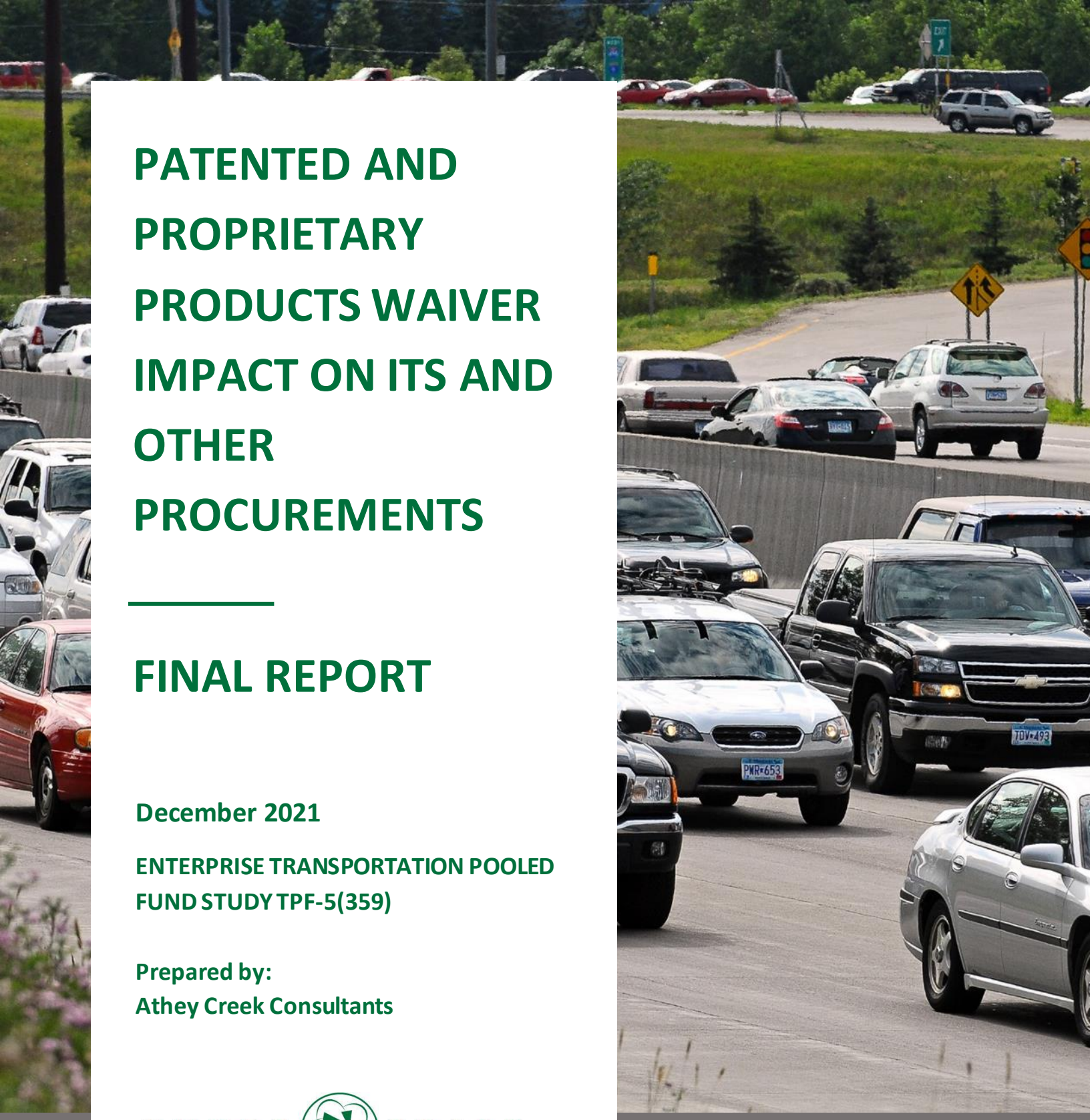

# PATENTED AND PROPRIETARY PRODUCTS WAIVER IMPACT ON ITS AND OTHER PROCUREMENTS

## FINAL REPORT

**December 2021**

**ENTERPRISE TRANSPORTATION POOLED FUND STUDY TPF-5(359)**

**Prepared by:**
**Athey Creek Consultants**

ENTERPRISE

**Technical Report Documentation Page**

| 1. Report No.<br>ENT-2021-3 | 2. Government Accession No. | 3. Recipients Catalog No. | |
|---|---|---|---|
| 4. Title and Subtitle<br>Patented and Proprietary Products Waiver Impact on ITS and Other Procurements | | 5. Report Date<br>December 22, 2021<br>6. Performing Organization Code | |
| 7. Author(s)<br>Linda Preisen | | 8. Performing Organization Report No. | |
| 9. Performing Organization Name and Address<br>Athey Creek Consultants<br>2097 County Road D, Suite C-100<br>Maplewood, MN 55109 | | 10. Project/Task/Work Unit No.<br>11. Contract (C) or Grant (G) No.<br>2019-0045 | |
| 12. Sponsoring Organization Name and Address<br>ENTERPRISE Pooled Fund Study TPF-5(359)<br>Michigan DOT (Administering State)<br>PO Box 30050<br>Lansing, MI 48909 | | 13. Type of Report and Period Covered<br>Final Report<br>14. Sponsoring Agency Code | |
| 15. Supplementary Notes<br>Final Report available at: https://enterprise.prog.org/wp-content/uploads/ENT-PPP-Waiver-Impact-ITS-Procurements-FR-Dec-2021.pdf | | | |
| 16. Abstract<br>In 2019, the Federal Highway Administration (FHWA) issued the *Final Rule on Construction and Maintenance-Promoting Innovation in Use of Patented and Proprietary Products* to encourage innovation in the development of highway transportation technology and methods. Per this rule, state departments of transportation (state DOTs) are no longer required to provide certifications, make public interest findings (PIFs), or develop research or experimental work plans to use patented or proprietary products in Federal-aid projects. This report provides an overview of the rulemaking and documents selected case studies describing how the change is being implemented in practice by State DOTs. The case studies revealed that internal DOT processes for use of patented or proprietary products remained largely unchanged following the FHWA rule change, as DOTs continue to require approvals or documentation even though FHWA approval is no longer required. Most participating DOTs agreed that processes have been somewhat streamlined, however the overall reduction in regulatory burden has been minimal because internal justifications, approvals, or documentation are still required. Most agencies noted that the rule change does have the potential to encourage innovation because it allows increased flexibility for the DOT to approve innovations internally. | | | |
| 17. Key Words<br>Proprietary products, patented products, procurement, intelligent transportation systems | | 18. Distribution Statement<br>No restrictions | |
| 19. Security Class (this report)<br>Unclassified | 20. Security Class (this page)<br>Unclassified | 21. No. of Pages<br>26 | 22. Price |

# Acknowledgements

This *Patented and Proprietary Products Waiver Impact on ITS and Other Procurements* report was prepared for the ENTERPRISE Transportation Pooled Fund TPF-5(359) program (http://enterprise.prog.org/). The primary purpose of ENTERPRISE is to use the pooled resources of its members from North America and the United States federal government to develop, evaluate, and deploy Intelligent Transportation Systems (ITS).

The cover page image is courtesy of the Minnesota Department of Transportation.

