

## Light Tube Leads the Way

Changing traffic flows through construction zones create hazards, especially for night drivers. Recently, Oregon Department of Transportation (ODOT) tested a traffic control device designed to improve delineation of curves through highway construction projects. The 3M™ Lighted Guidance Tube (LGT) was tested on the Eddyville-Cline Hill Section project early this year.

The site selected for LGT testing was a sharp detour curve near the eastern edge of the project. Although the area had warning signs and rumble strips, there had been two major accidents at this location involving vehicles traveling too fast. ODOT hoped to enhance safety and driver awareness by improving delineation of the curve at night.

### The Light Tube

The LGT is a flexible polycarbonate tube with a special optical coating. The tube comes in 20-foot sections. The LGT was attached to the top of the concrete barrier marking the detour. It was illuminated with white light that could be seen by traffic moving in both directions. The light sources are 50 watt halogen lamps attached to the ends of 3 to 5 sections of the tube. For other applications, the light tube can be configured to be seen in only one direction, and yellow lamps can be used if desired.

During installation of the tube, the study team learned that the tubing needed to be kept clean and

dry. Initially, the light from the tube was dim and “spotty.” Dust and moisture had accumulated inside the tubes, damaging the optical film. 3M™ provided replacement tubes. When they were installed, more lights were added to make the system fully bi-directional.



### Monitoring Speed and Safety

Prior to installing the LGT, and on four separate occasions after the system was working, speed data was collected for both directions of traffic. This data, along with weather and traffic volumes were analyzed to measure the impact of the light tube on nighttime speeds. The LGT’s effect on vehicle speeds was inconclusive. In fact, for eastbound traffic, speeds increased after the light tube was installed.

Accident rates were also monitored. There were no reported accidents during the five months the LGT was in service. Because of the short test period, to learn more about how the tube affected motorists, a telephone survey was conducted.

### Motorist Survey

Over 200 drivers who lived in the vicinity and had traveled through the project site were asked for their opinion of the LGT. The results indicate that the tube had a positive effect on safety, and most of those surveyed liked the lighted guidance tube. When asked if the LGT helped them travel safely

around the curve, 87% answered “yes.” Their remarks showed that the LGT alerted drivers and helped them see the layout of the curve. Most of them reported a greater level of comfort when traveling through that portion of the work zone.

### **What’s Next for the Lighted Guidance Tube?**

3M™ is no longer marketing the LGT. However, ODOT still has over 500 m of tube sections and the other components of the LGT. They are currently being stored at the Research Group’s facility in Salem, and are available for reuse on future ODOT projects. Installation requirements are minimal and two people can easily install the LGT.



Nighttime view of the project site and the Lighted Guidance Tube.

A report on the installation and monitoring of the lighted guidance tube has been published.

If you know of a project that would benefit from this type of lighting, contact Andrew Griffith at ODOT’s Research Group.

*Request a copy of the report “Lighted Guidance Tube Evaluation” from the Research Group by phone, e-mail, or in person.  
Or view the report on the Research web page listed below.*

*For more information, contact Andrew Griffith at 503-986-3538,  
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**For more information on ODOT’s Research Program and Projects,  
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**<http://www.odot.state.or.us/tddresearch/>**