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Why high definition license plates are here to stay.

Stakeholder priorities point to high definition license plate sheeting as a solution for the future.

When it comes to the adoption of technologies that represent a major shift from the status quo, rarely is it realized quickly. Yet the world is eager for improvement when it comes to a core component of safety in one of the primary modes of transportation: vehicle license plates.

While many motorists likely never think twice about it—outside of the time of year when they need to update their registration tabs or perhaps when their state undergoes a plate reissue—the license plate represents a significant source of not only revenue for their municipality, but also a boon to public safety. From the legibility of plates going through automated license plate reading (ALPR) systems at tollways, to the police or public's ability to quickly identify a vehicle involved in crime, theft or Amber or Silver Alerts, the license plate adds a level of structure and organization on the road tantamount to road signs, pavement markings and the other infrastructure we rely on to help us navigate
our world.

What makes up a license plate?

While the general form and function of license plates has remained largely unchanged in the last several decades, the physical construction, materials and process that go into a modern license plate have come a long way. Some of the earliest license plates were simply painted metal rectangles with embossed letters and numbers. Today's plates feature bold graphics, embedded security features and durable reflective sheeting applied to aluminum substrates.

The sheeting material that's specified for any municipality's license plates is one of the most critical components that affects the retroreflectivity and longevity of a plate—and decision-makers are constantly looking for new ways to achieve the highest level of performance they can get. That's why, after signficant development and innovation in vehicle registration solutions, in 2016, 3M launched our first High Definition (HD) License Plate Sheeting, Series 6700.

The HD revolution is here.

3M HD License Plate Sheeting Series 6700 represents a technology shift not unlike that of electronic displays and devices shifting from standard definition to a higher level of crispness, brightness and visibility. In states where HD Sheeting has been introduced, law enforcement and motorists can appreciate an increase in the retroreflective brightness of the plates, whether for reading and identifying a vehicle, or simply because license plates are often one of the only bright, reflective surfaces on parked, stationary cars.

However, the benefits of a better sheeting technology don't end with retroreflective performance. The advanced manufacturing processes and specialized materials that go into HD plates are designed to help elevate their security level and hinder counterfeiting efforts—potentially shoring up lost revenue in the process. While these two features may justifiably convince some stakeholders that HD Sheeting is a worthwhile upgrade to their license plates, there are a number of other priorities that they should consider and evaluate. To understand exactly the role that varied characteristics of any given license plate plays in the bigger picture, we surveyed transportation authorities, law enforcement and plate manufacturers to give their insight.

Upgrading plates from state to state.

Legibility, Safety and Performance

Among all of the individuals and agencies interviewed, the top priority was unequivocally clear: the ability to read the license plates in as many varied environmental conditions as possible, day or night. If a license plate is not clear with alphanumeric characters that can be discerned from a reasonable distance, it will likely fail its primary purpose.

Stakeholders take a variety of measures to "trial" or test that a license plate meets these criteria. For example, Dave Wiley, License Plate Factory Manager for the DMV Central Services and Records Division in Nevada, said, "Before I give any plates to law enforcement, I'll take it down to the test highway with our posts, and you can really tell from how far you can read it and how legibility is, if there is any impact on the colors we use, et cetera. The true purpose of these plates first and foremost is as a law enforcement tool."

When Nevada converted their plates to 3M HD Sheeting Series 6700 several years ago, Wiley noticed the difference and noted his impression: "I think the stuff is great, I've been really happy with the quality."

In Oklahoma, Captain Sheridan O'Neal of the Oklahoma Highway Patrol and Legislative Liaison for the Department of Public Safety shared similar sentiments. "Identification of the vehicle is top priority. When a police officer pulls up behind, the tag should be easily identifiable with the State and alphanumerics clearly visible."

Fortunately, following the transition to HD Sheeting, that higher level of performance and visibility shined through. "Our cameras had a hard time reading the old plates. The new plates are performing better," said David Machamer, Jr., Assistant Executive Director, Oklahoma Turnpike Authority.

Durability

Previous to the introduction of 3M HD License Plate Sheeting in Oklahoma, the state had not updated their plate designs since 2009. While 7 years is not an unusual amount of time for states to go without a reissue, these longer stretches of time can introduce durability issues. On average, plates lose 50% of their original reflectivity between 5-10 years of service.

