

Abstract

Utilities Privatization creates an opportunity for the Army to make utilities a “must fund requirement” and guarantee ample resources and funding to properly operate, maintain and renew the systems. Field tests proved that a privatized system significantly reduces outage durations and provide for an efficient and resilient utility system. Over the course of a 50 year base contract, the privatization endeavor will provide the Army Installation with approximately 15% of Net Present Value Savings.

Introduction

Recent Army budget cuts and employee hiring freezes have taken a toll on the operations and maintenance of Army Installations water and sewer utilities. Army bases are facing a high demand of maintenance requests due to aging and failing water and sewer utility infrastructure. The Directorate of Public Works (DPW) does not have the manpower or resources to achieve all that is required to maintain the systems up to national and local health and environmental regulatory standards. This causes a lot of grief on tenants in the form of long downtime during outages, emergency repairs and regular maintenance. Most of the shop employees are unionized, approaching retirement and have to deal with the constraints and long processes of the Federal Government’s Service Acquisition. This makes the DPW’s job challenging, when these utilities have a direct impact on soldiers and the Army Mission at the base.

A solution to this problem lies in the privatization of the water and sewer utilities, where a private contractor purchases the system and performs all the necessary Operations and Maintenance to abide by regulatory standards at private industry pace and delivery rate. The contractor, as the system owner, does not have to abide by the Federal Government’s Service Acquisition laws, therefore fulfilling the maintenance requirements and tending to emergencies at a more effective and speedy rate. The objective is to reduce the duration of water and sewer service interruptions caused by unplanned emergencies and routine maintenance of the utility systems.

Literature Review

The Fort Jackson Utilities privatization contract was selected to be used as a case study based on the similarities in size, scope, geography and mission of the subject installation. Fort Jackson’s Water and Wastewater UP contract [1] was made available for review. Since it is in full effect in the Fort Jackson Army Garrison, it was used to gain more details on what the UP effort provides, in order to facilitate the comparison between private and government ownership.

Previous to the Fort Jackson privatization, a Certified Economic Analysis [2] was prepared by a private company called Guernsey. This included a Life Cycle Cost Analysis as well as the development of a government cost estimate to compare with the system Owner’s proposal.

Table 1
Summary of Life Cycle Cost Analysis Results-Privatization Alternative

Summary of Life Cycle Cost Analyses Results – Privatization Alternative				
	Net Present Value Savings		EUAC Savings	
1. Base Case (50 year Contract) with Residual Value	\$7.0 Million	15.6%	\$387,000	15.6%
2. Base Case (5 10 year Contracts) with Residual Value	\$6.6 Million	14.6%	\$363,000	14.6%
3. Sensitivity / Margins of Error Analysis – Base Case without Residual Value	\$9.8 Million	20.4%	\$537,000	20.4%
4. Sensitivity / Margins of Error Analysis – Discount Rate	Feasible except at discount rates lower than 3.4% (current OMB discount rate – 5.2%)			
5. Sensitivity / Margins of Error Analysis – IGCE O&M / G&A	Feasible except when the Government O&M / G&A costs are less than 55% of the IGCE.			
6. Sensitivity / Margins of Error Analysis – IGCE R&R	Feasible except when the Government R&R costs are less than 80% of the IGCE			
7. Sensitivity / Margins of Error Analysis – IGCE ICUs	Feasible even if the Government ICU costs are equal to \$0.			

Analysis Approach

The objective was to reduce the duration and quantity of water and sewer service interruptions caused by unplanned emergencies and routine maintenance of the utility systems. Given that we already had ample data on the privatization front, we needed to test the government owned system in the field in order to accurately compare the two. Six service interruptions were observed on base during the month of September. All interruptions were timed, documented and incident reports created for them.

Table 2
Service Interruptions under Government Owned System

Government Owned			
Incident Number	Location/Building	Description	Duration (hrs)
1	Marietta St	Water main break	32
2	Thompson Ave	Water main break	8
3	Akron Trail	Service Lateral leak	17
4	Building 4400	Service Lateral break	23
5	Dixon Rd	Water main leak	30
6	Sullivan and Peach St	Service Lateral break	24

Table 3
Service Interruptions under Private Contractor Owned System

Private Contractor Owned			
Incident Number	Location/Building	Description	Duration (hrs)
1	Hilton Field	Service Lateral leak	5
2	Bowling Alley	Service Lateral break	8
3	BTC II	Service Lateral leak	6
4	Sumter Ave	Water main break	11
5	Jackson Blvd	Service Lateral break	4
6	Hill St	Service Lateral leak	4

