BEFORE THE U.S. DEPARTMENT OF TRANSPORTATION AND THE FEDERAL HIGHWAY ADMINISTRATION

CONSTRUCTION AND MAINTENANCE-PROMOTING INNOVATION IN USE OF PATENTED AND PROPRIETARY PRODUCTS

SUBMITTED BY
AMERICAN ROAD & TRANSPORTATION BUILDERS ASSOCIATION

ON
January 14, 2019
I. Introduction

On behalf of its more than 8,000 members, the American Road and Transportation Builders Association ("ARTBA") submits these comments in response to the Federal Highway Administration’s ("FHWA") and the U.S. Department of Transportation’s ("DOT") notice of proposed rulemaking on Construction and Maintenance-Promoting Innovation in Use of Patented and Proprietary Products, 83 FR 56758 (the "NPRM"). ARTBA’s membership includes private and public sector entities involved in the planning, designing, construction, and maintenance of the nation’s roadways, waterways, bridges, ports, airports, rail, and transit systems. The industry we represent generates more than $500 billion annually in U.S. economic activity and sustains more than four million American jobs.

ARTBA submitted its March 27, 2018 Petition for a rulemaking (the "Petition") to repeal the patented and proprietary products rule (23 CFR 635.411, the "Rule"). The Rule—a relic of the early 1900s—prohibits state contracting agencies from using federal funds to acquire patented or proprietary materials, products, or services, except under certain limited circumstances. In doing so, the Rule discourages industry and states from deploying products that could save lives, reduce costs, minimize congestion, and improve the quality of our nation’s highways.

ARTBA applauds the FHWA’s initiation of a rulemaking to address this important issue, and strongly encourages the agency to repeal the Rule pursuant to option 2.

II. Executive Summary

In the NPRM, the FHWA proposed to either repeal the Rule in full or amend it to provide for state certification and procedural requirements in place of the Rule’s existing language. The NPRM further asks a series of questions related to innovation, competition, the challenges imposed by the Rule, and the potential benefits and consequences of the two proposals. As explained at length in our comments, and summarized below, the Rule harms competition and the deployment of the safest and most innovative products and, therefore, needs to be repealed in full.

- **The Rule has a direct, negative impact on safety.** The Rule and similar restrictions on the acquisition of patented and proprietary products impedes states from implementing proven and innovative safety measures that are cost-effective and shown to have meaningful benefits over existing products.

- **The Rule is a roadblock to achieving the nation’s safety and infrastructure goals.** As our roads and highways age, innovative solutions are needed to address repair, construction, and maintenance challenges. The Rule’s barrier to acquiring patented and proprietary products needlessly limits available solutions.

- **The Rule’s history demonstrates repeal is needed.** The same problems currently plaguing the Rule were raised, and summarily dismissed, when it was first adopted over 100 years ago. That history further demonstrates that the Rule then, as it does now, lacked a valid basis. Moreover, the prohibition has, to our knowledge, never been subject to public input through a notice and comment process prior to this rulemaking, and there does not appear to be any factual record to support this regulatory burden.

- **Repeal will encourage and promote innovation.** Lifting the barrier to acquiring patented and proprietary products will not only allow states the immediate benefit of innovative
materials, devices, and other equipment, but also will drive innovation by sizably increasing the market for such products.

- **Repeal will support small businesses.** Small businesses hold more patents than all of the nation’s universities and largest corporations combined.¹ As recognized by Secretary Chao, small businesses “are part of the engine of economic growth that creates 2 out of every 3 new jobs in our country.”² Repeal will provide a new market for their products, allow their business to grow, and further benefit the economy.

- **Repeal will not lessen competition.** The Rule limits competition by eliminating potential materials and products from the procurement process, without regard to any cost-benefit analysis, and further discourages industry from developing new products by limiting the market for them. Providing states with flexibility to acquire patented articles, rather than prohibiting this option, will encourage industry, in general, to compete more aggressively and offer lower prices in the competition to deliver needed materials.

- **Repeal will promote cost effective use of federal funds.** Innovative patented and proprietary products often focus on life cycle cost improvements or incorporate multiple benefits that are difficult to account for in an initial procurement calculation, especially those that look solely at factors relevant to previous construction methods and ways of doing things. However, the benefits offered by these products are material and can save significant sums over the life of the product through improved durability, reduced maintenance, and increased functionality in variety of use cases. Furthermore, as indicated above, allowing these products in federal-aid projects can actually increase competition in the competitive bidding process, thus leading to a more efficient use of federal funds.

- **Amendment will fail to deliver flexibility and change.** Anything short of full repeal will invariably be stymied by the same issues that currently plague the Rule. As history and experience teach, even under an amended Rule, states will hesitate or even avoid taking advantage of any flexibility intended by amendment. The vague language offered by the proposed amended language will inevitably lead states to rely on the Rule’s prohibition as the only proven, safe interpretation. This has been the case with other incremental steps the FHWA has taken in the past to address the challenges presented by the Rule.

- **Repealing the Rule does not mandate the use of any particular product or course of action.** Repealing the rule will give states the flexibility to consider all products, including those that are patented and proprietary. States will be free to choose whether or not to use patented or proprietary products based on their individual situations.

For these reasons, only full repeal of the Rule will allow for the innovation needed to ensure our roads are built and maintained in as safe a manner as possible with best possible outcomes. In this

---


way, the public interest would be served by spurring investment in and deployment of new technologies that promise to help advance safety, alleviate congestion, and improve our nation’s highways. This position is supported by the majority of states that have submitted comments, including Idaho, Montana, North Dakota, Oregon, South Dakota, Texas and Wyoming. Multiple industry associations have also expressed their support.

III. Why Repeal of the Rule is Needed

A. The Rule and Similar Barriers to Patented and Proprietary Products Have Direct, Negative Impacts on Safety

The harm caused by the Rule and its bias against patented and proprietary products tangible. Proven safety measures that are both cost-effective and shown to have meaningful benefits over existing devices are denied use for the arbitrary reason that “[i]t is against the public interest to encourage the exclusive use of proprietary products.”

Earlier this year, for example, the North Dakota Department of Transportation advised FHWA that the Rule was blocking U.S. companies from advancing cost effective safety solutions. In particular, the state highlighted how the rule was preventing adoption of a new solar-powered pavement marking technology with the potential to address excessive speed, potentially deadly wrong-way driving, and other intersection safety applications. See Attachment 1.

Worse yet, the Rule’s impediment to innovation in the contracting sphere has expanded into other areas, further inhibiting the ability of states to obtain the best products and services available. A prime example is the FHWA policy—based on the Rule—of prohibiting use of patented and proprietary products under the Manual on Uniform Traffic Control Devices (“MUTCD”), which sets minimum standards and provides guidance on the use of traffic control devices across the nation. There are numerous examples of states reaching out to the FHWA about new and innovative products only to be stymied by the regulation and/or the MUTCD, which follows the Rule’s prohibition of proprietary and patented products. Once such example is the Idaho Department of Transportation’s outreach to FHWA questioning why the same aforementioned pavement marking technology is not included in the MUTCD. See Attachment 2.

To cite an even more glaring instance, the FHWA recently terminated the Interim Approval under the MUTCD for rectangular rapid flashing beacons (“RRFBs”), a type of safety device used to alert drivers to pedestrians at uncontrolled crosswalks. In 2008, the FHWA issued an initial Interim Approval in which the Office of Transportation Operations reviewed the available data on the RRFB and considered the device to be “highly successful for the applications tested,” and further stated that the RRFB “offers significant potential safety and cost benefits, because it achieves very high rates of compliance at a very low relative cost in comparison to other more

---


4 In its notice of proposed rulemaking, FHWA stated that “Neither proposal would alter any requirements in the Manual on Uniform Traffic Control Devices found in 23 CFR part 655, subpart F.” NPRM at 56760.

restrictive devices." Following this initial approval, St. Petersburg, Florida, installed more than 120 RRFBs along its roads. Whit Blanton, director of the county's metropolitan planning organization, remarked, "in terms of their effectiveness, they are through the roof."7

Unfortunately, once FWHA discovered that aspects of the subject device had been patented, the agency terminated the Interim Approval, stating "[i]t is against the public interest to encourage the exclusive use of proprietary products."8 Meanwhile, the city was left in a difficult position as it had plans to install an additional 50 of the devices, and Tampa Bay officials planned to install 70.9

To resume installation of the devices, the manufacturer was forced to abandon its patents. Once this occurred, FHWA issued a new interim approval for the devices, and again stated that it "offers significant potential safety and cost benefits."10 While the absurdity of this process should be apparent, the real concern is that cities like St. Petersburg are being denied the best available products and services to improve safety because of the Rule and the bias against patented and proprietary products, which has spread to the MUTCD.

B. Our Nation's Highways Face Significant Challenges that Require Innovative Solutions

As Secretary Chao explained at her Senate confirmation hearing, "[o]ur country's transportation infrastructure is the underpinning of our world-class economy," but this benefit is increasingly "jeopardized by infrastructure in need of repair, the specter of rising highway fatalities, growing congestion, and by a failure to keep pace with emerging technologies."11 The Rule is a prime example of an antiquated regulation which - when applied in the contemporary setting Secretary Chao describes - impedes safety, quality, competitiveness, and innovation in the transportation industry.

Indeed, the U.S. faces serious challenges on the nation's highways, including rising fatalities, increasing congestion, and an infrastructure in need of repair and improvement. Given the federal highway program provides 51 percent of capital outlays for highways and bridges made by state DOTs,12 the Rule exerts significant downward pressure on innovation in the highway sector.

