

Advancing Resource Management at the Acushnet Company (New Bedford, MA)

1. OVERVIEW

The Acushnet Company operates eight golf equipment manufacturing facilities within the greater New Bedford, Massachusetts area.¹ These facilities (Table 1) employ approximately 2,000 people in all stages of golf equipment manufacturing, from engineering and manufacturing to packaging and distribution.

Table 1: Acushnet Golf Facilities in the Greater New Bedford Area, Eastern Massachusetts

Facility Name	Location	Function	Est. Number of Employees
Ball Plant I	Acushnet	Manufacturing golf balls and ball components	625
Ball Plant II	New Bedford Industrial Park	Manufacturing golf balls and ball components	475
Ball Plant III	New Bedford Industrial Park	Manufacturing golf balls and ball components	80
Advanced Engineering Pilot Facility	New Bedford Industrial Park	Research, design, and testing of new equipment	50
Plant C	New Bedford Industrial Park	Manufacturing golf balls and ball components, other golf equipment	250
Headquarters	Fairhaven	Administration	350
Distribution Center	Fairhaven	Distribution of equipment	75
Packaging Center	Fairhaven	Packaging of equipment	100
Footwear Manufacturing*	Brockton	Footwear manufacturing	NA
Total			2005

*The golf footwear manufacturing facility is excluded from this analysis since it is outside the geographic focus, and is serviced by different contractors.

2. BASELINE SOLID WASTE AND RECYCLING SERVICES AND LEVELS

At the eight facilities included in this analysis, Acushnet has established contracts with a single company for all trash hauling and disposal services, and informal agreements with another company for all recycling services. Each of the eight facilities receive waste hauling/disposal and recycling services at varying levels depending on the facility size, and level/type of activity (Tables 2 and 3).

For its trash service, a local hauling and disposal company provides service on a regular schedule for Ball Plant II, and “on-call” service for all remaining facilities. Trash is

¹ Owned brand names include Titleist, Footjoy, and Cobra.

consolidated daily by the custodial service from manufacturing, office, and lounge areas, and transported to each facility’s trash container. Acushnet owns all trash equipment, with the exception of the 15-yard container servicing the Advanced Engineering Facility and the 40-yard container at Ball Plant C, which are rented (Table 3). In 2000, the eight Acushnet facilities disposed of 2890 tons of waste (Table 2, Figure 1). Note the disproportionate waste tonnage generated by Ball Plants I and II, which accounts for approximately 80% of total waste generation for the eight facilities.

In accordance with its ISO 14001 registration (1998), Acushnet made a public commitment to improve products and processes to reduce their environmental, safety, and health impact. As an integral part of making good on this commitment, the Resource Conservation Initiative (RCI) was launched in 1990 to reduce waste through recycling and more efficient use of materials. Since program inception, RCI has been tasked with cost-efficient diversion of waste and more efficient material use in the production process. A regional supervisor oversees RCI, while designated facilities coordinators at all but one of the facilities² are responsible for managing facility-level waste reduction programs.

Table 2: Acushnet Waste and Recycling Service Levels, 2000

Facility	Trash		Recycling		
	Service Level (Pick-ups/month)	Tons Disposed	Paper (tons)	Corrugated Cardboard (tons)	Metal (tons)
Ball Plant I	10	600	1.8	25	24
Ball Plant II	16	1684	1	12	18
Ball Plant III	4	200	1	2	2
Advanced Engineering Pilot Facility	1	6	0.5	0.5	32
Plant C	2	140	5	2	2
Fairhaven (HQ)	2	100	12	1	0.5
Fairhaven (Distribution)	4	80	0.5	10	0.5
Fairhaven (Packaging)	4	80	2	6	0.5
Total	43	2890	23.8	58.5	79.5

As the major player in the recycling program, Acushnet’s employees at each facility are taught the value of recycling and resource conservation, a position which is reinforced by Acushnet policy and training. At most facilities, employees are responsible for bailing corrugated cardboard using Acushnet-owned equipment, and also transporting recyclables to the loading dock or appropriate end container (e.g., roll-offs for metals) prior to contractor pick-up.

