



## Vacuum Roadside Debris Collection

SWANA Fall Conference  
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The American Road Machinery Company



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## Road Side Trash- Everywhere!!





## How do we define and measure litter

- Litter is any piece of misplaced solid waste, and it can range in size from tiny bits of paper to large appliances and automobiles. While litter accumulates in all areas of the country, roadways are a particular focal point.
- Across the country, there are about 3.8 million miles of roadway, maintained by national, state, county, and municipal entities.



- “The mess people throw out the windows of their cars is as epidemic as it ever has been. You wouldn’t believe how much junk is hidden off the side of the highway. People are throwing a ton of garbage out their windows all the time.”
- Roadside litter has three primary sources: casual litterers; people who dump larger quantities of garbage and bulky items; and truck drivers who fail to secure their loads.

Quote by: Kevin Nursick, spokesman for the Connecticut Department of Transportation (ConnDOT).



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People are sloppy!



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## How much litter is there?

- To estimate the amount of litter along roadways, a research team selected a random sample of 240 roadway segments, stratified by type and by rural/urban areas. In each segment, a sample area of 300 x 15 feet was identified along the side of the roadway.
- Observations were then made of littered objects of 4+ inches within the sample site. Separate observations were made within a 15 x 15 foot subarea for littered objects less than 4 inches.



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- Using the percentage of found litter in their random national sample, the researchers were able to statistically weight and estimate the amount and types of litter across all roadways.
- ***The results indicate that there are 51.2 billion pieces of litter on roadways nationwide; and of this, the majority (91%, or 46.6 billion pieces) is less than four inches- at any given time!***



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## How Much does all this litter cost?



- According to Keep America Beautiful, littering costs the U.S. **\$11.5 billion every year**. Not included in this estimate are the indirect costs of littering, including decreases in property values, commerce and tourism, as well as the health effects of this form of waste.
- Of the research conducted, it was found that:
  - Cigarette butts comprise 38 percent of all items littered on the highways, streets, parks and playgrounds.
  - 53 percent of all litter was attributable to motorists.
  - 81 percent of littering observed was committed “with intent” by the individual, and was mainly attributable to lack of individual awareness or sense of obligation.
  - Existing litter is more likely than not to encourage further littering.
  - Older individuals (30+) littered less than younger individuals.



Clean it up!



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- In each state, sponsor-a-highway and adopt-a-highway programs, inmate crews and DOT employees play a role in keeping the highways looking neat.
- Sponsor-a-highway programs generally focus on major roadways and require the sponsoring company to hire a third-party company to complete the litter removal. Crews clean the same stretch of roadway between four and 24 times a year, depending on which state the stretch of road is located and the rate of litter accumulation along that stretch.
- Adopt-a-highway programs generally focus on secondary roads, on- and off-ramps and rest areas. They enlist civic groups and volunteers to remove litter from the roadside a few times a year. Signs recognizing the groups' efforts are installed by DOT along the adopted stretch of roadway.
- Inmate crews do most of the heavy lifting in many areas, inmate crews remove roadside litter every weekday, weather permitting. They often clean the same roadway three to five times in one year.



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Volunteer groups often loose interest quickly and the effort fades. Safety is a major concern.



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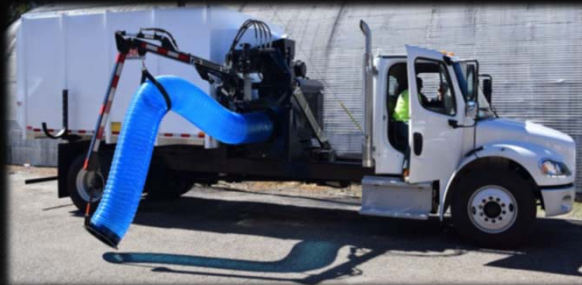
Although many areas post heavy fines for littering, the reality is very few cases are prosecuted.



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We are having a hard time stopping the littering, and cleaning it up isn't always easy or cost effective.

**THERE is a better way- Automated Vacuum Collection!**





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- Chassis or Roll OFF Mounted- one man operation- heavy duty industrial vacuum collection equipment.
- 74 HP Final Tier 4 Kohler Diesel with electronic in cab controls with fluid coupler or auto engage push button clutch
- Automated in cab joystick controlled hydraulic boom for precise control of pick up point
- 24,000 CFM (30" FAN) can pick up almost any size road debris including paper, cans, bottles and household food and other waste.
- Debris is pulverized and shredded by a 30" impellor and deposited into an integral self dumping hopper. (25 or 30 cubic yards)



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- Cost Effective- typical payback in 24-36 months of service
- Fast, efficient way to collect roadside debris. One person, one vehicle- collect leaves and roadside debris without mess, safely from the cab of the truck.
- Increases Productivity there is no need for a pickup "crew". One person can do the work of three and do it faster than in a normal debris collection program. This means a great savings in labor costs and in productivity.
- There is no worker fatigue and no inclement weather to work in because the driver never has to leave the truck while collecting. So the worker can spend more time collecting debris.





