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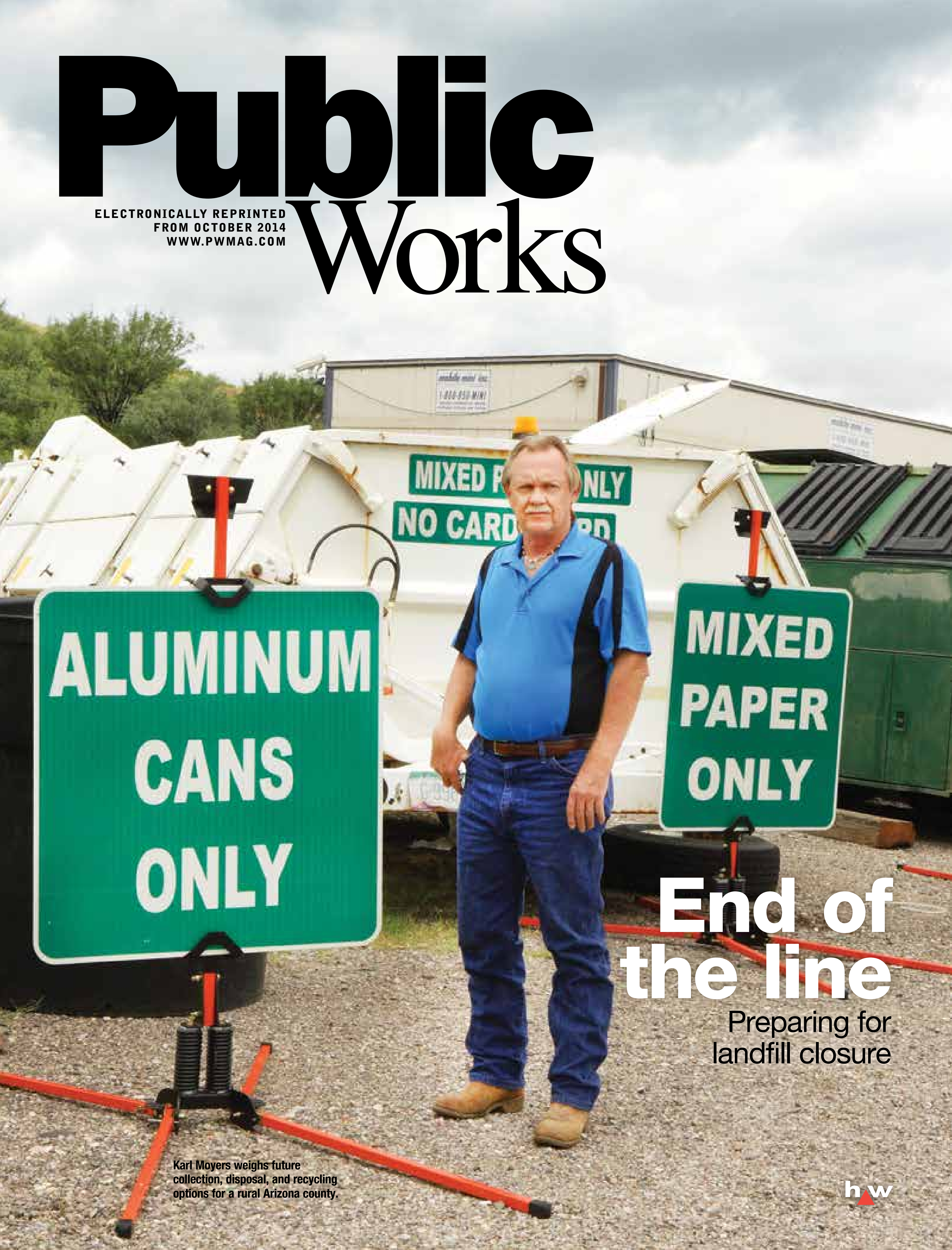

End of the line

Preparing for landfill closure

Karl Moyers weighs future collection, disposal, and recycling options for a rural Arizona county.

SOLID WASTE COLLECTION & DISPOSAL | By Marc J. Rogoff, Karl Moyers, and Michelle Leonard

An exercise in sound fiscal planning

A rural county's public works professionals evaluate future solid waste service scenarios, costs, and financing options.

PROJECT DETAILS

Who: Santa Cruz County, Ariz., Solid Waste Division

Annual operating budget: $978,000

Number of employees: 11

Square miles: 1,238

Population: 47,000

Annual volume: 44,000 tons

30-year post-closure costs (2040 to 2070): $5.6 million

While landfills are generally getting larger, governments—particularly in rural and semi-rural areas—own many smaller facilities. Eventually, they'll run out of room.