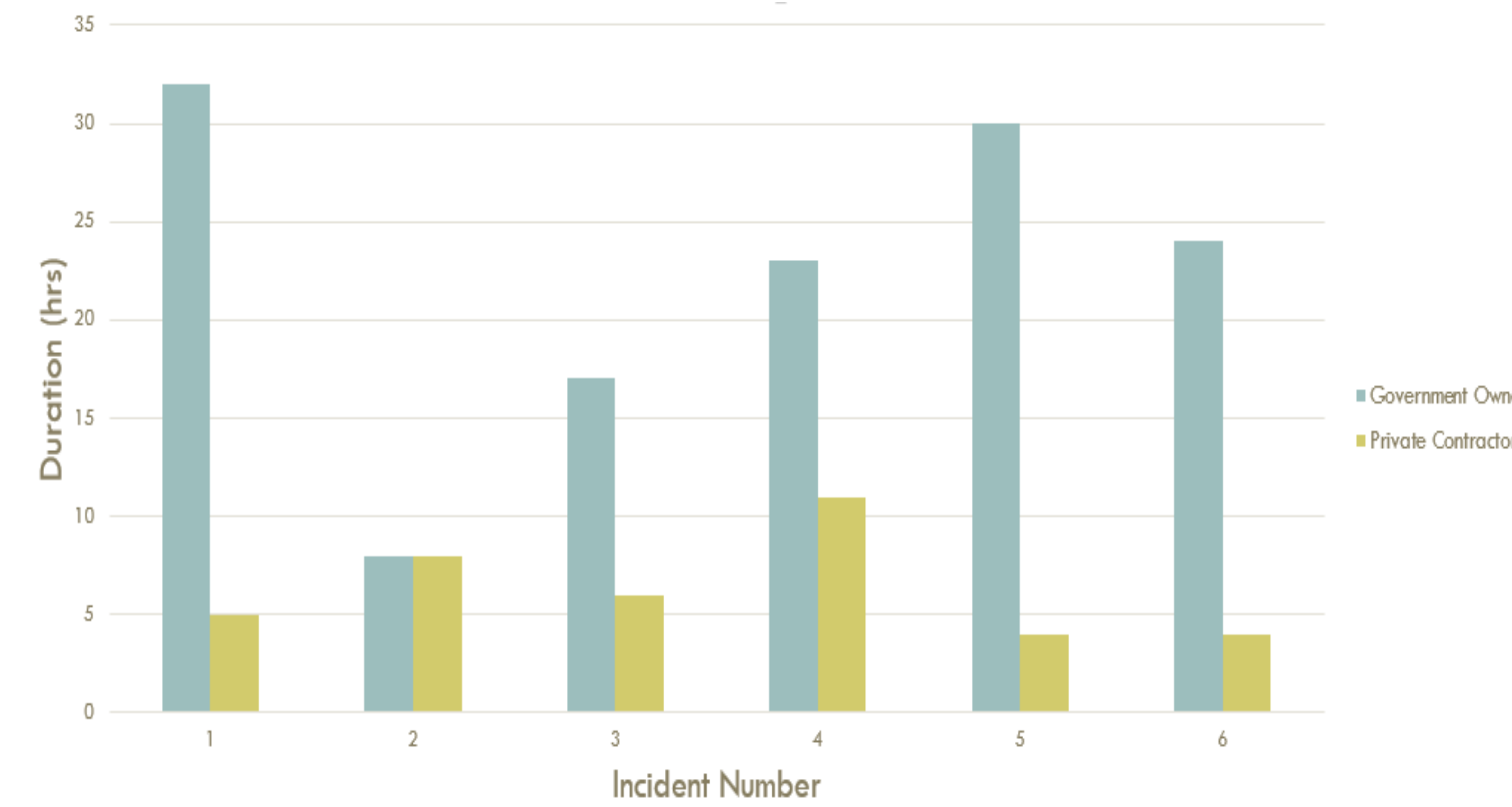


Figure 1
Service Interruption Durations



Figure 2
Sumter Ave. Water Main Break Private Contractor Owned



Figure 3
Marietta St Water Main Break Government Owned

Results and Discussion

The data collected was carefully selected to match weather conditions, climate, time of day, non- holiday and staff availability. This allowed for a level playing field. Figure 1 shows the service interruption durations on potable water system unplanned emergencies for both private and government owned utility systems. In some cases, government owned durations are six times the durations of the private owner. Table 4 shows the multiple reasons that explain why the private owner had better response times.

Table 4
Discussion Summary

System Owners (SO) have a 24/7 emergency call center. Customers can contact the owner directly and they are contractually obligated to respond within one hour of the call.

SO’s have the equipment and materials readily available, and if not, they have suppliers under contract ready to supply materials 24/7 for the fixes. SO’s are better staffed with crews of up to 5 personnel, whereas the government can only have 2 plumbers on their payroll and do not work 24/7.

SO’S have contracts in place with water testing labs to make sure the water is safe to drink before restoring the services.

Government does not have the authority to have these agreements because of strict federal regulations on how to acquire services. They would have to use one of their available contracting vehicles like an in-place Job Order Contract to purchase any equipment, materials, construction or specialized service required for the repair. All of this increases the interruption durations.

The adoption of “just in time” techniques for inventory of tools and parts also takes a toll on durations on the government side. Instead of having a fully stocked van with parts and tools, the plumber needs to develop the parts list once he gets to the site and then go and purchase them. Having completed this field work proved that Privatization is the better option to considerably reduce durations of service interruptions during unplanned outages and emergencies.