At headquarters, the custodial contractor is the primary provider of recyclable material consolidation and transportation from offices and workspaces to the loading dock. As the final party in the program, a local company provides all Acushnet recycling end service,

² Advanced Engineering has no designated RCI coordinator since it is primarily a research, design, and testing facility with little production.

which comprises hauling and material processing for mixed paper, corrugated cardboard, metals, and small amounts of plastics.

For all facilities, three or four 300-pound capacity Gaylords are used for collection of most mixed paper and beverage cans and bottles, and in some cases corrugated cardboard (Table 3). Acushnet obtains these containers from its suppliers (used in shipment) and reuses them as receptacles in the recycling program, which has proven to be very economical. The recycling contractor simply takes these containers when full, and in turn reuses or recycles them. The largest capacity plants and the packaging center also have bailers for corrugated cardboard, while the distribution center—due to high volume generation—has a 40-cubic yard compactor for its corrugated cardboard. Other facilities use Gaylords for cardboard. All manufacturing plants have 40-yard roll-offs for metal recycling, which are owned by Acushnet.

In 2000, Acushnet recycled approximately 24 tons of mixed paper, 59 tons of corrugated cardboard, and 79 tons of metals for a total of 162 tons of materials diverted, representing a net recycling rate of 6%³ (Figure 1). This recycling rate excludes small quantities of plastic, aluminum, glass, and hazardous materials such as fluorescent lamps and batteries. Plastic bottles and aluminum cans are collected by an organization that employs and benefits developmentally disabled individuals through collection of deposit refund containers. This organization raised approximately \$3,000 in 2000 from its affiliation with Acushnet.

Table 3: Acushnet Trash and Recycling Container Summary

Facility	Trash Equipment	Recycling Equipment
Ball Plant I	35-yard s.c. compactor	40-yard roll-off (metals); baler for OCC; 300 lb. Gaylords (3-4) for paper, plastic and aluminum cans
Ball Plant II	35-yard s.c. compactor	40-yard roll-off (metals); baler for OCC; 300 lb. Gaylords (3-4) for paper, plastic and aluminum cans
Ball Plant III	35-yard s.c. compactor	40-yard roll-off (metals); 300 lb. Gaylords (3-4) for paper, corrugated, plastic and aluminum cans
Advanced Engineering Pilot Facility	15-yard container (rented)	55-gallon drums for metal; 300 lb. Gaylords (3-4) for paper, corrugated, plastic and aluminum cans
Plant C	40-yard breakaway container (rented)	40-yard roll-off (metals); 300 lb. Gaylords (3-4) for paper, corrugated, plastic and aluminum cans
Fairhaven (HQ)	35-yard s.c. compactor	55-gallon drums for metal; 300 lb. Gaylords for paper, magazines (3-4), corrugated, plastic and aluminum cans
Fairhaven (Distribution)	35-yard s.c. compactor	40-yard compactor for OCC; 300 lb. Gaylords for paper (3-4), corrugated, plastic and aluminum cans
Fairhaven (Packaging)	35-yard s.c. compactor	Baler for OCC; 300 lb. Gaylords for paper (3-4), plastic and aluminum cans

³ When metals are excluded, the recycling rate is 3%.

3. BASELINE CONTRACTS AND COMPENSATION

Acushnet has separate purchase orders for trash services for each of its eight facilities, and has informal arrangements for its other recycling services. Most facilities pay a fee of \$112 per haul and a landfill tipping fee of \$70 per ton. The Advanced Engineering Facility, which requires lower service levels, pays a bundled monthly fee of \$275 that includes container rental, hauling, and tipping fees, while Plant C pays an additional fee of \$66 per month (\$792/year) for rental of its 40-yard breakaway container. In 2000, Acushnet paid approximately \$262,000 for its trash services at all eight facilities, of which 77% was tipping fees and 13% was hauling/container charges (Table 4). On aggregate, the net cost per ton disposed was \$91 per ton (\$70/ton tip fee and \$21/ton haul/container charges).

The recycling contractor does not charge for its services, and provides a portion of the market revenues on recyclable materials, which varies with the market. For example, over the last several years, returns on Acushnet’s corrugated cardboard have varied from \$5 to \$80 per ton.

