

## Best Practices:

# Modernizing Canada's Traffic Signs

Reflective sign sheeting helps drivers see signs with sufficient time to react—particularly at night—making it a key element of safer roads. For this reason, traffic engineers aim to install highly visible, conspicuous, and durable sign sheeting on every roadway project.

Over the years, sign sheeting technology has evolved to be more reflective in a wider range of conditions—from lower performing ASTM Type I sheeting composed of enclosed-lens glass-bead material to the latest ASTM Type XI technology. Sign sheeting that meets the ASTM Type XI standard uses 100% efficient full-cube prismatic technology to reflect almost 60% of available light back to motorists—nearly double what the next highest class of sheeting reflects. It's also designed to better reflect the headlights of newer vehicles, provide more luminescence for older drivers, and help truck drivers see road signs at greater distances.

Despite the innovations in sign sheeting technology, a province in Canada for many years continued to use Type I sheeting for guide signs. So a team of 3M representatives took it upon themselves to partner with the Ministry of Transportation to modernize the province's road signs, position them for the future, and build safer roads for all motorists.

## Demonstrating the Benefits of Type XI Sheeting

To start shifting the conversation towards Type XI sheeting, the 3M team met with Minister of Transportation to share the importance of sign retroreflectivity and how it impacts roadway safety. Once this relationship was established, key officials and stakeholders met on an ongoing basis to discuss the benefits of upgrading the province's sign sheeting. A few key topics of conversation:

### **Providing a Larger Cone of Retroreflection**

In addition to reflecting more light back to motorists, Type XI sheeting returns that light in a wider retroreflection cone. This is important for a couple of reasons. First, buses and large trucks are typically much taller than passenger vehicles. A wider cone of retroreflected light means more light will be returned to the drivers of taller vehicles. Second, studies show that, over the years, the low-beam headlights of passenger vehicles have evolved to be less glaring and deliver more light to the road. But this means they deliver less light to overhead traffic signs and signs on the shoulders. Because of the wider cone of retroreflectivity, Type XI sheeting reflects more light back to the driver from signs in these common locations, improving nighttime visibility and road safety.

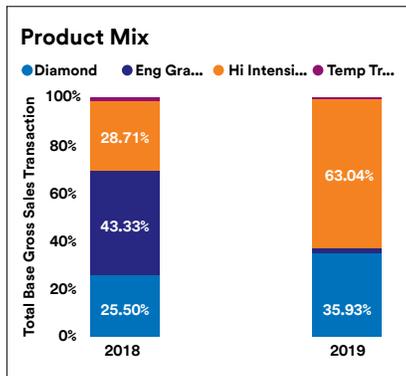
### **Building Safer Roads for Aging Drivers**

There are currently around 6 million Canadians over the age of 65, and that number is expected to rise to 7.5 million by 2024. Aging drivers need more light to see and read a road sign, and more time to react to the message. Type XI sheeting returns more light to the driver at greater distances in both nighttime and rainy conditions, and can help reduce haloing and glare.

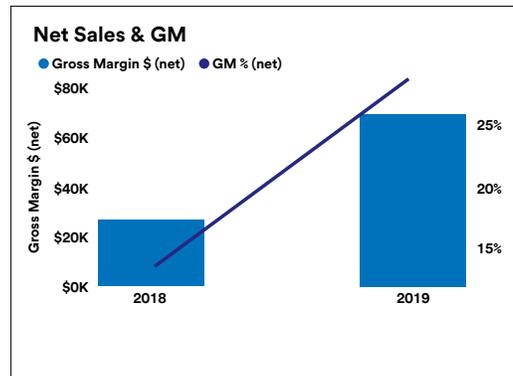
## Positioning for the Future

Type XI sheeting is optimized for the machine vision systems that these vehicles rely on to analyze their surroundings and make critical decisions. By installing Type XI sheeting, the province can solidify its position as an innovation hub while preparing its roads for the deployment of vehicles with varying levels of autonomous vehicle technology.

[Learn more about autonomous vehicles and 3M connected roads.](#)



**Product Mix:** The percentage of 3M Canada's HIP and DG3 sign sheeting sales shifted from 28.71% to 63.04% and 25.5 to 35.33% respectively from 2018 to 2019.



**Net Sales & GM:** Gross Margin \$ (net) increased 259% in 2019 over 2018. Gross Margin % increased 206% over the same time period.

## Reducing Annual Costs

In addition to the visibility and safety benefits, Type XI sheeting is more durable and longer lasting than other types of sheeting. This can help reduce costs and resource requirements for sign maintenance and replacement.

## The Results

As a result of these ongoing conversations, The Ministry of Transportation is exploring these next steps:

- Institute a sign replacement program to remove Type I guide signs.
- Upgrade new provincial highway signage to Type XI reflective sheeting.
- Revise the Traffic Manual to reflect nationally-accepted best practices.

## “How-to” Guide

A step-by-step guide for implementing Type XI sign sheeting

- 1. Build a business case:** In order to secure funding for Type XI sign sheeting, you'll need to demonstrate its value. You can reference this best practices case study as one example where the safety, durability, and performance benefits of Type XI sheeting outweighed the costs.
- 2. Plan a pilot program:** Identify high traffic pilot locations to test Type XI sign sheeting on your roads.
- 3. Gather data:** Gather relevant data, including sign visibility in different conditions and the costs of lighting, maintenance and graffiti removal.
- 4. Present your findings:** Use the data from your pilot program to conduct a cost benefit analysis and illustrate the value of specifying Type XI sign sheeting for all of your road signs.
- 5. Implement:** Work with key stakeholders to update your state policies to specify Type XI sign sheeting for all roadway signs.



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