

**Larry L. Lair**  
Division Vice President  
Traffic Safety Systems Division

**Personal Data**

Date of Birth: August 30, 1951

Place of Birth: Des Moines, Iowa

Education: Drake University, Des Moines, Iowa, B.S.B.A. – Computer Information Systems and Accounting, 1983

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**3M Career**

1/2006 Division Vice President, Traffic Safety Systems Division

10/2004 General Manager, Traffic Safety Systems Division

2003 Manufacturing Director, Traffic Safety Systems Division;  
Business Unit Director, Highway Safety, Traffic Safety Systems Division

2001 Master Black Belt, Traffic Control Materials Division

1999 Plant Manager, Traffic Control Materials Division

1993 Operations Manager, 3M subsidiary Edusa/Edumex, El Paso, Texas, and Juarez, Mexico, Corporate Quality and Manufacturing Service

1992 Plant Manager, 3M subsidiary Edusa/Edumex, El Paso, Texas, and Juarez, Mexico, Corporate Quality and Manufacturing Service

1990 Finance Manager, 3M subsidiary Edusa/Edumex, El Paso, Texas and Juarez, Mexico, Corporate Quality and Manufacturing Service

1988 Accounting Supervisor, Controllers, Dynatel Division, Austin, Texas

6/1984 Accountant, Controllers, Electronic Products Division, St. Paul, MN and Austin, Texas

6/1983 Systems Accountant, International Controllers

**Affiliations: Business, Professional and Civic Organization**

- Certified Public Accountant
- Executive Committee and Board of Directors, American Highway Users Alliance
- Board of Directors, American Road and Transportation Builders Association
- Associate Member, American Traffic Safety Services Association
- Executive Committee Member, University of Minnesota, Center for Transportation Studies
- Board of Directors, Minnesota Safety Council

*Improving Safety to  
Increase Freight Mobility*

Testimony of:

**Larry Lair**  
Division Vice President  
3M Traffic Safety Systems Division

To:

**The National Surface Transportation  
Policy & Review Commission**

Minneapolis, Minnesota  
April 18, 2007

### *Improving Safety to Increase Freight Mobility*

Good afternoon ... Madame Secretary, Commissioners and staff members. I am Larry Lair, division vice president of 3M's Traffic Safety Systems Division. On behalf of 3M, I want to welcome you to our state and thank you for coming to the "heartland" to solicit and hear our views on policy covering our country's surface transportation system. I am honored to represent our company here today ... and to share the podium with representatives of these other corporate citizens of Minnesota.

#### **Freight Mobility is Critical to 3M**

3M's role and interest in this process are two-fold:

First, as a large American manufacturer with employees and facilities around our country, we are a major mover of freight. As a result, we are heavily dependent on the nation's transportation system. We rely on it to safely and efficiently move raw materials and finished goods, as well as our employees and customers.

Second, we soon will mark our seventieth year serving the highway safety industry as a leading innovator and supplier of transportation safety products and systems. We are both proud and appreciative of the strong, long-standing relationships we enjoy within the transportation community, including of course, with the government bodies that fund, build, maintain and manage the world's best road system.

As background, 3M is a \$23 billion diversified manufacturer serving commercial, industrial, consumer and healthcare markets around the world. More than 60% of our business comes from outside the United States, but unlike many organic U.S. manufacturers, we remain a "net exporter" of goods from the U.S. We continue to export significantly more products from our U.S. facilities than we import into this country from off-shore. This means we still enjoy a huge manufacturing presence in the United States, with operations in more than 30 states and approximately 35,000 U.S. employees. For example, in my division – Traffic Safety Systems – approximately 50% of our U.S. production is exported.

Our large U.S. manufacturing base makes us particularly dependent on our country's transportation infrastructure. As a company, we generate nearly 2.5 million freight shipments a year in the U.S., at a cost of more than 2% of sales. And of course, we depend on trucks – and our highways – for at least some part of nearly all those freight movements. Last year we worked with 448 different carriers to move 3M goods across the United States, including thousands of shipments per week to export points along our coasts.

