

Back Office and Customer Information Systems

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In this day and age, a back office customer information software system is a “must” for solid waste agencies managing inventories, work orders, and large numbers of customers. However, many solid waste agencies have inadequate computer hardware and software systems to enable tracking of work productivity and customer service. Oftentimes, many use a combination of an Excel-based software system and manual card systems to track residential and commercial accounts. To the world of business operations, these manual systems are analogous to a stone and chisel versus a typewriter.

The lack of adequate software implementation may be due in part because the overwhelming “buffet” of software available for solid waste facilities’ use. As shown in Table 1, there are a wide variety of management information and software products used by solid waste agencies across the U.S. Each has its particular advocates and uses in the solid waste management practice. This article will briefly provide an overview of the major trends in software development.

Trends in Software Development *Proof of Service*

One of the major advancements in solid waste technology for collection is providing proof of service, a key detail given that a large percentage of customer complaints are due to missed pickups. In certain cases, the complaint is valid, while in other situations, the container may simply have not been placed out for the collector in the correct location or time.

As a proof of service, many of the software systems noted have the ability of storing real-time, geo-

located service delivery pictures associated with each customer account. For example, if you are providing residential collection and the rolling cart is not at the curb at the time of collection, you can snap a photo of it and e-mail the photo to the customer and explain why you did not provide pickup service that day. In some cases, this photo can even be automatically collected in real-time as the truck reaches the designated pickup location. In the past, without this capability, a driver may say the cart was missing and the customer might say it wasn’t, and typically you are in a he-said/she-said situation. Then a customer call is made and re-service must be provided, whereas if you have that picture proof of deliverable or proof in activity, you can eliminate that extra pickup. This allows the solid waste agency to be more efficient and bill for the appropriate services they are providing.

Dispatch and Routing

Typically, in most systems calls come in from customers indicating that extra service is requested for instances such as an overflowing dumpster, extra trash, or bulky waste pickups. In these situations, it may be difficult to manually determine which vehicle would be best suited to dispatch and service the customer call (e.g. Which is closest? Which truck has adequate volume capacity?). Oftentimes, fleet management services are currently managed through a combination of manual processes, desktop computer tools, limited vehicle tracking and management tools, and custom-made databases. This setup can make a service dispatch an arduous and inefficient process.

With an integrated software package like those listed, the solid waste agency is able to come up with an efficient, logical, and reliable dispatch for the particular service needed. Many of the integrated software packages noted provide route management and dispatch

systems that offer enhanced customer communications, and more accurate and real-time operational data analysis through live web-based map displays and dashboards. The service-request-dispatch method described would be similar to many new ride-share programs such as Uber or Lyft, which use GPS software to determine the closest available vehicle that is able to satisfy the customer’s service call. These systems greatly enhance an agency’s ability to react to their customers’ needs in real-time through mobile computing technologies. This new functionality facilitates operational efficiencies, reduces costs, maximizes revenues, and increases customer satisfaction.

On-Board Tablet Interface

One of newest hardware applications of solid waste customer software are interfaces with on-board vehicle tablets. Many agencies are providing specially-designed computer tablets in the cab of the vehicle. The objective is to enable the driver with an up-to-date and accurate picture of his/her route, while at the same time enable the managers back in the home office with relevant information supporting intelligent decision making. Real-time vehicle tracking can also be helpful for route supervisors as they are able to better monitor vehicle progress along each route. Routes can be updated in real-time as necessary (to route around construction or congestion, for example), while the driver can safely see the newly-updated route. This ensures that the most efficient and safe route is elected, reducing cost and safety concerns.

Conclusions

The mantra of doing things quicker, cheaper, and faster is being increasingly applied to solid waste services, and having the appropriate software and hardware is crucial. The application of computer software and hardware is providing solid waste agencies with the analytic tools to measure their performance

Software Provider	Product	Comment
Alpine Technology	Visual RAMS-Pro	Integrated software for billing and customer services
Carolina Software	WasteWorks	Integrated software for billing and customer services
Delta Equipment Systems	Delta Waste System	Integrated software
Desert Micro	RouteManager	Integrated software for billing and customer services
Dillaware	The Billing Clerk	Integrated software for billing and customer services
FASTPace Software	FASTPace	Tracking and billing software
Field Aware	Field Aware	Cloud based, mobile software
Fifth Limb	My Yard	Transfer and recycling facility accounting
Geoware	Geoware	Integrated software for billing and customer services
Green Oak Solutions	Carboncheck	Calculate GHG/carbon emissions
ISB Global	Waste and Recycling One	Integrated software for billing and customer services
Ivy Computer	Trash Flow	Integrated software for billing and customer services
Logical Data Solutions	Manifest	Integrated software for billing and customer services
My Service Depot	Smart Service	Quick Books add on
Normandy Waste	Normandy 2.0	Food waste accounting software
Opensky Data	IWDMS	Efficiency software
Pacifica Systems	Accu-Trax Office	Mobile routing and tracking software
P&L Software Systems	Integrated Waste System	Integrated software for billing and customer services
Paradigm Software	CompuWeigh	Integrated software for billing and customer services
PC Scale	PC Scale Tower	Routing and billing software
Performance Software Technologies	Route Rite Waste Billing	Customer software
Prodware	Prodware	Integrated software for billing and customer services
Public Works Solutions	Trakster	Integrated software for billing and customer services
Reflective Software Solutions	Apex WMS	ROI software
Ritam Technologies	Summit Service Systems	Integrated software for billing and customer services
RouteOptix Management	RouteOptix	Routing software
Routeware	Routeware Back Office	Integrated software for billing and customer services
Soft-Pak	I-Pak	Integrated software for billing and customer services
TerraVista Solutions	TerraTrash	Integrated software for billing and customer services
Thoughtful Systems	Scheduling Manager	Job scheduling software
TMS Solutions	RMS	Integrated software for billing and customer services
TRUX Route Management	Haul- It	Primarily route audit software
WAM Software	WAM Hauler	Integrated software for billing and customer services
Wasteblits	Wasteblits	Profiling waste and byproducts
WasteBooks	WasteBooks	Comprehensive routing and accounting software
Waste Logics Software	Waste Logics	Integrated software for billing and customer services
Xero Waste Solutions	Xero Waste Solutions	Integrated software for billing and customer services
Zada Partners	FleetCom	Route optimization software

Table 1 - Current customer service software providers to the solid waste industry.

and those of their employees. Being able to optimize routes and service customer work orders more quickly also increases general customer satisfaction. Both the computer hardware and software will continue to improve in the years ahead as these demands only increase. Customer service software can be a very helpful tool for your solid waste operation, and if your agency is undecided about

moving forward with a particular program, many software providers offer free demonstrations and even free trials. In terms of selecting the right software for your solid waste program, the world is your e-Oyster.

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