## Project Champion

David Karnes, Wisconsin Department of Transportation, was the ENTERPRISE Project Champion for this effort. The Project Champion serves as the overall lead for the project.

## ENTERPRISE Members

The ENTERPRISE Board consists of a representative from each of the following member entities.

- Illinois Department of Transportation
- Iowa Department of Transportation
- Kansas Department of Transportation
- Michigan Department of Transportation
- Minnesota Department of Transportation
- Ontario Ministry of Transportation
- Pennsylvania Department of Transportation
- Texas Department of Transportation
- Wisconsin Department of Transportation

## Project Input

ENTERPRISE would like to thank the following agencies that provided input for this project through phone interviews or response to the project questionnaire:

- Michigan Department of Transportation
- Minnesota Department of Transportation
- Montana Department of Transportation
- Pennsylvania Department of Transportation
- Washington State Department of Transportation
- USDOT Federal Highway Administration

# Table of Contents

# 1.0 Introduction

State and local transportation agencies that deploy intelligent transportation systems (ITS) products and services need to understand federal regulations for procurement, especially as they relate to the use of patented and proprietary products. In 2019, the Federal Highway Administration (FHWA) issued a Final Rule on Construction and Maintenance-Promoting Innovation in Use of Patented and Proprietary Products in which outdated requirements 23 CFR 635.411(a)-(e) were rescinded to encourage innovation in the development of highway transportation technology and methods.

Per this rule, state departments of transportation (State DOTs) are no longer required to provide certifications, make public interest findings (PIFs), or develop research or experimental work plans to use patented or proprietary products in Federal-aid projects. With this modification in place, State DOTs may consider making changes to procurement practices.

The objective of this research was to increase ENTERPRISE members' understanding of the FHWA final rule promoting innovation in use of patented and proprietary products and to investigate how the waiver is being implemented in practice.

**Research Purpose**

To increase ENTERPRISE members' understanding of the FHWA final rule promoting innovation in use of patented and proprietary products and to investigate how the waiver is being implemented in practice.

This report includes the following sections:

- 2.0 Project Approach – Describes the research approach and how information was gathered.
- 3.0 FHWA Final Rule Revising 23 CFR 635- Provides an overview of the FHWA final rule modifying 23 CFR 635.
- 4.0 Implementation Insight from FHWA – Summarizes input gathered from a procurement representative in FHWA's Office of Office of Infrastructure regarding the rulemaking.
- 5.0 State DOT Case Studies: Implementing the Rule Change – Describes six (6) case studies of how State DOTs are modifying policies and practices per the rule change.
- 6.0 Summary of Key Findings – Presents a summary of key project findings.
- Appendix – Contains the project question guide used to gather information from State DOTs for the research.

## 2.0 Project Approach

In order to provide ENTERPRISE members with an increased understanding of the FHWA rule revising 23 CFR 635, along with implications for agency procurement and implementation examples, this project completed the following steps:

- **Summarize FHWA Final Rule Revising 23 CFR 635** – A summary of the FHWA final rule was prepared and presented to the ENTERPRISE members. This included summarizing the final rule, themes from comments received during the notice of proposed rulemaking (NPRM) process, and highlights from FHWA's online resource for questions and answers regarding the final rulemaking.
- **Gather Implementation Insight from FHWA** – A phone interview was conducted with the lead contact for this rulemaking in FHWA's Office of Infrastructure at FHWA headquarters, to gain further clarification on the rulemaking, gather input regarding how it is being received by agencies and industry, and to inquire about how State DOTs may be modifying their practices.
- **Document State DOT Practices** – This step gathered information to create six (6) case studies documenting how State DOTs have revised practices due to the rule change, including new or updated policies or guidance, applicable state-specific statutes, any impacts to the agency's procurement practices, and insight on how the rule change may be encouraging innovation or reducing regulatory burden.

Figure 1 presents an overview of the research approach.

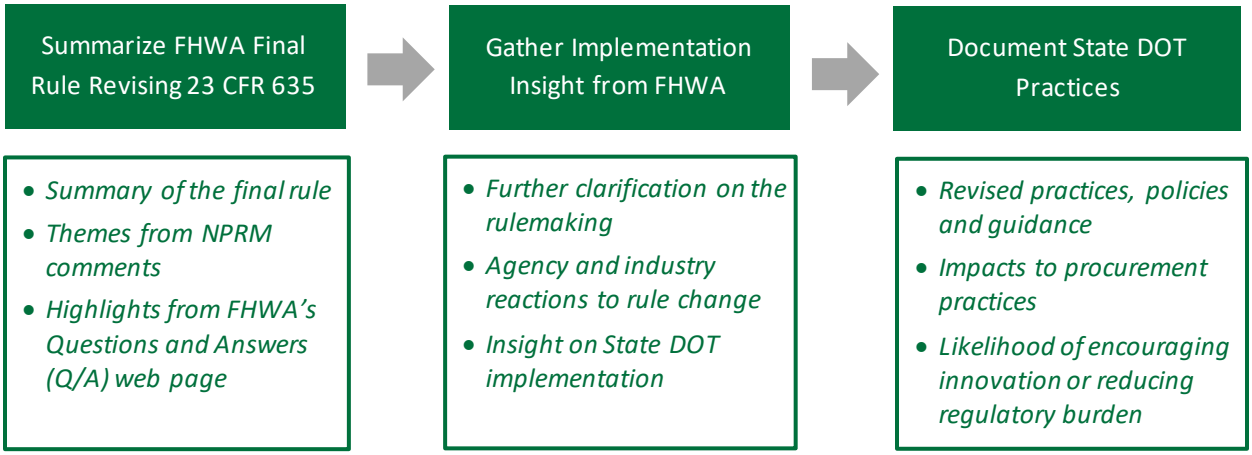


***Figure 1: Overview of Research Approach***

# 3.0 FHWA Final Rule Revising 23 CFR 635

This section provides an overview of the FHWA Final Rule modifying 23 CFR 635, themes from comments received during the notice of proposed rulemaking (NPRM) process, and highlights from FHWA's Proprietary Products Final Rule Rollout Questions and Answers online resource.

## 3.1 Overview of Final Rule

In 2019, the Federal Highway Administration (FHWA) published Final Rule on Construction and Maintenance-Promoting Innovation in Use of Patented and Proprietary Products.[1] Highlights from this final rule include:

- FHWA revised regulations at 23 CFR 635.411 to provide greater flexibility for states to use patented or proprietary materials in Federal-aid highway projects.
- The rule rescinds requirements in 23 CFR 635.411(a)-(e) that had previously limited use of Federal funds in paying for patented or proprietary materials, specifications, or processes.
- Federal funds participation will no longer be restricted when State DOTs specify a trade name for approval in Federal-aid contracts. In addition, Federal-aid participation will no longer be restricted when a State DOT specifies patented or proprietary products.
- State DOTs are no longer required to provide certifications, make public interest findings, or develop research or experimental work plans to use patented or proprietary products in Federal-aid projects.

Per the rulemaking, effective October 28, 2019: State DOTs are no longer required to provide certifications, make public interest findings, or develop research or experimental work plans to use patented or proprietary products in Federal-aid projects.

The effective date of the final rule is October 28, 2019. Complete text can be found at: https://www.govinfo.gov/content/pkg/FR-2019-09-27/pdf/2019-20933.pdf.

