days to 141 days) in the average lead time for the entire let project closeout process, outperforming the 180-day lead time goal. Fiscal year 2015 also saw 900 hours of process time saved and redirected toward other departmental initiatives.

Customer satisfaction: The team, advisory personnel and staff involved with the process indicated increased employee satisfaction due to the clearer goals of each step and a better understanding of the process itself.

Next Steps

- Update Project Tracking to include an automated e-mail to the Labor Compliance Officers when a project reaches "Substantially Complete" status. Update is scheduled to be implemented by December 16, 2013.
- Update "2015 Standard Specifications" and "Construction and Materials Manual" to be consistent with updated "Payroll Clear Date" process
- Document any reasons that prevent Labor Compliance Officers from reviewing payrolls and payments on a weekly basis over the next year in order to develop a deeper understanding of impediments to the new process

Wisconsin Department of Transportation

Major Item Approval Process

Lean Summary Report



Project Summary

The Division of Transportation System Development (DTSD) annually requests reallocation of funding to its operating budget from the major cost line to meet planned needs exceeding budgeted levels. The Office of Policy, Finance and Improvement (OPFI) and the Division of Transportation Investment Management (DTIM) participate in the request review and approval process and make recommendations to the Secretary's Office.

The goals of this project are to reduce the total lead time from the start of the review process until request approval, reduce the number of hours spent by participants in meetings, and reduce the time spent by DTSD staff revising process documents.

This project was completed in October 2014.

Improvements

- Improved scheduling guidelines to decrease total lead time
- Improved timeliness and quality of information for DTSD decision-makers and OPFI/DTIM reviewers
- Established mutually agreed upon definitions of roles and responsibilities of DTSD, OPFI and DTIM in the review process
- Developed agreed upon criteria for eligibility of requests for improvement funding

MAPSS Core Goal Area

- Accountability
- Service

Statewide Goal Area

- Cost of government
- Customer satisfaction

Issue

Annually, DTSD utilizes the "Big Ticket" process to review all non-project related requests for funding of equipment, service contracts and consultant needs that are expected to exceed \$10,000 in the upcoming fiscal year. Since funding for DTSD's annual operating budget is less than its ongoing needs, the division identifies a level of funding (typically \$10 - \$20 million) to be reallocated from major costs in Appropriation 363, State Highway Rehabilitation (SHR), to the operating budget. State statutes specify the activities that are eligible for "improvement" funding, including SHR. DTIM and OPFI participate in the review of requests to validate reallocated funding will be used for eligible costs. In recent years, this annual process was lengthy with numerous meetings to review requests and resolve eligibility issues. Requests for additional information resulted in extensive rewriting of DTSD documents, revisions to spreadsheets, and significant review time by DTSD managers and OPFI/DTIM stakeholders.

Lean Six Sigma Process

A cross-divisional team used the DMAIC (Define, Measure, Analyze, Improve and Control) methodology to:

- Define the needs and wants of customers
- Map the "Big Ticket" process and define stakeholder participation
- Measure prior year lead time, meeting time and time spent on document revisions
- Use root cause analysis and metrics to identify causes of the lengthy lead time, multiple meetings and document revisions
- Develop an improvement plan to overcome causes, including improving timeliness and quality of information, establishing shared expectations of roles and responsibilities, and creating mutually agreed upon parameters and process steps

After the process was implemented for state fiscal year (SFY) 2015, the cross divisional-team reviewed the implemented improvements and identified additional process improvements for SFY 16.

Results

Cost of Government: The team reduced the total lead time of the review process from 14 to nine (9) weeks, a 36 percent improvement, and reduced the number of staff hours spent in meetings from 214 to 75, a 65 percent improvement. In addition, the team's efforts reduced the process time spent revising documents from 108 to 36 hours, a 67 percent improvement.

Customer satisfaction: The team anticipated that improving the process would reduce the frustration and challenges engendered by the process in prior years. DTSD, OPFI and DTIM participants reported that the process changes significantly improved the process.

Wisconsin Department of Transportation

MAPSS Quarterly Update Lean Summary Report



Project Summary

The Wisconsin Department of Transportation's Office of Policy, Finance and Improvement (OPFI) is responsible for coordinating and verifying the quarterly reporting of the MAPSS Performance Improvement Program.

