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Olympics Clear the Air in Atlanta

— by Diane Kightlinger

The city of Atlanta experienced ozone levels during the 1996 Summer Olympics lower than those predicted by the Ozone Advisory Program – and the most significant variable was transportation use, according to a report issued by the Georgia Department of Natural Resources (DNR) Environmental Protection Division in October. Whether intelligent transportation system technology like the advanced traveler information system (ATIS) prompted individuals to change their transportation mode, routing, timing, or destination is still in question.

During the Olympic period, at least four days (July 17-20) appeared to have meteorological conditions prime for forming ozone levels greater than those actually seen – and comparable to those of ozone violation days earlier in the summer. But Ozone Advisory Program predictions were 30 to 35 percent higher than measured levels. “We’re convinced that had the Olympics not been here and we’d had a normal summer activity level in Atlanta, ozone levels would have been higher,” says Ron Methier, chief of the Environmental Protection Division.

Leading up to the Olympics, speculation abounded on the impact the Games would have on air quality, particularly ozone. During the same time period in 1995, the Atlanta area recorded three days of ozone concentrations that exceeded the National Ambient Air Quality Standard (NAAQS). The Ozone Advisory Program began forecasts for Atlanta in March 1996 and finished the ozone season with a 68 percent success rate for predictions, based on a red-yellow-green light approach. But data from six ozone monitoring sites throughout the metro area that supplied hourly ozone values indicated the predictions for July 17-20 missed the mark.

So what caused the decrease in ozone concentrations? To evaluate the factors, information was gathered on both stationary and mobile sources of volatile organic compounds (VOCs) and nitrogen oxides (NO_x), the two pollutants that together contribute to ozone formation. For stationary sources, the program found little change during this period. Emissions from Georgia Power, which were projected to increase possibly due to electricity demands during the period, showed no significant change.

For mobile sources, MARTA supplied mass transit ridership data and the Georgia Department of Transportation (GDOT) provided traffic counts. Data from MARTA show ridership increased an estimated 2.5 times during the Olympic period. The transportation authority added extra rail cars and buses to accommodate the load. Data from GDOT indicate that the actual total daily amount of traffic reduction was not that significant. What the report’s authors found, however, was that strategies recommended by the Atlanta Committee for the Olympic Games (ACOG) reduced morning and afternoon peak traffic volumes by 15.9 percent and 4.9 percent, respectively. The rush hours stretched out

over longer periods of time, keeping traffic moving and congestion at a minimum. This reduction in rush-hour start-and-stop traffic may have significantly reduced the large “slug” of mobile source VOCs and NO_x, particularly during the morning commute time, which can lead to afternoon ozone formation.

“The time of day that pollutants go into the atmosphere may have an effect on the amount of ozone you’ll produce at the end of the day,” explains Methier. “If we pollute just as much but at different times of the day, maybe as much ozone won’t form. We’d like the researchers to take a look at this.”

As contributors to the improved traffic flow, the report mainly cited ACOG-recommended Transportation Demand Strategies (TDS) that shifted behavior rather than technological innovations such as the advanced traffic management system (ATMS) and ATIS. The strategies included telecommuting, car and van pooling, flextime and staggered work hours, compressed work weeks, and altered delivery and pick-up schedules. ACOG’s primary goal was a substantial reduction in normal daily commute traffic between the hours of 7 and 9 a.m. and 4:30 to 6:30 p.m. In addition, a traffic management plan restricted use of many streets throughout downtown Atlanta and increased dependence on the Metropolitan Atlanta Rapid Transit Authority (MARTA) rail lines and buses.

Methier says the lack of cars in the downtown area reminded him of the traffic on a typical Christmas Eve. In fact, he says the dearth of vehicles meant that the ATMS probably didn’t help as much as it might have. Georgia’s ATMS was in operation at the new Transportation Management Center in Atlanta, however, and helped maximize highway capacity using incident management techniques, traffic signal control on surface streets, and traveler information broadcasts. (See *Inside ITS*, July 15, 1996.) Other ITS applications, such as the ATIS services, could have contributed to behavioral changes.

None of the implemented transportation strategies or equipment was put into effect specifically to improve air quality, Methier is quick to point out. Still he says, “The facts bore out that making transportation changes can have a positive effect on air quality. That’s why we see this as such a hopeful situation.”

Michael Replogle, co-director of the Transportation Project for the Environmental Defense Fund, says that supplying the public with an abundance of information during a special event, as was done in Atlanta, can provoke profound short-term changes in travel patterns and provide a good opportunity to demonstrate the potential elasticity of people’s behavior.

“It’s the ‘boiled frog’ problem,” says Replogle. “If you throw a frog into a pot of hot water he’ll jump out, but if you slowly heat it up he’ll stay in there. In regions like Atlanta we’re boiling like frogs in water that’s being slowly heated. That’s exactly what happens with our traffic systems and land-use sprawl patterns of auto dependence. The Olympics constitute an unusual event that allows public officials to say, ‘Watch out, for the next few weeks the water is going to be hot.’”

What about long-term changes? The Atlanta Regional Commission is following up on their Olympic efforts with a program to encourage businesses and governments to continue use of the transportation demand management strategies that work best for them and their workers. Initial surveys indicate larger businesses, in particular, are interested in implementing some changes. Other recommendations cited in the Environmental Protection Division's report include an enhanced vehicle inspection and maintenance program; further education of the public and employees of large businesses on the Ozone Advisory Program and commuter alternatives; and the development and use of vehicles that emit lower amounts of VOCs and NOx.

"We need to work in all those different areas," says Methier. "We shouldn't have to have an Olympics to get cleaner air."