---

6 MUTCD - Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11), (July 16, 2008).
10 MUTCD - Interim Approval for Optional Use of Pedestrian-Actuated Rectangular Rapid-Flash Beacons at Uncontrolled Marked Crosswalks (IA-21), (March 20, 2018).
Data from the National Highway Traffic Safety Administration (NHTSA) shows the total number of vehicle miles traveled on U.S. roads in 2017 increased by 1.2 percent from 2016. NHTSA reports there were 37,133 motor vehicle-related fatalities in 2017.\(^{13}\) While this represents a 1.8-percent decrease from 2016 levels, the number of fatalities in 2017 is otherwise the highest since 2008 and a 4.6 percent increase from 2015 levels.\(^{14}\)

Similarly, while the fatality rate per 100 million vehicle miles traveled decreased from 1.19 in 2016 to 1.16 in 2017, the 2017 rate is otherwise the highest since 2008.\(^{15}\)

Moreover, pedestrian deaths remain incredibly high at 5,977 in 2017.\(^{16}\) Again, while this represents a slight decrease from 6,080 in 2016, the number of fatalities in 2017 is a nine percent increase over 2015, and apart from 2016, is the highest pedestrian fatality count since 1990.\(^{17}\) In addition to these safety issues, our national highway infrastructure is in need of repair and expansion. One out of every five miles of U.S. highway pavement is in poor condition,\(^ {18}\) almost four in 10 of America’s bridges are 50 years or older,\(^ {19}\) and Americans spend on average 42 hours per driver a year stuck in traffic.\(^ {20}\)

The Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine, in its 2018 report on the actions needed to upgrade and restore the Interstate Highway System (the “Highway Report”), found states “have been severely challenged to keep the system’s assets in satisfactory condition and its operations and capacity aligned with the growth and changes in traffic demand.”\(^ {21}\) The Highway Report identifies the “enormous task of rebuilding the system’s pavements, bridges, and other assets and their foundations facing decision makers today.”\(^ {22}\) Indeed, the Highway Report stresses most of the system “has far exceeded its design life or will do so over the next 20 years.”\(^ {23}\) Besides needed increases in core program investment, innovative solutions are urgently needed to address these problems. As the Highway Report notes, efforts to rebuild and maintain the system


\(^{18}\) American Society of Civil Engineers, 2017 Infrastructure Report Card — Roads.

\(^{19}\) American Society of Civil Engineers, 2017 Infrastructure Report Card — Bridges.


\(^{21}\) National Academies of Sciences, Engineering, and Medicine, Renewing the National Commitment to the Interstate Highway System, at 1-3 (2018).

\(^{22}\) Id. at S-3.

\(^{23}\) Id.
will require "research, testing, and innovation in such areas as materials (e.g., asphalt and concrete mix designs), design criteria, construction techniques, and maintenance practices."\textsuperscript{24} 

Fortunately, modern advances in technology, if permitted in projects where federal funds participate, can offer more benefits to the nation's highways than ever before. As detailed in the Highway Report, "[a]dvances in materials, construction methods, electronics, communications, and other areas are providing new capabilities and opportunities to increase and manage traffic capacity; reduce system congestion and environmental impacts; increase system safety; and reduce the cost of highway maintenance, repair, and reconstruction."\textsuperscript{25} It is imperative, for the sake of rebuilding and maintaining the nation's highways, that we capitalize on these advances to the fullest extent possible.

C. The Patented and Proprietary Rule is a Roadblock to Achieving the Administration and Department's Safety and Infrastructure Goals

Despite the alarming number of fatalities on U.S. roadways, and the clear need to augment highway infrastructure, the country is burdened with a 103-year-old rule that discourages industry and state contracting agencies from deploying the most innovative and efficient products and services. Since many new technologies—particularly those that mark a significant advance in quality, performance, or durability—incur intellectual property, the Rule inevitably impedes the development and deployment of products from the market that could save lives, alleviate congestion, and otherwise improve the quality of our nation's highways.

The Rule prohibits state contracting agencies from using federal funds for patented or proprietary materials, specifications, or processes unless:

1. The item is purchased or obtained through competitive bidding with equally suitable unpatented or nonproprietary products from multiple manufacturers. In situations where both proprietary and nonproprietary products are available, the specifications in the solicitation must allow the contracting agency to choose from among as many products and technologies as possible, and, if the solicitation lists specific products, it must list all or at least a reasonable number of products, and must include the words "or equal."

2. The contracting agency certifies either the proprietary or patented item is essential for synchronization with the existing highway facilities or that no equally suitable alternative exists.

3. The item is used for research or for a special type of construction on relatively short sections of road for experimental purposes.

4. If there are other equally acceptable materials or products available, the contracting agency must submit an application to FHWA for a public interest finding ("PIF") granting permission to the contracting agency to use a specific material or product.

\textsuperscript{24} Id. at 3-32.

\textsuperscript{25} Id. at 1-3.
Each of the scenarios above can impose obstacles to states having access to patented and proprietary materials—products that often are the most innovative, safe, and cost-effective. The result is an environment that discourages the acquisition of patented and proprietary products without any consideration of the merits or benefits of such products.

First, the competitive bidding option dictates how states should design their solicitations in a way that effectively precludes the acquisition of patented and proprietary products. In addition to interfering with state contracting practices and preferences, satisfying the Rule’s competitive bidding option requires time and effort to design a solicitation that covers other products, especially where a state has a pressing need for a particular product. This challenge is reflected in the comments submitted by the Texas Department of Transportation, which explain how states face challenges in “[d]eveloping specifications and testing procedures” and “performance-based specifications” in connection with solicitations as a result of the Rule.

Second, the certification and PIF options impose various burdensome requirements that have the effect of discouraging states from seeking FHWA permission to use patented and proprietary products. If, for example, a state wants to acquire a patented or proprietary product for which there is no equally suitable alternative, the state contracting agency must include a justification in its certification demonstrating the need for a higher performance standard. In addition, the FHWA expects the certification to include documentation supporting the decision, encompassing a description of the public benefit; evaluation of the other possible products and why they were not selected; and an estimate of the additional costs, if any, incurred by selecting the specified product. 26

The process for submitting a PIF is equally daunting, and requires the state contracting agency to petition the FHWA for permission to use a product. According to FHWA policy, related documentation must include engineering analyses, benefit-cost analyses, market analysis and product analysis to support the decision. More specifically, FHWA expects the PIF to include:

- A description of how the proprietary product requirement will benefit the public;
- An evaluation of the pool of other equally acceptable products;
- An estimate of additional costs incurred as a result of this proprietary product requirement;
- Description of need, including limitations and conditions (types of roadways, traffic volumes, and other critical factors);
- Engineering / economic analysis supporting the requested action;
- Duration of approval; and

---

- Extent of Approval. (for example, if the approval is project-specific, for multiple projects, district/regionwide, statewide, or programmatic).\textsuperscript{27}

All of this information must demonstrate to FHWA's satisfaction the rationale for using a patented or proprietary product.

In other words, any state contracting agency seeking to acquire an innovative safety product that is patented or proprietary faces significant obstacles. The competitive bidding process—as applied in this scenario—discourages and limits the ability of states to acquire such products, and the FHWA's certification and PIF exceptions are so burdensome that states have, in practice, used them only in limited cases. Experience has shown states are reluctant to initiate such an undertaking due to concerns about personnel time, administrative costs, and a general sense that the FHWA, because of the Rule, is hostile to patented and proprietary products. Thus, while the Rule appears on its face to provide some flexibility to states, in actual application, the Rule does exactly what it is intended to do—it bars states from acquiring patented and proprietary products, highway workers, or pedestrians.

Notably, even the American Association of State Highway and Transportation Officials ("AASHTO") recognizes the difficulty states have faced in trying to get approval for patented and proprietary products, noting that "not all Division Offices recognize the state’s prerogative to certify patented and proprietary products and may, in fact, discourage them to do so."\textsuperscript{28} AASHTO further noted that it had found meaningful variability among the FHWA division offices in how they enforce the Rule.\textsuperscript{29} This inconsistency further demonstrates the importance and need for repeal.

Of a related, and equal, concern the Rule's bias against patented and proprietary products has expanded into other areas, such as the MUTCD, thereby further constraining the ability of states to obtain the safest products and services available. As demonstrated in attachments 1, 2 and 3, states such as North Dakota and Idaho that seek to procure patented and proprietary products are first stymied by the Rule, and then further hampered by the MUTCD, which follows the Rule's policy of prohibiting the use of patented and proprietary products. And, as is the case with the Rule, the MUTCD policy prohibiting the use of such products has no basis in any statute.\textsuperscript{30}

The previously noted example of the FHWA's termination of its Interim Approval for the use of rectangular rapid flashing beacons is alarming.\textsuperscript{31} Even though the agency, having reviewed all the

\textsuperscript{27} FHWA, Questions and Answers Regarding Title 23 CFR 635.411, available at https://www.fhwa.dot.gov/programadmin/contracts/011106qa.cfm.


\textsuperscript{29} Id. ("A common challenge states expressed about the current process is the variability among the states in dealing with the FHWA Division Offices . . . not all Division Offices recognize the state’s prerogative to certify patented and proprietary products and may, in fact, discourage them to do so. Many states described regulations that seem to be interpreted differently from state to state, with more leeway given to some states than others.").

\textsuperscript{30} As noted in ARTBA's Petition, and further discussed herein, we are not aware of any statute that directs FHWA to bar the acquisition or use of patented or proprietary products.

\textsuperscript{31} MUTCD -- Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11) TERMINATION, December 21, 2017.
evidence, considered the device to be “highly successful for the applications tested,” and that it offered “significant potential safety and cost benefits,” FHWA terminated that Interim Approval once elements of the device were found to be patented.  

32 It is inconceivable how, given those findings, the product’s use could be “against the public interest” to allow the city of St. Petersburg to continue to purchase and use the devices.”33 This is not a unique scenario, as demonstrated by the challenges of North Dakota and Idaho in acquiring new LED pavement marking products aimed at improving safety by alerting (often impaired) motorists when they are driving the wrong way down a road or highway ramp.

In addition to directly prohibiting technologies with proven safety and cost benefits, the Rule (and the FHWA’s policy under the MUTCD) discourages innovation by undermining the incentives that intellectual property law relies upon to drive innovation. Full repeal of the Rule is necessary to allow for the procurement and use of the best, most cost effective, and safest equipment as well as to drive innovation forward. Indeed, Section VI provides many more specific examples of innovative products that offer numerous safety benefits, and which would benefit from full repeal.

The proposed amended option, while seemingly designed to afford a measure of flexibility, will simply perpetuate the legacy of the Rule through newly-worded—but equally-vague—requirements that state contracting agencies, fearing noncompliance, will interpret as a de facto continuation of the existing Rule. The only safe course for states will be to continue avoiding patented and proprietary products whenever possible. This, of course, would be detrimental to traffic safety, innovation and the public interest.