This type of durability concern was a potential threat to the automated tolling cameras that the Turnpike Authority relies on to scan license plates and collect revenue.

Design & Security

The benefits Oklahoma saw in introducing their new HD plates went beyond public safety and revenue though. The bright, clean new design of the plates also serve as multitude of small tourism-boosting advertisements when vehicles travel out of state. "I personally love the new plates," said Deby Snodgrass, Executive Director of the Oklahoma Department of Commerce. "They feature travelok.com, so people can find out more about travel destinations in Oklahoma—it's free advertising in millions of locations every day."

Steve Lund, License Plate Plant Manager in Wyoming—which was officially the first state to transition to exclusively using 3M's HD Sheeting—found the design capabilities compelling for another reason: they added a DSS feature depicting an embossed Bronco on the plates to serve both as an added authentication step as well as an homage to their local heritage.

And while redesigning their plates was a great opportunity to think about their state economies and identities, it was important to prioritize functionality and readability of the plates above all else. That's why 3M's Transportation Safety Division helps states through the design process. Our full-time team of graphic designers can help every step of the way—from planning and designing to implementing and maintaining. "During our reissue process, the 3M design team helped," said Machamer. "Our design would have made some numbers partly obscured by license plate frames. They adjusted the design to help resolve the issue."

New Technology

While not an inherent advantage or feature that you will see in any 3M presentation or brochure, some respondents noted that the "cool" factor of adopting new technology certainly influenced their decision-making process to give HD Sheeting a trial run.

"I got more involved in looking at the sheeting because 3M was a primary vendor, they kept talking about a new PPS printer [at the time] that was more geared towards the new HD sheeting, so I had started looking into the sheeting because of that. I didn't know anything about the manufacturing process at the time, but I'm all about adopting new technologies," said Dave Wiley.

Cost & Compatibility

Another top consideration for states considering making the upgrade to HD Sheeting has been the overall cost and compatibility of the sheeting with existing print systems. While no two states operate exactly the same, several have already found cost savings at a variety of touch points in the process.

When asked what he liked about the new HD Sheeting, Lund was happy to report: "The consumables of the print head on the printers, it saves us money in that direction, and the intensiveness of the HD—we were doing

between 80,000-90,000 plates on a printer head with the [previous sheeting material], and now we're doing 100,000-110,000 plates per print head with the new HD sheeting."

And while compatibility and the potential pitfalls of any large-scale product specification changeover can be daunting, that's exactly where 3M specializes, as Dave Wiley commented.

"I did get a visit from several 3M engineers as we made the change. We had a few blemishes when we first started and they helped us make the changes on our end to resolve those issues. From my perspective, it was really positive. 3M has always been very responsive. When I started working for the factory, I wasn't in charge, and [my boss] had always counted on how responsive 3M was—if we had blemishes with paints or laminate, they would help. When I took over, we worked with the same crew. They had different people for the HD sheeting but they've been very responsive with our concerns and they've made improvements to it over time."

Manufacturing Improvements

Of course, while increases in print head productivity represented a cost-savings for Wyoming, states like Nevada have found that using HD Sheeting has also helped to improve their manufacturing process.

"Part of that is logistics that we deal with in house. The rolls of sheeting don't weigh as much, and with the rolls being placed on the applicator, it's a giant roll that needs to go onto the correct spindle, so you need to get the paper removed to expose the adhesive so it can adhere to the substrate, so being a lighter roll makes it easier to work with," said Wiley about their operation.

While processes and practices vary widely across state lines and even across municipalities, these sorts of subtle improvements can seemingly make a big difference in the day to day workflow.

Bringing it all together.

Virtually any manufacturing process change requires signficiant exploration and consideration for a variety of influencing factors, and license plates are no exception to this.

As our respondents noted, some of the many variables they were considering included:

- Legibility, safety and performance
- Durability for long-term use
- Design & security to combat counterfeiting
- Keeping up with new technology
- Cost & compatibility for an easy transition
- Manufacturing improvements & operational impact

Ultimately, the deciding factor in selecting license plate technology should always be what's best for the constituents that you serve today and what will continue to serve them well for tomorrow.

As Dave Wiley succinctly summarized, "HD is the future," and we couldn't agree more.

For those considering a license plate reissue or simply looking for ways to realize some of these great benefits, contact the experienced team of 3M Vehicle Registration specialists or visit 3M.com/VehicleRegistration to learn what HD plates could do for your state.

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