# CASE STUDY

Solutions in practice

## Messing with process

The lean Six Sigma train is making its way through Texas.

The implementation of lean Six Sigma among city governments in the U.S. has been an ever-growing trend for more than a dozen years after it was first made part of city government policy by Graham Richard, the former mayor of Fort Wayne, Indiana, in 2000. Since then, other cities around the U.S. have adopted the discipline as new protocol for efficiency and process improvement. Among those cities are Denver; Jacksonville, Florida; and Irving, Texas (which *Industrial Engineer* examined in its July 2011 Case Study, online at *www.iienet.org/IEmagazine/jul2011/casestudy*).

And about 250 miles southeast of Irving is the fourth largest city in the U.S.: Houston. It's a city that's getting bigger by the day – 2 million residents, 23,000 city employees and one of the largest urban footprints in the U.S. According to Jesse Bounds, deputy assistant director of the finance department for the city of Houston, there are some growing pains that have to be resolved.

"We've also got a budget of about $2 billion," he said. "And like many cities across the country right now, we're really starting to feel the pain of pension debt."

At the beginning of its fiscal year in July, Bounds said the city was facing a $140 million shortfall for the 2015 fiscal year. Despite the population growth that "has just been fantastic lately," Bounds said that the city currently leads the nation in job growth – a trend that may drop due to recent changes in the energy sector.

"Whether that [job growth] continues with oil going below $60 per barrel, we don't know," he said.

When Houston Mayor Annise Parker was elected in 2010, one of her immediate steps was to begin a reorganization of city departments to achieve cost savings and more efficient operations, according to the city's website. Bounds said Parker previously worked in an energy environment where lean Six Sigma was part of the culture.

"I think she saw the value in it, and she saw areas that had opportunities for improvement, as we call it, and knew how to approach them in a formal way," Bounds said.

## City work

With the election of Parker, city of Houston employees quickly found themselves embracing lean Six Sigma. In May 2011, the city's finance director formed a dedicated lean Six Sigma team largely made up of former consultants experienced in performance reporting, including Bounds and staff analyst Myja Lark.

Lark, who also coordinates lean Six Sigma programs for city employees, said the change in operating culture was significant to many longtime city employees.

"We have a lot of tenured employees – they've been here for 20 or 30 years," she said. "And they've created a situation where they almost feel like their job is a possession rather than a process. So [we're] training people not only in the methodology but to think differently about their jobs."


Photo courtesy city of Houston

**Frank Bracco, senior staff analyst with the city of Houston, creates a human resources process map.**

The team's attack on waste and inefficiency began without hesitation. One of the team's first projects after receiving certification in lean Six Sigma was in the city's fleet management department. The department's Outside Services group, Lark said, was supposed to use the SAP enterprise software to confirm service and payment whenever it got an invoice back for a vehicle being sent to an outside vendor. That process, she added, was taking far too long.

"It was taking them an average of 111 days to do that, and that did not include payment. City terms are typically net 30, so obviously we were having some issues. We had vendors cutting off service and calling the mayor's office, and all kinds of things were ensuing.

"Using some really high-level tools – process mapping, a little bit of re-engineering, getting rid of waste, making sure that the functions Outside Services was doing actually belonged to Outside Services and not other groups – we got their processing time down to 2 1/2 days. We took their staff levels from six people down to one person."

In another project, Bounds said the finance department is undergoing a unitwide "6S" – the sixth "S" is for "safety." The department used 40 90-gallon bins to remove recycled material and a large amount of unused supplies. The realization, he said, was that the department's supply ordering and inventory processes were long broken.

"Today, we're in the process of reconfiguring our supply rooms – better establishing standards for supply ordering and supply levels and also [determining] what our control plan will be going forward."

## Efficiency footprints

Since its inception, the lean Six Sigma team has completed more than two dozen projects using visual controls, kanban systems and other tools. And when it comes to savings, Bounds said the department has been running the numbers under the most conservative saving calculation possible.

"We estimate $25 million in either incremental revenue or savings. A large part of that came from the accounts receivable and collection process. In fact, $20 million came from that.

"We've got about $3 million to $4 million in lean Six Sigma projects. As a direct result of not hiring folks, we've had about $1 million in cost avoidance."

The finance department also is expanding its training goals for city employees, an area in which the department is "excelling," according to Bounds. Since the city's lean Six Sigma initiative began, 52 employees have been trained as green belts, and most are working toward full certification. Just more than 1,000 yellow belts have been trained citywide, some in every operational department. Lark is currently developing a black belt curriculum for employees to seek certification. And lean Six Sigma also has been added to the city's leadership development program.

"We have this green belt certification course, and in order to get certified, you have to do projects," Bounds said. "We have about 50 or 60 people who have gone through this certification course in various departments that are now doing projects in their areas. Right now, we probably have 30 or 40 projects that are ongoing through that pipeline.

"We play a mentoring role, but they receive the training and it's on them to succeed. And they definitely have the support of their management to take the time they need to do it."

— *David Brandt*

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