## 3.2 Comments from Notice of Proposed Rulemaking (NPRM) Process

As depicted in Figure 2, comments received during the NPRM process discussed support for the rule change as noted in the following themes:[2]

- Fostering innovation;
- Reducing regulatory burden associated with obtaining FHWA approvals through certifications, PIFs, and research or experimental workplans;
- Increasing flexibility for the states relating to materials selection, especially for transportation technologies and connected vehicle (CV) and automated vehicle (AV) project components; and
- Ensuring that fair competition is maintained.[2]

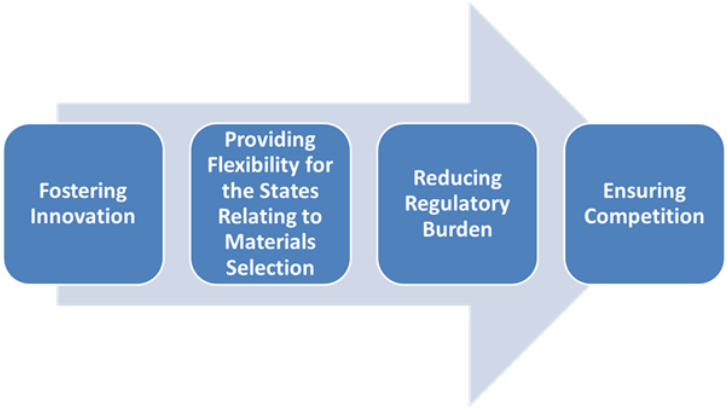


***Figure 2: Themes from Discussion of Comments in Response to NPRM*** [2]

Ensuring competition and requiring awards to the lowest responsive bidder in the federal-aid highway program remain statutory duties of the DOT Secretary, and the statutory requirements of 23 U.S.C. 112 continue to apply to federal aid assisted State and local contracts. Also, many states have procedures established under state law or regulation relating to competition for federally assisted contracts and the use of patented and proprietary materials in Federal-aid projects.[1]

## 3.3 FHWA Proprietary Products Final Rule Rollout Questions and Answers

To assist with rollout of this rule change, FHWA has created a Proprietary Products Final Rule - Rollout Questions and Answers[3] resource web page that contains questions that may be commonly asked by state and local agencies, with associated responses. Selected excerpts from this web page are as follows:

**Federal Participation in Cost of Patented or Proprietary Products**

***Question:*** How will the repeal of 23 CFR 635.411(a)-(e) affect FHWA participation in the cost of patented or proprietary products?

***Answer***: Federal participation will no longer be restricted when:

- State DOTs specify a proprietary product in Federal-aid contracts,
- State DOTs reference single trade name materials in specifications and on plans.
- State DOTs specify proprietary products on their Approved Product List or Qualified Product List,
- State DOTs use AASHTO or ASTM specifications where only one manufacturer can meet the requirements, or
- State DOTs specify proprietary products in design-build Request-for-Proposal documents.

Topics in FHWA's Proprietary Products Final Rule Q/A:

- Federal Participation in Cost of Patented or Proprietary Products
- Product Selection Policies
- Implications for Active Projects
- Retaining Documentation of Prior Justifications
- Preference for In-State or Local Products

Costs associated with premiums or royalties for proprietary products are eligible for Federal-aid participation. See 2 CFR 200.448 Intellectual Property.

**Product Selection Policies to be Used by State and Local Agencies**

***Question***: What product selection policies will be used by contracting agencies?

***Answer:*** Consistent with this final rule:

- Under 2 CFR 200.317(a), State DOTs will follow their own procurement procedures.
- Under 2 CFR 1201.317, local public agencies will follow State DOT-approved procedures for procurement.

FHWA approval is no longer required.

**Implications for Active Projects and Procurements**

***Question***: How will patented or proprietary product issues on active construction projects be addressed?

***Answer:*** Projects will be administered under the requirements in effect at the time of contract award.

NOTE: Archived patented and proprietary product information can be found on the FHWA website at https://www.fhwa.dot.gov/construction/cqit/propriet.cfm. This contains resources such as a database of prior FHWA approvals for patented and proprietary products, guidance on patented and proprietary product approvals, and sample approvals for Experimental Products and Public Interest Finding (PIF).

**Retaining Documentation of Prior Justifications**

***Question***: For active and prior projects subject to 23 CFR 635.411, how long should States keep proprietary product justifications and other paperwork for Certifications, Experimental Products, and PIFs?

**FHWA FAQ Highlights**

- State DOTs will follow their own procurement procedures.
- Local public agencies will follow State DOT-approved procedures for procurement.
- Projects will be administered under the requirements in effect at the time of contract award.
- Project records must be retained for at least three years after the payment of the final voucher (or three years from the end of the warranty period).
- This rulemaking does not repeal the FHWA prohibition on in-State preference for materials selection.

***Answer:*** Under 2 CFR 200.334, project records must be retained for at least three years after the payment of the final voucher (or, in the case of warranty projects, three years from the end of the warranty period). However, in the document "Suggestions for the Detection and Prevention of Construction Contract Bid Rigging," the Interdepartmental Bid Rigging Investigations coordinating Committee of the USDOT/USDOJ suggests a minimum retention period of 5 years, which is the statutory period of limitations for prosecution under Federal antitrust laws.

**Preference for In-State or Local Products**

***Question***: Can States require (or provide an administrative preference for) in-State or local products?

***Answer***: No. Nothing in this rulemaking repeals the FHWA prohibition on in-State preference for materials selection, pursuant to 23 CFR 635.409(a).

## 4.0 Implementation Insight from FHWA

After researching and summarizing the rulemaking that revised 23 CFR 635, the next step in the project was to gather insight from FHWA regarding implementation.

A phone interview was conducted with John Huyer, Contract Administration Engineer, FHWA Office of Infrastructure (FHWA Headquarters) on March 29, 2021. The purpose of the interview was to gain further clarification on the rulemaking, gather input regarding how it is being received by agencies and industry, and to inquire about how State DOTs may be modifying their practices. A summary of information gathered during the FHWA interview includes is summarized herein.[4]

**Implementation Insight from FHWA**

State DOTs will continue to follow state legislation or internal policies to govern the use of patented and proprietary products. Internal approvals may still be required at the state level.

**Overall Insights**

- This rulemaking removes federal restrictions on the use of patented or proprietary products in federal aid projects.
- State DOTs will continue to follow state legislation or internal policies to govern the use of patented and proprietary products. Internal approvals may still be required at the state level.
- Projects that began construction (time of contract award) under the previous regulation will be carried out under the previous rule. Projects that began after the effective date of the new rulemaking (October 28, 2019) will follow the current rule.

**Clarifications**

- FHWA has addressed various questions from states to clarify the rulemaking.
- Clarification regarding state-furnished materials in construction contracts:
  - When a State DOT enters into contracts with vendors (e.g., through competitive bidding) to purchase equipment or materials and furnish them to contractors as part of a construction contract, the state may be required to submit a public interest finding to FHWA.
  - Per 23 CFR 635.407: Use of materials made available by a public agency: "Contracts for highway projects shall require the contractor to furnish all materials to be incorporated in the work and shall permit the contractor to select the sources from which the materials are to be obtained. Exception to this requirement may be made when there is a definite finding by the State transportation department and concurred in by the FHWA Division Administrator, that it is in the public interest to require the contractor to use material furnished by the State transportation department or from sources designated by the State transportation department."

