

CASE STUDY



Location: Walled Lake, MI
Company: Walled Lake Consolidated School District (WLCSD)
Study: Idle Reduction

Walled Lake Consolidated School District (WLCSD) is settled in the southeast corner of Michigan and is the state's 9th largest school district. For a district of this size, school bus fuel accounts for a large part of the transportation budget. As with many districts across the state, budgets are getting tight. "There is a push towards saving money where ever you can. Certainly one of the ways, one of the biggest ways you can save is by fuel usage reduction," said District Transportation Supervisor Jill Segal. "It became very important to set idling policies, which actually most districts have done, including us, for the better part of the 21st century."



School buses in the bus garage yard at Walled Lake Consolidated School District's transportation facility. Photo Courtesy of Jill Segal.

Decision Points

Idle reduction is an easy way for any fleet to reduce petroleum consumption, but requires cooperation from drivers. "Even though we can have the policies in place, enforcing them is nearly impossible," Segal said. "A few years ago we came up with an incentive – for the drivers." To get drivers interested and complying with idle reducing practices, the district came up with a competition. Beginning in fall of 2007, the two drivers with the greatest increase in miles per gallon (MPG) through reduction in avoidable idling would be rewarded with a parking space in the bus garage. This was a great incentive, because it meant that the winners would not have to warm up their buses, clean off snow in the winter, or walk the long distance from the facility to the parking area. To be fair, the winning drivers would be from two groups: the general education buses and the special education buses. Special education bus drivers typically idle longer due to special needs and driver responsibilities, such as loading wheelchairs.

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Fleet Facts

WLCSD operates 119 buses covering 107 different routes. Daily, they transport 12,000 school children to and from school. These buses use diesel fuel and vary in size, age, make, and model. The average bus has a life expectancy of 15 years. The use of idle reduction practices and monitoring of average miles per gallon will help these older buses stay in service longer. The fleet has been awarded with safety and inspection awards from the State of Michigan and prides itself on a commitment to safely and efficiently transporting the district's diverse population of students.



Aerial view of fleet facilities. Photo Courtesy of Jill Segal.

Fuel Supply and Infrastructure

The main motivation for the WLCSD's competition was to increase fuel economy through idle reduction practices. With more than 100 buses running on diesel, it was imperative to lower the overall fueling costs. In order to accurately monitor the fuel economy and idling practices of the fleet, the transportation team installed a management and maintenance software program on each bus. This program allows maintenance workers to monitor information and aids in the preventative measures needed for a fleet of this size. Every time the buses fuel up, the software calculates the mileage and fuel usage. This information is then used in reports by the mechanics and maintenance director as a way to keep track of fuel economy, idle reduction practices, and as the first step in preventive maintenance measures.

QUICK FACTS

Alternative Fuel Practice:
Idle Reduction

Number of Vehicles: 119

Miles Driven Annually:
1,486,351

Estimated Fuel Consumption:
207,803 gallons per year

Life Cycle of Buses:
15 years

Costs

Tim Stage, the transportation department's head mechanic, compared engine running times and actual miles driven to derive idling time and miles per gallon baselines for each driver and corresponding bus. After a two-month monitoring period, the baseline idling rate averaged 20 percent, and fuel consumption rate was 7 miles per gallon. After two years of this "competition", Segal notes that idling rates are now below 10 percent and MPG has increased to an average of 7.5. Change in driving habits changed significantly and made a big difference in reducing emissions, reducing petroleum use, and reducing costs. Officials estimate the project saving the district \$28,000.

Another measure to reduce avoidable idling is to have auxiliary heaters installed. Stage said that more than half of the fleet is using this technology. WLCSD uses auxiliary heaters it had installed by bus dealerships as an aftermarket device. In the price range of \$2,400 to \$2,500, these devices eliminate cold starts and reduce pre-route, warm-up idling time. These auxiliary heaters are programmed to begin heating engine coolant to approximately 150°F, one hour prior to the drivers' arrival. To do this, they burn a small amount of the diesel fuel from the bus's main fuel system.

Before auxiliary heaters, drivers would need to sit with their buses idling for fifteen minutes or more, warming the engine. This proved to be wasteful and ineffective. Segal added, "Most of our fleet is diesel, and diesel engines really don't put out a lot of heat until they're moving, so the idea of starting a bus 15 minutes ahead of time is just ridiculous."

Maintenance and Satisfaction

One added benefit of keeping track of bus idling times and trends is the ability to monitor the overall miles per gallon achieved by the bus. If a bus shows a drastic change in efficiency, this signals to the maintenance department that something is wrong. The maintenance team would then perform tests to determine if the fuel efficiency problem is connected to increase idle time or a mechanical fault.

The monitoring of both idle reduction times and miles per gallon allow bus drivers to have more control over their buses and equipment, and often times empower them to become inspectors of their own buses.



A maintenance worker checks diagnostics and inspects one of the 119 buses at WLCSD's transportation facility. Photo courtesy of Jill Segal.

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The department has found the idle reduction incentive program to be a success and will continue the competition for years to come. Just a simple change in driving habits has resulted in huge savings for the school district, a reduction in petroleum consumption, and an increase in driver morale. Having a goal and a competitive approach has helped drivers become more conscious of their driving habits while having fun.

Summary

These idle reduction measures adopted by the district were done so voluntarily, and not the result of any government mandates or incentives. Segal identified a growing trend among schools districts to save money by reducing petroleum consumption, as well as reducing emissions. These practices have popular support, presented opportunity for good press, and are recommended best practices. Regarding WLCSD's idling reductions policies, it appears to be a win-win scenario. Segal concludes, "We're very proud of what we've done around here."