Figure 1: Acushnet Waste/Recycling Profile, 2000

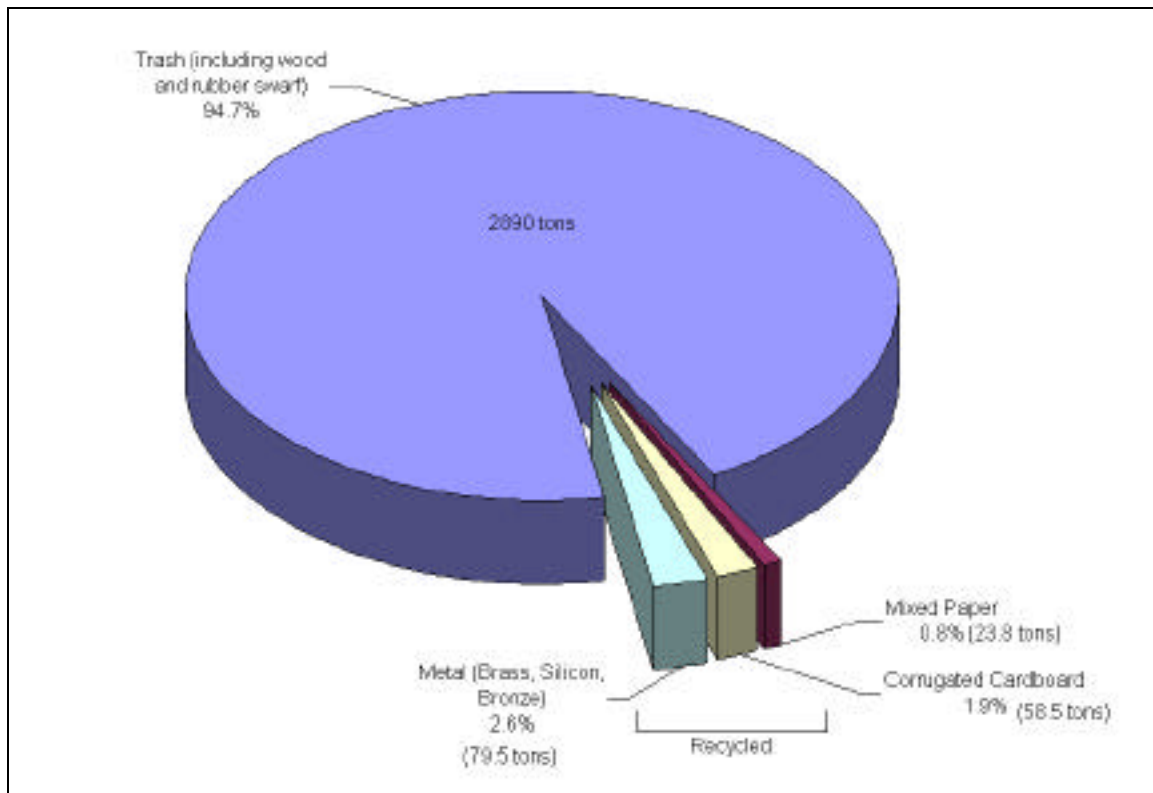


Table 4: Acushnet Waste Disposal Contract Costs, 2000

Facility	Service Level (Pick-ups/month)	Tons Disposed	Landfill Tip Fee	Estimated Haul/ Container Rental Fees	Calculated Costs (1)	Reported Contract Cost (2)
Ball Plant I	10	600	\$42,000	\$13,440	\$55,440	\$34,000
Ball Plant II	16	1684	\$117,880	\$21,504	\$139,384	\$121,000
Ball Plant III	4	200	\$14,000	\$5,376	\$19,376	\$20,000
Advanced Engineering Pilot Facility	1	6	NA	\$3,300	\$3,300	\$600
Plant C	2	140	\$9,800	\$3,480	\$13,280	\$11,100
Fairhaven (HQ)	2	100	\$7,000	\$2,688	\$9,688	\$9,500
Fairhaven (Distribution)	4	80	\$5,600	\$5,376	\$10,976	\$7,500
Fairhaven (Packaging)	4	80	\$5,600	\$5,376	\$10,976	\$7,500
Totals	43	2890	\$201,880	\$60,540	\$262,420	\$211,200
		Avg. cost/ton	\$70	\$21	\$91	\$73
		Fixed portion	NA	\$10		
		Variable portion	\$70	\$10		
		Avg. variable/ton	\$70	\$10		
		Average tons/haul	5.6			

(1) These are costs calculated from service levels, tonnage, and payment structure data.

