

Oak Ridge National Laboratory Green Transportation Initiative

The Oak Ridge National Laboratory (ORNL) performs a broad range of research and development activities including on light-weight materials that one day could improve a vehicle's fuel economy. However, ORNL also embraces current technologies and techniques to reduce fuel consumption.

During the past several years, the ORNL campus has experienced a significant "green" transformation. Green transportation features were integrated into this transformation along with the addition of several environmentally-friendly buildings and landscaping. Specifically, ORNL has had a multi-pronged approach to green transportation: (1) encouraging lab personnel to walk and to ride bikes through innovative campus design, (2) encouraging shared transportation, (3) integrating maximized fuel efficiency features when upgrading roads, (4) continuing the expansion of the flex fuel vehicle fleet, and (5) implementing bio-diesel in the vehicle fleet.

Lab Personnel Examine Carbon-Fiber Composite Preform



Shoe Leather and Pedal Power. First, ORNL's updated campus is very pedestrian friendly with numerous outside walkways for use in pleasant weather and interconnected buildings and covered interior walkways for use in inclement weather.



Pedestrian-Friendly and Fuel-Efficient Campus Design

Lab staff can also easily bicycle across the campus. This design minimizes the use of government vehicles within the lab. Additionally, a pedestrian and bicycling lane was added to Bethel Valley Road to encourage lab personnel to safely commute to work by walking or riding a bicycle.

Reporter OAK RIDGE NATIONAL LABORATORY

Safety rolls both ways as cars, cyclists share Lab's roads

Summer weather, student interns and a new fitness focus mean one thing at ORNL: more bicycles on the road. ORNL's commitment to safety extends beyond the laboratory, and with an increased number of two-wheeled commuters and a more bike-friendly Bethel Valley Road, safety for cyclists is more important than ever.

Motorists and cyclists share equal responsibility for maintaining safe roadways, and laws and regulations governing bicycles are often misunderstood. Although they are a clean, convenient and responsible mode of travel on a crowded campus, their size (smaller than automobiles) and speed (usually slower than automobiles) call for preventive measures that drivers and cyclists must take to ensure safety on the roads.

In a past ORNL Reporter, the Nuclear S&T Division's Ray Brittain offered tips for drivers and cyclists to make sharing the road a little easier:

Safety tips and requirements for cyclists

- Always wear a helmet. This is your most important piece of safety gear, protecting your most important piece of equipment—your brain.
- Be alert. Always be aware that a motorist might not see you.
- Signal your intentions—use hand signals to indicate turns and stops.
- Use a mirror. This allows you to be aware of traffic approaching from behind.
- Follow traffic rules as if you are driving an automobile. Ride with traffic, not against it.
- Ride as near to the right-hand side of the road as practical, while avoiding road hazards that could cause you to swerve into traffic or lose control.
- Be predictable. Do not weave in and out of traffic or parked cars.
- As is the case with all slow-moving vehicles, you are required by Tennessee law to pull off the roadway when more than five vehicles are unable to pass.
- Pedestrians have the right-of-way on the ORNL campus.

Safety tips and requirements for motorists

- Be alert. Like motorcycles, bicycles are harder to see than autos.
- Don't honk. This can startle a cyclist and cause him or her to swerve.
- When passing, be sure to clear the cyclist before moving back into your lane.
- Cyclists who are not on the extreme right-hand side of the lane are not being careless, but are in fact attempting to avoid hazards that could cause an accident.
- No cyclist's speed can be taken for granted. With today's improved equipment, some bicyclists may be traveling 25 or 30 miles per hour, if not faster. Others will be traveling at much slower speeds.
- Drivers turning left in front of oncoming cyclists cause a large percentage of car-cycle accidents.
- Overtaking, then making right turns in front of cyclists also causes many accidents.

Remember: in the event of even a minor collision, cyclists are much more likely motorists to suffer serious bodily harm. Even if you must yield to a driver or cyclist who is not following the rules, driving and riding defensively is key in avoiding accidents. —Eva Milwood



Communications and External Relations summer intern Eva Milwood, who wrote most of this issue, arrived from the University of Tennessee with her bike.

Article on Commuter Bicycling/Walking Lane

Oak Ridge National Laboratory Green Transportation Initiative (continued)

Shared Transportation. ORNL strongly supports efficient, shared transportation to reduce fuel consumption. On site, ORNL uses a campus taxi service for all lab personnel. Off site, ORNL uses a lab-sponsored carpool program to encourage lab personnel to share rides while commuting to work. ORNL also promotes hybrid vehicle ownership.

Laboratory Logistical Services Division

Campus Taxi

Taxi Service

As of May 1, 2007, the Radio Dispatch Operator at 241-3600 will no longer be in service for the campus taxi. For better service, please call directly to the Taxi Operators at 680-2303 or 680-9800. They will be there to assist you and can estimate when they will arrive at the specified pick-up location to minimize waiting time.

Campus Taxi Service Times:

680-2303 – 7:00 - 10:00a; 11:00a - 3:00p
680-9800 - 7:30a - 1:00p; 2:00p - 4:00p

If you have any questions regarding taxi service, please contact Tammy Weakley at 574-4964.

Oak Ridge National Laboratory Carpool Web

Carpool Home Page

Home | Add Entry | Edit/Delete | Search | About | Pollution Prevention | ORNL

To find potential carpool partners, add your name to the database and search for others.