Only full repeal offers the desired goals of increased innovation, safety, costs savings, and full competition.

IV. History Supports Repeal of the Rule

In addition to the policy and practical considerations for repeal, the legislative history shows the Rule never had a true basis, statutory mandate, or vetted justification. For these reasons, full repeal is the best course of action. The Rule was first adopted in 1916 by Secretary of Agriculture David F. Houston, a member of President Woodrow Wilson’s cabinet, after enactment of the Federal Aid Road Act of 1916 (the “1916 Act”).34 The 1916 Act did not reference proprietary or patented products, direct the Department of Agriculture to restrict their use in procurements, or otherwise mandate that the Secretary adopt rules addressing competitive bidding.35 The Secretary of

32 MUTCD — Interim Approval for Optional Use of Rectangular Rapid Flashing Beacons (IA-11), (July 16, 2008).


34 Creation of a Landmark: The Federal Aid Road Act of 1916 by Richard F. Weingroff and various news reports from 1916.

35 “The Federal-aid Road Act of 1916 (1916 Act) was silent about patented and proprietary products but provided that Federal-aid funded State highway construction was ‘subject to the inspection and approval of the Secretary of Agriculture, and in accordance with the rules and regulation made pursuant to this Act.’” NPRM at 56758.
Agriculture, nevertheless, proceeded to adopt the Rule, even though concerns were raised at the time it exceeded the scope of the 1916 Act and would likely inhibit competition and innovation.36

According to the FHWA, the requirement for competition first appeared in statute in the Federal Highway Act of 1938.37 Again, this statute does not address proprietary or patented products. Curiously, the NPRM attempts to find support for the Rule, and its restriction on patented and proprietary products, by citing the statement of one member of Congress, Rep. William Madison Whittington (D-Miss.), chairman of what was then known as the Committee on Flood Control, during debate related to the enactment of Section 13 of the 1938 Act. It is important to recognize Rep. Whittington’s concerns centered on a proposed amendment to Section 13 that, in Rep. Whittington’s view, would have potentially circumscribed the state’s ability and authority to select the materials or methods best fit for any particular project.

During that discussion, other Members voiced similar concerns, stating for example “if this amendment is passed, the Secretary of Agriculture could tell the State highway departments just what materials would go into their roads. I think that is going too far.”38 The Members voiced concern that the amendment would give power to the Bureau of Roads “which may be abused by this clique of contractors coming to Washington and using political pressure to gain control.”39

Indeed, the amendment was defeated under the notion voiced by Rep. Frank Eugene Hook (D-Mich.) that “we should not interfere with the State departments other than to assure uniform efficient construction where Federal funds are provided.”40 It was in this context that Rep. Whittington’s statement is taken, a discussion not about the permissibility of patented products, but rather the ability to dictate the materials a state highway department could use. The proposal to repeal the Rule is entirely consistent with this perspective.

Today, according to the FHWA, the current version of the Rule is based on a 1958 statute (23 USC 112) that is focused on “letting of contracts.”41 Again, nothing in this statute directs the federal government to limit the ability of state contracting agencies to use federal funds to acquire proprietary and patented products for use on the nation’s highways. In short, the Rule has no basis in any statute, and the legislative history fails to tie the Rule to competition more generally.

Further there does not appear to be any factual record to support the Rule, and we are unaware of any rulemaking proceeding, including this one, in which the basis for the Rule has been adequately articulated. Consideration has never been given to all of the important problems presented by the

37 “Hereafter the Secretary of Agriculture shall approve only such methods of bidding and such plans and specifications of highway construction for the type or types proposed as will be effective in securing competition and conducive to safety, durability, and economy of maintenance.” Pub. L. No. 75-584, § 12, 52 Stat. 633, 636 (1938).
38 Statement of Mr. Hook, Daily Congressional Record, May 6, 1938, pp. 6383-6.
39 Statement of Mr. Sadowski, Daily Congressional Record, May 6, 1938, pp. 6383-6.
40 Statement of Mr. Hook, Daily Congressional Record, May 6, 1938, pp. 6383-6.
Rule, such as the effects or costs of the policy choice, or the factual circumstances bearing on that choice.

V. Repealing the Rule will Not Lessen Competition

When the Wilson Administration first adopted the Rule the Department of Agriculture’s goal was to encourage open competition in the procurement market. While this principle remains critical to the federal-aid highway program, the Rule was drafted and implemented in a narrow way that has, unfortunately, inhibited competition. Rather than promoting competition, the Rule discourages industry from developing new products in the first instance by limiting the market for them, because state contracting agencies are unable to use federal funds to obtain proprietary products.

It was recognized as early as 1917 that the Rule would discourage use of the best materials on roads, and thus represented “an actual loss to the highway system on account of the exclusion of this patented [materials] from the competition.” 42 This was predicted at the time of the Rule’s adoption by what was then known as the American Association of State Highway Officials (AASHO), which cautioned that the Rule would simply bar the use of the best products and services. 43

In this regard, the Rule is a relic of antiquated early 20th century views of antitrust, intellectual property, and procurement. 44 Today, antitrust and intellectual property are viewed as complementary, with both playing an important role in fostering competition, and today’s Department of Transportation recognizes the many benefits of protecting and respecting intellectual property in using technology to improve safety and better our nation’s highways. 45

As the NPRM recognizes, repeal of the Rule may also allow state DOTs to obtain highway materials or products at lower prices. At present, the Rule effectively bars states from procuring patented and proprietary materials, which significantly limits the pool of products and services available to states. By removing this barrier, states will have more flexibility and options to acquire products and services (whether proprietary or not). The goal of any true commercial competition should be to identify and reward a product, process, or service that is the best. If a patented or proprietary product is not better than its competition or its cost outweighs its benefits, it will not be rewarded in the marketplace. However, this determination should be made through competition, not regulation.

44 The Department of Agriculture officials who promulgated the initial version of the Rule in 1916 demonstrated a clear bias against “materials . . . sold under trade names . . . .” See Petition at 8-11.
45 In a speech at the Western Governors Association Winter Meeting, Secretary Chao listed “[p]reparing for the future by encouraging innovation” as one of her top priorities. Remarks by U.S. Secretary of Transportation Elaine L. Chao at Western Governors Association Winter Meeting, Phoenix Arizona, (Dec. 2, 2017). Similarly, the FHWA’s website states the agency’s priority to “champion[] innovations by supporting new and better ideas to get highways planned, designed, built, and maintained. The Center for Accelerating Innovation (CAI) is FHWA’s focal point for advancing new technologies and practices through the Every Day Counts (EDC) program, the Accelerated Innovation Deployment (AID) Demonstration program, and the State Transportation Innovation Council (STIC) Incentive program.”
The ability to consider all products and processes, regardless of whether or not they are patented or proprietary, is essential to competition and ensuring the best possible product is chosen. This additional competition will encourage various bidders to offer lower prices in competition to deliver needed materials and ultimately lead to a more cost effective use of Federal funds.\textsuperscript{46} This is entirely consistent with 23 U.S.C. 112 and the Secretary of Transportation’s duty to ensure competition. Thus, repeal of the Rule would encourage competition by giving state authorities a broader range of options, instead of the current approach which inhibits competition by denying state authorities the option of even considering a patented or proprietary product.

\textbf{VI. Repeal of the Rule Will Encourage and Promote Innovation}

Innovation and technological advancement are hallmarks of the United States economy. American ingenuity has helped create new industries, improve safety, and enhance quality of life.\textsuperscript{47}

Indeed, the Trump Administration recognizes that fostering innovation is a central goal in U.S. public policy. To ensure the U.S. remains the global leader in innovation, the current administration created a new office in the White House dedicated to American innovation.\textsuperscript{48} And in June 2017, the White House Office of Science and Technology Policy (“OSTP”) organized the “American Leadership in Emerging Technology” event to bring together industry leaders to discuss ways to “craft policies that can keep pace with the rate of technological innovation.”\textsuperscript{49} Key takeaways from those discussions included the need to “remove regulatory barriers to technological innovation” and “increase American’s access to the benefits of emerging technology.”\textsuperscript{50} The DOT has recognized these same needs in its recently published Automated Vehicles 3.0, which describes how the Department is developing “strategies to remove unnecessary barriers to innovation, particularly barriers stemming from existing regulations.”\textsuperscript{51}

These takeaways align with President Trump’s regulatory reform efforts, which will continue to address overly burdensome regulations in FY 2019.\textsuperscript{52} Furthermore, the Transportation Research Board, in its congressionally-mandated Highway Report, emphasized the need for “research, testing, and innovation in such areas as materials (e.g., asphalt and concrete mix designs), design criteria, construction techniques, and maintenance practices.”\textsuperscript{53}

Full repeal of the Rule is consistent with the goals of promoting innovation and reducing regulatory burdens. As noted, respect for intellectual property and competition are complementary, and states are in the best position to administer procurement consistent with state laws and jurisprudence.

\textsuperscript{46} NPRM at 56759.

\textsuperscript{47} Presidential Memorandum on the White House Office of American Innovation, (March 27, 2017).

\textsuperscript{48} \textit{Id.} The office will focus on implementing policies and scaling proven private-sector models to spur job creation and innovation.

\textsuperscript{49} White House, The White House Hosts American Leadership in Emerging Technology Event, (June 29, 2017).

\textsuperscript{50} \textit{Id.}


\textsuperscript{52} White House Fact Sheets, President Donald J. Trump is Following Through on His Promise to Cut Burdensome Red Tape and Unleash the American Economy, (October 17, 2018).

\textsuperscript{53} National Academies of Sciences, Engineering, and Medicine, Renewing the National Commitment to the Interstate Highway System, at 3-32 (2018).
The state procurement processes are designed to maximize competition while providing flexibility where appropriate to procure patented or proprietary products, just as federal agencies do in their procurements.54 The Rule, however, has acted as a barrier to innovation by discouraging states from procuring patented and proprietary items where federal funds participate, despite the potential benefits to safety, durability, and cost savings they may bring.