**State-Furnished Materials**

Per 23 CFR 635.407 "Use of materials made available by a public agency," states may be required to submit a public interest finding to FHWA for procuring proprietary materials that are furnished to contractors in construction contracts.

**Feedback from Industry**

FHWA received some feedback from industry that opposed the rule change, expressing concern that it may allow larger companies to take over the market for certain products, lead to shortages on products, or advantages for certain contractors or vendors.

- With the revised rule in place for more than 1.5 years, FHWA hasn't seen this yet, but it may still be a concern for industry.
- FHWA has clarified that competitive bidding needs to be maintained.

**Implementation by State DOTs**

- FHWA has not received much information about implementation by State DOTs.
- Implementation is a decision by each state, and FHWA is available and willing to answer questions.
- Some states have revised their specifications following the rule change, and at least one state has a stringent policy restricting the use of proprietary products.

**State DOT Implementation**

Implementation is a decision by each state. Some states have revised their specifications following the rule change.

- FHWA eliminated its experimental products program, and this could have an impact on how states request funding and conduct their experimental research.
- The AASHTO National Transportation Product Evaluation Program (NTPEP) could be a resource to learn about how the rule change is being implemented by State DOTs.

# 5.0 State DOT Case Studies: Implementing the Rule Change

During the final task of this project, case studies were prepared to document examples of how State DOTs have revised their practices following the FHWA Final Rule on Construction and Maintenance-Promoting Innovation in Use of Patented and Proprietary Products that took effect in October 2019. To select the State DOTs for case studies, an online search was conducted to identify agencies that had posted revised internal policies or guidance per the rule change. In addition, the research team was made aware of state departments of transportation (DOTs) that may have useful information to share.

A total of six (6) case studies were documented. The information-gathering approach varied and was conducted as noted after each agency name:

- Case Study 1: Michigan Department of Transportation (phone interview)
- Case Study 2: Minnesota Department of Transportation (phone interview)
- Case Study 3: Montana Department of Transportation (phone interview)
- Case Study 4: Pennsylvania Department of Transportation (phone interview)
- Case Study 5: Washington State Department of Transportation ITS and Electrical Systems (completed the project question guide in written format)
- Case Study 6: Connecticut Department of Transportation (agency memorandum)

The project question guide used to gather input from State DOTs, either via phone interviews or as completed by the agency in written format, can be found in the Appendix.

The following information is documented in Case Studies 1-5:

- Changes to DOT Practice
- Applicable State Statutes/Laws
- Implications from Changes (following the FHWA rulemaking)
- Successes or Challenges
- Changes to Procurement Practices
- Other Relevant Information

For case study 6 (Connecticut Department of Transportation) a phone interview or project questionnaire was not completed and therefore the format of the case study differs from the others and the information documented is drawn only from the agency memorandum.

## 5.1 Case Study 1: Michigan Department of Transportation

Representatives from the Michigan Department of Transportation (MDOT) participated in a phone interview to provide input for this case study. Though it was noted that the agency tends to be somewhat reluctant to specify proprietary products, additional innovation could be possible with the rule change especially within the maintenance realm. It was also noted that the use of proprietary products may be increasingly needed in order to use advanced technologies and capabilities due to basic industry standards

(e.g., NTCIP) becoming obsolete, and this rulemaking should allow flexibility to procure more mature ITS devices and products.

Table 1 provides a summary of the Michigan Department of Transportation (MDOT) case study.

***Table 1: Case Study – Michigan Department of Transportation (MDOT)***

| | |
|---|---|
| **Information Sources** | – 7/14/21 phone interview with Eric Arnsman, Eliseo Gutierrez, Joe Gorman, and Marlon Spinks, Michigan DOT<br>– Michigan Design Manual: Chapter 11, Section 11.08 Proprietary Items[5] |
| **Changes to DOT Practice** | – From a project standpoint, the process for use of patented and proprietary products has not changed per the FHWA rule change.<br>– Internal MDOT policies have not been revised per the FHWA rulemaking.<br>Comments regarding current practices:<br>– MDOT tends to be reluctant to specify proprietary products.<br>• One notable exception use of a proprietary computer switch in the Grand Region, to match the network architecture in the Grand Rapids area.<br>• Maintenance products, purchased using 100% state funds, have a slightly more open process to encourage innovation.<br>– MDOT aims to specify at least three vendors. If this is not possible, then a specification is released. If a proprietary item is specified, it requires justification. |
| **Applicable State Statutes** | – None noted. |
| **Related DOT Policy or Guidance** | Guidance on the use of proprietary items is documented in the Michigan Design Manual: Chapter 11, Section 11.08 Proprietary Items.<br>Per this manual, use of patented or proprietary material, specifications, or processes in plans and specifications for projects is permitted by:<br>– Competitive Bidding: Proprietary items may be purchased through competitive bidding with at least one equally suitable unpatented item or when two or more proprietary products are bid against each other and the specification or special provision includes the phrase "or approved equal." The phrase would not be required when three or more proprietary items are competitively bid.<br>– Proprietary Item Certification (PIC): Proprietary items can be permitted by certification (Form 304) that the patented or proprietary product is essential for synchronization with the existing highway facility or that no equally suitable alternate exists. Synchronization is based on:<br>• Function – The product is necessary for satisfactory operation of the existing facility, or<br>• Aesthetics – The product is necessary to match the visual appearance of the existing facility, or<br>• Logistics – The product is interchangeable with maintenance inventory, or<br>• Any combination of the above.<br>– Experimental Application: Patented or proprietary items may be approved for research purposes or for a distinctive type of construction for experimental purposes. In addition to Form 0304, requests for experimental use require a work plan outlining objectives, measurements and evaluations. |

| | |
|---|---|
| | – Public Interest Finding (PIF): A specific material or product may be specified even when other acceptable materials or products are available if the specific choice is approved as being in the public interest. Form 0304 is required to document that use of the proprietary product would be in the public's best interest despite the availability of equally suitable products. Public interest findings include: timeliness of product availability, engineering or economic analysis findings, project logistical concerns, unique safety performance and other justifiable situations.<br>Requests for Proprietary Item Certification (PIC) and Public Interest Finding (PIF) are made using MDOT Form 0304. Examples of supporting justification:<br>• Description of how the product will benefit the public.<br>• Unique needs that result in the absence of equally suitable alternatives.<br>• Safety locations that would justify higher standards.<br>• Evaluation of potential products and reasons why alternatives do not meet the project needs.<br>• Estimate of additional costs incurred as a result of the proprietary product. |
| **Local Agency Practices** | – No changes to local agency procurements or practices that involve MDOT, per the FHWA rule change.<br>– Proprietary products are sometimes used by local agencies (e.g., county) for ITS applications. Most are approved by permit for use on the MDOT highway system.<br>– Local agency projects have a bit more leniency in using proprietary products. |
| **Implications for Changes** | – Overall, no changes to MDOT practice per the FHWA rule change.<br>– From a design standpoint, MDOT is interested in trying new products and technologies and needs to do testing to ensure the products work.<br>– The use of proprietary products may be increasingly needed to use advanced technologies and capabilities, due to basic industry standards (e.g., NTCIP) becoming obsolete. As ITS technologies have matured, various components have become extremely niche (e.g., Sensor A may not work with Company B, not interoperable), with limited industry standards available. |
| **Successes or Challenges** | N/A – no changes in MDOT process per the FHWA rule change. |
| **Encouraging Innovation and Reducing Regulatory Burden** | – Additional innovation is possible, especially within the maintenance realm.<br>– This FHWA rulemaking should enable agencies more leeway to explore outside the box and allow flexibility to procure more mature ITS devices and products. |

