Exhibit A

I hereby supplement this statement and attach hereto Exhibit A, the Statement of Work for contract number SA9PAI. FMCSA contracted with the Volpe National Transportation Systems Center for these deliverables to fulfill the research project entitled, Truck Side Guards to Reduce Vulnerable Road User Fatalities.

Quon Y Kwan — 04/11/2024

Quon Kwan — Date

LISA Brenner

4/11/2024

LISA BRENNER
Notary Public - State of Maryland
Montgomery County
My Commission Expires Aug 14, 2027

Truck Side Guards to Reduce Vulnerable Road User Fatalities

SA9PA1

10/28/2016

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Truck Side Guards to Reduce Vulnerable Road User Fatalities

1.0. Statement of Work (SOW) Purpose

The purpose of this effort is to examine the safety benefits, costs, and feasibility of deployment of side guards on heavy-duty trucks to reduce fatalities from collisions of trucks with pedestrians and bicyclists, or other vulnerable road users (VRUs). Based on this research, this effort will develop actionable industry and policy recommendations in support of the Road-to-Zero FMCSA and USDOT commitment to eliminating traffic fatalities within 30 years.[1]

2.0. Statement of Work (SOW) Background

While large trucks comprise 4% of the U.S. vehicle fleet, they account for 11% of bicyclist and 7% of pedestrian fatalities nationally.[2] Urban truck involvement in these pedestrian and bicyclist fatalities is significantly higher, for example accounting for 32% of bicyclist fatalities and 12% of pedestrian fatalities in New York City.[3] The overrepresentation of trucks in these fatalities can be linked to inherent vehicle design challenges that both (1) limit the situational awareness of the operator by creating large blind spots, and (2) significantly decrease the probability of pedestrian and bicyclist survival following impact with a truck. Vulnerable road user survivability in truck collisions is between 8 and 78 times lower[4] than in light-duty car collisions. Also, in the U.S. about 50% of truck-involved bicyclist fatalities and 25% of pedestrian fatalities follow initial impact with the side of the truck and run-over by the wheels, a much higher rate than for light-duty vehicles.[5]

Truck side guards are devices designed to keep pedestrians and bicyclists from being run over by a large truck's rear wheels in side-impact collisions. Side guards have been required standard equipment since the 1980s in Europe and Japan, and more recently in Brazil.[6] They are also widely adopted in China, South America, and Australia. Based on studies in the United Kingdom (U.K.), side guards are an effective technology for reducing the number of fatalities and the severity of injuries: for example, bicyclist fatalities declined by 61% and pedestrian fatalities by 20% in side impact collisions with trucks after the U.K.'s 1986 side guard mandate.[7] Despite three decades of international experience and the rapid voluntary adoption of similar but non-rigid aerodynamic side skirts on U.S. trailers, the operational, cost-benefit, and regulatory aspects of requiring truck side guards in the U.S. has not been studied. The proposed research project will address this gap.

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[1] https://www.transportation.gov/briefing-room/us-dot-national-safety-council-launch-road-zero-coalition-end-roadway-fatalities "Working closely with our partners, both inside and outside the Department, we are committing significant resources to the serious effort being put forth to make the ambitious goal of zero deaths an eventual reality," said FMCSA Administrator T.F. Scott Darling III.

[2] NHTSA Fatality Analysis Reporting System (FARS)

[3] http://ntl.bts.gov/lib/54000/54700/54711/Truck_Sideguards_NYC.pdf

[4] http://ntl.bts.gov/lib/59000/59900/59997/DOT-VNTSC-SFMTA-16-01.pdf

[5] http://www.ntsb.gov/safety/safety-studies/Documents/SS1301.pdf

[6] http://ntl.bts.gov/lib/59000/59300/59356/Cambridge-Volpe_Safer_Truck_2016.pdf

[7] http://www.worldcat.org/title/integrated-safety-guards-and-spray-suppression-final-summary-report/oclc/84743321

The Federal Motor Carrier Safety Administration (FMCSA) is authorized to undertake this project under 49 USC 31108 [Section 4111 of SAFETEA-LU (P.L. 109-59)], "Motor Carrier Research and Technology Programs." Under 49 USC 31108, paragraph (a)(3)(C), FMCSA may fund research, development, and technology projects that improve the safety and efficiency of commercial motor vehicles through technological innovation and improvement.

Five key efforts are required in this project: (1) study interaction of a potential side guard with other truck parts and accessories (e.g., fuel tanks, fire extinguisher, exhaust system) and the implications for new Federal Motor Carrier Safety Regulations (FMCSRs), (2) investigate applicable international side guard standards, (3) perform preliminary cost-benefit analysis of truck side guard deployment, including safety, liability avoidance, and potential aerodynamic fuel savings,[8] (4) propose recommendations, and (5) propose means for voluntary adoption.

3.0. SOW Description/Technical Approach

The following are the tasks in this effort: (1) project plan, (2), literature review, (3) analysis of potential interaction of side guards with other truck parts and accessories, (4) cost-benefit analysis, (5) final report, and (6) technology demonstration. These tasks are discussed in detail below.

Task 1: Project Plan

Volpe shall submit a draft Project Plan with a milestone schedule showing deliverables and due dates (using the contract award date as the reference point). The draft Project Plan should be consistent with the Schedule of Deliverables shown in Section 4. Volpe staff shall travel to DOT Headquarters to present and discuss the draft Project Plan at a kick-off meeting within 14 calendar days of contract award for review and approval by the FMCSA Contracting Officer's Representative (COR). Volpe shall address any issues or comments on the draft Project Plan within one calendar week of receiving issues or comments from the FMCSA COR and submit the revised Project Plan to the FMCSA COR for approval.