In this way, the Rule has impeded the development and commercialization of emerging technologies. With limited market potential, innovators are less likely to invest time and resources in developing new technologies, methods, and devices that could save countless lives, improve construction efficiency, or provide other benefits that we cannot yet imagine. States and the U.S. as a whole lose out on the benefits of American ingenuity.

The development of patented and proprietary products is essential to the public's interest in promoting innovation. A patent is defined as "the grant of a property right to the inventor" and is issued by the U.S. Patent and Trademark Office (USPTO)55. Patents have a social utility on both an individual and societal level. According to the World Intellectual Property Association, patents benefit individuals by "recognize[ing] and reward[ing] inventors their commercially-successful inventions. As such they serve as an incentive for inventors to invent. With a patent, an inventor or small business knows there is a good chance that they will get a return on the time, effort and money they invested in developing a technology. In sum, it means they can earn a living from their work." 56 On a larger scale, the products generated by patents benefit society "both directly, because it may enable us to do something that was previously not possible, and indirectly in terms of the economic opportunities (business development and employment) that can flow from it."57 Additionally, the "patenting process can spark new ideas and promote new inventions from which we can all benefit."58 Thus, the Rule's prohibition on patented and proprietary products not only deprives individual inventors of the right to benefit from their work, but denies everyone else who uses the nation's highway system - including motorists, businesses, shippers and the like - the improvements that would result.

The transportation departments of Idaho, Montana, North Dakota, South Dakota and Wyoming, in Joint Comments supporting full repeal of the Rule, echo this point, stating that as a result of the Rule, "the Federal-aid highway program discourages highly skilled companies and people from developing innovative products for transportation infrastructure."59 The Joint Comments further

54 See Petition at 19-25.
57 Id.
58 Id.
emphasize the importance of these products in addressing today’s transportation challenges, stressing that “whether the goal is safety by using pavement markings more useful to the driver, longer lasting pavements or bridges, improved lighting, or other improvements, innovative products can help reach the goal.”

In 2012, the FHWA established the Center for Accelerating Innovation (CAI) to “serve as the focal point for internal and external coordination to identify and prioritize innovations.” The FHWA’s Every Day Counts (“EDC”) program, launched in 2010, similarly seeks to identify and rapidly deploy proven, yet underutilized innovations to enhance roadway safety, reduce traffic congestion, and shorten the project delivery process. Through the EDC model, the FHWA works with state and local transportation agencies and private industry to identify a collection of innovations to promote and adopt over a two-year deployment cycle. Despite this stated emphasis on innovation, however, the legacy of the Rule is so pervasive the FHWA has stated that “[r]espondents should not submit unique, proprietary, or patented products” for consideration in the EDC program, even though the program is meant to promote innovation.

These barriers harm innovation and full repeal of the Rule is the best way to ensure their removal. The result will be more innovation, better technology, and more choices. There are many instances of new and innovative technologies that could help address the challenges facing our nation’s highways but which have not been as widely adopted as they could be, because the Rule discourages state agencies from acquiring them.

Just a few examples include:

- **Mobile Barriers LLC’s MBT-1** – Colorado-based Mobile Barriers has created a patented mobile, self-contained, semi-trailer that protects workers while reducing public disruption and lane closures. Movable barriers like the MBT-1 provide a physical and visual wall between traffic and maintenance and construction personnel. Studies have shown that movable barriers save lives and have a cost benefit of $1.911 million per year over traditional non-movable barriers. The MBT-1 has been tested and accepted for use on the National Highway System (TL-3 use) and are in operation on I-495. The MBT-1 has received multiple awards for improving worker safety and efficiency. Although state contracting agencies have expressed significant interest in this product, they have been constrained in acquiring it because of the Rule.

- **RJ Watson Inc.’s Disc Bearings** – RJ Watson spent years developing patented “disc bearings” for bridges. While these disc bearings are now recognized as superior to alternatives in the market, RJ Watson had difficulty selling these products to state

---

60 Id.

61 https://www.fhwa.dot.gov/innovation/.

62 Every Day Counts: An Innovation Partnership with States, Fact Sheet, available at https://www.fhwa.dot.gov/innovation/everydaycounts/everydaycounts_overview.pdf. ARTBA has served as a stakeholder partner of the EDC program since its inception.

63 Id.

64 FHWA, Every Day Counts Initiative; Request for Information, 79 FR 1422, (Jan. 8, 2014).
contracting agencies until the patents on the disc bearings expired. If the Rule did not exist, these products could have been installed on bridges much sooner and efficiently.

- **HCB, Inc.'s Composite Beams** – HCB has developed the Hillman Composite Beam ("HCB®") for use in bridges. The HCB provided a cost-competitive, resilient bridge system benefitting from the extended service life inherent in composite materials. The lightweight design provides added benefits for shipping and erection while using standard construction equipment and methods. While this technology has been deployed for numerous bridges, it has not been as widely adopted as possible given the proprietary product limits placed on state contracting agencies.

- **Transpo Industries' Break-Safe** – In the 1970’s and 80’s the primary system used for ground mounted breakaway sign structures was the “Texas Slip Base.” The system was available to all state agencies as a non-proprietary design and was adopted by the majority of states. While the system performed well in some cases, it became evident the system had significant limitations. To address these issues, Transpo Industries obtained a patent in the 1980s on Break-Safe, a unique sign post breakaway system that the company developed. After receiving the FHWA Acceptance Letter in 1989 to receive federal funding, Transpo began marketing the new patented system but experienced great resistance from state contracting agencies because of the product’s proprietary status. Today, after more than 25 years of continued effort to market the system it is finally accepted in 38 states and used by 12 states as their state standard.

- **Lindsay Transportation Solutions** – Lindsay markets a unique moveable barrier product that can be used for both permanent and temporary applications. It allows NCHRP 350 and Manual for Assessing Safety Hardware (MASH) approved concrete and steel barriers to be quickly and efficiently moved under traffic conditions, to expand and contract work areas in construction work zones, and add/drop lanes for directional traffic in permanent applications. Because the product is patented and unique, many states simply do not specify this product, thus limiting wide-spread deployment of the very useful device.

- **TENSAR TriAx Geogrid** – Tensar International Corporation ("Tensar") developed a geogrid for trafficked surfaces. This patented and proprietary product provides a solution for building low cost, long lasting, and reliable trafficked surfaces. The TriAx Geogrid is a cost-effective solution, both during construction of new lane miles and in terms of life cycle benefits. As a result, private market acceptance has been strong. Unfortunately, public market acceptance has lagged because of the Rule’s restrictions on patented and proprietary products.

By limiting these innovative products, the Rule acts as a barrier to deploying proven innovations to enhance roadway safety and undermines the incentives for the creation of new technologies that could further address the challenges faced by the nation’s highway and bridge infrastructure.

Furthermore, the NPRM’s impact analysis fails to take into the account these benefits. Patented and proprietary products can save lives, minimize congestion, reduce overall costs, and otherwise improve the quality of the nation’s highways.
VII. Repeal Will Support Small Businesses

According to the U.S. Small Business Association ("SBA"), small businesses hold more patents than all of the nation's universities and largest corporations combined.\(^{65}\) Furthermore, small businesses create two-thirds of all private sector jobs and employ half of all working Americans. The role of small businesses as leaders in innovation and drivers of the economy cannot be overstated, and should be encouraged and supported by DOT and state contracting authorities.

But barriers to procurement of patented and proprietary products resulting from the Rule and similar federal restrictions have limited the ability of small businesses to innovate and grow. This undermines the federal government's stated policy interest in furthering contracting opportunities for small businesses.\(^{66}\) In part to address the barriers that small businesses face, President Trump issued an Executive Order early in his administration directing each agency to establish a Regulatory Reform Task Force to evaluate existing regulations and make recommendations regarding their repeal, replacement, or modification. As part of this evaluation, the Executive Order specifies that concerns of small businesses must be considered.\(^{67}\)

The Trump Administration, including the FHWA, can make progress towards achieving regulatory relief for small businesses in the transportation sector by repealing the 103-year-old Rule that actually requires many of those firms to surrender its intellectual property as a condition for eligibility in federal-aid procurement.

VIII. Repeal Is Superior To Amendment

The most pressing reason for repealing the Rule is the need to provide states greater flexibility to address key challenges facing the nation's road and bridge network. While the proposed option to amend the Rule attempts to provide this flexibility, experience has shown that these types of incremental changes are unlikely to make a difference. After all, this is a Rule that has been in place for 103 years. Moving beyond the ingrained bias against patented and proprietary products requires real change. As explained throughout these comments and in further detail below, only full repeal accomplishes this goal.

A. Amendment Will Fail to Deliver Flexibility and Change

The proposed option to amend the Rule will, unfortunately, only offer more uncertainty as to what procedures and specifications "provide for fair, open, and transparent competition." Many states would likely fall back on their decades-old default approach of prohibiting patented and proprietary products, which they would see as the only safe, proven means of compliance. The transportation departments of Idaho, Montana, North Dakota, South Dakota and Wyoming, in Joint

---


\(^{66}\) Over 35 years ago, Congress set a goal of having a certain portion of all federal contracting dollars go to small businesses. The current government-wide goal for small businesses' share of contracting dollars is 23%. Report of Intergency Task Force on Federal Contracting Opportunities for Small Businesses, (September 2010); see also Presidential Memorandum on the Intergency Task Force on Federal Contracting Opportunities for Small Businesses, (April 26, 2010); White House, 25 Point Implementation Plan to Reform Federal Information Technology Management, at 20 (Dec., 9 2010).

\(^{67}\) President Trump's Executive Order 13777, Enforcing the Regulatory Reform Agenda
Comments supporting full repeal of the Rule, also make this point, stating that Option 1 “may not represent a clean break from current restrictions on the use of patented and proprietary products” and further noting that is “unclear” how the FHWA would administer a state certification of compliance.68

Further, with such vague standards, the FHWA may be inclined to reestablish the Rule, de facto, or impose other requirements on states through administrative guidance. The five state DOTs also recognize this in their Joint Comments, warning that “nothing in Option 1’s proposed new certification rule provides that the inclusion of patented or proprietary materials in specifications could not be a factor in any FHWA review of a State’s certification.”69

Even the specter of this possibility, regardless of its merit, will continue to limit states’ perceived flexibility to procure patented and proprietary items.