## 5.2 Case Study 2: Minnesota Department of Transportation

Representatives from the Minnesota Department of Transportation (MnDOT) participated in a phone interview to provide input for this case study. MnDOT has kept their processes as similar as possible following the FHWA rule change. A public interest finding letter is completed and saved to the project file, but it is no longer submitted to FHWA. Products can be procured outside of the traditional bid item process using sole source procurement or early procurement to obtain equipment for quicker turnaround

especially due to recent supply chain issues. It was noted that there has been no change in encouraging innovation, as MnDOT still needs to follow state rules and DOT policies to ensure competition and meet the appropriate product specifications.

Table 2 provides a summary of the case study for the Minnesota Department of Transportation (MnDOT).

***Table 2: Case Study – Minnesota Department of Transportation (MnDOT)***

| | |
|---|---|
| **Information Sources** | – 7/13/21 phone interview with Bob Vasek and Valerie Svensson, MnDOT<br>– MnDOT Public Interest Findings/Certifications/Cost Effectiveness Findings[6] web page<br>– MnDOT Public Interest Findings[7] web page<br>– MnDOT Public Interest Finding for Patented and Proprietary Items[8] Letter Template |
| **Changes to DOT Practice** | – MnDOT has kept their processes as similar as possible following the FHWA rule change. MnDOT has a philosophy to follow federal processes even if a project is state funded.<br>– A public interest finding letter is completed and saved to the project file, but it is no longer submitted to FHWA.<br>Comments regarding current practices:<br>– Products can be procured outside of a traditional bid item process. For example, using sole source procurement or early procurement to obtain equipment (e.g., light poles, signal poles, bridge expansion joints) for quicker turnaround especially due to recent supply chain issues.<br>– Products are procured using either "purchase by specification" or through an Approved Products List (APL).<br>• Performance-based specifications outline specific criteria that need to be met in order to be included in the APL.<br>• The APL includes products that have been tested and meet pre-defined specifications and field performance requirements. See the Approved/Qualified Process and Policy for details. Nearly 30 types of products are included in the MnDOT APL. See the list of Approved/Qualified Products. |
| **Applicable State Statutes** | – State statute(s) regulating patented or proprietary product were not noted.<br>– State law requires products to be competitively solicited (i.e., lowest bidder). |
| **Related DOT Policy or Guidance** | – Per the MnDOT Public Interest Findings web page, revision to MnDOT practice is noted as: "Central Office and FHWA approval of PIFs for patented and proprietary items is no longer required. However, to comply with federal regulation requirements, the District will retain documentation of compliance with applicable regulations for all patented and proprietary materials and products until the projects are closed out."<br>– Documentation for the project file is completed using the Public Interest Finding for Patented and Proprietary Items (Letter Template). This documents the item name and justification including:<br>• Why this item is required rather than another item |

| | |
|---|---|
| | • Competition is not limited either in the manufacturing or construction of the item<br>• Additional justification for use of this item (environmental benefits/commitments, system integration, maintenance, etc.)<br>– Other related policies and statutes verified in the public interest finding include:<br>• Buy America<br>• Prohibition on Use of State Preferences (23 USC 112, 23 CFR 635.112, 23 CFR 635.409)<br>• MUTCD – No Patented or Proprietary Items (see page I-1)<br>• Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (see §200.319 Competition) |
| **Local Agency Practices** | No changes to local agency procurement practices following the FHWA rulemaking.<br>– MnDOT does not collect documentation from local agencies, it stays with each local agency. If an audit occurs, MnDOT works with the local agency to obtain the proper documentation. |
| **Implications for Changes** | – No change to MnDOT practice or local agency practice.<br>– The only change is that FHWA no longer requires the documentation (e.g., PIFs). This may save federal entities time to review documentation, but the rule change does not save time for MnDOT or locals. |
| **Successes or Challenges** | None noted. |
| **Encouraging Innovation and Reducing Regulatory Burden** | No changes in encouraging innovation. MnDOT still needs to follow state rules and DOT policies in order to ensure competition and meet the appropriate product specifications. |
| **Other** | The MnDOT Transportation Research Synthesis TRS 2003 Expedited Process for Developing Specifications on New Products (November 2020) summarizes results of a survey of state DOTs to gather information about policies, processes and requirements that govern other states' product approval programs. |

## 5.3 Case Study 3: Montana Department of Transportation

A phone interview with a representative from the Montana Department of Transportation (MDT) was conducted to develop this case study. MDT issued a memorandum to address the rule change and to provide revised guidance to agency staff. It was noted that MDT maintains due diligence for obtaining competitive bids, allowing multiple options for products and maintaining proper documentation when using proprietary products. The project manager must document use of proprietary products, and products with an existing public interest finding (PIF) do not need approval. In some cases, MDT allows specifying a certain proprietary product to maintain continuity. For example, MDT limits their inventory of high-tension cable rail to four products. It was noted that the rule change has resulted in reduced paperwork and increased confidence that MDT is specifying the products that are best for the highway system.

Table 3 provides a summary of the Montana Department of Transportation (MDT) case study.

***Table 3: Case Study – Montana Department of Transportation (MDT)***

| | |
|---|---|
| **Information Sources** | – 7/19/21 phone interview with Damian Krings, MDT<br>– Montana DOT Memorandum on Proprietary Products[9] (November 2019) |
| **Change to DOT Practice** | – A Public Interest Finding (PIF) is no longer required by FHWA, but the project manager must document use of proprietary products. Products with an existing PIF do not need approval.<br>Comments regarding current practices:<br>– MDT maintains due diligence for obtaining competitive bids. MDT still needs to allow multiple options for products and maintains proper documentation when using proprietary products.<br>– MDT did not avoid using proprietary items prior to the rule change and remains open to trying new innovations.<br>– MDT offers multiple qualified product options. See the online MDT Qualified Products List.<br>– For many of the items MDT purchases (e.g., crash attenuators, high tension cable rails) there is no generic option that meets necessary requirements such as crash criteria.<br>– MDT maintains a limited inventory of products for maintenance purposes, but the department is always open to product innovation.<br>– MDT allows specifying a certain proprietary product in order to maintain continuity. For example, with high tension cable rail, MDT limits their inventory to four products. |
| **Applicable State Statutes** | – Not aware of any statutes that regulate the use of patented or proprietary products.<br>– Software and hardware purchases must go through the statewide IT Division. |
| **Related DOT Policy or Guidance** | – Revised guidance following the FHWA rule change is provided in this memorandum: Montana DOT Memorandum on Proprietary Products (November 2019). This memorandum provides guidance but is not policy.<br>– A PIF is no longer required by FHWA, but the project manager must document use of proprietary products. Products with an existing PIF do not need approval.<br>– Use of new proprietary items goes through an internal approval process including obtaining all required signatures (e.g., bridge, highway, traffic, maintenance). Justifications must describe how the product benefits the public. Benefits to the public may include, but are not limited to:<br>• Necessity to suit project specific needs and conditions<br>• Expected in-service performance<br>• Long-term maintenance<br>– MDT philosophy is still to maximize competition for cost control. |
| **Local Agency Practices** | Not aware of changes with local agency procurements. |

