

## **Lean Sigma: Doing More with Less**

### ***Problem Assessment***

The City of Tyler has a long history of innovative, forward-thinking management. The foundation was established in 1997, when the City of Tyler adopted the “Blueprint” Business Model to express their core values and commitment to continuous improvement in the way they conduct business and deliver services. As part of the Blueprint, Tyler has kept staffing at a minimum; the City of Tyler has a similar number of employees today as they did in 1987, even though the community has grown by 30 percent. Tyler has also paid off all general obligation debt and earned a AAA bond rating.

In 2009, as the economy continued to decline nationwide, the City of Tyler began looking for ways to do more with less while providing the highest quality services to their citizens. Following their Blueprint Business Model, the City’s operations were already quite lean and City of Tyler leaders realized that they would have to continue to seek innovative approaches that would equip City staff with the tools they needed to become even more efficient.

Lean Sigma is a structured methodology that combines two schools of thought that originated with manufacturers such as Toyota and Motorola. Lean Manufacturing and Six Sigma reduce and eliminate waste and variation in processes. The City realized that this practice was the natural transition that would allow them to eliminate waste, reduce cycle times and decrease defects in City processes – ultimately saving both time and taxpayer dollars.

### ***Program Implementation and Costs***

The City of Tyler created a Lean Sigma Deployment Plan which called for hiring a Master Black Belt. Rather than creating a new position, duties that had been performed by a recently-

retired employee were redistributed in the organization and the Master Black Belt position was created to lead the City's Lean Sigma Program without adding a FTE.

The decision to hire a Master Black Belt was not an easy one, but the overall goal of management was to create a culture change and ensure that Lean Sigma became part of the way the City of Tyler does business. Having the Master Black Belt as a full-time employee, rather than a consultant, increased the visibility of the program among employees and gave them better access to training and support.

By hiring an internal Master Black Belt at a cost of only \$97,500 annually rather than \$230,600 for a consultant (based on a survey from ISixSigma magazine) the City of Tyler was able to realize a savings of more than \$130,000 during project implementation. Other costs associated with the launch of the Lean Sigma program are \$5,760 for shared Minitab licenses to be utilized by the trainees while working on projects and \$2,200 for other training materials and office supplies.

Once the Master Black Belt had been hired, all members of City of Tyler leadership team received 'Blue Belt Training' comprised of basic information on Lean Sigma concepts and how it could benefit the various departments throughout the City of Tyler. After this training, the Master Black Belt began meeting with City leadership to help identify candidates for further training and pinpoint projects for the first group of trainees to work on. During these initial meetings, 12 candidates and 79 potential projects were identified.

Blue Belt training was then offered, and continues to be offered, through the City training department to employees at all levels in the organization so they can have a better understanding of Lean Sigma concepts and tools that are being implemented in their departments.

In October 2009, 12 individuals from departments across the City began the training necessary to receive 'Green Belt' certification. These employees attended four weeks of half-day training that was conducted over a four month period, totaling 80 hours of classroom time. Traditionally Green Belt training is conducted in week-long increments over two months. Concerned that the prolonged absence of 12 employees would hamper operations, the City of Tyler opted to change the format to better fit their needs. This change proved very beneficial by allowing the Green Belt candidates to work on their projects as they receive training and gain a better understanding of Lean Sigma concepts.

In addition to the training, Green Belt candidates are also required to prove an understanding of Lean Sigma principles by completing at least one project per fiscal year from the list of 79 that were previously identified.

At the conclusion of Green Belt training, two employees were selected to continue their training and become certified 'Lean Sigma Black Belts'. To do so, these employees were required to receive an additional 80 hours of training that provided a much deeper understanding of the continuous improvement process and various analytical tools. Additionally, the Black Belts are required to complete two projects per fiscal year and to mentor Green Belts as they work on their projects.

Over the course of the first year of the Lean Sigma program, 92 employees, or 11 percent of all City employees, received formal Lean Sigma training. Of these employees, 78 attended Blue Belt training, 12 attended Green Belt training and two attended Black Belt training. At least one person from each City department has received some level of Lean Sigma training.

### ***Tangible results or measureable outcomes of the program***

During the first year of the Lean Sigma program, the City of Tyler initiated 17 projects, nine of which have been completed, resulting in \$206,059 in reduced costs and 2,545 work hours saved.

Highlights from year one of Tyler's Lean Sigma program include:

- Police: Reduced defect rate in evidence processing;
- Water: Improved variation of response time for customer call-outs (variation of 30-60 minutes to less than 20 minutes);
- Fire: Implementation of Total Predictive Maintenance program (estimated future annual savings of \$220,000);
- Municipal Court: Reduced cycle time to process a warrant from 70 days to 11 days; and,
- Legal: Reduced document review time from 16 days to 8 days.

The City of Tyler began year two of their Lean Sigma program in October 2010 with a class of 19 Green Belt candidates. Year two projects will focus on improving urgent repair processes in Neighborhood Services, reducing the time required to get more police officers on the street, lowering the cost of chemicals in the City's water treatment facility and decreasing vehicle parts inventory on hand.

The list of potential projects that began at 79 continues to grow and today identifies approximately 100 potential projects. City of Tyler management estimates that Lean Sigma will save a total of \$922,924 during the first two years of its implementation.

### ***Lessons learned during planning, implementation and analysis***

The major lesson learned during the implementation of the Lean Sigma program is the

importance of strong employee communication and buy-in. City management shared information about the importance of the Lean Sigma program since its inception, allowing employees at all levels of the organization to gain an understanding of how it would affect them and their daily workload.

The selection of Green Belt candidates from across all disciplines has ensured the entire organization is part of the culture change. Furthermore, Green Belts formed project teams to assist with their projects. These project teams are comprised of employees who are involved in the process; so process improvements are established by those most familiar with the system. Employee empowerment has been an ever-growing outcome of the program.

By offering Blue Belt training to all levels of employees, the City of Tyler was able to get more buy-in from employees as they learned the importance of the program and how it would help streamline the processes that they work on every day. Employee newsletter articles, departmental meeting presentations, banners, emails and a web page have all enhanced communication and buy in.

By implementing a Lean Sigma program the City of Tyler has streamlined processes, saved time and money and enhanced employee empowerment and morale.