

Governor's Lean Transformation Conference

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Tacoma Greater Convention and Trade Center
Tacoma, Washington
October 24, 2012



Washington's transportation system is big, complex and multimodal

Comprehensive system connects roadways, airports, waterways and railways

On the state-owned system alone:

- **Highways:** 87 million vehicle miles/day (18,600 state highway lane miles)
 - 309 lane miles of the 320 miles funded for HOV systems are in place (Including transit and HOV treatments on arterials and ramps)
 - More than 3,600 bridges and structures
- **Ferries:** Nearly 23 million passengers/year (23 ferry vessels, 19 terminals in Washington, and 450 total sailings per day with 900 total sailings)
- **Aviation:** 17 WSDOT-managed airports (138 public-use airports)
- **Passenger rail:** Nearly 850,000 passengers in 2011 (partner in Amtrak Cascades state passenger rail)
- **Freight rail:** 3,600 miles of operated public and private freight railroads move 103 million tons of freight. (2009 data)
 - Grain Train delivers more than 1.6 million tons of grain since 1994, 100 tons per car in 2010. (The Grain Train program runs 118 cars, including 29 added in 2010)
 - WSDOT owns 326 miles of short-line railroad. (During 2010, shipping on the Palouse-Coulee City rail system increased 20% over 2009 to 8,000 carloads)
- **Transit support**
 - Business and state partnerships in commute programs support more than 810,000 workers statewide (160 million vehicle miles traveled reduced annually)
 - Vanpool program includes more than 2,400 vans (largest public fleet in the nation)



Project Results from Lean Efforts

Central Traffic Sign Fabrication Shop Process Review

Lean Methods Used:

Value Stream Mapping,
Delivering Just-in-Time
Introductory Training,
Kaizen Brainstorming, Root
Cause Analysis – 5 Why,
Standard Work, PICK

Problem

The efficiency and reliability of the traffic sign fabrication process is being impacted by unpredictable and irregular traffic sign orders resulting in routine adjustments to the pricing model to maintain cost recovery.

Causes

- The fabrication process is not directly connected to the traffic sign asset management process in a way that predicts and programs the ordering volume based on life cycle needs.
- Ordering volume, timing, frequency and shipping destinations are based on emergent, localized needs and available budget rather than a coordinated system wide approach driven by overall life cycle needs.
- The typical fabrication order is a result of 3rd party damage and other responsive programs which are unpredictable by nature.
- Current funding for traffic sign replacement is significantly below estimated life cycle needs and is subject to further reductions dependent upon varying snow and ice control maintenance.

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Solutions

Adjust Planning and Programming Processes

- Reduce sign order volatility
- Reduce the number of emergency rush orders
- Adjust the pricing model to align cost and value
- Standardize the ordering process and communication with the customer

Adjust Sign Order Volume and Reduce Fabrication Process waste

- Adjust the volume of signs per order
- Reduce the ordering process handoffs / redistribute workload
- Realign the recycling program to eliminate a significant handoff
- Consolidate shipping locations
- Capture fabrication capacity metrics to improve the pricing model while monitoring ongoing performance

Reduce Sign Fabrication Material Costs

- Pursue additional sources for recycled aluminum
- Rebid aluminum and sign sheeting contracts

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Results

Preliminary results include:

- Reduced the gross price per square foot for routine orders by \$3.25 across the board or 20% on average.
- 45% reduction in routine sign order lead time which is the time from when an order is placed to when the customer receives the order (1 month to 2 weeks).