Carpool Search Find potential carpool partners	Add Entry Add your name to the carpool database.	Edit/Delete Entry Modify or delete your existing entry	Carpool Permit Application Apply for a carpool permit with this fillable pdf form.
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- Announcements**
News & Events **NEW!**
ORNL Joins Smart Trips
KAT Commuting Survey
- Help**
How to use this web site
Obtaining a carpool parking permit
FAQ (frequently asked questions)
- Carpool Links**
Why carpool?
Carpool etiquette
Smart Trips Program
Campus Taxi

Personal mobility is urged to contact Cindy
er for Guaranteed Ride Home through Smart
ncy may be directed to [Jon Forstrom](#), Director (5640).

Campus Taxi and Carpooling Homepages and Example of Hybrid Vehicle Owners at the Lab



Fuel-efficient Traffic Flow Features. During ORNL's green transformation, fuel-efficient traffic flow features were also integrated into the laboratory. In addition to the bicycle and walking lane added to Bethel Valley Road, ORNL also looked for ways to impact vehicular flow. ORNL examined techniques to decrease the number of traffic lights. ORNL reduced a major traffic light at the lab by adding a roundabout, also called a traffic circle, at the main entrance to the laboratory. This modification reduces petroleum consumption by eliminating the need for drivers to wait for a red light to change while their car sat idling, wasting gas.



Oak Ridge National Laboratory Green Transportation Initiative (continued)

Expanding Flex Fuel Vehicle Fleet Using E85. ORNL recognizes that there are many reasons to support the use of alternative fuel vehicles and specifically chose to use flex fuel vehicles that can be fueled using E85, a fuel that is 85 percent ethanol and 15 percent gasoline, or with gasoline when E85 is not available. ORNL's decision to use flex fuel vehicles that use E85 supports the greening of the ORNL fleet as required by the Energy Policy Act of 1992, Executive Order 13423, and DOE Order 450.1. E85 is also a bio-fuel made from plant-based materials such as corn, grains, and wood chips, and is a renewable resource. Because the ethanol is made from materials grown in the United States of America, using E85 supports local farmers, strengthens the United States' bio-energy industry, and reduces the nation's dependence on foreign oil. Additionally, E85-powered vehicles, when compared to gasoline-powered vehicles, have overall reduced tail pipe emissions (carbon monoxide, ozone-forming compounds, nitrogen oxides, sulfates, and particulates).



Flex Fuel Vehicle and E85 Fuel Tank

Consequently, this ORNL E85 alternative fuel initiative has resulted in the following:

- ORNL has 118 flex fuel vehicles in its fleet (25 percent) and an on-site 8,000-gallon E85 fuel tank..
- In fiscal year (FY) 2007, 64 percent of vehicles procured were flex fuel vehicles. (The only time a flex fuel vehicle is not purchased to replace an older vehicle is if a flex fuel vehicle is not an option.)
- During FY 2007, ORNL used 29,558 gallons of E85 in its fleet on site, which is more than 2006 (27,108 gallons) and resulted in reduced tail pipe emissions compared to using gasoline.

When traveling off site, UT-Battelle, LLC personnel can also use E85 in ORNL's flex fuel vehicles in many areas of the nation. The National Ethanol Vehicle Coalition's home page (http://www.e85fuel.com/buy_e85.htm) provides a list of the locations of E85 fuel stations nationwide. The website also contains other useful links and resources.



Flex Fuel Vehicle at the E85 Pump

Oak Ridge National Laboratory Green Transportation Initiative (continued)

Implementing Bio-Diesel in Vehicle Fleet. In FY 2007, ORNL's Logistics Division identified the use of bio-diesel as part of its 2007 Environmental Management System objectives and targets. ORNL's decision to use bio-diesel expanded its use of bio-based fuels and supports the greening of the ORNL fleet as required by the Energy Policy Act of 1992, Executive Order 13423, and DOE Order 450.1. Bio-diesel is also a bio-fuel made from soy beans, a plant-based material, which is a renewable resource. This transition, therefore, also supports local farmers, strengthens the United States' bio-energy industry, and reduces the nation's dependence on foreign oil. Additionally, bio-diesel-powered vehicles, when compared to traditional diesel-powered vehicles, have overall reduced tail pipe emissions (carbon monoxide, ozone-forming compounds, nitrogen oxides, sulfates, and particulates).

Initially a plan was established for the transition to bio-diesel. A separate contract was established to ensure that diesel fuel would be available for the emergency generators, the only equipment at ORNL that was not transitioning to bio-diesel.



Diesel Vehicle at the Bio-Diesel Pump

Consequently, this ORNL B20 alternative fuel initiative has resulted in the following:

- ORNL has 45 diesel vehicles and numerous pieces of equipment in its fleet using bio-diesel.
- ORNL has an on-site 6,000-gallon bio-diesel fuel tank and a 80-gallon bio-diesel tank truck.
- Since February 23, 2007, ORNL used 15,600 gallons of bio-diesel in its fleet on site in FY 2007, which resulted in reduced tail pipe emissions compared to using gasoline.

To ensure a smooth transition, the existing underground diesel fuel tank and truck tank were then cleaned out prior to receiving the first delivery of bio-diesel. During the next several months, the type of bio-diesel was then gradually transitioned from the lowest percentage, B5 (5 percent bio-diesel), to the optimal B20 (20 percent bio-diesel).



Bio-Diesel Fuel Pump