Given that profile, it's quite evident why a sound, safe, adequately funded transportation infrastructure is critical to 3M's success. In today's globally competitive world, we must move supplies into our factories and finished goods out with increasing speed and precision. This is particularly important if we are to continue competing effectively against cheaper, off-shore producers. Just as important, our success is tied directly to our employees getting safely to their offices, laboratories or factories, as well as in front of our customers. Not just for 3M, but for companies across America, this means continuing to promote, fund, build and maintain a safe, efficient transportation system using the most innovative, technically advanced designs, systems and materials.

### **Safer Roads Needed to Accommodate More Trucks**

There is one transportation issue of particular importance to me because it relates to the business I manage at 3M. I'm referring to safety.

Anyone who has traveled our nation's highways has witnessed firsthand the ever increasing volume of truck traffic. And along our main freight-moving corridors, this traffic frequently is heavier at night when goods move between factories, distribution points or end users.

Night driving, of course, presents its own unique set of challenges. While only 25 percent of total highway travel occurs at night, more than one-half of all fatal crashes take place in hours of darkness.<sup>1</sup> Trucks account for only four percent of the vehicles involved in all crashes but twice that figure – eight percent – of the vehicles involved in fatal crashes.<sup>2</sup> So the statistics bear out that freight-hauling trucks need to be a focus of continued

safety efforts on our roadways. Truck crashes, clearly, tend to have more severe consequences, even though they are a relatively low percentage of all the vehicles involved in crashes.

And if you look beyond the fatal category of crashes, more mundane, non-recurring congestion-causing incidents also impede both commerce and commuting. The inherent unpredictability of traffic incidents of any type has a serious impact on freight logistics. Non-recurring incidents such as non-fatal crashes, work zones, weather, special events and poorly synchronized signals, are responsible for as much as 60 percent of traffic congestion nationwide.<sup>3</sup>

3M's role in addressing these types of highway safety issues dates back to the 1930s. Our early work combining adhesives, film-making and optics led to introduction of the world's first fully reflective traffic signing materials in 1939. In the decades that followed, our continued research and development commitments and dedicated capital investments produced consistently improved, higher performing, more durable products. These have included enclosed lens construction that protected the optical elements from the weather; more durable materials, adhesives and pigments that lasted longer and performed better in the rigors of various climates; transparent inks that allowed normal colors to show up in both daylight and under reflective nighttime conditions; huge technology breakthroughs that have created materials ten-times brighter than earlier generations; and finally, new-to-the-world optical technology that, for the first time, creates a pavement marking material that reflects just as well when wet as when dry – something that has stymied researchers for decades.

We are very proud that our 70 years of investment, research and pioneering manufacturing processes, have positioned us as the world's leading contributor of reflective traffic safety materials. 3M materials are specified by government jurisdictions at all levels around the world.

3M technologies improve highway safety by making roads, vehicles and signs more visible. Our expertise in “retroreflection” – the returning of light directly back to its source – is what makes traffic signs work at night.

It provides drivers advance warning of curves, hazards, work zones, large vehicles and other obstacles. Reflective technology provides drivers with crucial, timely information about approaching hazards or decision points, giving drivers the time they need – maybe just crucial, extra seconds – to process information, make a decision and execute a maneuver. The result can range from simply navigating an exit to avoiding life-threatening incidents. Without reflective technology, both hazards and driver guidance devices that are perfectly visible in daylight would be virtually invisible in nighttime driving conditions.

Retroreflective sign performance presents a host of different challenges for drivers of large freight-hauling trucks. Because of the distance truck drivers sit above the plane of their headlights, they receive less returned light from reflective devices at night. Observation angles are one key to retroreflective performance, and truck drivers sit at a disadvantaged position for optimum reflective benefit.

For example, an automobile driver at night may see a sign alerting them to an exit ¼ mile ahead. The truck driver in the lane next to them likely won't see that same sign until they are significantly closer to it. The trucker isn't receiving the same amount of reflected light as the car driver, so the trucker will have less time to process the sign's information and execute any required maneuver.

However, continued research and development into optics technologies and precision manufacturing processes has produced some reflective material breakthroughs that address the disadvantaged position freight-hauling truckers find themselves in.

### **New Technologies Provide Greater Safety for Truckers**

Through years of R&D and tens of millions of dollars in capital investments, 3M has perfected the first signing material that returns nearly 100% of the light that hits it back to the source. The result is a reflective material that is nearly twice as efficient as anything previously available. While drivers of large trucks still are disadvantaged due to their observation angle (physical position vs. plane of headlights), the greater efficiency of

this breakthrough 3M material makes signs more visible at greater distances and at more severe angles. The result is truck drivers can now receive better visual cues – earlier – and can enjoy additional response time for safer, less stressful navigation.

