

# Haywood Community College – Electric Vehicle Purchase

Case Study Follow-up visit on 6-26-09

NC DENR, Division of Air Quality



This model of the EXV2 Patriot has heavy duty aluminum stake sides, allowing it to transport more of the college's trash and recycling per pickup.

## Site Overview

Haywood Community College (HCC) is located just east of Asheville, NC, in Haywood County. The County borders Pisgah National Forest, Great Smoky Mountains National Park and the Blue Ridge Parkway. The 83-acre campus has 2,246 students attending classes and a strong Natural Resources Division where students can gain technical skills for a career in managing, conserving and utilizing our natural resources.

## Haywood's Sustainability

Sustainability is a top priority at HCC and its mission states it should "teach, demonstrate and use sustainable development technologies that promote the economic, environmental and social health of the College and the communities it serves." For example, in 2008, trash and recycling from all buildings at HCC had to be picked up by staff and taken to a central location for processing. This was done in a typical grounds truck that was shared between building maintenance, engineering and campus arboretum crews, and resulted in large amounts of fossil fuel use and subsequent emissions during daily trash and recycling pickup.

## Implementation

In 2008, HCC was awarded a Mobile Source Emission Reduction Grant (MSERG) that went toward the purchase of an e-ride EXV2 Patriot stake-side Truck. The Patriot runs on nine 8-volt heavy-duty deep-cycle batteries and has a 16.5 horsepower DC Sep. Ex motor (72-volt), Curtis 400 amp controller and about 30 square feet of usable cargo deck space. The Patriot has led to the following improvements and benefits:

- The replacement of the original truck produced a savings of \$3,000 dollars in fuel costs.
- An elimination of nitrogen oxides, fine particulate matter, carbon monoxide, and other forms of breathable emissions.
- An elimination of all idling and incomplete combustion emissions.
- Maintenance and service organizations received the benefit of fuel cost savings as well as reduced VOCs and noise pollution.
- The Patriot was charged nightly and had enough power to perform its trash pickup duties all day.
- The Patriot has been featured at sustainability expos, driven in 3 local parades and featured in local and campus newsletters.

N.C. Division of Air Quality

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## Adjustments and Conclusion

Haywood Community College did not encounter any major problems related to the grant process. The one initial concern with the Patriot was that its battery had trouble holding its charge overnight in cold weather. That issue has since been resolved by parking and charging the Patriot in a heated area overnight. The college states that it is the first public entity in Haywood County to introduce various electric vehicles into the everyday functions. Since the Patriot is highly visible around the campus, it will introduce students, staff, faculty, community and guests to the advantages of reducing air emissions. The Patriot will be rotated between the programs to promote the concept of air quality initiatives among the students and the continuing education programs.



The Patriot comes equipped with a speedometer, battery discharge indicator, hour meter and other digital features (above) and is capable of easy navigation around the HCC campus (below).

“Haywood Community College wants to be the leader in Western North Carolina in the reduction of mobile source emissions and sustainability initiatives.”

- Eugene A Stano Jr., Campus Arboretum Team Leader



### Emission Reductions

Nitrogen Oxides (tons/yr)	Particulate Matter (tons/yr)	Carbon Monoxide (tons/yr)
0.01	0.0001	0.12

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