

Abstract

**SWANA Florida Sunshine Chapter's
Summer Conference**

**HIGHLANDS COUNTY OPENS
LANDFILL-GAS-POWERED ASPHALT PLANT**

Presented by

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One man's garbage is another man's treasure, particularly when that garbage can be repurposed to reduce fossil fuel use and save a county hundreds of thousands of dollars.

That's exactly what's happening in Highlands County, Florida, as the county opened in 2008 the state's first-ever landfill-gas-powered asphalt plant. The plant burns the methane gas produced by the landfill to heat the aggregate to make the asphalt that will pave the county's roads. And since each mile of road uses about 650 tons of asphalt, and each ton of asphalt typically takes about 2 gallons of fossil fuel to produce—that's a big savings.

What's more, the county also plans to use recycled glass to replace the sand in the asphalt mixture. This means the county can reinstitute their recycled glass program, which had previously been cut due to a dwindling market for recycled glass. And

because the Highlands County glass supply will not be able to meet the needs of the new asphalt plant, Highlands County will accept glass from other municipalities allowing them an outlet for their recycled glass.

In another innovative move, the plant will begin repurposing used roofing shingles, which will be ground up and melted down for resurfacing projects. The county had been storing the shingles at the landfill, rather than burying them. Then Highlands County will experiment with adding crushed bricks, ceramics, concrete, tire chips, and other wastes to the asphalt mix and further reduce the cost of paving roads.

This presentation will describe the project conception, feasibility study, permitting, design, construction and operation. The gas collection, treatment, compressor and burner system will be described. The capital and operating costs will be detailed along with the reason for utilizing the landfill gas in an asphalt plant.

This project is significant to the industry because:

- It is an innovative use of landfill gas.
- It increases the use of recyclable materials
- This is an example of how two county departments, Solid Waste and Roads, worked together to accomplish an innovative project.
- The publically owned asphalt plant can partner with the University of Florida and the Florida Department of Transportation to study and test unique asphalt mixes that can advance pavement design.

LFG to fuel Florida's first municipal asphalt plant

Methane also may replace diesel to run county's truck fleet

By Jim Konkoly

SEBRING, FLA. — Semirural Highlands County is making a big splash by turning its landfill's methane into a cost-cutting alternative fuel. The move has touched off a statewide political battle, and it is likely to do so again within the next year.

The south-central Florida county, whose main cash crops are citrus of all types and Midwestern retirees fleeing snow and ice, has 100,000 year-round residents and an additional 30,000 during the winter.

Ken Wheeler, director of the county's solid waste operations, will oversee the operation of the first asphalt plant owned and run by a local government in Florida's history.

Methane gas from the bioreactor landfill will fuel the asphalt plant, which will be built in June at the 987-acre landfill. Wheeler said a second methane alternative fuel project could fuel the county's entire vehicle fleet, which uses 550,000 gallons of diesel fuel a year.

PBS&J Corp., a Florida-based engineering consulting firm, estimates the landfill gas can be purified for the BTU equivalent of \$0.61 per gallon, compared to Florida's current average diesel fuel price of \$4.20 per gallon. Using landfill gas at a \$3 per gallon savings could result in about \$1.6 million per year gross savings compared to buying diesel, PBS&J estimates.

Converting the county's landfill methane gas into pipeline-quality natural gas to fuel the Highlands County truck fleet was scheduled to become a reality in about a year. But the state's \$3 billion budget shortfall led to the legislature rescinding a \$1.7 million "green energy/alternative fuel" grant for this county project.

The legislature's budget cutting ax didn't fall on the \$1.65 million state grant for the asphalt plant, which will cover nearly half of the \$3.7 million bill to get the plant up and running.

The county's asphalt plant, which was manufactured by and will be assembled by Orlando-based Gencor Industries Inc., is scheduled to begin production by late June.

Jim Warren, executive director of the Florida Asphalt Pavers Association, traveled the 300 miles from the state capital of Tallahassee to Sebring, about 75 miles south of Orlando, repeatedly last summer, trying to convince the five Highlands County commissioners not to build their own asphalt plant.