(2) These are the costs reported by Acushnet.

4. OPPORTUNITIES FOR COST SAVINGS AND ENHANCED RECYCLING SERVICES

There are considerable opportunities for Acushnet to increase diversion and initiate source reduction activities to boost its recycling rates from their current level. Acushnet has a history of using innovative methods to decrease both the cost and environmental impact of its operations. For example, from 1989 to 1994, Acushnet drastically cut its use of trichloroethylene (TCE) in its vapor degreasing operations through employee training and cost-effective equipment and process modifications. On a unit of product basis, the company cut its use of TCE by 50 percent saving Acushnet \$20,000 annually in chemical costs, \$50,000 in labor costs and \$14,000 in energy costs, which was used to help fund the ISO 14001 certification program.⁴

Resource Management (RM) is another innovative approach which would restructure Acushnet’s solid waste management contracts to achieve higher diversion rates while maintaining or decreasing waste hauling, disposal, and recycling costs. RM may also decrease management time and expense on contract coordination and information management issues. While some RM practices are in place already at Acushnet (see section 5), adoption of the remainder of recommendations could lead to improvement in resource efficiency (recycling, composting, source reduction), and other services (information systems and reporting, contractor responsiveness).

⁴ Quinn, B. 1997. Moving Beyond Pollution Prevention. *Pollution Engineering* 29(5): 23-28.

To assess this potential under an RM contract, the Acushnet waste stream composition was first estimated based on waste stream profiles and specific scenarios projecting incremental improvements from the baseline recovery rates. It should be noted that waste stream profiles at individual Acushnet facilities are expected to vary depending on facility function.

Tables 5 and 6 present three scenarios for increasing diversion of paper, cardboard, plastics, and organics, which are the most readily recoverable materials in Acushnet’s waste stream. It is assumed in this analysis that a high percentage of scrap metal is being captured by virtue of its comparatively high value, and therefore potential to divert additional metal is not specifically assessed. The scenarios correspond to an increase in diversion from between 4 and 20 percentage points from the base rate of 5.3% (Table 6).

Table 5: Effects of Increase Recycling on Acushnet Contract Costs, by Material

Material	Scenario Name (1)	Capture Rate of Material	Tonnage of Material Recovered	Avoided Landfill Tip Fee (2)	Avoided Hauling Cost (3)	Revenue (4)	Total Savings
Mixed Paper	Current	3.7%	23.80	\$1,666	\$249	\$119	\$2,034
	Scenario 1	10.0%	64.80	\$4,536	\$679	\$324	\$5,539
	Scenario 2	35.0%	226.81	\$15,877	\$2,376	\$1,134	\$19,387
	Scenario 3	55.0%	356.42	\$24,950	\$3,733	\$1,782	\$30,465
Cardboard	Current	22.7%	58.50	\$4,095	\$613	\$293	\$5,000
	Scenario 1	35.0%	90.27	\$6,319	\$945	\$451	\$7,716
	Scenario 2	45.0%	116.06	\$8,124	\$1,216	\$580	\$9,920
	Scenario 3	55.0%	141.85	\$9,930	\$1,486	\$709	\$12,125
Plastics	Current	0.0%	0.00	\$0	\$0	\$0	\$0
	Scenario 1	10.0%	50.58	\$3,540	\$530	\$253	\$4,323
	Scenario 2	25.0%	126.44	\$8,851	\$1,324	\$632	\$10,807
	Scenario 3	35.0%	177.01	\$12,391	\$1,854	\$885	\$15,130
Organics	Current	0.0%	0.00	\$0	\$0	NA	\$0
	Scenario 1	10.0%	50.86	\$3,560	\$533	NA	\$4,093
	Scenario 2	25.0%	127.16	\$8,901	\$1,332	NA	\$10,233
	Scenario 3	35.0%	178.02	\$12,462	\$1,865	NA	\$14,326

- (1) Scenarios were developed based on capture rates for different materials within the different types of organizations, thus capture rates vary by organization. Incremental gains for a material with a relatively high capture rate in one organization would be more modest than for organizations with lower capture rates of the same material. Readily available sector based waste composition data was used to estimate the capture rates. When actual waste composition data was not available California Integrated Waste Management Board standards were used. Scenarios were calculated showing incremental gains for each chosen material. Materials such as paper, cardboard, glass, plastics and organics with readily available secondary markets were chosen.
- (2) Based on current fee of \$70 per ton disposed.
- (3) Avoided hauling cost is estimated as 50% variable.
- (4) Assumes \$5 per ton rate for mixed paper and cardboard based on conservative estimates of past Acushnet returns.