Divisions are responsible for conducting their respective performance measures and completing templates for the MAPSS report. The Bureau of Information Technology Services (BITS) is responsible for producing the informational graphics on the MAPSS website, and Creative Communication Services (CCS) produces the printed report.

The goal of this project is to improve the quality of the templates, informational graphics and printed report to minimize the amount of rework and process time in production.

Improvements

- Modified the formatting, content and validation settings of templates to ensure all requisite information is entered and reviewed before material is submitted to OPFI, BITS and CCS
- Utilized Microsoft SharePoint for review and submittal of templates and end products
- Added notifications for divisions to review their performance measures and discuss any design changes as early as possible

MAPSS Core Goal Area

- Accountability

Statewide Goal Area

- Employee work environment
- Government work culture

Issue

The Wisconsin Department of Transportation (WisDOT) MAPSS Performance Improvement Program focuses on the five core goals (Mobility, Accountability, Preservation, Safety and Service) and associated performance measures that guide us in achieving our mission. External reporting of this program every quarter is important in ensuring the department measures its performance in improving these core goal areas. The issue with the previous (current state) quarterly update process was that it took too much time and too much rework to develop and publish the informational graphics on the MAPSS website and the printed MAPSS report.

Lean Six Sigma Process

The cross-divisional team composed of staff within OPFI, division points of contact for MAPSS reporting, business intelligence developers in BITS and a graphic designer in CCS participated in multiple team meetings to:

- Review and analyze the MAPSS quarterly update process
- Create a value-stream map of the current state
- Collect data and statistically analyze the quality of material submitted by divisions, BITS and CCS
- Identify root causes and effects to develop multiple solutions to overcome causes

An improvement plan was implemented to control for the quality of templates used by divisions in submitting their data and narratives for each performance measure, utilize and improve the use of Microsoft SharePoint for review and submittal of material, and ensure that divisions review and submit any design changes to BITS as early as possible. Performance metrics and a control plan have been established to continuously validate these changes as actual improvements.

Results

The team reduced the total defect rate of templates submitted by divisions from 42 percent to 28 percent. Completeness and accuracy of informational graphic material submitted by BITS improved from 75 percent to 80 percent. Completeness and accuracy of report material submitted by CCS improved from 73 percent to 88 percent. The recorded improvement in quality for all products submitted helps improve employee work environment by reducing the amount of rework in producing each quarterly report. Moreover, this project has established a statistical method for quality control of a WisDOT product that is integral to running a successful and efficient organization and meeting public expectations.

Next Steps

- Continue with modifications to performance measure templates that have not received them
- Follow the control plan to ensure improvements and new (future state) process continues

Wisconsin Department of Transportation

Project Audit Backlog Reduction Lean Summary Report



Project Summary

The Wisconsin Department of Transportation (WisDOT) receives funding from the Federal Highway Administration (FHWA) for highway construction and maintenance projects. FHWA defines the rules and standards for the use of federal funds on any WisDOT project or contract. An audit is completed before the project is closed and final payment is remitted to ensure FHWA rules and standards were followed.

This project was chartered by the Division of Transportation Investment Management (DTIM) Audit Section to examine the underlying causes of process delay and the increase in project audit backlog.

The goal of this project is to reduce non-value added repetition of audit procedures through a more effective deployment of resources to reduce the number of project audits in backlog.

Improvements

- Identified and eliminated redundant steps in the audit process
- Identified process steps to streamline to improve efficiencies
- Recommended areas for future process improvement and further study

MAPSS Core Goal Area

- Accountability
- Service

Statewide Goal Area

- Customer satisfaction
- Culture of government
- Employee work environment

Issue

The department faces an increasing project audit backlog, resulting in inactive federal projects. FHWA classifies any project inactive when there has been no expenditure of federal funds for more than 12 months. WisDOT risks reduced federal obligation authority, audit difficulties and consultant complaints when projects remain inactive for an extended time.

Lean Six Sigma Process

A cross-divisional team held a Kaizen, which defined the process, along with points of pain. The team used various Lean tools, including SIPOC, cause and effect diagrams, Kano analysis and value stream mapping to identify and address root causes of delay in the process.