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- Customer choice of chassis manufacturer- dual or single steer
- Safety and operator convenience are key
- Available strobe and safety lighting
- Available camera systems to assist operator

Rear

Left/Right

Front

Boom Mounted



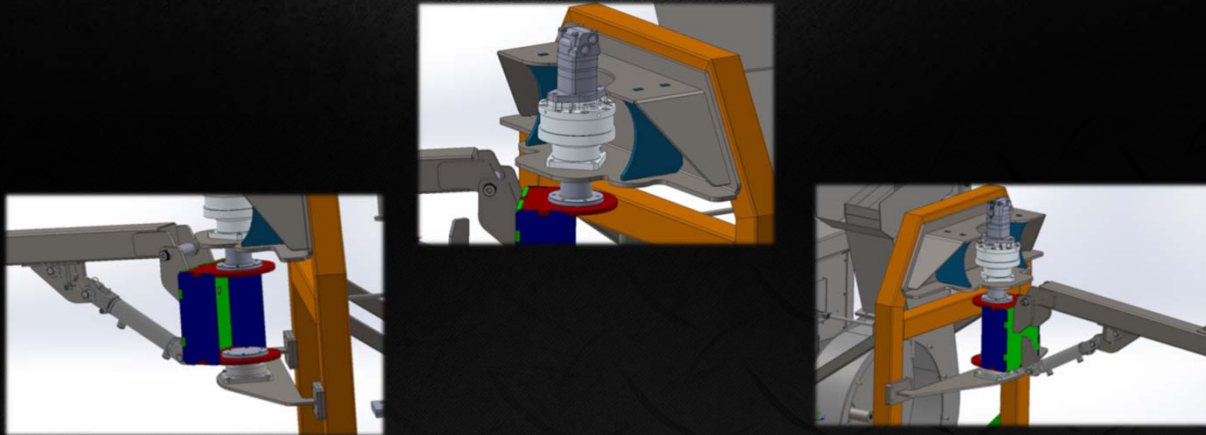
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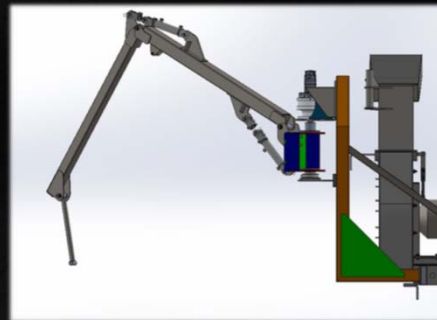
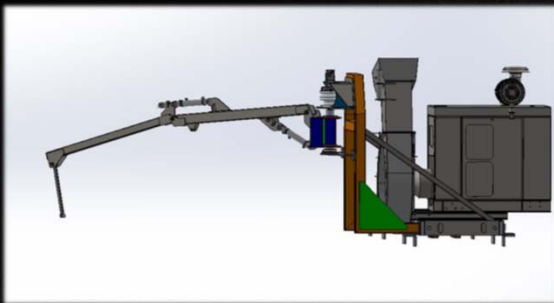
Highly engineered and built for extreme duty severe service



### 3D Computer Aided Design to assure total reliability



Boom Reach up to 12 feet from the curbside to allow pick up in ditches and along fence lines





In Cab Joystick controls for Suction Hose Boom and digital engine gauges allow complete ease of operation.



Automated on board hose stowage for point to point transport or travel to dump sites



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Demo at Panola County Dump Site  
Unit easily picked up wet heavy, trash and debris



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A.R.M. located in Canton, Ohio

Our state-of-the-art manufacturing and up fit facility covers **100,000 square feet** on **10 acres of land**. With the latest in CNC burning and forming capabilities, robotic welding, assembly bays, finishing and painting systems all driven with 3D, computer-aided design, we are able to spec and build the equipment you need.



## We are a fully equipped OEM Manufacturer and up-fitter - 47 years in business

- In house 3D CAD design using SolidWorks
- Highly skilled and experienced workforce

## The latest CNC metal working equipment and cutting edge assembly processes

- Robotic welding
- Precision plasma cutter
- Precision press breaks
- Precision roll form

## LEAN Manufacturing

- Continuous improvement, process driven manufacturing

Simply put, our entire organization is built to **create customer value** in all facets of the business.





Our organization's focus is to create value for our customers. We don't build products, everything we do from design to construction to service is focused on improving our customers' experience.

- **More Durable:** increased unit up-time
- **Easier Maintenance:** maintenance execution increases, more up-time, better performance
- **Fast and Easy Service:** we respond with focus and speed to minimize any lost operational time



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