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| **Implications for Changes** | – The change was well received at MDT as it reduces paperwork.<br>– In terms of industry response, there may be some mixed reactions to the change. Some companies may assume that since a PIF is no longer required by FHWA, there should be no issues with specifying their product. However, MDT still needs to practice competitive bidding and limit the number of different types of products (in some cases) for continuity. Industry may have initially expected the change to potentially expand their markets, but it hasn't worked that way due to agency procedures that remain in place. |
| **Successes or Challenges** | The rule change has been successful in the following ways:<br>– It has reduced paperwork since MDT is no longer completing PIFs.<br>– It has helped when bidding the right crash cushion to a particular roadside geometry or exposure to traffic. It is more efficient to directly specify the product needed to fit the unique condition, rather than writing or customizing a specification or completing a PIF for just one item.<br>– It provides more flexibility by allowing MDT to seek innovation through new products. |
| **Encouraging Innovation and Reducing Regulatory Burden** | – The rulemaking has potentially encouraged innovation. However, this may not be a direct result of the rule change as the department was very open to innovation and use of proprietary products prior to the change.<br>– The change has resulted in reduced paperwork and increased confidence that MDT is specifying the products that are best for the highway system. |
| **Other** | Because of the COVID-19 pandemic, 2020 may not be representative of typical department practices. It's possible that practices may change in the future. |

## 5.4 Case Study 4: Pennsylvania Department of Transportation

Representatives from the Pennsylvania Department of Transportation (PennDOT) provided input for this case study via a phone interview. PennDOT issued guidance in February 2021 which clarifies that although FHWA approval is no longer required per the federal rule change, PennDOT's internal process still requires approval for use of patented or proprietary products. Because state policy continues to require justification, PennDOT has not seen a big impact to procurement processes. Internal justifications have remained in place in part to mitigate increased costs associated with proprietary items. Though justification is still required, it was noted that the change provided increased flexibility for the agency to approve innovations and it's now easier for PennDOT to approve proprietary items based on engineering judgement and local context, which FHWA may not be aware of.

Table 4 provides a summary of the case study for Pennsylvania Department of Transportation (PennDOT).

***Table 4: Case Study – Pennsylvania Department of Transportation (PennDOT)***

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| **Information Sources** | – 7/13/21 phone interview with Steve Gault and Ben Flanagan, PennDOT<br>– PennDOT Memorandum on Proprietary Item Submittal and Approval Process (February 5, 2021)[10] |

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| **Changes to DOT Practice** | – PennDOT's internal practices have remained largely the same as prior to the FHWA rule change.<br>– While the FHWA regulation is no longer in place, PennDOT's requirement to justify use of proprietary products is similar. |
| **Applicable State Statutes** | Not aware of an applicable state statute. |
| **Related DOT Policy or Guidance** | – Internal PennDOT policy has essentially remained unchanged.<br>– The PennDOT Memorandum on Proprietary Item Submittal and Approval Process (February 5, 2021) provides policy guidance on use of proprietary items:<br>• The memorandum clarifies that although FHWA approval is no longer required, PennDOT's internal process still requires approval.<br>• The memorandum defines proprietary as "When preparing specifications for a project, specifying the use of a brand name is proprietary. Similarly, using one company's specification that other companies cannot match is also proprietary."<br>• When an adequate generic specification cannot be prepared for a traffic control device (e.g., traffic signal equipment, intelligent transportations systems (ITS), temporary traffic control, pavement markings and/or sign), at least two (2) brand names must be specified along with "or approved equal." |
| **Local Agency Practices** | – The prior approval processes remain in place for local agency traffic signals procured through PennDOT. Policy and practice for local agencies have remained unchanged.<br>– If a local agency is letting a contract themselves (without PennDOT involvement), state approval of proprietary items is not required.<br>– For PennDOT procurements that involve local agencies: Per the PennDOT Memorandum on Proprietary Item Submittal and Approval Process (February 5, 2021): "To receive approval from the Department for use of proprietary traffic signal equipment, municipal officials shall provide documentation that the following criteria are true:<br>1. More than 75% of the municipality's current traffic signal equipment is from one particular manufacturer.<br>2. Has substantial inventory of that manufacturer's spare parts.<br>3. The municipality's maintenance personnel have received extensive training and are experienced in the installation and maintenance of this manufacturer's equipment.<br>4. Two (2) additional or a "generic" brand cannot be utilized. Example justifications:<br>• The item is essential for synchronization, with existing highway facilities, and no suitable alternatives exist.<br>• Item is being used, on relatively short sections of road, for experimental/research purposes.<br>• Other brands of equipment do not meet acceptable quality standards.<br>• A single intersection is either being added or being replaced within an existing coordinated system."<br>– Traffic signals are purchased by PennDOT and turned over to local agencies for ownership and maintenance. If local agencies are using federal funds, they are |

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| | bid by PennDOT and bound by state policies. PennDOT's internal process did not change, therefore local agency process did not change. |
| **Implications from Changes** | – PennDOT has not received much feedback from DOT staff or industry, as the internal process remains unchanged.<br>– Because state policy continues to require justification, PennDOT has not seen a big impact to procurement processes.<br>– Internal justifications have remained in place in part to mitigate increased costs associated with proprietary items. |
| **Successes or Challenges** | Internal implementation has been a challenge because DOT staff had followed the previous FHWA approval process for many years. Initially employees didn't know about the change. PennDOT's internal policy was updated to help communicate that FHWA approval is no longer required. |
| **Encouraging Innovation and Reducing Regulatory Burden** | Encouraging innovation:<br>– Though PennDOT still requires justification, they now have more flexibility to approve innovations that previous FHWA requirements may not have allowed.<br>– It is now easier for PennDOT to approve proprietary items based on engineering judgement and local context, which FHWA may not be aware of.<br>Regulatory Burden:<br>– The process has been streamlined since FHWA approval is not required, but the overall change has been minimal, so it has not significantly reduced regulatory burden. |

## 5.5 Case Study 5: Washington State Department of Transportation ITS and Electrical Systems

Input pertaining to the ITS and electrical and electronic devices utilized by Washington State Department of Transportation (WSDOT) was provided through a written response to the project question guide. For ITS and comparable electrical and electronic technology devices, WSDOT has not changed its practices regarding proprietary equipment. Proprietary equipment requires justification, and policies are already flexible enough to allow for experimentation or evaluation of new equipment with justification. A benefit to the rule change noted in the WSDOT ITS and electrical systems response was the removal of the need for a formal research program or experimental work plan to evaluate new equipment.

Table 5 provides a summary of the case study for Washington State Department of Transportation (WSDOT) ITS and Electrical Systems.