By contrast, repealing the Rule will provide states the flexibility to develop and manage projects effectively and efficiently, consistent with the directives of the President and the needs of our nation’s infrastructure.70 This approach aligns with DOT’s previous statements recognizing the need to provide states and localities with more flexibility so they can develop data-driven roadway safety plans.71 Not surprisingly, in 2011, the DOT’s Retrospective Review and Analysis of Existing Rules for implementing Executive Order 1356372 acknowledged the broad industry concern that the Rule imposes unnecessary restrictions on the ability of states to utilize proprietary methods, materials, and equipment on Federal-aid projects.73 In response to these concerns, the FHWA agreed “that a further reexamination of its existing regulations and/or guidance in this area might accelerate project delivery and provide states needed flexibility.” Similarly, in a 2016 review of the Rule’s implementation on the state level, the FHWA incorporated industry views on how the Rule was affecting innovation on Federal-aid highway projects. According to this report, industry believed that state DOT procurement processes ensured competition through the traditional low bid system, but when it came to innovation, the Rule preserved the status quo, with "no intentional focus on pursuing innovation."74

69 Id. The Joint Comments further warn that “placing subjective words such as ‘fair, open and transparent’ in a rule could result later on in other unforeseen restrictions or burdens on States, including restrictions unrelated to use of patented or proprietary products.”
70 President Trump’s Legislative Initiative to Rebuild Infrastructure in America, Highlights Document, (Feb 12, 2018).
73 FHWA recognized industry concern that “State DOT’s hands are tied when trying to use these products” and that a “new proprietary product that is developed and placed on the market cannot easily be used in highway construction until a ‘comparable’ product is produced. The inability of government agencies to specify a particular product which currently has no ‘equal’ limits innovation by essentially ‘lowering the bar’ for all products in order to artificially produce competition within the market.” Id.
74 Executive Summary from the PnPP National Program Review (Oct. 2016).
Unfortunately, past efforts by the FHWA to moderate the impact of the Rule have not worked, further illustrating why mere amendment is unlikely to resolve these problems. For example, the Obama Administration attempted to provide additional flexibility by clarifying that contracting agencies may approach the FHWA and request a “Public Interest Finding” to allow use of a specific material or product for a project even when other suitable products are available. However, even though states could petition a FHWA Division Administrator for approval to use a specific material or product, many remained reluctant to initiate such a process due to concerns about personnel time, procedural uncertainty, and even unawareness of the exemption. As noted in these comments, the FHWA requires states to include various documents and support materials in PIFs, a process that can take significant time and effort.

In sum, the DOT under the two prior Administrations understood the need to clarify the Rule, but failed to resolve the chilling effect it imposes. Repealing the Rule, however, will accomplish these important goals.

B. The Appropriate Standard to Apply

In its NPRM, FHWA asks what standards it should rely on to determine if a state’s specification of a patented or proprietary product violates the competition mandate in 23 U.S.C. 112. As this question indicates, it appears that FHWA’s adherence to the antiquated proprietary products rule is based on a concern that the use of these products could result in federal-aid spending inconsistent with the generic competitive bidding principle articulated in Section 112. Indeed, the numerous factors reflected in the PIF requirement in 23 C.F.R. 635.411 could all be easily summarized as “would the benefits obtained by purchasing a proprietary product be worth the presumed extra cost of limited competition?”

We agree with FHWA’s assessment that “most State DOTs utilize new product evaluation processes and approved product lists that provide fair and transparent procedures for the evaluation, selection, and use of materials, including patented and proprietary products.” This provides a solid basis for repealing the Rule and providing states with flexibility in their procurement of products.

We also emphasize that general federal competitive bidding rules allow for single-source procurement under certain conditions. The Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (“Uniform Guidance”) sets “standard requirements for financial management of Federal awards across the entire federal government.” The competition rules under the Uniform Guidance are far more flexible than FHWA’s Rule.

---

76 NPRM at 56759.
77 2 CFR 200.320(f).
78 Id.
79 Id. Single-source procurement is available at any dollar amount. Purchases under $3,000 (“micro-purchases”) may be awarded without soliciting competitive quotations, regardless of the item’s availability from other sources. 2 CFR 200.320(a). Purchases as much as $150,000 (the Simplified Acquisition Threshold) only require “relatively simple and informal” procedures for obtaining price or rate quotations. 2 CFR 200.320(b). Competitive bidding procedures are only required for purchases over $150,000 and the exemptions for single-source procurement still apply.
The federal government’s general respect for flexibility in procurement is especially relevant when federal funds are awarded to states.

Furthermore, the Department of Defense ("DOD") and other federal agencies have set up systems that allow for the appropriate use of sole source contracts. The DOD, Coast Guard, and National Aeronautics and Space Administration, for example, are subject to 10 USC 2304(c) which authorizes sole source procurement under certain conditions. For example, 2304(c) allows an applicable agency to use non-competitive bidding when "the property or services needed by the agency are available from only one responsible source or only from a limited number of responsible sources and no other type of property or services will satisfy the needs of the agency[.]"\(^{80}\) Section 2304(c) lists six additional circumstances where non-competitive, sole source procurement is permitted, for a total of seven permitted circumstances.\(^{81}\)

Additionally, DOD non-competitive spending is not insignificant, demonstrating a need for these procedures. While a recent GAO Report found that for FY 2016, 68 percent of DOD’s commercial spending was competitive, the same report found that between $41.2 and $63.2 billion was spent by DOD each year on contracts citing an exception to competitive bidding procedures.\(^{82}\) Moreover, 60 to 70 percent of the non-competitive contracts awarded in that timeframe cited “only one responsible source” as the reason for using non-competitive procedures.\(^{83}\) Other executive agencies are subject to 41 USC 3304, which provides very similar avenues for sole source procurement under similar conditions.\(^{84}\)

Section 200.317 of the Uniform Guidance exempts states from sections 200.319 and 200.320, which specify the procurement methods that recipients must incorporate into their procurement procedures. When procuring property and services under a federal award, a state (including state agencies and instrumentalities of the state) is directed to use the same policies and procedures that it uses for procurements from its non-federal funds.\(^{85}\)

ARTBA fully believes this should remain the case. Furthermore, ARTBA agrees with the Joint Comments of the transportation departments of Idaho, Montana, North Dakota, South Dakota, and Wyoming that “there should not be a presumption by FHWA that there would be a problem to

\(^{80}\) 10 USC 2304(c)(1).

\(^{81}\) 10 USC 2304(c).

\(^{82}\) GAO-17-645, Recent Legislation and DOD Actions Related to Commercial Item Acquisitions, (Jul. 17, 2017).


\(^{84}\) See Federal Acquisition Regulation (FAR), Subpart 6.3 – Other Than Full and Open Competition.

\(^{85}\) 2 CFR 200.317. Other non-federal entities, by contrast, are subject to the competition and procurement method requirements set forth in section 200.319 and 200.320.
solve. As already mentioned, "FHWA believes that many States already have procedures in place that would comply with [fair, open, and transparent competition]."

Indeed, states have statutes and decades of common law jurisprudence governing competitive bidding requirements, including when sole source contracting is appropriate in place of competitive bidding. FHWA should not, as the Rule currently does, limit states from following their own policies when it comes to the procurement of proprietary and patented products. The current Rule’s requirements force some states to diverge from their customary policies and practices or lose the opportunities afforded by patented and proprietary products despite no determination or finding that the state’s procedures are deficient in any way.

We also emphasize the Rule should not be replaced by additional federal regulations, red tape, or performance specifications and standards. Innovative products are far too varied for a one-size-fits-all approach, and states need full flexibility to determine the products, materials, and equipment that can best meet their needs. As such, we would oppose a process that sets forth detailed performance standards. States should be free to determine their own process and balance their objectives in a way that best suits their particular needs.

As Secretary Chao has recognized, states are leading the way in testing new transportation technologies and innovations, and thus FHWA policy should promote these efforts and not limit them.

IX. Conclusion

ARTBA and its members are committed to improving the nation’s roadways, waterways, bridges, ports, airports, rail, and transit systems. Unfortunately, the Rule and similar restrictions on the acquisition of patented and proprietary products bar states from implementing proven and innovative safety measures that are cost-effective and shown to have meaningful benefits over existing products in protecting drivers, highway workers, pedestrians and other system users. We therefore applaud FHWA’s initiation of a rulemaking to address this important issue, and strongly encourage the agency to repeal the Rule, relegating it to history after 103 years. Repealing the Rule will allow states the flexibility to evaluate all options at their disposal without mandating a particular course of action. Furthermore, only a full repeal of the Rule will spur investment in and deployment of new technologies that promise to help advance safety, alleviate congestion, and improve our nation’s highways.

For additional, specific responses to the questions presented by FHWA in its NPRM, please refer to the attached appendix.

---


87 NPRM at 56760.


89 Remarks by U.S. Secretary of Transportation Elaine L. Chao at Western Governors Association Winter Meeting, Phoenix Arizona, (Dec. 2, 2017).
Sincerely,

David Bauer,
President & CEO
Appendix A

Responses to Specific FHWA Questions

(1) What are the challenges in incorporating patented and proprietary products into projects under the current regulatory process?

The Rule prohibits interested state contracting agencies from using federal funds for patented or proprietary materials, specifications, or processes except in limited circumstances. This bias against patented and proprietary products, inured in and perpetuated throughout the Rule, discourages states from procuring patented and proprietary items even where potentially permissible under a limited exemption because of the risk of noncompliance or loss of federal funding.

In sum, the effect of the Rule has been a general prohibition on the procurement and use of patented and proprietary products in projects where federal funds participate, regardless of the merit or potential cost savings of the products.

There are many instances of innovative and promising products that have faced unnecessary challenges to adoption because of the Rule. A few examples include:

- Mobile Barriers LLC’s MBT-1
- RJ Watson Inc.’s Disc Bearings
- HCB, Inc.’s Composite Beams
- Transpo Industries’ Break-Safe
- Lindsay Transportation Solutions, Moveable Barrier
- TENSAR TriAx Geogrid

For more information on each of these examples and how the Rule has limited their adoption, please see Section VI.