Additional research has solved another issue that has vexed transportation professionals for years: the impact rainwater has on pavement markings, particularly at night. Traditional highway safety optics are incompatible with water. Water simply negates or blacks out the optical element's reflective properties. (That's why "enclosing" early generations of signing material was a huge breakthrough.)

In the last three years, 3M has developed and brought to market the first durable pavement marking materials with true "wet reflective" properties, resulting in pavement marking systems that are just as bright when wet as when dry.

I submit that these two technological advances – more efficient sign materials and wet-reflective pavement marking optics – represent significant advances in transportation safety – certainly, for freight hauling truckers, but also for all motorists. Moreover, they come at an economical cost to implement. In business terms, they carry an attractive value proposition.

### **Government Regulation Impedes Innovation**

While there is clear market demand for these new technologies, we find government bureaucracy standing in the way of motorists benefiting from these new systems. In essence, government regulatory hurdles are blocking innovation.

A decades-old Federal Highway Administration regulation (23 CFR 635.411), generally known as the "proprietary products" rule, often makes it very difficult for states to use these new safety devices and similar technological innovations on federal-aid projects. Written in the mid-1970s, when many state DOTs had less technical and analytical expertise than they have today, this regulation prohibits the expenditure of federal highway

funds on proprietary products in order to protect taxpayers against “sweetheart” deals that cost too much and deliver too little.

Anyone can appreciate the regulation’s intended purpose: to ensure that taxpayers aren’t bilked on highway construction projects. Unfortunately, the proprietary products regulation is based on a false premise (i.e., it assumes that the taxpayer’s interest is best served when lower-performing products are allowed to compete in price against higher performing products), and it has numerous unintended consequences that undermine the public interest in deploying innovations to solve our most pressing transportation problems.

Obviously, many new technologies are protected with patents or trademarks because of the intellectual property involved in their development. This is particularly true of any technology that marks a dramatic leap forward in performance or durability. Yet, it is precisely these innovations — those that would significantly improve roadway safety, for instance — that the proprietary products rule specifically excludes from the federal-aid marketplace.

To be clear, the regulation provides four limited exceptions to the general prohibition against proprietary products. FHWA officials may approve a state’s decision to use a proprietary product if: 1) the product is obtained through competitive bidding with other proprietary and non-proprietary products; 2) there is only one product available that synchronizes with an existing system, such as traffic signal timing; 3) the product will be used on an experimental basis; or 4) the product’s use is deemed to be in the public interest.

In all cases where state officials decide to specify a proprietary product because of its superior performance characteristics, that decision must be supported with extensive analysis and documentation and FHWA officials must review and approve the state’s decision. This process, which occurs on a state-by-state basis, raises significant barriers against the deployment of innovative materials or processes in highway construction. Those barriers cannot serve the interests of taxpayers or motorists.

As I mentioned, the proprietary products rule is based on a false assumption that competition between lower performing and higher performing products serves the public interest by driving down prices. In fact, the most significant effect of this regulatory regime is to delay or prevent altogether the technological advances that we need to build and operate a more efficient, safer highway system.

In business, innovation drives competition. Leaders in innovation set the market standard, and competitors are striving every day to develop more efficient processes that improve their productivity or to develop better performing, more effective products that will equal or exceed the market standard. As a result, competition occurs at every step in the process of bringing a product to market, companies continuously improve their operating efficiency, better products are invented and brought to market every day, and consumers receive higher quality and better service at competitive prices.

The proprietary products rule is based on an inverse logic. It suggests to some that multiple sources of supply must be the agency's top priority, even when the public interest in safer, less congested, longer-lasting highways would be better served with a single source. It ignores the significant technical and analytical expertise that now exists in state DOTs across the country. It fosters a culture of skepticism about distinctive products and practices. And it drives the highway marketplace toward the lowest common denominator.

Given the anticipated growth in truck shipments over the next three decades and the need for innovation in highway construction, operations, and maintenance to meet that increased demand, we urge the Commission to recommend significant revisions to the proprietary products rule. The motoring public — particularly freight carriers who have the greatest need for safer, more durable, and more efficient highways — will benefit from a regulatory regime that fosters and welcomes innovation, rather than stifling it.

