A.J. Mast for The New York Times

FULLY LOADED - The 120 buses of the Washington Township school district in Indianapolis have been fitted with a Global Positioning System unit and a video camera in an effort to improve security.

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AS the wheels on the bus go round and round, Norm Foust is watching.

Mr. Foust, transportation director for the Metropolitan School District of Washington Township in Indianapolis, has equipped his 120-bus fleet with sensors and Global Positioning System units that follow nearly every move the bus drivers make.

"We have information on what time they start the bus, if they check their eight-way student lights, how long it idles, if they check their emergency exits and if they turn their bus off," Mr. Foust said. "It also tells me their speed. "I can find out when their 'stop arm' opened and when it closed - and I can tell that they stopped for 14 seconds," he continued. "When they are out on route I can find them at any given time within 30 feet."

The system is one of several new monitoring technologies that are being installed in school districts nationwide for student safety. Schools are upgrading video cameras in and around school buildings (and sometimes in buses) to enable real-time monitoring in remote offices. Some preschools and day care centers are allowing parents to watch video streaming from Webcams. A few schools are considering using radio-frequency identification tags to be built into bracelets, badges or smart cards that could record when students go through doorways or get off buses.
Many middle schools and high schools are requiring students to carry smart cards that store discipline records, immunization reports and eligibility for lunch discounts. Students swipe cards to enter and exit buildings, with computers immediately displaying photos of the students to verify their identities.

At the School of the Future, a new high school in Philadelphia being constructed in collaboration with Microsoft and scheduled to open in 2006, students will be required to swipe smart cards at every classroom entrance. "That will really be able to track comings and goings," said Bob Westall, executive director of information technology for the School District of Philadelphia.

Mr. Westall attributes the heightened surveillance - at Philadelphia schools and elsewhere - to the shootings at Columbine High School in Littleton, Colo., in 1999, and later school attacks. "That pushed everyone to a mode of thinking that we need to do a better job of tracking who is going in and out of the building," he said.

Schools administrators say they are also preparing for potential terrorist acts. They say that if they have precise information about their students - how many are in class? How many are on the buses? What are their names? - they will be better prepared to handle emergencies.

Joseph A. Monie Sr., a school-bus driver in Washington Township in Indianapolis, said he liked the feeling of security that came with a global positioning system, though he added that he was always conscious of being tracked. "It's a constant reminder," he said. "When you think you're in a rush and you're not really, it makes you think twice about the speed limit."

Mr. Monie's bus also has a video camera, which he raves about. "If you are paying attention to your traffic," he said, "you can't keep looking up in that mirror." The camera keeps an eye on the children for him.

Last year, he said, a first grader complained that a third grader "was beating on him. So we pulled the tape and found out exactly what happened."

Mr. Foust of the school district is now equipping his buses with cameras that feature controls that allow drivers to earmark a moment for later review. "I can zoom in and actually print the fist in the face of the other kid," Mr. Foust said, speaking of a hypothetical fight. "You can't argue with that."

Parents at several PTA's elsewhere say they have not heard complaints about the global positioning systems or the video or smart card surveillance systems.

But monitoring does not always go over well.

In February, Brittan Elementary School in Sutter, Calif., decided to try badges with radio-frequency identification tags for taking attendance. A few parents, with the help of the American Civil Liberties Union of Northern California, complained that they had not been informed about the tracking, that it was demeaning and that the badges might unwittingly reveal data on children's whereabouts to anyone with a reader nearby. A week later, the school dropped the idea. Earnie Graham, the school's principal, continues to argue that the devices are harmless and secure. If a person did have a surreptitious tag reader, he said, "They could get a 17-digit number. That's all."

In Boston, where Global Positioning System devices have been proposed for the public-school buses, union representatives have protested, calling G.P.S. a tool for spying, not safety.
Ronald Stephens, executive director of the National School Safety Center, an advocacy group in Westlake Village, Calif., said he could understand the anxiety over monitoring. "I have to drive through an intersection with four cameras every day, and I really don't like it very much," he said.

Mr. Stephens said cameras were only one tool, and not always the best. "Our research has found that the most effective strategy is the physical presence of a responsible adult in the immediate vicinity."

Jim Newett, the principal at Ellsworth Middle School, near Bangor, Me., tried his own version of video surveillance in 2004 when he became fed up with students' disruptive behavior in the cafeteria. He brought a camera from home and installed it himself.

"It went over like a lead balloon," he said. "I think the feeling was that at the middle-school level we should be able to monitor the students ourselves."

So he assigned a second adult to the lunchroom. "With two adults, it is a smoother operation," he said.

But at Ellsworth High School, a rash of bomb threats scribbled in a bathroom prompted the installation of cameras outside the bathroom, "so we can see comings and goings," said Carl Stecher, technology coordinator for the Ellsworth School Department. The suspected perpetrators were identified, Mr. Stecher said, "and the bomb threats have pretty much stopped."