

A Multi-Divisional Improvement Project

Reducing budgets and increasing service

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and Harry Lorick

Creating long term efficiencies and sustainability is a huge focus in today's public sector. Every day the charge of public works leaders is to do more with less. So imagine improving the operations of one division while still saving millions of dollars. Now, imagine improving efficiencies in several divisions and saving over \$5 million dollars. These were both achieved by Volusia County, FL.

Volusia County (population 500,000) encompasses 1,207 sq miles and has 47 miles of coastline situated on the northeastern coast of Florida, just south of Jacksonville. The county includes 16 incorporated cities, an unincorporated population of over 100,000, responsibility for 980 paved centerline miles, 455 miles of roadside ditches, 273 miles of sidewalk, 342 miles of dirt roads, 9,575 drainage structures, 51 bridges, 302 signalized intersections, 3,400-acre Class I and Class III landfill and transfer station, 265 miles of water mains, 210 miles of sewer mains, and a mosquito control district.

The county has several major tourist events throughout the year that impact operation requirements. Events include

Speed Week, Spring Break, Bike Week, Biketoberfest, and Destination Daytona. Speed Week has consistently drawn six-figure crowds; Bike Week, which occurs over a ten-day period, has attracted over 500,000 visitors. These visitors exceed the entire population of the county and create an increased demand on the county's infrastructure and facilities.

The public works department met these challenges by implementing a detailed assessment technique. The focus was on employee participation, and mentoring and guiding management on how to adapt to their changing work environment and customer needs. These actions were executed with consultant assistance as a result of a competitive bid process.

After the consultant was selected to perform the study the county was evaluated with these goals in mind:

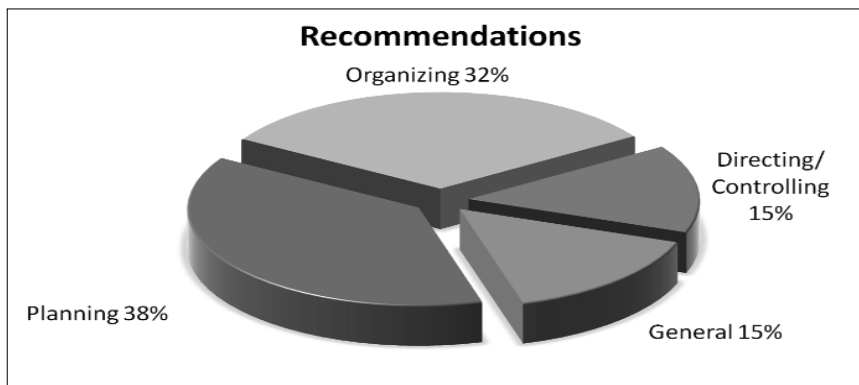
- Document and map current process.
- Establish an automated system as a tool to manage work.
- Identify areas of strengths and opportunities for improvement.
- Establish a business-like approach.
- Improve operations by implement-

ing recommendations.

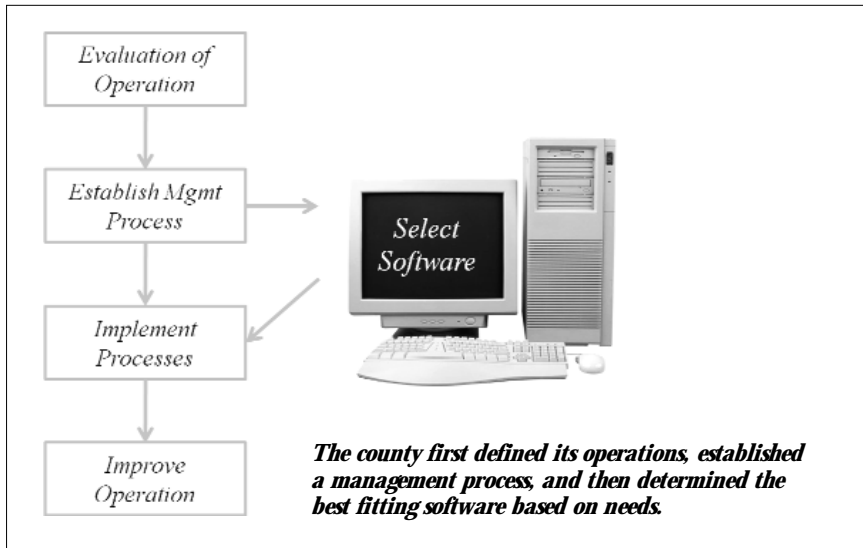
- Focus on sustainable efficiency increases.
- Involve employees at each stage of the process.