When they do, the costs associated with solid waste collection go away, but not those related to the landfill itself. Certain activities, such as monitoring and collecting methane and leachate, must continue. EPA requires private owners to fund these future expenditures via a surety guarantee or performance bond. However, publicly owned landfills are only required to estimate those costs. When it's time to actually pay those bills, public solid waste agencies that haven't planned ahead will be in the same boat as many government pension plans.

Santa Cruz County in Arizona is working to avoid that possibility. Even though the county's 60-acre landfill isn't expected to reach capacity for three decades, its board of supervisors has spent almost $562,000 on professional services over the last decade to develop a long-term waste-management strategy. They want to be able to continue providing collection and disposal services to 47,000 people, while ensuring their landfill meets federal and state regulatory requirements.

In part, this foresight was prompted by the loss of a major customer. But there was another impetus: their desire to relieve future Solid Waste Division managers and residents of the burden of making detailed, difficult financial and public service decisions under duress.

Closing a landfill doesn't completely eliminate operational costs. Local governments must monitor and collect methane and leachate for three decades. That's a significant expense that Santa Cruz County, Ariz., Solid Waste Manager Karl Moyers is preparing for. Photos: Luis F. Garcia


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"Another Recycling Project Partially
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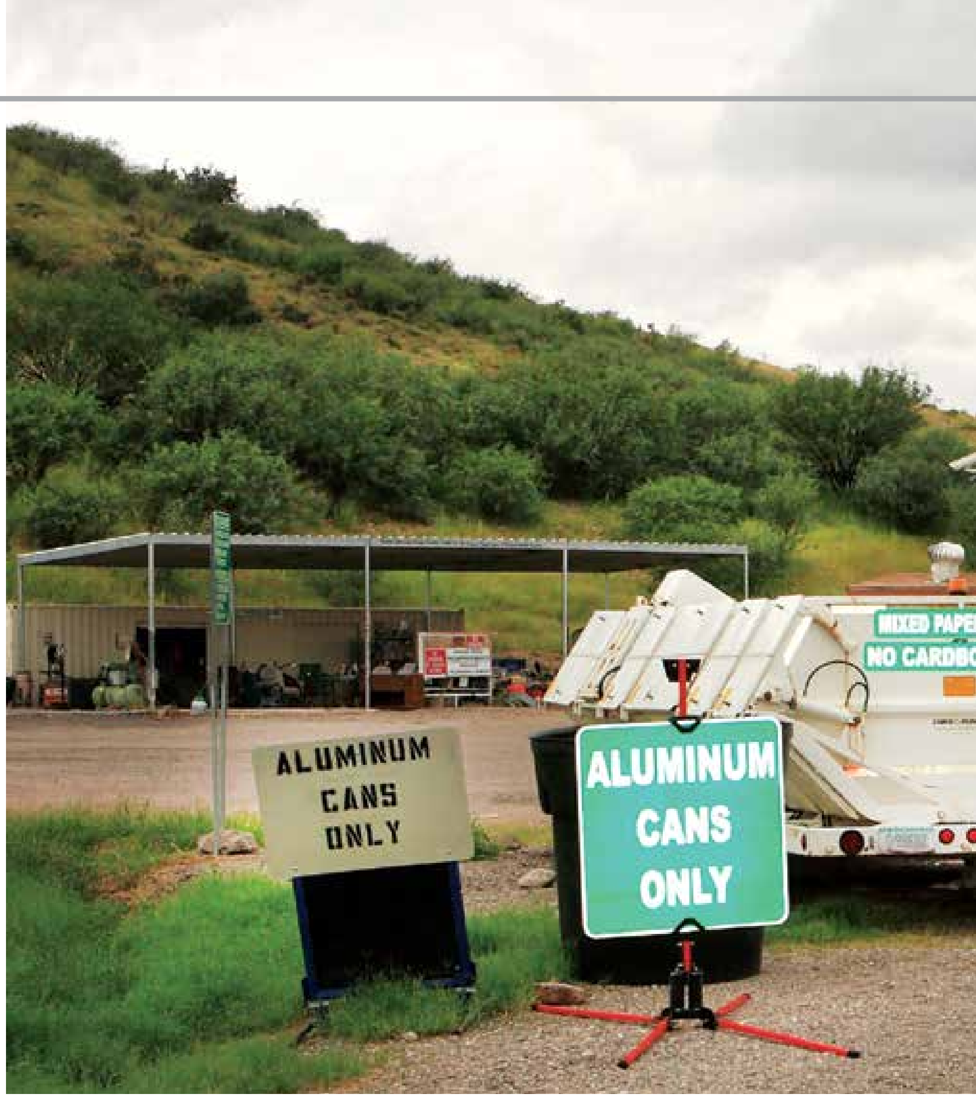