The scenarios represent cost savings of between \$14,600 for the most modest recycling rate increases, to \$65,000 for the most aggressive. This represents between 6% and 25% of the affected trash service base of \$262,420. Avoided disposal costs from increased diversion represents the largest portion (83%) of the cost savings.

Table 6: Summary of Potential Acushnet Cost Savings

Scenario	Tonnage Material Recovered	Avoided Landfill Tip Fee	Avoided Hauling Cost	Revenue	Total Savings	Total Savings from Baseline	Savings as % of Total Contract Costs	Resulting Net Recycling rate (1)
Current	82	\$5,761	\$862	\$412	\$7,035	NA	NA	5.3%
Scenario 1	206	\$17,956	\$2,687	\$1,028	\$21,671	\$14,636	5.6%	9.3%
Scenario 2	469	\$41,753	\$6,247	\$2,347	\$50,347	\$43,312	16.5%	18.0%
Scenario 3	675	\$59,732	\$8,938	\$3,376	\$72,046	\$65,011	24.8%	24.7%

(1) Includes metals.

Acushnet and its RM contractor might initially focus on increasing recycling rates from the baseline for those materials with lower capture rates, such as the materials identified in Table 5. Emphasis could then be placed on the facilities that generate the largest amount of waste, specifically Ball Plants I and II. Despite the above opportunities, there exists a point of diminishing return at which resources required to achieve incremental gains in diversion may be uneconomical. Compensation under RM should thus also create incentives for the contractor to move further upstream to focus on source reduction.

In this regard, Acushnet has identified some specific opportunities related to its unique manufacturing operations. At Ball Plant II, Acushnet has estimated that 30% of its waste stream is rubber swarf, a by-product from the 2-piece golf ball manufacturing process in which a rubber core component is shaved to obtain the required dimension. The process contaminates the rubber with water, currently precluding recovery or reuse of this material. This amounts to roughly 500 tons, or \$35,000 per year in hauling and disposal costs to dispose of this wasted rubber. Moreover, beyond the disposal cost, Achushnet incurs an additional expense of approximately \$400,000 to purchase this rubber. Acushnet has been exploring means to reduce or eliminate this discard from the production process, increasing material utilization. This type of opportunity represents a potentially lucrative opportunity for an RM contractor and Acushnet, but is also a riskier proposition requiring some initial investment in engineering expertise.

It may also be possible for an RM contractor to devise a means to divert, reuse, or reduce the generation of 484 tons of wooden crating⁵ disposed of by Ball Plant II in 2000, which represents 29% of all disposal at the plant. This would represent another \$35,000 in saved hauling and disposal costs. As the other Ball Plants expand production, similar opportunities will likely emerge.

⁵ Most often used for shipment of rubber for golf ball cores, and other components.

At the packaging plant, there are also some unique issues and resource management opportunities. It is estimated that 60% of waste (equivalent to 48 tons) consists of unused or damaged packaging, including chipboard, with foil, plastic coating and plastic window components. This multi-component design of the packaging makes separation and recovery of the components very laborious and technically challenging. As a result, the material is currently disposed at a cost of approximately \$3,500 for 2000.

5. REALIZING COST EFFECTIVE RECYCLING AND REDUCTION POTENTIAL WITH RM CONTRACTING

Several standard practices (Table 7) can be followed to prepare for and implement an RM contract, from which Acushnet may be able to reap increased cost-effective diversion and other service improvements. As indicated, Acushnet has implemented several of these practices either partially or completely, while others are not yet in place. These practices align customer and contractor incentives for resource efficiency by establishing a compensation mechanism based on performance and continuous service improvement. The first practice, baselining current cost, performance, and service levels is embodied in this memo. This baseline provides the foundation for implementing Practices 2-6, which are essential components of developing a request for proposal or other competitive bid document soliciting RM services. Since it is engaged in 1-year agreements for all trash and recycling services, Acushnet is in a favorable position of being able implement these practices in the short-term should it decide to pursue RM.