After the county commissioners voted 3-2 last August to go ahead with the plant, which Wheeler said would save up to 20 percent on paving costs, the asphalt pavers tried to kill the project in the legislature this spring.

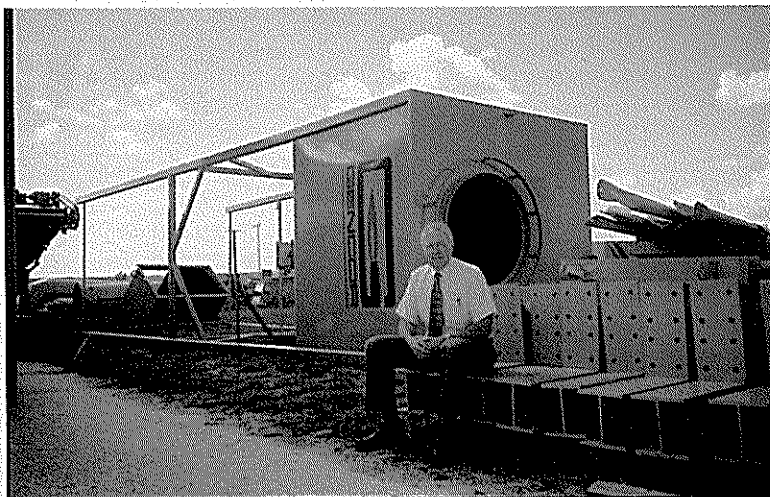
The pavers association wrote a bill which makes it illegal for a city or county government to own or operate an asphalt plant.

State Representative Will Weatherford, a first-term Republican from Wesley Chapel, introduced the bill.

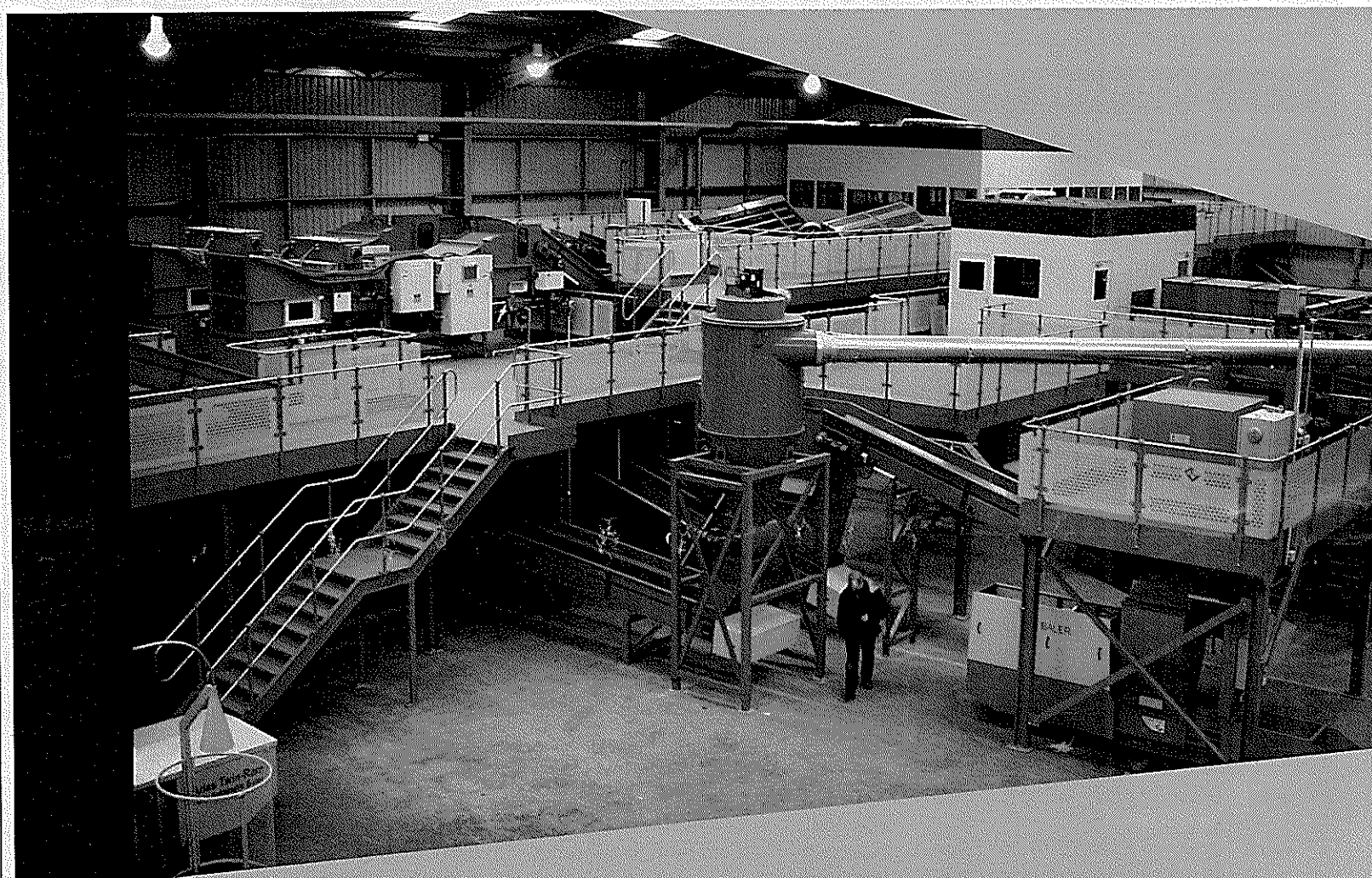
Weatherford, whose father-in-law owns an asphalt producing