***Table 5: Case Study – Washington State Department of Transportation (WSDOT) ITS and Electrical Systems***

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| **Information Source** | This summary was compiled using a completed project questionnaire, submitted via email on 9/16/21 by Flint Jackson, WSDOT.<br>*Note*: The responses herein only pertain to Intelligent Transportation System (ITS) and similar electrical and electronic devices as utilized by WSDOT, and do not address all patented and proprietary products which may be specified by WSDOT. |

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| **Changes to DOT Practice** | For ITS and comparable electrical and electronic technology devices, WSDOT has not changed its practices regarding proprietary equipment. Proprietary equipment requires justification, and policies are already flexible enough to allow for experimentation or evaluation of new equipment with justification. |
| **Applicable State Statutes** | – There are no state-specific statutes that regulate the procurement of proprietary products by WSDOT through construction contracts.<br>– RCW 39.26 Procurement of Goods and Services applies to contracts managed by the Department of Enterprise Services (typically equipment purchased as maintenance replacements). The requirements discussed in RCW 39.26 may be more broadly applicable, but confirmation would likely require an opinion from the Attorney General's office. |
| **Related DOT Policy or Guidance** | WSDOT policy for ITS and similar electrical and electronic devices has not changed and continues to use internal justifications for patented and proprietary equipment. Other disciplines may be taking different approaches. |
| **Local Agency Practices** | – For Department of Enterprise Services (DES) managed contracts there has been no change, as they are regulated by RCW 39.26. Local agencies generally use DES managed contracts but are still subject to RCW 39.26 for direct contracts if they do not use a DES contract.<br>– WSDOT Local Programs division would have to respond for items procured as part of contracts using funds administered by WSDOT by or on behalf of State or Federal government. |
| **Implications for Changes** | – Staff involved with ITS and similar electrical equipment have been appreciative that internal policy has not changed.<br>– Industry has not provided any feedback but have not previously taken issue with existing practices. |
| **Successes or Challenges** | Since there have been no changes to WSDOT ITS and electrical equipment policy, there is no comparison to be made. |
| **Encouraging Innovation and Reducing Regulatory Burden** | The only benefit that WSDOT ITS and electrical systems sees is the removal of the need for a formal research program or experimental work plan to evaluate new equipment. |
| **Other** | WSDOT ITS and electrical systems has taken the position that the use of patented and proprietary equipment needs to be justified, regardless of any legal mandate, to ensure the following:<br>– Provide opportunity for competitive bidding and performance standards to the maximum extent feasible, and support a competitive marketplace<br>– Maximize the availability of interchangeable equipment, reducing dependence on a single source for materials/equipment<br>– Demonstrate that equipment selection is not subjective<br>– Provide transparency in the equipment selection process |

## 5.6 Case Study 6: Connecticut Department of Transportation

The information documented in this case study was drawn from the Connecticut DOT Engineering & Construction Directive (ECD-2021-3): Proprietary Products in Construction Contracts[11] (January 28, 2021). The directive updates guidance and revises procedures for the specification of proprietary products in construction contracts at CTDOT and incorporates the revision federal regulation that rescinded previous requirements on use of proprietary projects in FHWA funded construction projects. Criteria for justifying approval of a proprietary specification are noted: the product is essential for synchronization; no equally suitable alternative is available; or the item is new or innovative experimental feature. The directive addresses approvals supported by either a certification or work plan. Certifications require approvals by signature, while experimental work plans are required for product evaluations.

Table 6 provides a summary of the Connecticut Department of Transportation (CTDOT) case study.

***Table 6: Case Study – Connecticut Department of Transportation (CTDOT)***

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| **Information Source** | Connecticut DOT Engineering & Construction Directive (ECD-2021-3): Proprietary Products in Construction Contracts[11] (January 28, 2021) |
| **Changes to DOT Practice** | The directive does not define specific changes from previous practice. However, the directive notes that it "updates guidance and revises procedures for the specification of proprietary products" and "incorporates the Federal rule making revision issued through 23CFR635.411 dated October 28, 2019 that rescinded all approval criteria and decision making authority on the part of the Federal Highway Administration (FHWA) in the use of proprietary products in FHWA funded construction projects." |
| **Applicable State Statute** | The directive (ECD-2021-3) complies with Regulations of Connecticut State Agencies, Title 4a, Administrative Services, State Purchasing Procedures, Sec. 4a-52. |
| **Related DOT Policy or Guidance** | Connecticut DOT Engineering & Construction Directive (ECD-2021-3): Proprietary Products in Construction Contracts (January 28, 2021):<br>– *General*: "Publicly funded procurements should generally be made through free and open competition. However, innovations in the marketplace sometimes create situations where a needed or beneficial product is only available from a very limited number of sources or single source. To attain the benefits these unique products provide, while maintaining a generally competitive procurement environment, a certain amount of flexibility is permitted."<br>– *Types of technical specifications:*<br>1. Nonproprietary – Defines end result without reference to brand name<br>2. Brand-name "or approved equal" product – Identifies one or more acceptable brand-name alternative items; includes "or approved equal." Purpose and critical characteristics of the item are also specified.<br>3. Brand-name product – Identifies one or more acceptable brand-name items without "or approved equal" provision.<br>– *Criteria:* Three criteria for justifying approval of a proprietary specification:<br>1. Proprietary product is essential for synchronization (functional, aesthetic, or operational).<br>2. No equally suitable alternative is available. |

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| | 3. Item is new or innovative experimental feature.<br>There may be rare cases when a proprietary procurement is justified for reasons other than one of the three stated above.<br>– *Approvals* – The directive addresses approvals supported by either a certification or work plan. Certifications require approvals by signature. Experimental work plans are required for product evaluations. |
| **Local Agency Practices** | Specific changes to local agency practices were not noted in the ECD-2021-3 directive. However, it was noted that the directive applies to Department of Transportation contracts and those administered by municipalities with Department-administered funds, except State Local Bridge Program and Local Transportation Capital Improvement Program (LOTCIP) funds. |

# 6.0 Summary of Key Findings

In 2019, FHWA issued a Final Rule on Construction and Maintenance-Promoting Innovation in Use of Patented and Proprietary Products to encourage innovation in the development of highway transportation technology and methods. This research was conducted to increase ENTERPRISE members' understanding of this rulemaking and to document examples of how the waiver is being implemented in practice. Selected key findings are as follows:

***Highlights from the Rulemaking***

- FHWA revised its regulations to provide greater flexibility for states to use patented or proprietary materials in Federal-aid highway projects.
- Federal funds participation will no longer be restricted when State DOTs specify a trade name for approval in Federal-aid contracts. In addition, Federal-aid participation will no longer be restricted when a State DOT specifies patented or proprietary products.
- State DOTs are no longer required to provide certifications, make public interest findings, or develop research or experimental work plans to use patented or proprietary products in Federal-aid projects.
- The effective date of the final rule is October 28, 2019, and complete text can be found at: https://www.govinfo.gov/content/pkg/FR-2019-09-27/pdf/2019-20933.pdf.

***FHWA's Questions and Answers Website for the Rulemaking***

- State DOTs will follow their own procurement procedures.
- Projects will be administered under the requirements in effect at the time of contract award.
- The rulemaking does not repeal the FHWA prohibition on in-State preference for materials selection.
- The full FHWA Q/A summary can be found at: www.fhwa.dot.gov/construction/cqit/fr_qa.cfm.