The goals were accomplished as three distinct phases. The first phase took about six months and outlined the operation, evaluated opportunities, and made specific recommendations to the agency. Phase 2 of the work process involved the maintenance management software (GBA Master Series, www.gbams.com) installation after selecting software that matched the county's needs. This took about four months and was concurrent with Phase 3. Phase 3, a 12-month process, established a systematic maintenance management approach and implemented the selected maintenance management software. The final documentation of improvement occurred six months later. There were three groupings of divisions with three in the first, three in the second, and four (non-public works divisions) in the final that lagged each other by six months.

Phase 1. Initially, three divisions were evaluated: road and bridge, drainage, and traffic. Six months later, utilities, solid waste, and mosquito control followed. Two years later, others—parks, recreation and culture, coastal, facilities, and fleet management group—were started. Key aspects of daily operations were evaluated and studied as well as steps performed in the work process. Pareto's Law, also known as the "80/20 rule" states that roughly 80 percent of the effects come from 20 percent of the causes. Applied to public works, 20 percent of work effort consumes 80 percent of resources. Using this principle, key maintenance activities were analyzed in



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detail contributing to 80 percent of the work analysis. The thorough examination of the county, its assets, and work objectives would ultimately help establish a clear image of savings.

The baseline was a composition of factual statements that identified the county both characteristically and logistically. Information was gathered through employee interviews, field observations, data analysis, and surveys and noted within this section. From the population to the major attractions, all details of the demographic boundary and public works were compiled to assist the consultant with a general understanding of the existing operations. From this information gathering exercise, a complete picture of the current organization and the daily operations began to emerge. This was presented to the public works staff for feedback.

Once baseline feedback was received, the operations were benchmarked against other agencies to create findings. Activities conducted, inventories, reporting, tracking procedures, and costs were just a few of the identified opportunities. Again, the purpose was not to pinpoint shortcomings, but to recognize the potential for improvements and savings.

Once the findings were noted and discussed with employee groups, recommendations were made. These ideas were often simple in nature but offered a logical approach to real savings. One example was equipment downsizing—

equipment that was rarely used or excessive was evaluated and 29 pieces of equipment were reduced from inventory to create a quarter of a million dollars in annual savings.

The recommendations assisted in combining like-activities, sharing resources and services, and ultimately resulted in over \$2 million in savings in the first groups implemented. As public works finished evaluating three more divisions, three more departments—parks, coastal, and facilities followed suit.

A critical aspect of any recommendation is the implementation. Without execution, recommendations are nothing more than good ideas. The four basic functions of management—planning, organizing, directing/controlling, and general—were used to group the recommendations into categories.

The multi-divisional study generated 310 recommendations resulting in 47 general, 117 planning, 99 organizing, and 47 directing/controlling. Some recommendations identified commonalities among the agencies that required considerable coordination efforts. The most efficient action plan involved using similar technology and business processes. To ensure that each division did not stray from the unified plan, management at all levels was consulted and the overall effort became a team mission. This was a necessary element to establish unity and support from all management levels.

The general tasks were targeted at

defining or redefining the vision, staffing, responsibilities, etc. and most importantly, identifying the staff or teams that would eventually assist in the execution of all recommendations. The general tasks were necessary to prepare a foundation for the management functions that would follow. From the beginning, employee involvement was considered an invaluable tool—this continued to be an integral element of not only the agency's success, but employee buy-in.

The planning function focused on activities, guidelines, work plans, and inventories. With the organizational goals in mind, objectives were established. Each group defined the activities performed with documented guidelines and established the level of effort applied to the activity based in part on the annual budget and the inventories of assets to which the work was applied. Using this information, an annual plan was created, which allowed for projection of work to be completed and associated cost and ultimate accountability to production and the budget. For the first time, information was made available to show the true cost of performing specific activities.

The organizing function outlined the workload distribution, the resources needed, and a work calendar. With the annual plan established during the planning function, the resources to complete the work were defined as well. Allocation of these resources like labor, equipment, and materials was necessary to guarantee the execution of the annual plan.

The directing/controlling function required a process for tracking work, reporting accomplishments, data review, and accountability. Many of these steps were standardized across divisions, for example: the method or steps taken to create work orders and production reports used. These tasks were exceptionally important as they were the tools and processes for documenting efficiencies and establishing quality control.

Phase 2. Many systems are implemented by first choosing the software and forcing the operational needs of the agency to match system capabilities. The county took a much different

Software was selected and installed only after it was determined that the product specifically met the requirements of the county.

approach by first defining the operations, establishing a management process, and then determining the best fitting software based on the needs of the county.