(2) How does the current regulation hinder the incorporation of innovative or cost-effective safety and other products into projects? The Rule has acted as a barrier to innovation by discouraging interested states from procuring patented and proprietary items where federal funds participate, despite the potential benefits to safety, durability, and cost savings that they may bring.

In addition, the Rule has stymied the development and commercialization of emerging technologies and innovative products. As discussed in Section III.A, there are multiple examples of how the Rule has barred states and local authorities from procuring and implementing desired safety technologies. In St. Petersburg, Florida, for example, the city has been hampered in its efforts to improve pedestrian safety through the procurement of rectangular rapid flashing beacon (RRFB) devices because of FHWA’s determination that the product was patented. This forced the manufacturer of the product to give up its intellectual property in order to satisfy orders that had been placed for the device by St. Petersburg and other cities. This episode perfectly encapsulates how the Rule hinders the use of innovative products that would benefit the traveling public.

With limited market potential, innovators are less likely to invest time and resources in developing new technologies, methods, and devices that could save lives, improve efficiencies in project delivery, or provide other benefits not yet imagined. Section VI provides specific examples of innovative products that have faced challenges to adoption as a direct result of the Rule.
(3) How does the current regulation hinder the incorporation of proprietary products into projects?

See above responses to Questions 1 and 2. Further discussion is provided in Section III and Section VI.

(4) How would the proposals support or deter deployment of innovative or cost-effective products on projects? Could the proposals result in any unintended consequences that might deter such deployment?

(A) Full Repeal of the Rule

Repealing the Rule in full would allow state DOTs to obtain and use the best, most cost-effective, and safest highway materials and products. This flexibility will allow states to develop and manage projects effectively and efficiently. In addition, full repeal of the Rule will further promote the development of innovative products by increasing the market opportunities for patented and proprietary materials, products, and technologies. These in turn can be incorporated in future projects. Repealing the rule will save lives and reduce injuries, while improving the efficiency of our highway system.

Repeal of the Rule will not result in any unintended consequences that would deter deployment of such products because only the states that wish to use such products would take advantage of the afforded opportunity. States not interested in using innovative or cost-effective products would be under no obligation to do so.

See Section VI for a more detailed discussion on the benefits of repeal in promoting innovative and cost-effective products.

(B) Amendment of the Rule

While intended to provide similar flexibility, the proposed option to amend the Rule will, unfortunately, only offer uncertainty as to what procedures and specifications “provide for fair, open, and transparent competition.” As a result, states will fall back on the Rule as the only safe, proven means of compliance, thus continuing to inhibit the deployment of innovative or cost-effective products. As the example cited in St. Petersburg demonstrates, the unintended consequence of uncertainty about the eligible use of innovative products can be an after the fact determination of ineligibility.

See Section VIII.A for a more detailed discussion on the problems with the proposed option to amend the Rule.

(5) How could the proposals to allow specification of patented and proprietary products be implemented consistent with existing competition and low bid requirements?

(A) Full Repeal of the Rule

Specifying a patented article in the solicitation materials, rather than limiting competition, would encourage bidders to offer lower prices in the competition to deliver competing materials and ultimately lead to a more cost-effective use of federal funds.\(^1\) Thus, repeal of the Rule would

---

\(^1\) NPRM at 56759.
encourage competition by giving state authorities a broader range of options. The current approach inhibits competition by, in effect, denying state authorities the option of even considering a patented or proprietary product. Respect for intellectual property and competition are complementary, and states are in the best position to administer procurement consistent with state laws and jurisprudence. States can reflect the objectives of maximizing competition while providing flexibility where appropriate to procure patented or proprietary products, just as federal agencies do in their procurements. By contrast, inhibiting the opportunity for innovation on federal-aid highway and bridge construction projects ultimately serves to squelch competition by limiting the number of options that can be considered.

The goal of any true commercial competition should be to identify and reward a product, process or service that is the best. If a patented or proprietary product is not better than its competition or its cost outweighs its benefits, it will not be rewarded in the marketplace. However, this determination should be made through competition, not regulation.

The ability to consider all products and processes, regardless of whether or not they are patented or proprietary, is essential to competition, as it is the only way to ensure the best possible product is chosen. Alternatively, prohibiting a specific product beforehand renders any true competitive analysis incomplete.

See Section V for a more detailed discussion on the competitive benefits of full repeal.

(B) Amendment of the Rule

As explained in Section VIII.A, the option to amend the Rule will likely not result in a material change in state procurement practices.

(6) If FHWA rescinds the rule, what standards should FHWA rely on to determine if a State's specification of a patented or proprietary product violates the competition mandate in 23 U.S.C. 112? For example, should FHWA rely on the standard found in the Office of Management and Budget's (OMB) Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards at 2 CFR 200.319(a)(6)? OMB's regulations at Part 200 provide a government wide framework for grants management, and 2 CFR 200.319(a)(6) describes seven situations considered to be restrictive of competition.

There is nothing inconsistent between the competition provisions in 23 U.S.C. 112 and promoting competition through the procurement of patented and proprietary products. In fact, competition is best protected by allowing states the flexibility to select from all products available in the market, rather than effectively limiting options that are available. In this way, competition among all products is maintained while allowing state flexibility to employ innovative solutions.

As explained in Section VIII.B, the FHWA rightfully notes that “most State DOTs utilize new product evaluation processes and approved product lists that provide fair and transparent procedures for the evaluation, selection, and use of materials, including patented and proprietary products.” These processes provide a sufficient basis to ensure that states select and implement products in the most efficient manner.

---

2 NPRM at 56759.
Moreover, federal competitive bidding rules already allow for single-source procurement under certain conditions. The competition rules under the Uniform Guidance are far more flexible than the FHWA’s Rule and demonstrate general respect for flexibility in procurement when federal funds are awarded to states.

Section 200.317 of the Uniform Guidance, for example, exempts states from sections 200.319 and 200.320, which specify the procurement methods that recipients must incorporate into their procurement procedures. When procuring property and services under a federal award, a state (including state agencies and instrumentalities of the state) is directed to use the same policies and procedures that it uses for procurements from its non-federal funds.

As already mentioned, “FHWA believes that many States already have procedures in place that would comply with [fair, open, and transparent competition].” States have laws and decades of common law jurisprudence governing competitive bidding requirements, including when sole source contracting is appropriate in place of competitive bidding. FHWA should not, as the Rule currently does, limit states from following their own policies when it comes to the procurement of proprietary and patented products. The current Rule forces some states to diverge from their customary policies and practices to conform to the Rule or risk losing federal funding despite no determination or finding that the state’s procedures are deficient in anyway. As Secretary Chao has recognized, states are leading the way in testing new transportation technologies and innovations, and thus FHWA policy should be to support states in these efforts.

(7) What positive or negative consequences might result from implementation of the proposals? Could the proposals result in potential costs or cost savings? If so, please describe the costs or cost savings and provide data to support these estimates. What might be the effects of the proposals on transparency in the materials selection process?

(A) Full Repeal of the Rule

As detailed in Section VI, repealing the Rule in full would allow state DOTs to obtain and use the best, most cost-effective, and safest highway materials and products. As stewards of significant state and Federal-aid transportation funds, there is a strong expectation that these agencies will only deploy patented and proprietary products if they add demonstrable value (in terms of safety, efficiency or other attributes) and/or do not unreasonably increase costs to their Federal-aid highway projects.

Similarly, it is important to note that repealing the Rule is not a mandate for states to deploy patented and proprietary products on any of their highway projects, Federal-aid or otherwise. Repeal would simply widen state transportation agencies’ choices. If a state chooses

---

3 2 CFR 200.320(f).

4 2 CFR 200.317. Other non-federal entities, by contrast, are subject to the competition and procurement method requirements set forth in section 200.319 and 200.320.

5 NPRM at 56760.


to deploy these products, they will be utilizing safeguards in their respective procurement codes and procedures designed to prevent undue influence, opacity, price gouging and other improper activities.

From the industry's standpoint, repealing the Rule will unleash market forces, which themselves will prevent unreasonable pricing of new products. Suppliers of patented and proprietary products have every incentive to introduce their innovations as widely as possible. Pricing these products significantly higher than existing options, in a way that appreciably increases highway project costs, would be a good way to lose further market opportunities for these new products. Thus, newly-enhanced competition, in the wake of the Repeal, will ultimately keep costs in line. In all of these ways, repeal of the Rule will not lead to project cost increases over time.

(B) Amendment of the Rule

As explained in Section VIII.A, the option to amend the Rule will likely not result in a material change in state procurement practices.

(8) What positive or negative consequences might affect small businesses that do not have the same marketing resources as larger firms?

As explained in Section VII, small businesses hold more patents than all of the nation's universities and largest corporations combined. This is because patents are an essential protection for small firms and businesses. A small firm may only have one product to bring to the marketplace and needs to patent that product in order to prevent larger firms from simply out-producing them. If the Rule is allowed to remain in place, even in an amended form, these smaller firms are going to be denied the chance to compete against larger firms because their products will not be able to be considered.

(9) What differences in effects and compliance, if any, could result from the two alternative proposals?

As explained in Section VIII, repeal of the Rule will provide states greater flexibility to address key challenges facing our nation's highways, saving lives, reducing injuries, and improving the efficiency highway project delivery. Giving states flexibility is not a mandate and states not interested in taking advantage of this opportunity would be under no obligation to do so. The option to amend the Rule, by contrast, will not significantly impact state procurement of innovation and costs-effective products where federal funds participate because some form of federal barrier will still remain in place and states would simply continue addressing the Rule in the same manner they have been prior to this NPRM. See also Section VI for a discussion on the competitive benefits of repealing the Rule.

(10) What is the difference between the number of proprietary products used on State and Federal-funded projects?

---

We are unaware of an exact number of patented and proprietary products used on federal-aid funded projects. The only parties who could produce this information are state DOTs, as they administer both state and federally funded projects. We would note, though, that none of the state DOT commenters to this docket (favoring either amendment or repeal of the Rule) have provided any information on this subject.

(11) Do the States follow rules or processes on State-funded projects similar to the Federal process embodied in section 635.411?