As more and more vehicles – including freight-hauling trucks – clog our roads, taxpayer frustration escalates and American productivity, commerce and global competitiveness erode. However, for the private sector to continue research and development investments in search of ongoing solutions, it's crucial that we streamline the market barriers to successful commercialization. While solutions exist today that address some of these crucial safety and traffic management issues, companies like 3M will become increasingly reluctant to invest in new technologies knowing that antiquated regulations may block commercial potential.

### **Virtual Safety Devices Hold Future Promise**

At 3M, we believe the future is bright for enhancing transportation and keeping America competitive. New technologies in the areas of virtual signing, better warning devices and improved pavement marking are on the drawing board. What's more, they promise to lead to more cost-effective solutions to our growing transportation problems. Today, I'd ask you to give serious consideration to dismantling the barriers that deter deployment and deny motorists the added safety benefits that these products and systems offer.

On behalf of 3M, thank you for coming to Minnesota and thank you for giving us the honor of participating in today's hearing.

- 1.) ("Night Lights", Federal Highway Administration, <http://safety.fhwa.dot.gov/media/pdf/nightlights.pdf>)
- 2.) ("Traffic Safety Facts 2005", National Highway Traffic Safety Administration, <http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.6a6eaf83cf719ad24ec86e10dba046a0/>)
- 3.) ("Traffic Congestion and Reliability", Cambridge Systematics Report prepared for the Federal Highway Administration, September 2005)

***“Improving Safety To  
Increase Freight Mobility”***

Testimony of

**Larry Lair**

Vice President

3M Traffic Safety Systems Division

To The

**National Surface Transportation and  
Revenue Commission Hearings**

Minneapolis, Minnesota

April 18, 2007

# 3

- \$23 billion global sales
- 60% of sales outside U.S.
- Net exporter of U.S.-produced goods
- Operations in 30 states
- 35,000 U.S. employees
- 2.5 million annual U.S. freight shipments
- ≈\$500 million annual freight costs