50% drop in revenue prompts reassessment

Santa Cruz County is in southern Arizona, just south of Tucson and north of Mexico's Senora State. In descending order by volume, the county's three waste facilities include:

- **Rio Rico Landfill Facility (RRLF).** This county-owned and –operated facility has received residential and commercial waste from unincorporated areas since 1981. Classified as a canyon landfill due to its topography, the facility received 24,202 tons in 2014. It was expanded in 2009 for $1.1 million to ensure capacity until 2040.
- **Sonita-Elgin Landfill (SELF).** The county operates this facility, which in 2014 has accepted 1,168 tons of construction and demolition (C&D) debris as well as municipal solid waste (MSW). Because it was developed on land provided by the U.S. Bureau of Land Management (BLM), the county doesn't hold clear title to this parcel.

Granted a small landfill exemption under state and federal Subtitle D regulations federal statute, the 40-acre facility doesn't have a base liner, leachate or landfill gas collection systems, or groundwater monitoring wells. Waste is disposed in unlined, trench-fill excavations and as area fills. Nonetheless, the county must meet closure and post-closure requirements when capacity is exhausted in 2129.

- **Tubac-Amado Transfer Station (TATS).** The county operates this rural household drop-off facility, which then transports waste to the RRLF for disposal. In 2014, TATS has collected 261 tons.
- Each facility, as well as one in the Town of Patagonia, accepts recyclables. In 2013, 262 tons were collected. Roll-off boxes are used for cardboard, mixed paper, plastic, and glass, which are then marketed out of the county.

Over the last few decades, the county's Solid Waste Division has explored various waste-management strategies. These include the following reports, which can be found at www.co.santa-cruz.az.us/265/Solid-Waste-Division:

- Landfill expansion at the RRLF
- Retrofitting the SELF and a landfill operated by the Town of Patagonia
- Transfer station at the RRLF
- Materials recovery facility (MRF)
- MRF and transfer station
- Waste-to-energy facility
- Composting
- Anaerobic digestion
- Business case
- Landfill gas-to-energy

In 2007, the technical, environmental, and economic advantages and disadvantages of these 10 alternatives were assessed. The most feasible option was to construct a lateral and vertical expansion of the RRLF to gain another 17 years of landfill life.

In 2009, the City of Nogales did not renew an interlocal agreement, wiping out almost one-half the revenue used to fund the landfill's $900,000 annual operating budget.

Santa Cruz County's Solid Waste Division is a full-service department with 11 employees who collect, dispose, and/or recycle almost 44,000 tons annually.

Long-term liabilities of waste assets

Both EPA and Arizona require owners and/or operators to maintain cover integrity, monitor groundwater and methane gas, and continue managing leachate for 30 years after closing a landfill. Essentially, the operating entity

When the county's largest customer didn't renew an interlocal agreement, almost one-half of the landfill's $900,000 annual operating budget was wiped out.

must continue performing pre-closure activities for three decades.

The owner/operator must prove its ability to pay for these costs, as well as corrective action for any known releases, via:

- Trust fund with a pay-in period
- Surety bond
- Letter of credit
- Insurance
- Guarantee
- State assumption of responsibility
- Multiple mechanisms (a combination of the above).

Private owner/operators may demonstrate financial assurance via surety bond guaranteeing payment of closure costs.

As a publicly owned facility, Santa Cruz County has used EPA's estimating mechanism: the local government financial test (LOGO). The formula requires the ratio of marketable securities to total expenditures to be greater than or equal to 0.05, and the ratio of annual debt service to total expenditures to be less than or equal to 0.20.

Both must factor the effects of inflation on both closure and post-closure costs.

The county's solid waste program is a single cost center that encompasses labor, benefits, and miscellaneous expenses. The Great Recession and loss of tipping fee revenue from the City of Nogales forced the county to draw down its reserve fund to balance the books for the past five years. However, now it's putting aside 25% of the required funds and plans to increase that to 30% beginning in 2016.