company and is a former speaker of the Florida House of Representatives, said local government should not compete with private industry over paving contracts.

Weatherford took a lot of heat, particularly from the St. Petersburg Times, for guiding the bill through a tough legislative battle. ■



PAVING THE WAY: Ken Wheeler, director of the Highlands County, Fla., Department of Solid Waste Management, sits at the site of what will eventually be a \$3.7 million asphalt plant being built at the county's landfill.



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News-Sun photo by KATARA SIMMONS

About a month away from operation, the Highlands County asphalt plant construction is underway at the landfill. The drying unit, which will utilize the landfill's naturally occurring methane gasses, is beneath the crane's arm. To the right are storage tanks, underneath which county road and bridge crews will receive the asphalt for various road projects.

County asphalt plant to bring back glass recycling and more

By KEVIN J. SHUTT

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SEBRING — Beyond using methane gasses currently being flared off at the landfill, the \$3.7 million county-owned and operated asphalt plant is expected mark the return of glass recycling in Highlands County.

Solid Waste Director Ken Wheeler said the county was collecting 400 tons per year when it quit accepting glass in 2002 because there was no market.

For next year's budget, he asking to for new collection bins because he'll be able to use about 4,500 tons of glass per year in the asphalt mix.

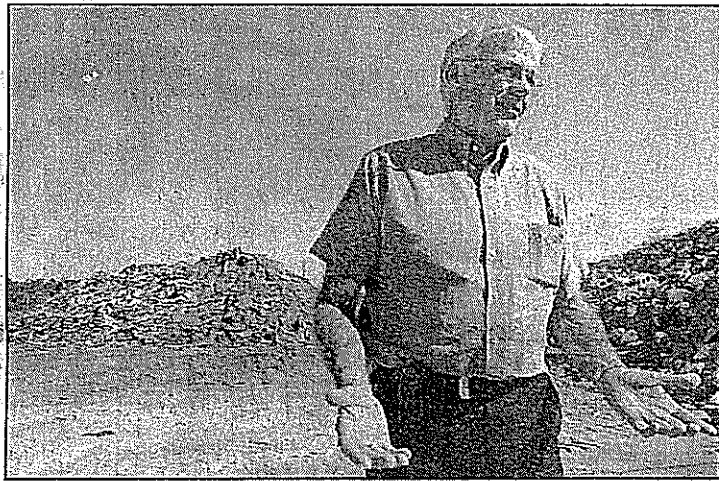
The county looked to its own asphalt plant, to the chagrin of private asphalt companies locally and across the state, because a contractor allegedly left the county high and dry on several projects.