Next Steps

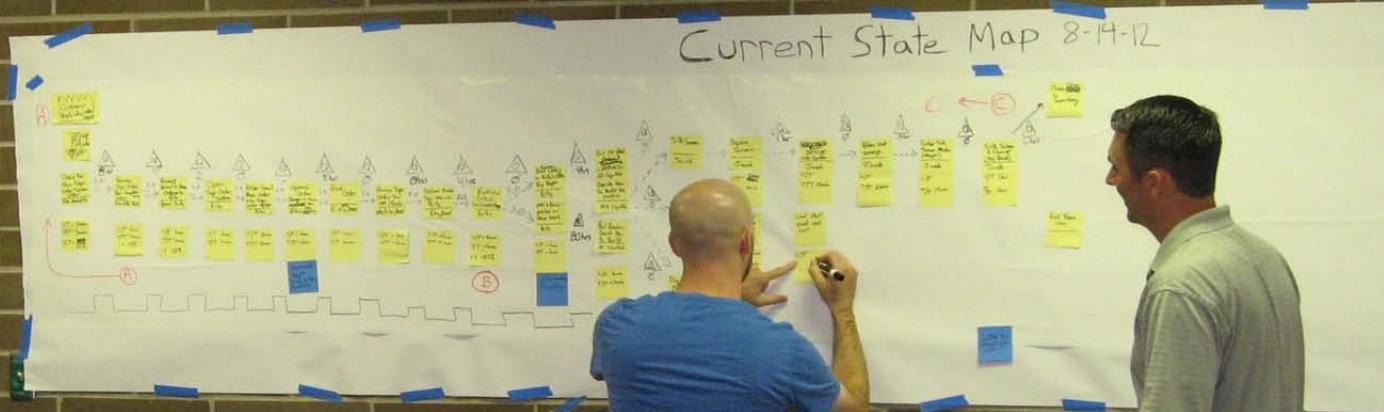
Upcoming Lean Project:

Review the planning and programming phase of the traffic sign asset management process.

Primary Objectives:

- Review how traffic sign improvement and replacement needs are identified prior to the decision to place a fabrication order in an effort to increase efficiency.
- Ensure new and existing signs are managed from a lowest life cycle cost perspective while meeting the safety and mobility needs of the traveling public.

EXIT



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LINDA RABER

Rita Swart

Rick

Don Floyd

Project Results from Lean Efforts

Collision Data Processing and Reporting

Lean Methods Used:

Value Stream Mapping, JIT Training, Root Cause Analysis (5 Whys), Affinity Grouping, PICK Method, Kaizen Brainstorming, Individual Improvement Plans

Problem

The Collision Data Branch processes in excess of 100,000 collision reports per year. The time from when a collision occurs until the data is available to customers currently takes anywhere from 1-day to 8-months depending upon the customer needs. An 8-month delay is unacceptable to some customers requiring fully analyzed data.

Causes

- Duplication of efforts
- Outdated process flow
- Customer requirements needed updating
- Over analysis of portions of some collision types

Solutions

- Streamline workflow to reduce touch times
- Simplify data entry screens
- Eliminate unneeded quality checks on a portion of the work
- Survey customers to identify product business requirements

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Individual Improvement
Plans

Results

30-Day: Implemented four improvement processes

- 2,488 estimated annual hours saved for collision processing

60-Day: Implemented six improvement processes

- 844 estimated annual hours saved for collision processing

90-Day: Implemented three improvement processes

- 2,583 estimated annual hours saved for collision processing

Total: 5,955 estimated annual hours saved for collision processing

Conclusion: The total hours represent a 26% reduction to current collision processing time that will be used to reduce the 8-month backlog.

Next Steps

- Continue to monitor and assess results
- Document successes and continue to identify additional Lean opportunities



Key Lessons Learned at WSDOT

1. Be thoughtful about how prior “total quality management” efforts were perceived and **how they are different from Lean** (TQM, WSQA, etc.);
2. Even in an agency culture of constant system and project performance measurement, **you can always improve** (Lean is a sharp tool and a good language-better-er/best);
3. Stress being **even more effective**, instead of implying system failure or lacking focus on minimizing waste;
4. Like any management effort, **surround yourself with the best Lean facilitators and practitioners** (Private Partners, Agency Partners, Get it Right);



Key Lessons Learned at WSDOT

5. Start Small/Get Bigger/**Momentum Will Carry You** (Projects led to fulfilling vision on **Lean-principled** “planning, design, construction, maintenance and operations” efforts with work teams focused on larger chunks and core work;
6. “Lean” does not mean “Less Employees Are Needed” (1100-Person Agency Reduction to Core Work Force–Employee Morale Factor–We can do more with core work force that we have and have even more efficiency);
7. Lean opportunities with **private sector contractors and other partners** (contract incentives, association work groups, etc.);
8. The **Gemba** matters! (It takes time, but you **have to get out and see and hear** the work!).



Questions?

Contact

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