Avoided disposal and hauling costs, and revenues of recyclable commodities that would result from higher recycling levels could be used to offset higher internal costs, and provide contractors with direct financial incentives in the form of performance bonuses for recycling and resource efficiency beyond a mutually agreeable baseline. Presently, the burden of recovering materials rests solely on Acushnet, with recycling contractors simply picking up whatever Acushnet can recover. Providing financial incentives to contractors can help increase recycling rates with no additional cost to Acushnet by shifting the onus onto the contractor to identify and propose activities to increase recycling and source reduction.

Table 7: Summary of Standard RM Practices

RM Practice	Description	Present
1. Establish Baseline Cost, Performance and Service Levels	Define scope and service levels	X
	Identify existing contract and compensation methods	X
	Validate service levels with total costs	
	Establish cost and performance benchmarks and goals	
2. Seek Strategic Input from Contractors	Convene pre-bid meetings with contractors to articulate goals and address questions	
	Allow or require bidders to submit operations plans for achieving specified improvements in existing operations	
3. Align Waste and Resource Efficiency Services	Coordinate, integrate, and formalize all contracts and services included in the baseline scope identified in Practice 1	
	Ensure that contractor has access to "internal" stakeholders that influence waste management and generation	
4. Establish Transparent Pricing for Services	Delineate pricing information for specific services such as container maintenance, container rental, hauling, incineration, etc. (This allows variable price savings, such as "avoided hauling and incineration" to flow back to generator and/or be used as means for financing performance bonuses).	X
5. Cap Compensation for Garbage Service	Constrain waste hauling/incineration service compensation by capping or changing to "on-call service."	X
	De-couple contractor profitability from waste generation and/or service levels by setting decreasing cap based initially on reasonable estimates of current hauling and incineration service and costs as per practice 1.	
6. Provide Direct Financial Incentives for Resource Efficiency	Establish compensation that allows contractor to realize financial benefits for service improvements and innovations.	
	Assess liquidated damages for failing to achieve minimum performance benchmarks or standards.	

Based on the practices identified above, an assessment was conducted to determine the extent to which RM practices were part of existing contracting at Acushnet. Those practices that are currently in place (Table 7) are RM practices that are the best established in Acushnet’s current contracts and practices. Additionally, there is potential for adoption of remaining RM contracting practices to leverage recycling improvements as a cost neutral (or even cost saving) proposition for Acushnet.

1. *Establish baseline cost, performance, and service levels.* The service baseline and cost structure for trash purchase orders at each of the eight Acushnet facilities is reasonably well documented, although total trash costs for several facilities was not congruent with service levels and compensation structures (Table 4).

Recycling levels are also well established, although the compensation on recycled commodities is more informal, and is based on a market price for commodities given by the vendor. Under RM, a contractor would have a more powerful incentive to secure the highest possible rates of return on recyclables, and to track, document, and

report trash and recycling data more fastidiously, since it is being compensated on the basis of documented disposal savings and recycling revenue.

With respect to establishing baseline performance and goals, Acushnet has developed formal policies and programs for its RCI program. However, specific performance benchmarks are currently qualitative (i.e., “maintain and expand recycling program”, “source reduction and material utilization”), and should be further quantified where possible. Cost objectives for its trash service should also be established (see also practice 5).

2. *Seek strategic input from prospective contractors.* Providing diversion goals and soliciting input in the pre-bid period would allow Acushnet to explore the extent to which prospective contractors can propose alternative solutions and pricing structures to improve service in an “open”⁶ bid. A major advantage of this approach is that it is flexible and allows Acushnet to explore the extent to which vendors are willing and able to identify and provide cost-effective improvements to existing recycling, source reduction, and other services. Because of the nature of the current recycling agreement (i.e., informal, with little investment on part of Acushnet, and only commodity revenues for contractor) and trash contract (i.e., profit driven from increased disposal), there is limited opportunity and incentive to create a partnership for recycling improvement or to identify and take action on source reduction and material utilization improvement activities.
3. *Align garbage, reduction and recycling services.* For the waste management and recycling elements of an RM program to be mutually reinforcing in support of resource efficiency goals, incentives for recycling should coincide with constraints on trash service. There are two general means to achieve this: (1) formalizing recycling and source reduction by restructuring compensation such that these services are the profit driver and core business activity for contractors (see practices 4-6); and (2) making recycling easy and instinctive for employees while deemphasizing waste service.