Conclusion

Through the research and field tests conducted it was determined that UP will indeed significantly reduce the time of interruption. UP brings other value added to the table like private industry expertise and resources. It introduces the stream lining of acquisition processes for utility maintenance by completely eliminating the long, cumbersome and bureaucratic federal acquisition regulations processes from the mix. Certified Economic Analyses on Army installations have proved UP to be economically viable, and that the government could potentially save 15% of their net present value through a 50 year contract. UP allows government to access a separate funding source for the sustainment of the utilities and this becomes a “must fund” requirement. No longer will a utility necessity get shelved because of lack of funds. A renewals and replacements program gets introduced with UP. This was not part of the government’s work plan since budget cuts had basically thrown scheduled replacements out of the picture. When systems get renewed on a regular basis, service interruptions will reduce greatly. System efficiency and resilience will replace an unreliable aging and failing infrastructure.

All of these reasons have aided in the subject DPW’s decision to privatize water and sewer systems. The installation will be requesting the privatization package through Army Headquarters level and will follow the general process shown in Figure 4. This will comprise of a lengthy two year contract procurement period, in which potential owner’s will have to submit bid proposals. These proposals will be evaluated in source selection board and a Certified Economic Analysis will have to be prepared in order to justify said undertaking. If the analysis yields results of cost savings or “same cost” over 50 years, the DoD will accept and move forward with the privatization of the water and sewer system of the installation.

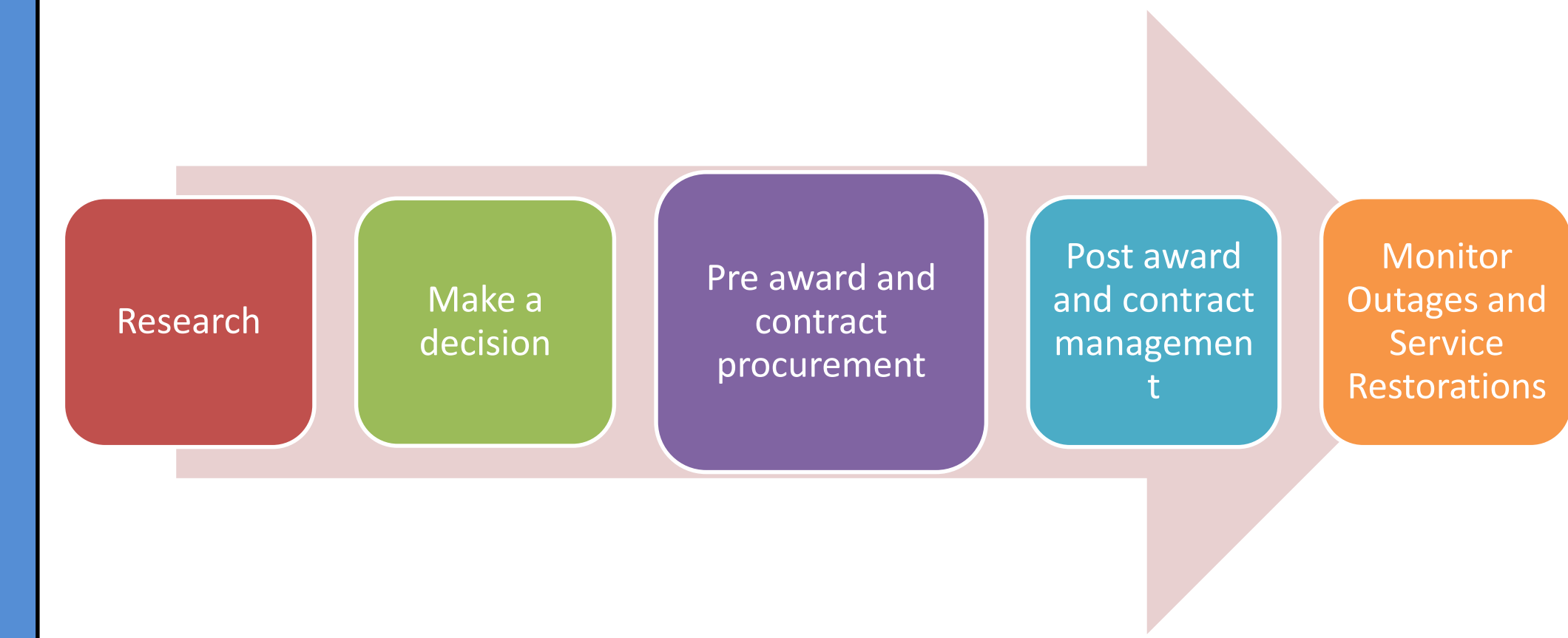


Figure 4
Process for Privatizing Utilities in a US Army Installation

References

- [1] Fort Jackson Monthly Operating Reports on Water and Sewer Utilities (American States Utility Services, 2017)
- [2] Certified Economic Analysis Fort Jackson (Guernsey, 2007)

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