Results

Customer satisfaction and government culture: The Audit Section has established baseline data and implemented process improvements to accelerate project close-outs, reduce project audit backlogs, and improve the level of federal inactive projects.

The turnaround time from project audits to expenditure accounting is expected to drop, with a goal of reducing project ages in the audit backlog to acceptable levels of 65 percent for projects older than one year, 25 percent for projects older than two years, and 10 percent for projects older than three years. As of June 30, 2014, project age levels were 41.73 percent for projects older than one year, 15.88 percent for projects older than two years, and 7.84 percent for projects older than three years.

It is also expected to reduce the project audit backlog to healthy and necessary levels, which was determined to be 3,200 hours and represents current staff level hours available to clear the entire backlog within one year. As of June 30, 2014, the estimated hours to complete the current audit backlog of 2,116 projects were 3,174 hours, and represent a 2,700-hour reduction from 2013.

Consultants, contractors and local governments will receive great benefit by having their projects settled in a more timely fashion. Earlier notice of balances due or refunds owed will increase customer satisfaction.

Employee work environment: The team worked in conjunction with DTSD and the Division of Business Management (DBM) in order to accomplish an overall goal of reducing the number of federal inactive projects. Within the Audit Section, the implemented changes have significantly reduced the number of project audits in backlog, eliminating workday stressors and improving overall morale.

Next Steps

The department will ensure process changes are sustained, monitor project backlogs, continue to review audit processes and implement improvements to all areas of auditing.

Wisconsin Department of Transportation

Research Quarterly Progress Report Review and Acceptance

Lean Summary Report



Project Summary

WisDOT managed a \$4.2 million program for research, library and technology transfer services during fiscal year 2013. The WisDOT Research Program includes:

- Wisconsin Highway Research Program (WHRP) in collaboration with the University of Wisconsin-Madison
- Department Policy Research Program
- Participation in Transportation Pooled Fund projects

All contracted researchers are required to submit a quarterly progress report (QPR) to document progress status and justify payment of a quarterly invoice.

This process could be streamlined to ensure consistent review of QPRs so that projects make adequate progress and invoices are processed in a timely manner.

The goals of this project were to reduce the steps in the current process and reduce the time needed for review.

Improvements

- Elimination of six non-value-added steps
- Streamlined administrative process steps
- Pre-filled QPR form to eliminate errors and report defects
- Started recording process metrics

MAPSS Core Goal Areas

- Accountability

Statewide Goal Areas

- Culture of Government
- Customer Satisfaction

Issue

Research and Library Services quarterly progress report (QPR) review and acceptance process involves stakeholders from business areas throughout the Wisconsin Department of Transportation (WisDOT) and contracted researchers. The University of Wisconsin-Madison is also a contracted stakeholder for research done under the WHRP. Quarterly progress reports document project progress and justify payment of associated invoices. Several issues were identified in the current QPR review and acceptance process:

- Variance in process between research areas
- Poor on-time submittals of the WHRP QPRs
- High error rate on administrative data in the WHRP QPRs
- Rework and extra work due to errors on the WHRP QPRs
- Extra work caused by poor on-time submittals

Lean Six Sigma Process

Using Lean Six Sigma methodology and tools, the team mapped the current Research QPR review and acceptance process, conducted root cause analysis, and designed a new streamlined Research QPR review and acceptance process. Eight improvements were identified, including:

- Modifying the roles and responsibilities of staff involved in administrative aspects of the process
- Defining and implementing a standard methodology across all research areas
- Revising the QPR form and using a pre-filled form to eliminate errors and reduce process time
- Attending research project kick-off meetings to reinforce standard methodology
- Eliminating several non-value-added steps
- Increasing use of automation for further process improvement

Results

Customer satisfaction: Process time has reduced by an estimated 18 percent through the pre-filled QPR form, elimination of errors and rework, and changes in administrative roles. Lead time for invoice processing has decrease by approximately 30 percent from 13 to 9 days on average.

Culture of government: Communicated standards will reduce variability in the process and facilitate capture of process metrics.

Next Steps

The Performance, Policy and Research Section of the Office of Policy, Finance and Improvement will continue with implementation of the control and continuous improvements. The Lean project results will be used as input for upcoming discussions on the WHRP research contract.

