



## Technology Aids Traffic Count Functions

One, two, three, four ... and many, many more.

Collecting traffic counts on our highways is an important function at INDOT. With more than 12,000 counts performed annually, traffic volume data is vital for short- and long-term planners, pavement design engineers, and state and local economic development groups.

INDOT's interstate roadway inventory has nearly 2,600 mainline and ramp locations. Either a pneumatic tube or tape sensors stretched across highway lanes are used to collect a majority of the traffic data at these busy interstate locations and on other highways. The tube/sensors method is becoming antiquated and considered intrusive. And, despite the positioning of proper traffic controls, safety is a concern because field inspector technicians navigate busy roadways to get the tube or sensors in place.

Challenged to explore new methods to gather federally required traffic counts, INDOT's Traffic Counting team implemented two new technologies that enhance safety and productivity, and are estimated to save the agency millions in operating costs.

### **Laser Count Technology**

This method was found to be ideal for collecting data on high-volume corridors. Nonintrusive, infrared ranging laser units are mounted close to the ground on one side of the roadway. Similar to the tube and tape sensor technology, the laser detects the number of axles on vehicles. This new technology, implemented in fall 2011, has enabled technicians to collect data from the laser without venturing onto a busy roadway, and has eliminated the need for lane closures. Also, this technology reduces traffic control operational needs, allowing technicians to focus efforts on other INDOT infrastructure maintenance activities. Additional laser equipment, implemented over this past fall, provides even more functionality.

### **Video Count Technology**

Automating intersection traffic turning movement counts, along with roundabout, bicycle and pedestrian traffic counts, has been recently aided by video count technology. In August 2012, INDOT implemented more efficient video count technology as technicians no longer have to physically sit at an intersection and manually count each vehicle turn movement over a specified period of time. What used to take hours now takes 10 to 15 minutes to set up the video unit and another 10 to 15 minutes the following day to remove the device and process information. After uploading data, INDOT employees can analyze statistical information within 24 to 72 hours.

Video count information is provided in an electronic report, accounting for 98 percent accuracy. INDOT's Traffic Counting team has experimented with video count technology for nearly two years through consultant contracts for unique counting needs, as it is very costly and was used only in high-priority cases. In fall 2011, the Traffic Count Team and the districts formulated a plan to purchase the

video devices and large blocks of video processing time that could be used by the agency. This dropped the price of routine use of this technology by 65 percent, making it affordable for all. The technology enables more counts through automation and frees field personnel to perform other duties.



*Central Office Traffic Technicians Zachary Fordice (left) and Joe Bussing perform traffic count field work on State Road 37 in Bloomington. Fordice operates Transportable Infra-Red Traffic Logger non-intrusive laser equipment, while Bussing oversees the new MioVision video technology.*

INDOT's Asset Planning Division Director Roy Nunnally is happy with the new methods of gathering data.

"We've automated, and also streamlined, some activities," said Nunnally. "Under the former method, the district offices collectively reported approximately 3,100 hours spent, on an annual basis, just performing manual turning count movements. However, automating the process translates to about \$270,000 in savings per year in labor and also reduces the need for consultant contracts."

Nunnally pointed out additional benefits to the new technologies.

"In addition to safer conditions for field technicians, we're saving anywhere between \$2,000 to \$5,000 per location in traffic control set-up costs. With more than 500 interstate locations counted every two years, requiring some form of traffic control, we're looking at a savings of at least \$1 million – plus, we're saving dollars on vehicle wear and tear and fuel," Nunnally said. "And we'll have faster access to data and be able to collect data at times when we traditionally did not — nights, weekends and holidays. We're practicing INDOT's new culture — doing more with less, with a better degree of accuracy."

INDOT's next step with video technology is to share blocks of time with local municipalities, which will save municipalities money and reduce INDOT's cost by approximately 10 percent.