***Interview with FHWA Headquarters***

- State DOTs will continue to follow state legislation or internal policies to govern the use of patented and proprietary products. Internal approvals may still be required at the state level.
- FHWA received some feedback from industry that opposed the rule change, expressing concern that it may allow larger companies to take over the market for certain products, lead to shortages on products, or advantages for certain contractors or vendors. With the revised rule in place for more than 1.5 years, FHWA hasn't seen this yet, but it may still be a concern for industry. FHWA has clarified that competitive bidding needs to be maintained.
- FHWA eliminated its experimental products program, which could have an impact on how states request funding and conduct their experimental research.
- Implementation is a decision by each state, and FHWA is available to answer questions.

***Implementation by State DOTs***

- Six (6) case studies documented how State DOTs are modifying their practices per the rule change.

- All agencies documented in the case studies continue to follow previous internal agency practices and typically require internal approvals or documentation even though FHWA approval is no longer required. See Table 7 for links to relevant DOT policy and guidance documents.

***Table 7: DOT Policies and Guidance on Use of Patented and Proprietary Products***

| Agency | Policy or Guidance |
|---|---|
| **Minnesota DOT** | MnDOT Public Interest Findings web page |
| **Michigan DOT** | Michigan Design Manual: Chapter 11, Section 11.08 Proprietary Items (6-29-20) |
| **Montana DOT** | Montana DOT Memorandum on Proprietary Products (November 2019) |
| **Pennsylvania DOT** | PennDOT Memorandum on Proprietary Item Submittal and Approval Process (February 2021) |
| **Connecticut DOT** | Connecticut DOT EDC-2021-3 E: Proprietary Products in Construction Contracts (January 2021) |

- Justifications for use of patented or proprietary items included: essential for synchronization (functional, aesthetic, logistical, operational) with the existing highway facility; no equally suitable alternate exists; the item is a new or innovative experimental feature; environmental benefits; system integration; necessity to suit project-specific needs and conditions; expected in-service performance; long-term maintenance; and other benefits to the public.
- Agencies noted no changes to local agency processes for procurements that involve the DOT.
- Limited feedback was received from agency staff following the change. No specific feedback from industry was noted.
- Most participating DOTs agreed that processes have been somewhat streamlined, however the overall reduction in regulatory burden has been minimal because internal justifications, approvals, or documentation are still required.
- Most agencies noted potential for the rule change to encourage innovation or other benefits:
  - Representatives from PennDOT noted that though internal justification is still required, the agency has more flexibility to approve innovations that previous FHWA requirements may not have allowed. In addition, it is now easier to approve proprietary items based on engineering judgement and local context, which FHWA may not be aware of.
  - Interviewees from Michigan DOT indicated that additional innovation is possible, especially within the maintenance realm, and the change should allow flexibility to procure more mature ITS devices and products.
  - The interview with Montana Department of Transportation noted that the rulemaking has potentially encouraged innovation, but this may not be a direct result of the rule change since the agency was already very open to innovation.
  - Washington State DOT's ITS and electrical systems noted a benefit to removal of the need for a formal research program or experimental work plan to evaluate new equipment.
  - Representatives from MnDOT indicated no changes to encouraging innovation since they still need to follow state rules and DOT policies to ensure competition and meet appropriate product specifications.

# Appendix: Project Question Guide

**Modifications to DOT Practice:**

1. How has your agency modified its practices to take advantage of this rule change? For example:
   - Procuring products or services directly through sole source or other contracting methods?
   - Specifying a proprietary product brand directly in bid documents?
   - Modifying policies to allow more flexibility in procurements?
   - Performing additional research, experimental approaches, or pilot projects?
   - Other?
2. Are there any state-specific statutes that regulate procurement of patented or proprietary products by the DOT? Please describe.
3. Have DOT policies been revised per this FHWA rulemaking? Please describe.
   - Are internal justifications or approvals required prior to specifying patented or proprietary products and services?
   - Are all types of products and services treated similarly?
4. Have practices changed for local agency procurements that the DOT is involved with?

**Implications from Changes:**

5. How have the changes in policy or practice been received, within the DOT and by industry?
6. In what ways have the changes been successful? What challenges have been encountered?
7. Discuss any implications to agency procurement practices (e.g., ensuring fair competition, competitive bidding, risk assessment, checks and balances) resulting from the rule change.
8. What have been the implications to local agency procurement practices, if any? Has the DOT given guidance to local agencies related to the rule change?

**Other:**

9. Has this rulemaking encouraged innovation? Has it reduced regulatory burden for the DOT?
10. Is there anything else you think would be helpful for ENTERPRISE to know about how this rule change is being implemented in your agency or lessons learned?

# References


[1] Federal Highway Administration. (2019, September 27). Construction and Maintenance-Promoting Innovation in Use of Patented and Proprietary Products. Federal Register. https://www.federalregister.gov/documents/2019/09/27/2019-20933/construction-and-maintenance-promoting-innovation-in-use-of-patented-and-proprietary-products.

[2] Svensson, Valerie, Elisa Bottos, and Bob Vasek. (2019, October 11). Patented and Proprietary Products Federal Regulation Changes. PowerPoint presentation retrieved from MnDOT Special Provisions: Public Interest Findings/Certifications/Cost Effectiveness Findings web page on May 5, 2021. http://www.dot.state.mn.us/pre-letting/prov/certifications-pifs.html.

[3] Federal Highway Administration. (2019, October 3). Proprietary Products Final Rule Rollout Questions and Answers. Retrieved from FHWA Construction Program Guide web page on May 5, 2021. https://www.fhwa.dot.gov/construction/cqit/fr_qa.cfm.

[4] Huyer, John. (2021, March 29). Personal phone interview. FHWA Office of Infrastructure, Contract Administration Engineer.

[5] Michigan Design Manual. (2020, June 29). Road Design. Chapter 11.08 Proprietary Items. https://mdotjboss.state.mi.us/stdplan/englishroadmanual.htm.

[6] Minnesota Department of Transportation. (n.d.). Special Provisions: Public Interest Findings/Certifications/Cost Effectiveness Findings. Web page accessed August 30, 2021. http://www.dot.state.mn.us/pre-letting/prov/certifications-pifs.html.

[7] Minnesota Department of Transportation. (n.d.). Special Provisions: Public Interest Findings. Web page accessed August 30, 2021. http://www.dot.state.mn.us/pre-letting/prov/public-interest.html.

[8] Minnesota Department of Transportation. (n.d.). Public Interest Finding For Patented and Proprietary Items. Letter template: Documentation for Public Interest Finding for Patented and Proprietary Items. Available from http://www.dot.state.mn.us/pre-letting/prov/public-interest.html.

[9] Kailey, Dwane. (2019, November 1). Proprietary Products. Montana Department of Transportation Memorandum. https://www.mdt.mt.gov/other/webdata/external/cadd/design_memos/2019-11-01_Proprietary_Products_Memorandum.pdf.

[10] Cunningham, T Jay. (2021, February 5). Proprietary Item Submittal and Approval Process. Pennsylvania Department of Transportation Memo 494-21-03. http://www.dot.state.pa.us/public/Bureaus/BOMO/Portal/SOL/494-21-03.pdf.

[11] Hill, Scott. (2021, January 28). Proprietary Products in Construction Contracts. Connecticut Department of Transportation Engineering and Construction Directive ECD-2021-3. https://portal.ct.gov/-/media/DOT/documents/AEC/ECD-2021-3_Proprietary_Products.pdf.