States have laws and decades of common law jurisprudence governing competitive bidding requirements, including when sole-source contracting is appropriate in place of competitive bidding.9 Indeed, FHWA concedes in its NPRM that “most State DOTs utilize new product evaluation processes and approved product lists that provide fair and transparent procedures for the evaluation, selection, and use of materials, including patented and proprietary products.”10 FHWA should not, as the Rule currently does, limit states from following their own policies when it comes to the procurement of proprietary and patented products. The current Rule forces some states to diverge from their customary policies and practices to conform to the Rule or lose federal funding despite no determination or finding that the state’s procedures are deficient in anyway. As Secretary Chao has recognized, states are leading the way in testing new transportation technologies and innovations, and thus FHWA policy should be to support states in these efforts.11

---


10 NPRM at 56759.

June 21, 2018

Elaine L. Chao, Secretary of Transportation
U.S. Department of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

Brandye Hendrickson, Acting Administrator
Martin C. Knopp
Mark Kehrli
Federal Highway Administration
1200 New Jersey Ave., SE
Washington, DC 20590

SUBJECT: NDDOT interest in Evolutionary Markings, Inc. (EMI) smart marker
LRPM technology to advance safety and save lives

On Tuesday June 19, 2018, we initiated a phone call to EMI concerning its smart LRPM
(LED Solar Powered Raised Pavement Marking) technology for excessive speed and
intersection safety applications. This innovative product is of primary interest to NDDOT,
because we are in search of low cost, quick to implement, effective safety
countermeasures to support our Vision Zero initiative. In particular, we believe this
smart LRPM may be applicable for a safety concern we are currently addressing near
one of our Air Force Bases.

When we talked to EMI, they informed us that they have encountered a regulatory
roadblock prohibiting EMI (and other innovative companies) from installing patented
products in federal and state roadways. Apparently, EMI’s proprietary products may be
disallowed by you because of a procurement rule adopted by your agencies over a
100+ years ago, at a time vastly different than today’s technological world.

We believe this agency rule is counterproductive and prevents visionary US companies
from advancing cost effective, effective safety solutions for today’s world of Intelligent
Transportation Systems and autonomous vehicles. We should encourage, rather than
discourage, innovative companies like EMI to continue to make meaningful investments
of private capital to help solve our growing technological challenges.
Finally, we understand there is a conference call scheduled for June 26th between USDOT, FHWA and EMI. We strongly urge you to allow the appropriate use of EMI’s smart marker products. They can be regulated for uniformity under MUTCD guidelines to permit state DOTs like NDDOT to test them to confirm that they save lives. We believe many other state DOTs are likeminded and are in support also.

Thank you for your consideration in this important safety issue.

Sincerely,

[Signature]

Thomas K. Sorel
NDDOT Director
The Idaho Transportation Department (ITD) respectfully submits this request, pursuant to Section 1A.10 of the Manual on Uniform Traffic Control Devices, for experimentation through deployment of a device to help deter wrong-way intrusions and collisions. The full request is set forth on the attached pages, which include ITD’s responses to the information requests set forth in Section 1A.10 of the MUTCD.

As set forth in the attachment, we (ITD) consider this to be an extremely meritorious request. A new device would be tested and ITD would measure its effectiveness in deterring wrong-way intrusions and the horrible collisions that can result from vehicles traveling the wrong way on roads and ramps. After and during testing, ITD would report to FHWA.

We submit that an important way to advance safety is to test innovative devices. That is what we seek to do through this request. We also see approving this request as consistent with the position Secretary Chao set forth in her prepared statement at her January 11, 2017 confirmation hearing: “We want to work with Congress to position the federal government as a catalyst for safe, efficient technologies, not as an impediment.”

Accordingly, ITD thanks FHWA for its consideration and respectfully asks that this request be approved promptly.

**************************

Attachments (2)
Request for Experimentation (5 pages)
Diagram (1 page)
Idaho Transportation Department
Request Pursuant to MUTCD for Experimentation to Deter Wrong-Way Intrusions
November 1, 2018

The Idaho Transportation Department (ITD) respectfully submits this request, pursuant to Section 1A.10 of the Manual on Uniform Traffic Control Devices, for experimentation through deployment of a device to help deter wrong-way intrusions. Set forth below are responses to information requests A. - I. for requests for experimentation, as set forth in Section 1A.10.

Responses to Items A. – I., Section 1A.10 of MUTCD

A. The safety problem ITD seeks to address is wrong-way intrusions involving vehicles traveling on Interstate and other high speed divided highways, including ramps from those highways. These intrusions can result in horrible collisions, involving loss of life, serious injury and/or property damage. Our (ITD’s) strong commitment to safety drives us to seek improvement in this area. We believe that by approving this request FHWA would be advancing safety by allowing experimentation to test a new approach to reducing wrong-way intrusions and collisions.

B. Existing approaches to reducing the risk of wrong-way collisions begin with required signs. See Standard in Section 2B.41. In practice that signage standard is supplemented by State and other road authorities with additional measures, only some of which are traffic control devices. Existing wrong-way warning systems utilize various technologies (e.g., radar, loop, thermal, camera, etc.) to detect the intrusion of a wrong-way vehicle/driver and activate counter measures. Traffic control devices used in addition to required signs may include pavement markings, flashing signage, and traffic signal interaction at nearby interchanges to help keep right-way drivers/passengers from entering into harm’s way upon the occurrence of a wrong-way incident.

The recently invented and patented device that is the subject of this request is referred to by the inventors’ company, Evolutionary Markings, Inc. (EMI), as “smart” lighted raised pavement markers (LRPM) or smart markers or light strips, with wireless communication capabilities. This device shows promise of providing additional, dramatic, life-saving improvements over existing practices. In particular, freeway on and off ramps can be illuminated by these devices with in-roadway flashing red LED lights upon the detection of a wrong way incident.

This is important because, as the NTSB has noted, over half of wrong-way crashes involve alcohol impairment. See NTSB Highway Special Investigative Report, Wrong-Way Driving, December 11, 2012, especially at pages 30 and 55. To communicate with someone who is impaired, something must be done that is MORE than what is being done at this time, or DIFFERENT. The California Department of Transportation completed a report in 2016, “Prevention and Detection of Wrong-Way Collisions on Freeways,” which noted that the “FHWA has approved two experimental measures in Florida [including the use of LED raised pavement markers as a warning].” The report further advised that, at least as of the time of the report, the experiment had not yet been deployed and that “Florida believes it may be one of the best countermeasures, since an impaired driver’s cone of vision drops horizontally.” Id. at page 46.
Beyond the material in that 2016 Caltrans report, EMI and ITD have heard anecdotal comments from others in transportation that are consistent with the above noted statement from the nation’s third most populous state, quoted by the nation’s most populous state, that an impaired driver’s cone of vision drops horizontally. Simply put, there is ample reason to believe that many wrong-way crashes are caused by impaired or intoxicated drivers late at night, who are looking downward and trying to concentrate on the road rather than looking at adjacent off-road signage, even signage that may be flashing. The device to be tested would be a response to that problem.

Real-time responsive, smart LRPM or light strips with communication receiving capabilities did not exist until they were invented by EMI, an Idaho small business. Reflecting the public interest nature of this technology, EMI’s innovative technology was funded in part by a 2015 IGEM grant from the State of Idaho to the University of Idaho’s National Institute for Advanced Transportation Technology (UI-NIATT). It is this technology that would be the subject of the experiment.

While EMI refers to these devices as LRPMs or smart markers, ITD regards them as in-roadway lights within the meaning of the MUTCD. They deviate from MUTCD Chapter 4N (regarding in-roadway lights) as they would not be deployed in a crosswalk. To the extent they are deployed other than as flashing lights, that would be another deviation from chapter 4N. As described below, testing will include flashing deployment and may include non-flashing deployment, so that efficacy can be compared. To the extent FHWA would consider whether such deviation would represent a source of confusion to motorists, we submit it would not. Crosswalks are not located in the middle of limited access highways or entrance and exit ramps from such highways.

C. Illustration - See attachment.

D. This smart marker technology has not yet been tested on public roadways. Acquisition and evaluation of supporting data is the reason why this experimentation request is being made. This test will evaluate device characteristics and functionality. The test will also collect data to study driver reactions. The test will be of the LRPM or the light strips or both.

E. ITD submits that use of this traffic control device would not constitute use a device in the capacity of a general concept. The general concept relevant to this device is a wrong way warning system. The device itself is not a wrong way warning system, but it is to be used as a part of such an approach to combatting wrong-way driving. This general concept of a wrong way warning system is not patentable\(^1\), as many different types of these systems are currently operational on our public roadways and others could be devised. The device we are requesting permission to evaluate would be an add-on product to existing or new wrong-way systems, since they cannot function on their own without first being connected to a warning system with detection technology. These add-on (smart marker) products are patented, but only to the extent they incorporate connectivity from a warning system into the smart markers or light strips. Only when used in conjunction with overall warning systems do the smart markers or light strips provide real-time, in-roadway warnings. Stated simply, required wrong-way signage is supplemented today by other warning systems that include detection and lighting. The device to be tested (a form of in-roadway light) would be part of such a system — but the larger warning system is the general concept, not the specific marker or light which is but part of one example of such a wrong-way warning system.

These facts, ITD submits, are analogous to the example provided in data request item E in MUTCD Section 1A.10. There, the MUTCD provides in relevant part —

\(^1\) At least if patented apparently not allowed to be deployed under current MUTCD requirements.
An example of a traffic control device concept would be countdown pedestrian signals in general. Ordinarily, a general concept would not be patented or copyrighted but, if it were, it would not be acceptable for experimentation unless the patent or copyright owner signs a waiver of rights acceptable to the FHWA. An example of a patented or copyrighted specific device within the general concept of countdown pedestrian signals would be a manufacturer's design for its specific brand of countdown signal, including the design details of the housing or electronics that are unique to that manufacturer's product. As long as the general concept is not patented or copyrighted, it is acceptable for experimentation to incorporate the use of one or more patented devices of one or several manufacturers.