Wisconsin Department of Transportation

State Trunk Highway Network Data Processing

Lean Summary Report



Project Summary

The Division of Transportation Investment Management (DTIM) works extensively with State Trunk Highway Network (STN) data to produce maps, update data and perform analysis. The STN consists of six different datasets representing functional classifications, connecting highways, the National Highway System (NHS), NHS routes, long truck routes and Corridors 2030. DTIM's Bureau of Planning and Economic Development (BPED) use these datasets and produce data multiple times a year for other outputs and ensure that data has been accurately updated.

This project was chartered by BPED to examine causes for process delay and how STN data is being processed.

The goal of this project was to reduce non-value-added repetition and reduce processing time of STN data through partial system automation.

Improvements

- Identified and eliminated redundant steps in the STN data process
- Identified process steps to streamline and improve efficiencies while reducing processing time
- Produced more accurate data
- Reduced manual process steps
- Organized GIS output

MAPSS Core Goal Area

- Accountability
- Service

Statewide Goal Area

- Customer satisfaction
- Employee work environment
- Culture of government

Issue

The Bureau of Planning and Economic Development used a completely manual methodology to process STN data, creating multiple redundancies of the same data each time the process was performed. Manual methods being employed were creating inconsistencies in data and slowing down production and validation of other products that rely on that data.

Lean Six Sigma Process

BPED's Statewide Planning Unit implemented this project to focus on GIS processing time and data accuracy. The team used the following Lean Six Sigma tools:

- Suppliers, inputs, processes, outputs and customers (SIPOC diagram) were identified to understand the full breadth of the STN data process
- Performed a Kano analysis to formulate basic output needs for key customers (employees) and establish ideal outputs to meet these needs
- Mapped a value stream to identify redundant processes and potential process improvements

Results

The effects of implementing the partially automated process worked better than expected in reducing processing time, manual steps and data inconsistencies.

Processing time was reduced by about 56 percent from 31.5 to 13.8 minutes for one dataset. A greater reduction in time of approximately 83 percent was recognized when processing all six datasets, reducing the processing time from roughly 3.2 hours to 32 minutes. With the new automated method, all six STN datasets can be processed in the time it took to process one.

Manual steps were reduced by approximately 41 percent (24 steps) for processing one dataset and 90 percent (319 steps) for processing all six datasets.

Finally, several data inconsistencies were improved. Previous GIS methods being utilized were returning inaccurate data. By reevaluating the tools being used and changing some of the queries, more consistent and accurate data is produced for map development, system analysis and updates.

Next Steps

The Statewide Planning Unit will ensure process changes are sustained by implementing standard operating procedures and yearly evaluations of the process to account for changes to data, methods and GIS technology.

Wisconsin Department of Transportation

Transit Grant Application Lean Summary Report



Project Summary

The Division of Transportation Investment Management (DTIM) Transit Section administers state and federal funding to local governments to support public transportation services throughout the state. In 2014, the Public Transit Assistance Program provided \$15.3 million to 76 agencies for capital investments and operating projects.

DTIM staff manage the annual application process for local governments, which entails compiling and reviewing budget documents, ridership estimates, capital inventories, and evaluating performance metrics by comparing them to criteria established by federal and state policies.

Improvements

- Staff hours for budget review reduced from 180 minutes per application to 50 minutes
- Number of incomplete applications reduced from 30 in 2013 to 20 in 2014
- Compliance documentation review became a separate process, reducing the need for on-site reviews
- Implemented a more efficient desk review process for budget documentation, thereby decreasing application review time

MAPSS Core Goal Area

- Service

Statewide Goal Area

- Cost of government
- Customer satisfaction

Issue

Federal and state rules and regulations governing transit programs are complicated and may change from year to year. Transit Section staff assist applicants through the process with resource materials that are complex and may be confusing. Additionally, application materials must be submitted as hard copy documents, making review and approval cumbersome and time consuming. Applications are often submitted with incomplete information and/or missing documentation, requiring additional Wisconsin Department of Transportation (WisDOT) and local staff resources to gather and complete. The project scope includes the annual application process for operating and capital funds available to local public bodies through the Public Transit Assistance Program.