The first of these is addressed below. At present, recycling is informal – Acushnet pays nothing for the service and any return it receives is considered a “bonus”. Contractors do not have direct access to the waste generators within the facilities, and there is limited interaction between Acushnet management and the contractors. In contrast, under RM the contractor profits from documented improvement and has an incentive to work with Acushnet on source reduction of inputs, increased corrugated recycling, and/or seeking markets for harder to recover items. This alleviates some of the burden on Acushnet staff and management.

Second, Acushnet can increase the effectiveness of recycling internally by making containers more prevalent. For example, the number of Gaylord containers per facility for recyclables might be doubled or even tripled for easy access and high

⁶ An open specification includes performance-based objectives in place of limiting requirements to location, service level, number of containers and pick-ups exclusively, leaving it open to bidders how they propose to satisfy performance objectives.

visibility, while garbage bins are concentrated and used only as a last resort for non-recyclables. Success in this regard comes with knowing where recyclable materials are generated and by whom, and placing containers as close to these sources as possible. Convenience is especially important in a manufacturing setting, where employees might have little time to properly separate materials.

4. *Establish transparent pricing for services.* Acushnet has benefited from having suppliers “unbundle” pricing structures to specify hauling and disposal on a variable basis (i.e., \$ per haul/\$ per ton landfilled). This would allow Acushnet to realize savings from avoided landfill disposal costs. It could potentially reduce the number of required hauls as well, especially if dry materials (e.g., paper, cardboard, plastic) were segregated from wet materials (e.g., food residuals). One exception is the Advanced Engineering Pilot Facility, which pays a flat \$275 per month charge for its 15-yard container and all hauling and disposal charges. While all other facilities averaged \$90 per ton disposed, this facility’s charges are equivalent to \$550 per ton. In all cases, a transparent pricing structure facilitates tracking and documentation of savings and recycling revenues that could be used to finance performance bonuses and/or assess reasonable liquidated damages as described in practice 6.
5. *Cap compensation for disposal service.* Acushnet has effectively limited its trash contractor’s ability to profit from ever-increasing garbage service levels by implementing on-call service for the majority of its eight facilities. In theory, this allows Acushnet to realize cost savings from having the contractor service the containers less frequently than for a scheduled pick-up arrangement. These savings depend on having employees call only when the capacity of the compactor is reached.

However, Acushnet’s largest waste generating facility, Ball Plant II, is still on a regular trash schedule. Contrary to the above suggestion (i.e., that on-call service will increase pick-up tonnage and efficiency) this facility has the highest average tonnage per haul (approximately 8.8 tons/haul according to reported service levels). To avoid the increased expense associated with expanded trash service, Ball Plant II will need to increase diversion. With higher diversion levels, it may be possible to place trash service at this facility on a call basis.

Looking ahead, Acushnet might use its baseline trash cost information to negotiate a cap on what it is willing to pay for hauling/incineration service under an RM contract. This amount would decrease gradually over time based on reasonable estimates of current and expected service, decoupling contractor profitability from waste service.

6. *Provide direct financial incentives for resource efficiency.* Savings on avoided hauling and incineration fees and revenues received for recycled commodities (as established in practice 4) could, in part, finance a performance bonus for increased diversion. Optimizing recycling involves providing the right incentives to all of the recycling program stakeholders (Acushnet employees, facilities coordinators, custodial service, contractors), and revising these incentives as the limits of recycling are reached to further incentivize source reduction.

Considering other implications of RM, Acushnet and other companies that operate in competitively sensitive manufacturing have expressed concern over the constraints of having an RM service provider work further “upstream” within the facilities due to the proprietary and classified nature of their business. Resource Management and source reduction should not be precluded on this basis, as there are several means to address these issues that have been successfully applied in other settings, including confidentiality or non-disclosure agreements.

RM contracting presents a timely opportunity for Acushnet to leverage cost-effective recycling and resource efficiency improvements. It not only provides a means to effectively capture significant remaining “low-hanging fruit” from improved recycling, RM provides a framework by which Acushnet may be able to achieve the next level of resource efficiency, improve services, and institutionalize a long-term, profitable partnership with an RM contractor.