In 2013, the county board appointed a six-person committee to help provide recommendations regarding customer charges and recycling operations. The board approved the committee's recommendations to increase tipping fees at all three county facilities. The county intends that 70% of gross revenue be used for operations and 30% placed in reserves.

Federal regs complicate planning

Decision-making is being made more difficult by an uncertain federal regulatory framework. In addition to EPA's new greenhouse gas (GHG) mandatory reporting rule promulgated under 40 Code of Federal Regulations (CFR), Part 98, which is expected to become effective later in 2014, landfill owners await:

- A revised version of the New Source Performance Standards, Part 60, Subpart WWW
- A final decision on whether landfill gases (LFG) are greenhouse gases, which would subject them to Clean Air Act requirements, as well as Title V permitting programs.

When it is issued, the latter will increase regulatory costs for larger landfills through new reporting requirements and installing gas collection systems and smaller landfills through enhanced gas monitoring and reporting. This suggested that the county should reserve funds to expand the RRLF's LFG collection system by 2025.

The average Arizonan generates a little more than one ton of garbage each year.

Three options for full-cost accounting

Given all of the above, the board wanted a long-term business case developed for all solid waste service and assets. The Solid Waste Division retained the Phoenix office of SCS Engineers to determine closure and post-closure costs and recommend strategies for providing cost-effective waste services.

EPA has advocated full-cost accounting (FCA) for landfill management since promulgating disposal regulations in the 1980s. Unlike cash flow accounting, FCA considers direct, indirect (overhead), up-front (past), and back-end (future financial liability) expenses. Landfill assets last for many years and exhibit all of these costs, all of which must be considered to effectively calculate appropriate charges over the long term.

SCS Engineers developed a pro forma model specifically for the county to provide preliminary estimates that could be used to evaluate tipping fees, disposal rates, and the impact of long-term financial liabilities.

The proprietary Excel program projects revenues and both operational and capital expenditures based on anticipated yearly volumes; demographic information; escalation factors for waste growth and costs; administration, personnel and utility costs; and transport and processing costs. Tweaking the data enabled SCS Engineers and the county to develop and compare alternative operational, institutional, and facility scenarios.

Three scenarios were considered for the 30-year, post-closure period:

- Maintain current tipping fees and customer charges.
- Adjust both annually for inflation.
- Adjust tipping fees and customer charges as necessary to balance operating costs and revenue for a break-even budget.

The first scenario provides an annualized projection of the actual costs of running the solid waste system without adjusting tipping fees and customer charges.

Scenario two is a more realistic option with tipping fees and customer charges annually adjusted based on the change in the U.S. Consumer Price Index. This enables the county to meet reserve requirements for closure and post closure of the landfills. To do that, the tipping fee must be raised from $45 to $47 in FY 2015, and then annually adjusted based on the U.S. Consumer Price Index.

Is privatization the answer?

The county has at least three public-private partnership options for managing its system, each with advantages and disadvantages.

- **Cooperative agreements with private and/or public entities.** The county would enter into a cooperative agreement with a private landfill developer or major waste generator. The county would retain landfill ownership and continue providing most waste-related services, but provide access to its landfills for waste from both within and outside the wasteshed for an agreed-upon long-term price.

In essence, the county would sell part of its remaining landfill capacity to help increase waste tonnage and thereby take advantage of economies of scale.

One potential drawback is that residents could end up paying higher fees than the partner does for the same services. Also, the county could become a "dumping ground" for other community waste such as biosolids and agricultural biomass from outside the wasteshed.

- **Private operation of county assets and services.** This option is popular with local governments because it retains public ownership of assets while tapping into economies of scale regarding equipment, labor, and capital.

The county would essentially provide solid waste services with someone else's workforce. However, this option may require lengthy negotiations and ongoing monitoring to ensure the contractor meets specifications.

- **Private ownership and operation of all assets.** If a clear title can be received by the BLM or through U.S. Congressional action regarding the SELF, the county could sell all assets to a private operator, which would provide all solid waste services.

This option assumes the county would be able to completely divest all assets and financial liabilities for closure and post-closure care to the new owner. Although it virtually eliminates financial risk for the county, the county could lose leverage in long-term tipping fees and customer costs unless these are specifically addressed in contract negotiations.

Future decisions

The board of supervisors is weighing these options. In addition to this rational planning process, however, county leaders must be able to adjust to rapidly changing circumstances that can affect the assumptions used in their business case. It's essential that solid waste services provided by small local governments are socially, economically, and environmentally compatible. PW

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