

# Lean Six Sigma Improves Base Closure Efficiency

Five officers from the 18th Combat Sustainment Support Battalion used Lean Six Sigma to improve the effectiveness of the base closure assistance teams that were supporting base closure and transfer efforts in Afghanistan.

■ By Chief Warrant Officer 3 Robert Lopez Jr.

In 2005, the Army adopted the Lean Six Sigma methodology to facilitate process improvement. Lean Six Sigma assists leaders in focusing on quality management methods that improve overall operations and maximize the potential to reach calculated goals. Its certification levels include master black belt, black belt, and green belt.

Since 2009, green belt courses have been taught throughout the combat zone. The 18th Combat Sustainment Support Battalion (CSSB) completed the first ever black belt course in a combat zone on Dec. 28, 2012, certifying five officers who were part of the U.S. Central Command Materiel Retrograde Element (CMRE). One officer's first completed Lean Six Sigma project focused on improving the effectiveness of the base closure assistance teams (BCATs) operating throughout Afghanistan in support of the base closure and transfer efforts.

## The Mission

The 18th CSSB deployed from Grafenwoehr, Germany, to Kandahar, Afghanistan, in June 2012. The mission required theaterwide responsibility for the mission command of most CMRE-enabling teams, including BCATs. The traditional support operations section was transformed into several "fusion cell teams" that focused on total operational oversight of specific enablers at more than 25 locations.

Before the battalion arrived in Afghanistan, eight military BCATs were operating under engineer entities from task forces tactically controlled by the regional commands. Upon arrival, the 18th CSSB took operational, tactical, and administrative control of the BCATs and established a detailed concept of support. The support operations section developed and published the first standard operating procedures to ensure all teams operated identically and focused on the objectives directed by U.S. Forces-Afghanistan (USFOR-A).

In July 2012, the U.S. government contracted an additional 12 BCAT teams to augment the military. Through a detailed decision-making process, the 18th CSSB command decided to dismantle the eight existing teams and operate with 12 combined military and civilian BCATs. Each combined BCAT included three military members that provided oversight, quality assurance surveillance plan requirements, training, and assistance to six logistics contractors.

BCATs are designed to advise and assist military site supervisors, brigade logistics officers, brigade engineers, and task force commanders in drawdown and support operations. The teams provide a detailed analysis of the base's readiness to meet projected closure or transfer timelines. BCATs assist in planning, conducting, and managing inventories of both foreign

excess real property (FERP) and foreign excess personal property (FEPP) and the transfer of the property to Afghanistan's government.

The teams also assist with container inventories and tracking updates and advise on engineering, environmental, communication drawdown, and contract reduction or elimination. BCATs play an important role in ensuring the supported location meets all milestones and fulfills all requirements to close or transfer the base.

## Applying Lean Six Sigma

The Lean Six Sigma project focused on the BCATs' long lead times for individual site visits. At the start of the project, the BCAT visits ranged from one day to one month. Moreover, approximately half of the FERP and FEPP packets were turned in after the USFOR-A deadline of 60 days prior to base closure or transfer.

During the initial phase of the project, the 18th CSSB focused on key customer issues that affected BCAT operations. A major issue was that the customers misunderstood the BCAT's roles and responsibilities. Units expected the BCATs to relieve them of base closure responsibilities, which required the BCATs to stay longer at each site.

One project goal was to standardize the BCAT site-visit process so that each visit would last no more than seven days. This would increase

the number of bases visited monthly. More importantly, the BCATs needed to meet the required 60-day FERP and FEPP submission requirement 100 percent of the time.

Data was collected for the number of days BCATs spent on site, the number of days prior to closure that the visit was conducted, and the number of days before closure that FERP and FEPP packets were submitted. The results of the data collected demonstrated the following:

- BCAT visits to combat outposts or tactical infrastructures averaged three days, and site visits to forward operating bases averaged 23 days.
- Site visits were conducted an average of 86 days before closure or transfer.
- FERP and FEPP packets were submitted an average of 65 days before base closure.
- More than 50 percent of the bases failed to meet the FERP and FEPP submission deadlines.

During the analyze phase of the Lean Six Sigma project, the 18th CSSB focused on the FERP and FEPP turn-in failures and the average number of days prior to closure that the visits were conducted. Through the use of a cause and effect diagram, the process identified six critical problems that directly affected BCAT operations.

The problems included transportation troubles going in and out of bases, the large size of some of the bases being supported, the need for prior coordination with the battlespace owner, the team's inability to have access to Logistics Civil Augmentation Program property books, and the team's lack of access to all locations of the base. These areas were the focus of the improvement efforts.

During the project's improvement phase, the 18th CSSB developed and executed a pilot plan that focused on negating the problems and improving the BCAT processes. The plan included these goals:

- Position BCATs at least 120 days before closure.
- Limit all site visits to seven days.
- Develop a detailed concept of operations before every mission.
- Conduct in-depth mission planning in order to forecast BCAT missions at least nine months in advance.
- Establish a forward retrograde element concept in order to position the BCATs as far forward as possible so they can quickly deploy and work closely with task force engineers.

### The Results

A key step in a Lean Six Sigma project is to collect and evaluate data before and after implementing changes to the process. Data collected after the pilot plan was implemented demonstrated a noticeable operational change.

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As a result of the pilot plan, the 18th CSSB increased the number of bases assisted monthly by 50 percent. Increasing the monthly BCAT visits for all 12 teams saved the U.S. government an estimate of \$6.5 million for the year.

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First, the study showed that the submission date of the FERP and FEPP packets did not correlate with the amount of time a BCAT spent on site. However, the data demonstrated that the number of days before closure that a visit was conducted directly correlated with the submission timeline of the FERP and FEPP packets. As the days prior to closure increased, so did the earlier submission and approval of the packets.

As a result of the pilot plan, the 18th CSSB increased the number of bases assisted monthly by 50 percent. Increasing the monthly BCAT visits for all 12 teams saved the U.S. government an estimate of \$6.5 million for the year.

New predictability in the BCATs' mission planning helped increase the average time a site is visited prior to

closure from 86 days to 172 days. The average date FERP and FEPP packets were submitted increased from 65 days to 105 days before closure. The number of bases meeting the FERP and FEPP turn-in requirement of 60 days improved by 30 percent.

It is imperative to provide an efficient BCAT support process as base closure operations continue. Longer missions involving the closure or transfer of multibattalion bases will directly affect the BCATs' ability to support all locations across the battlefield. Strict management will ensure the planning and execution of base reduction, closure, and transfer procedures are accomplished in a timely matter. The primary goal is to meet the established milestones for USFOR-A retrograde and eventual equipment turn-in to Afghanistan's government.

BCATs continue to provide commanders and base supervisors with planning, evaluation, and execution assistance for a successful operation. Through the implementation of Lean Six Sigma, the 18th CSSB surpassed the projected goals and provided more opportunity to place additional CMRE enablers to meet the overall base closure timelines and goals.

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