# 3M and Transportation Safety

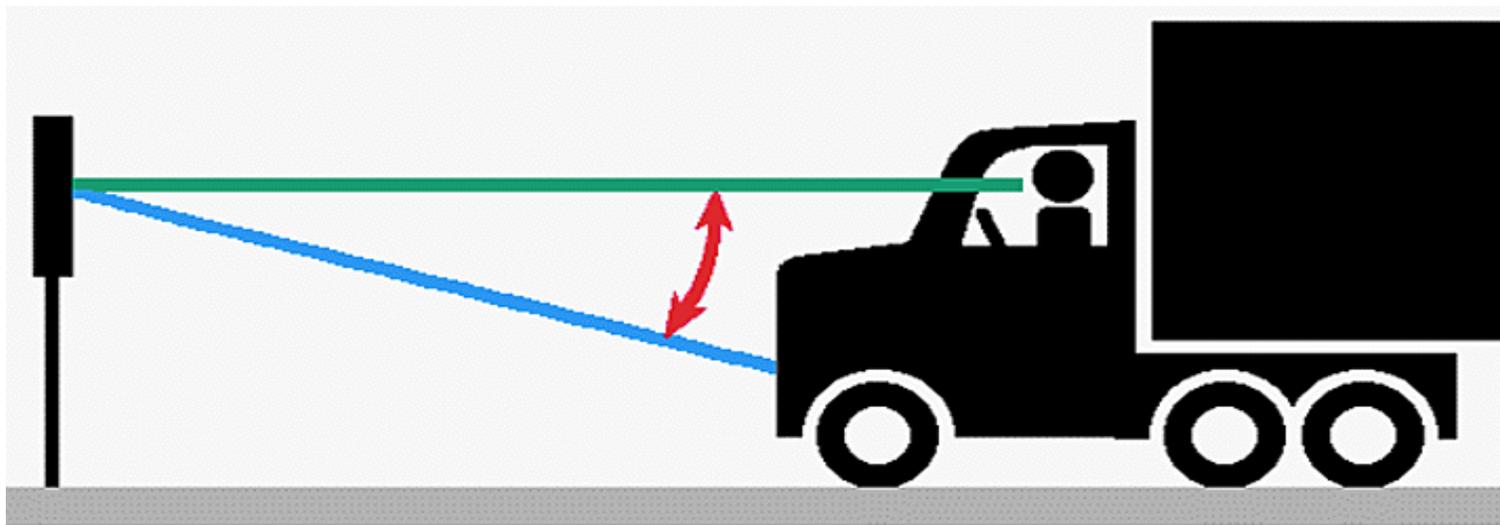


- Invented retroreflective sign sheeting in 1930s
- Evolved into primary warning and guidance device for drivers
- Hundreds of millions of dollars in R&D and capital investment
- Leading innovator in optics, transparent inks, durable fluorescence, wet reflectivity

# Sign Performance

**“Retroreflection” – Returning of light directly back to its source**

- Freight hauling truck drivers are disadvantaged because of significantly greater sign “observation angles”
- New 3M technology has reduced that disparity

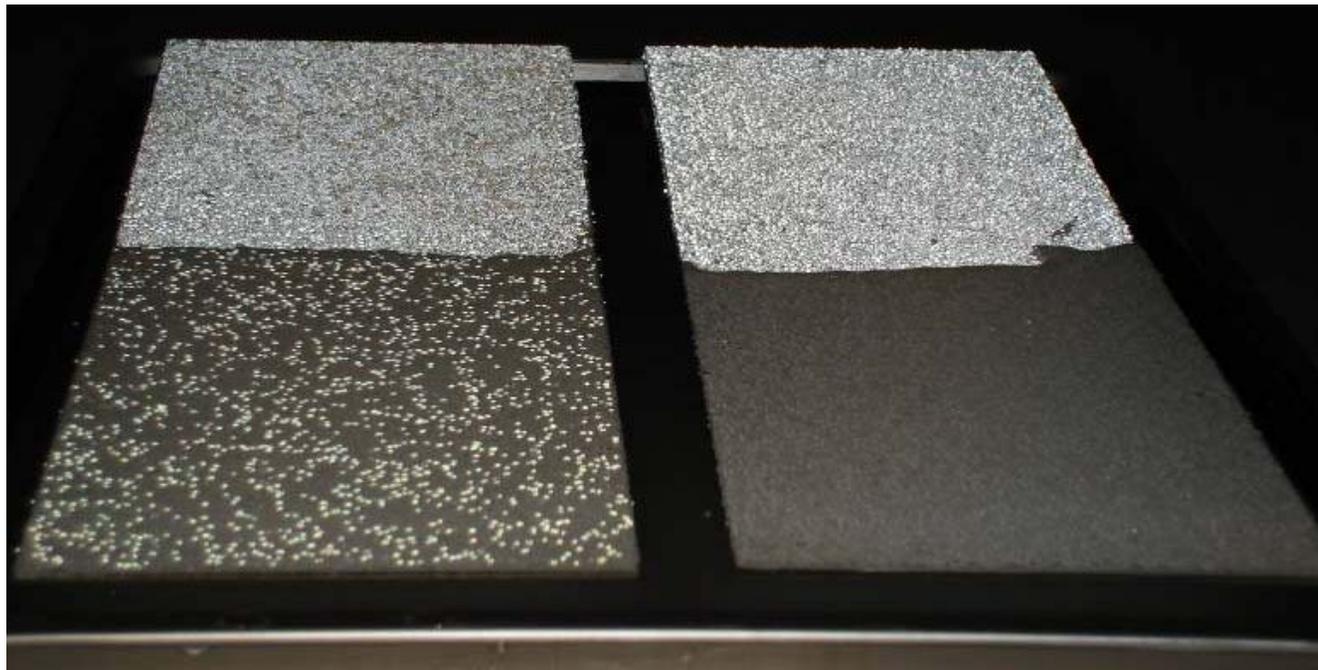


# Wet Reflective Performance

**First-ever optics technology making pavement markings as effective when wet as when dry**

**3M wet reflective  
technology**

**Traditional pavement  
marking**



# Government Regulation Impedes Innovation

- 23 CFR 635.411 – “Proprietary Products Rule”
- Prevents deployment of emerging highway safety technologies
- Makes “source of supply” higher priority than safety and innovation
- Deters future technology development
- Deprives motorists of advanced safety solutions

# Promise for the Future