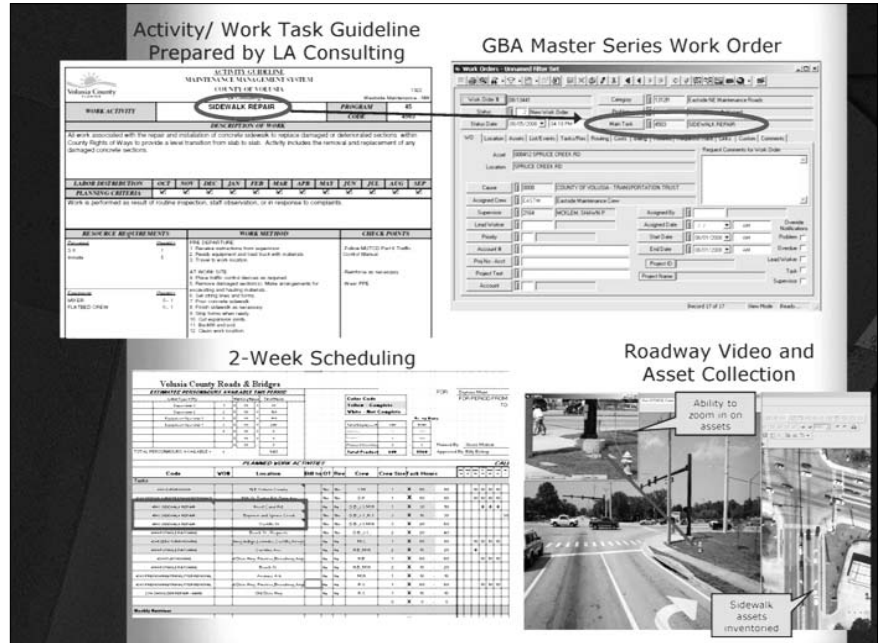
During the selection process for software, seven companies submitted proposals, three were short listed and conducted a demonstration, and then one was selected. The features most desired included using the latest technology to plan and schedule work, accountability by monitoring dollars and production against established standards, and a complete work order performance budget and asset management system with a GIS platform. Although public works was the only department to go through the RFP process, they were not the only ones to benefit from the software. Selected system modules had capabilities to also work in parks, recreation, and culture, coastal, and facilities.

Phase 3. Although timeline estimates were based on one year and heavy IT support, the system was implemented in less than a year with minimal support. By the time phases 2 and 3 were starting, staff members were well equipped to guide the department and later helped others set up and use the system.

Results

Implementation generated considerable savings in reduction of actual dollars expended. More work was done with fewer resources, which has resulted in documented savings of >\$5 million to date. Future forecast indicates improvements of more (\$2 to \$3 million) annually for the following year as the system and improved management process are further applied and others are brought on board.

By applying an optimization process of proficient business strategies and tools, resources were effectively and efficiently used. Existing staff absorbed growth needs of increased service with a lower amount of resources. Applying sound business management practices, training, and systems tools along with



incentives resulted in more work achieved with existing resources. Not only are managers equipped with the tools, but supervisors and various key county employees too. Tools for success included:

- Actual cost of labor and equipment rates determined with overhead.
- Service levels are established for major activities with systematic preventive routines with geographical references.
- Low usage equipment identified—unnecessary equipment documented.
- Organizational redundancies in excess span of controls evaluated and eliminated.
- Biweekly scheduling underway and monthly performance cost work monitoring.
- Performance based budgets are in place.

The initial implementation for the first six groups resulted in a nearly nine-percent improvement, varying by group.

Mosquito Control. Achieved over \$1 million in savings. Among them was optimizing helicopter operations by use of outsourcing a portion of the maintenance support, full allocation of billing overheads to allow for more revenue to be generated for work done for others, fleet reduction of 28 pieces of equipment, and staff staging closer to work. Further, by consolidating two facilities into one, cash outflow was saved and

work scheduling simplified.

Solid Waste. This group also had more than \$1 million in savings through a series of actions. This included:

- Overtime management and related reduction of >60 percent by proper scheduling and grouping of work without loss of quality or productivity.
- Optimization of equipment at transfer station to reduce the need for four or five large transfer units as well as overall fleet reduction and optimization and elimination of 13 unneeded pieces of equipment and obtaining equipment that better matches work needs.
- Scheduling and elimination of unneeded holiday and Sunday support.
- Identification of work method improvement for alternative cover.

Utilities. This group of water and sewer utility staff had over \$600,000 in savings by minimizing water loss, work identification, reduction of capital cost, and management of staff assignments. Considerable man-hours were saved via enhanced utilization of underground location specific equipment.