Wheeler said he didn't pitch the idea to the commissioner until he approached Lane Construction for a partnership.

"You tell us what you'll give us for the methane gas," Wheeler said, relating his conversations with the private-sector asphalt and road construction company. "We didn't put any limitations on it."

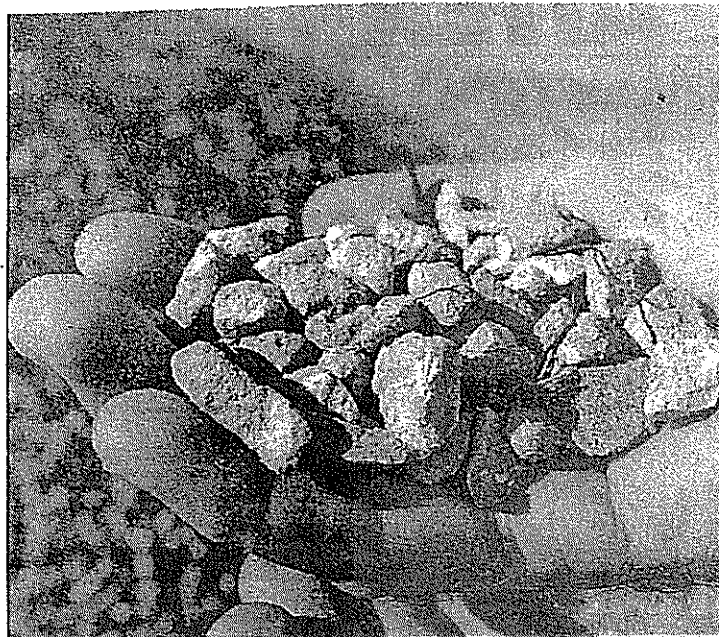
Lane Construction declined, he said, and the commissioners decided to move forward with a county plant.

Critics have complained that the county is taking business away from the private



News-Sun photo by KATARA SIMMONS

Solid Waste Director Ken Wheeler discuss the various material he'll be able to incorporate into his asphalt mix once the plant begins operations in July. Behind Wheeler is concrete and asphalt dug up for the Sebring Parkway project. The road material that would have taken up space in the landfill is now being held and sorted for use in the asphalt plant.



News-Sun photo by KATARA SIMMONS

Solid Waste Director Ken Wheeler holds a handful of crushed concrete, material that used to be sidewalk material, that he'll likely use as part of the asphalt mix when the county begins making its own in July.

sector. "Socialism" is a term that has been used to describe the plant.

"There are those who don't want the government to do anything," Wheeler said. "And, there are those who want government to cut costs, run it like a business and that's what we're trying to do."

Various factors affect projected savings to the taxpayer, Wheeler said, explaining the greatest single variable is crude oil prices which affect the day-to-day price of asphalt cement.

In addition, the asphalt mix affects price.

Virgin asphalt is the most expensive, but Florida Department of Transportation allows up to 20 percent RAP — reclaimed asphalt pavement.

In addition to glass, the county is looking at recycling asphalt shingles, concrete and asphalt (such as what is being removed to make way for Sebring Parkway) and eventually rubber tires.

The glass aspect, Wheeler said, may end up being a positive cash flow, with area recycling programs willing to pay Highlands County to take their glass.

Preliminary estimates, he said, is that his cost to process the glass will be less than what he's paid to haul it here.

He said using concrete and asphalt that would otherwise take up space extends the life of the landfill.

"It's difficult to put a value on that," Wheeler said. "The longer you can use your existing cells the better."

Wheeler needs about two years to determine the cost-effectiveness of the plant, which is expected to produce 31,000 tons of asphalt per year (based on current oil prices).

The plant should be operational mid-July, he said.

With approved funding in the next budget year, he'll move on to a second phase of drawing utilizing the methane — alternative fuel vehicles.

He'll begin by determining which county vehicles would be best to convert to low-pressure methane fuel.

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