Lean Six Sigma Process

Using the Lean Six Sigma methodology, the project team outlined the current process and identified major areas of incomplete or incorrect application materials. The team identified compliance issues and budget preparation as the main contributors. A separate process was created for the compliance components of the application and an improved process for desk reviews was implemented for budget components as a way to reduce the need for on-site reviews. Lean Six Sigma methodology was applied throughout the project to pinpoint root causes of incomplete applications and offer improved processes. Going forward, these streamlined processes will be used in implementing automated application submissions.

Results

Number of incomplete applications: Of the 76 applications received during the 2014 application cycle, 20 of them were incomplete, representing a 14 percent reduction in incomplete applications requiring follow up as compared to 2013. Additional measures are being taken for future application cycles to continue to improve the completeness of materials received.

Staff time spent on application review: Transit Section staff reduced the time spent reviewing applications from approximately 180 to 50 minutes per application (a 72 percent decrease), or a reduction of over 160 annual hours for the Public Transit Assistance Program. This reduction can be attributed to the reduced travel time for on-site compliance reviews and increased efficiency in desk reviews of budget information.

Next Steps

WisDOT Transit Section has recently procured a web-based grants management software system to reduce reliance on hard copy submissions and has built-in prompts to eliminate incomplete applications. The business area is also expanding the use of Lean methodologies to create efficiencies in other similar program applications, including a specialized transit application document reduced from 96 pages to 26 pages.

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Mission

Provide leadership in the development and operation of a safe and efficient transportation system.

Vision

Dedicated people creating transportation solutions through innovation and exceptional service.

Values

- **Accountability** – Being individually and collectively responsible for the impact of our actions on resources, the people we serve, and each other.
- **Attitude** – Being positive, supportive and proactive in our words and actions.
- **Communication** – Creating a culture in which people listen and information is shared openly, clearly, and timely — both internally and externally.
- **Excellence** – Providing quality products and services that exceed our customers' expectations by being professional and the best in all we do.
- **Improvement** – Finding innovative and visionary ways to provide better products and services and measure our success.
- **Integrity** – Building trust and confidence in all our relationships through honesty, commitment and the courage to do what is right.
- **Respect** – Creating a culture where we recognize and value the uniqueness of all our customers and each member of our diverse organization through tolerance, compassion, care and courtesy to all.
- **Teamwork** – Creating lasting partnerships and working together to achieve mutual goals.

MAPSS core goal areas

- **Mobility** – Delivering transportation choices that result in efficient trips and no unexpected delays.
- **Accountability** – The continuous effort to use public dollars in the most efficient and cost-effective way.
- **Preservation** – Protecting, maintaining and operating Wisconsin's transportation system efficiently by making sound investments that preserve and extend the life of our infrastructure, while protecting our natural environment.
- **Safety** – Moving toward minimizing the number of deaths, injuries and crashes on our roadways.
- **Service** – High quality and accurate products and services delivered in a timely fashion by a professional and proactive workforce.

WisDOT Lean strategies

Statewide Lean priorities

	Reduce the cost of government	Improve customer satisfaction	Improve employee work environment	Change government work culture
Implement Lean Six Sigma projects to realize significant quantifiable improvements.	x	x	x	x
Monitor and promote quantitative results to increase the use of Lean Six Sigma tools.	x	x	x	x
Establish baseline data to measure worker satisfaction and working conditions.	x		x	x
Provide Lean Six Sigma training to develop staff and team competence at all levels within the department.			x	x
Leverage Lean Six Sigma methodology to improve external customer satisfaction.	x	x		x
Support management, staff and team use of Lean methodology in daily operations.			x	x

Measures and performance indicators:

- Number of Lean Six Sigma projects implemented.
- Number of projects with quantitative results.
- Percent of projects that met the quantitative targets stated in the project charter.
- Dollars saved/ costs avoided.
- Corrections and other defects reduced.
- Staff hours saved that can be redirected to mission-critical tasks.
- Non-value-added wait times and process times reduced.
- Number of handoffs eliminated.
- Employee satisfaction scores.
- Customer satisfaction scores.
- Number of department staff trained in Lean Six Sigma methodology.