Road and Bridge, Drainage, and Traffic. These groups had considerable improvement with over \$1.2 million of savings. This included:

- Major fleet reduction equipment downsizing and optimization of 29

pieces of equipment.

- ❑ Staff reassignment and positioning estimated to save one to two full-time employees (FTEs).
- ❑ Outsourcing traffic marking or increasing county capabilities should save between \$.04 to \$.05 a foot.
- ❑ Purchase of pre-made signs would reduce piecemeal approach and manufacturing.
- ❑ Co-location of staff, elimination of travel, and redundant efforts with savings at a minimum of four to five FTEs.
- ❑ Routine development and standardization is being established for work methods. Staff is now closer to work, eliminating unnecessary driving and saving ~1 FTEs.
- ❑ Traffic controller equipment standardization will eliminate need for one to two FTEs to repair older outdated equipment.

The groups above achieved the savings and as they completed their second year of using the system, the groups further implemented several of the remaining opportunities identified in Phase 1.

Second Year

During 2008-2009, all of the initial six divisions were fully utilizing the department's computerized maintenance management system (CMMS) while the remaining four were still in Phase 1. This utilization has allowed each of the first six divisions to better plan, organize, schedule, and direct/control the work. All maintenance staff are tracking work in the CMMS and linking work to assets in GIS. The department has implemented the CMMS "dashboards" that are tailored to each user for a display of performance data. Similar to a car dashboard, data can be visited in real time with little need to directly understand how to use the CMMS. This has allowed managers to have real-time summaries of work orders/work requests status, productivity, and accomplishments that can be used to make positive change. All groups are producing two-week schedules of planned work; they are also reviewing work status each month and using this as a tool for accountability and continuous improve-

ment. Selected key activities are also being reviewed and benchmarked against other agencies.

Although some groups showed a minor decline in productivity, overall, department productivity increased by another 4.2 percent, equating to an additional \$500,000 in labor savings. It should be noted that even the groups that did show a decrease in 2008-2009 still maintained the increased productivity values over the first year of implementation. The initial six months did result in some minor actions (~1%), then the first year had a nine-percent improvement and the following year had another 4.2-percent improvement.

Several groups with implementation underway are starting to make specific changes identified in Phase 1 as well as coaching and directing employees to fully use the system approach. Among them are:

- ❑ Parks, recreation, and culture currently starting to realize initial savings of >\$700,000 to date with more to come.
- ❑ Coastal division has estimated savings of >\$250,000 to date with more expected.
- ❑ Facilities services has estimated saving of >\$200,000 to date with more planned.

Future improvements include a department wide system with associated software. All efforts are tracked to a specific maintenance activity capturing all work completed, better planning, biweekly schedules, and enhanced staff through guidance and training in the use of computers and software. Automated billing using the software and information is now also readily available and able to be reported.

One particularly valuable enhancement recently implemented was the customized dashboard used to display system data. Upon computer login, information is immediately displayed showing each team's production and targeted benchmarks. Current status is indicated by the needle and the goal is indicated by the green zone (red is danger and yellow is the median). This information is used by managers and supervisors for planning,

projecting, and improving.

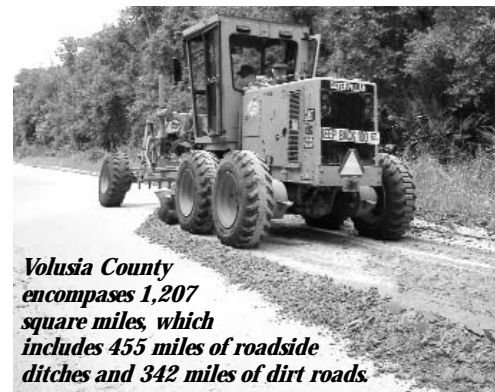
As the system grew, steps were taken to further advance operations. An analysis of equipment and crew size was conducted on ten existing heavy equipment related activities with focus on resource optimization. Key activities were identified and benchmarked to be used as performance standards. Other activities were compared to industry benchmarks and applied to the outsource candidate selection process to identify those activities that should be outsourced.

Future goals include management training to fully use all tools to make decisions; refining CMMS and operations efforts within the groups for sharing information, staff, contracts, and equipment; detailed costing analysis by crew by activity; developing specialized outputs (reports, graphs, dashboards, mapping, etc.); and data analysis enhancement.

The overall process and improvement realized by the multi-divisional study has allowed the county to reduce budgets yet increase service. Future presentations to the city council about budgetary and service level changes can now be better addressed due to improved planning and organizing capabilities. Further, the county can now evaluate different funding options with the resulting future work estimates and related resources being linked to needed monies.

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