Again, here the general concept is a wrong-way warning system. The subject of the experiment is one part of such a warning system, namely the communication receptive LRPM or light strips component. Other approaches of providing wrong-way warnings to drivers are in existence and more could well be developed, such as new flashing signs, overhead lights, holograms and vehicle windshield warnings to mention a few. ITD sees this effort to improve safety through the requested experiment as analogous to the example presented in the MUTCD quoted above.

In addition, ITD takes this opportunity to respond to what it understands to be FHWA’s concern regarding whether in-roadway warning lights being activated by the detection of a wrong-way vehicle should be protected by an EMI patent, specifically, whether that would constitute patent protection for a general concept. It would not. First, as explained above, the patented device which EMI refers to as an LRPM or smart marker or light strip is just part of a larger warning system that includes detection and provision of a notice before anything reaches the device.

Second and more specifically, under the warning system approach of which the device would be a part, there is no patent of a general concept that has the device activated by “detection.” Activation follows not from detection alone. It follows from detection and a communication from the device or system that detected the wrong-way vehicle and then from receipt of the communication by the device before activation. As noted above, the product is patented, but only to the extent it incorporates connectivity from detection and a warning system into the in-roadway lights (referred to by the inventor as LRPM or smart markers or light strips).

So, a warning system is the relevant general concept that should be recognized by FHWA upon review and, we hope, approval of this request for experimentation with a device that would be a part of a warning system.

ITD further submits that FHWA’s recognizing that the general concept at issue is a wrong-way warning system would serve the public interest as it would incentivize research and effort to develop improved specific devices that could be used in implementing the general concept. On the other hand, if specific techniques and equipment that can be used as part of wrong-way warning systems are themselves considered to be general concepts, rather than just pieces that can fit into the larger general concept, there is little or no incentive for research to improve those warning systems or develop new equipment for inclusion in such systems.

Testing of promising new technologies should be encouraged to accelerate innovation and permit American ingenuity to develop new transportation safety solutions. A restrictive interpretation imposing mandatory waivers of patent rights and intellectual property at the early testing stage only serves to prevent states from evaluating and advancing new technologies for the benefit of the public. Moreover, there is increased interest in combatting wrong-way collisions at NCHRP, which is just beginning a new project in this area.

In short, ITD submits that the relevant device for which it requests authority for experimentation does not constitute a general concept within the meaning of the MUTCD. Moreover, FHWA’s approval of the experimentation, by definition, will confirm that the device is not a general concept, at least for the purposes of
the experiment. As the MUTCD is currently structured, USDOT/FHWA decides whether a device itself is a
general concept or whether the general concept is something larger, with the device being used within the
framework of the larger general concept. ITD submits that FHWA should find that this device is not a general
concept, obviating a need to certify to FHWA that the patent does not cover a general concept.²

F. ITD will conduct the experiment over a two-year time period. ITD will conduct the experiment at Exit 119
on I-15.

G. ITD will experiment with a wrong-way detection and warning system using what the inventor company
refers to as LRPM or light strips, considered by ITD to be in-roadway lights. When activated, the LRPM will
flash red to alert the wrong-way driver of driving error. ITD will install the in-roadway lights in one
configuration on one exit ramp.³ The total installation will consist of more than the in-roadway devices (the
flashing red wrong-way in-roadway lights); it will also include detection systems, a communications system,
and a data collection system. The in-roadway lights will be embedded in wrong-way pavement markings and in
the off-ramp edge lines. Detection systems will be installed at the end of the exit ramp, to initially detect
wrong-way drivers, and upstream, near the gore area. Existing DO NOT ENTER and WRONG WAY signs and
ramp pavement markings will remain in place and unchanged. In addition to activating the in-pavement lights,
the detection systems will be used to collect data on how many times the system has been activated and how
many times after activation the wrong-way driver stopped before reaching the detector at the ramp gore.

At the conclusion of the experiment period, ITD will report:

* the number of times the system has been activated;
* the number of times the system was activated and the wrong-way driver stopped or
turned around;
* the number of times the system was activated and the wrong-way driver did not stop
or turn around;
* the number of crashes at the test location; and
* other relevant operational data.

ITD will also report a comparison of crash data (frequency, rate) during the experiment period to
crashes prior to the experiment (frequency, rate). ITD will also report the anecdotal experience of law
enforcement, ITD personnel, and others.

H. ITD agrees to restore the site of the experiment to a condition that complies with the provisions of the
MUTCD within 3 months following the end of the experiment. ITD agrees to terminate the experimentation if
the FHWA determines significant safety concerns are directly or indirectly attributable to the experimentation.

I. ITD agrees to provide semi-annual progress reports for the duration of the experimentation and will provide
a copy of the final results of the experimentation to FHWA within four months following completion of the
experimentation.

Conclusion

The proposal for experimentation in deploying a new device as a part of a larger warning system holds out
promise of demonstrating success in deterring wrong-way intrusions and the often horrific crashes that result
from wrong-way intrusions. ITD thanks FHWA for its consideration and respectfully requests prompt approval
of this request for experimentation.

² A copy of EMI’s patent has previously been provided to FHWA.
³ Potentially, ITD could later request FHWA permission for a second installation for the experiment.
Questions regarding this request may be directed to:

Ryan Lancaster, P.E., PTOE
Idaho Transportation Department
208-334-8528
Ryan.Lancaster@itd.idaho.gov.

*******************************
Brian W. Ness  
Director  
Idaho Transportation Department  
P.O. Box 7129  
Boise, ID 83707-1129

Dear Mr. Ness:

Thank you for your November 1 request to experiment with a warning system for wrong-way vehicles using in-roadway flashing lights. Specifically, the proposed traffic control device comprises in-roadway red lights that are actuated and illuminated when a wrong-way vehicle is detected on a highway exit ramp. We regret to inform you that we are unable to approve your request because the device with which you have requested experimentation is protected by one or more patents covering its appearance and operation as a traffic control device.

The Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) defines traffic control devices as “all signs, signals, markings, and other devices used to regulate, warn, or guide traffic…” The MUTCD requires that any traffic control device contained therein—that which communicates a regulatory, warning, or guidance message presented to the road user—be in the public domain. The purpose of this requirement is to ensure that a consistent message in appearance and operation is presented to the road user. This requirement does not extend to individual components within or manufacturing processes of the traffic control device. The device you propose for experimentation does not satisfy the requirement for the traffic control device itself—the appearance and operation—to be in the public domain.

The traffic control device proposed for experimentation, developed by Evolutionary Markings, Inc. (EMI), is covered by patents to such an extent that others would be precluded from producing such a traffic control device in appearance and operation. Federal Highway Administration staff and leadership, including Deputy Administrator Hendrickson, have engaged in a series of discussions with EMI since March. In these discussions, we informed representatives of EMI of the MUTCD requirement for traffic control devices, specifically their messaging aspects in appearance and operation, to be in the public domain. We informed EMI that, ultimately, requests for experimentation must be submitted by a highway agency which also must ensure that the experimental traffic control device in its appearance and operation is in the public domain. The MUTCD specifies the criteria for the appearance and operation of each traffic control device to establish and maintain uniformity on the roadways. Uniformity is critical for safety by meeting road user expectations.
An example from the current edition of the MUTCD of actuated in-roadway flashing lights, in this case used at crosswalks, illustrates how the provisions for such devices are expressed in the MUTCD. The following is excerpted from Section 4N.02 of the MUTCD (underscoring added):

Standard:

If used, In-Roadway Warning Lights at crosswalks shall be installed only at marked crosswalks with applicable warning signs. They shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.

If In-Roadway Warning Lights are used at a crosswalk, the following requirements shall apply:

A. Except as provided in Paragraphs 7 and 8, they shall be installed along both sides of the crosswalk and shall span its entire length.

B. They shall initiate operation based on pedestrian actuation and shall cease operation at a predetermined time after the pedestrian actuation or, with passive detection, after the pedestrian clears the crosswalk.

C. They shall display a flashing yellow light when actuated. The flash rate shall be at least 50, but no more than 60, flash periods per minute. If they are flashed in a manner that includes a continuous flash of varying intensity and time duration that is repeated to provide a flickering effect, the flickers or pulses shall not repeat at a rate that is between 5 and 30 per second to avoid frequencies that might cause seizures.

Any new application of in-roadway flashing lights under consideration for adoption in the MUTCD would be worded similarly to specify how the device is to appear and function, thereby providing uniformity of that which is displayed to the road user in response to a given condition when produced by others. The underscored portions of the excerpted MUTCD provisions are of particular concern relative to EMI’s patents. In the example of the crosswalk, the underscored text specifies: (1) how the device shall initiate operation (actuated by pedestrians crossing the roadway); and (2) what the device displays to the road user in response to its activation (flashing yellow in-roadway lights). The EMI’s patents capture both these aspects: (1) how the device initiates operation (actuated by the detection of a wrong-way vehicle); and (2) what the device displays to road users in response to its activation (flashing red in-roadway lights). Because EMI’s patents cover the appearance and function of the device that is proposed for experimentation, others are precluded from producing such a device with the same appearance of operation without infringing on one or more of the patents. In order to move forward with an experiment, the traffic control device must not be covered by any patent that would preclude others from freely producing the traffic control device as it would ultimately be specified in the MUTCD.

We also note that Section 1A.10 of the MUTCD, which describes the content of requests for permission to experiment, provides that such requests contain “[a] legally binding statement certifying that the concept of the traffic control device is not protected by a patent or copyright.” Although your letter asserts that the general concept of the requested traffic control device is not covered by the patent, we find that absence of the requested certification provides further validation of the FHWA’s finding that the requested device—in-pavement flashing red lights that
actuate upon detection of a wrong-way vehicle—is patented and not in the public domain as the MUTCD requires.

For recordkeeping purposes, we have assigned your request the following Official Ruling number and title: "4(09)-66 (E) – Actuated In-Roadway Flashing Red Lights for Wrong-Way Traffic Control at Exit Ramps—ID (DENIED)." Although we could not approve this request, we are confident that nonproprietary traffic control device solutions can be developed for safety or operational matters and are happy to assist you in that regard.

Sincerely,

[Signature]

Mark R. Kehrli
Director, Office of Transportation Operations

Copy: Mr. Ryan Lancaster, ITD