Volpe will adhere to the approved final Project Plan during the period of performance. Delays are discouraged but may be permissible due to unforeseen circumstances beyond Volpe's control. Such a delay must be requested in writing (e-mail is permissible) by Volpe and approved by the COR. If the period of performance has to be extended, the Contracting Officer has to approve modification of the InterAgency Agreement (IAA) to extend the period of performance.

Task 2: Literature Review and Analysis

Volpe shall perform a search and review of the published literature to gather significant studies that have been done on the deployment of side guards on heavy-duty trucks. The literature

[8] Certain European and Canadian side guard models are already designed for aerodynamic drag reduction for fuel savings, so both aerodynamic and non-aerodynamic scenarios will be considered for cost-benefit analysis.

search shall also compile an annotated list of national and international standards for side guards applicable on heavy-duty trucks. Volpe shall also include studies on the effectiveness of side guards in reducing pedestrian fatalities in the literature search.

Volpe shall conclude the literature review with a draft report summarizing its findings, listing national and international standards, and summarizing any data on the (i) impact on reducing pedestrian and bicyclist fatalities and serious injuries and (ii) cost-benefits of side guards. Volpe shall submit to the FMCSA COR the draft literature review report in accordance with the schedule of milestones in the Project Plan. The COR will review the draft literature review report and present review comments to Volpe. Volpe shall address the COR's review comments, revise the draft literature review report, and submit a final literature review report in accordance with the schedule of milestones in the Project Plan.

Task 3: Analysis of Potential Interactions of Side Guards

Volpe shall perform an analysis of the potential interactions of side guard installation with other parts and accessories that are on selected common truck types, including for example a single-unit truck, tractor-trailer, a tanker truck, a dump truck, and a refuse truck. Examples of parts and accessories on these trucks shall include but not be limited to the following: fuel tanks, fire extinguisher, exhaust system, side marker lamps, and aerodynamic devices. The objective of the analysis is to determine whether there is a need to move parts or accessories, and the feasibility of moving any identified parts, to accommodate the installation of side guards. This task will include meeting with a truck manufacturer to discuss and document identified interaction issues and solutions for side guard installation. The cost and benefits of moving such parts and accessories shall be included in Task 4, 'Cost-Benefit Analysis."

Volpe shall conclude the analysis of potential interactions (including truck design, manufacture, and cost) of side guards with a draft report summarizing the findings and summarizing any impacts on safety. Volpe shall submit to the FMCSA COR the analysis of potential interactions of side guards report in accordance with the schedule of milestones in the Project Plan. The COR will review the analysis of potential interactions of side guards report and present review comments to Volpe. Volpe shall address the COR's review comments, revise the report, and submit a final analysis of the potential interactions of side guards report in accordance with the schedule of milestones in the Project Plan.

Task 4: Cost-Benefit Analysis

Volpe shall perform a cost-benefit analysis of retrofitting, operating, and maintaining side guards on existing heavy-duty trucks greater than 10,000 lbs. gross vehicle weight rating (GVWR). Volpe does not have to include all such heavy-duty trucks and may focus on only those types heavy-duty trucks with the highest risk of causing pedestrian/bicyclist fatalities, if possible to determine based on available data.[9] The costs shall include the capital costs of the side guards (including costs for retrofitting one or more baseline designs of side guards and moving any parts and accessories for accommodating the side guards). The operations and maintenance costs over

[9] The NHTSA FARS and GES systems, the Large Truck Crash Causation Study, and other data sources will be consulted for this determination.

the lifecycle of the side guards shall also be included in the analysis. The benefits shall include reduction in pedestrian fatalities and injuries, liability avoidance, and aerodynamic fuel economy. Additional considerations such as road spray suppression and wind stability may be considered if available data permit.

Volpe shall conclude the cost-benefit analysis with a draft report summarizing the findings and the return on investment for industry and society.[10] Volpe shall submit to the FMCSA COR the cost-benefit analysis report in accordance with the schedule of milestones in the Project Plan. The COR will review the cost-benefit analysis report and present review comments to Volpe. Volpe shall address the COR's review comments, revise the report, and submit a final cost-benefit analysis report in accordance with the schedule of milestones in the Project Plan.

Task 5: Final Report

Volpe will compile a draft final report based on the results of Tasks 2, 3, and 4, that is, literature review, analysis of potential interactions of side guards, and cost-benefit analysis reports. Based on consideration of all three reports (especially, if benefits exceed costs), Volpe shall compile a list of recommendations for FMCSRs addressing the retrofitting of side guards on existing trucks posing the highest risk of causing pedestrian fatalities. The draft final report must conform with FMCSA's template for final reports (see last paragraph of Task 5). Because FMCSA intends to publish the final report on its public-facing web site, the final report must also be 508-compliant.

Volpe shall submit to the FMCSA COR the draft final report in accordance with the schedule of milestones in the Project Plan. The COR will review the draft final report and present review comments to Volpe. Volpe shall address the COR's review comments, revise the draft final report, and submit a final report in accordance with the schedule of milestones in the Project Plan. Volpe shall also present a briefing on the final report to FMCSA senior management staff prior to the end of the period of performance.

The draft final report submitted as deliverable in the aforementioned tasks shall conform to FMCSA's template for final reports. This template is very similar to the Federal Highway Administration's (FHWA) *Communication Reference Guide* of May 2004, FHWA-RD-03-074 at http://www.fhwa.dot.gov/publications/research/general/03074/index.cfm The COR will provide the FMCSA template for final reports.

Task 6: Technology demonstration

Volpe will identify and partner with one or more key side guard stakeholders to conduct a demonstration of cost-effective side guard deployment on heavy-duty trucks greater than 10,000 pounds gross vehicle weight rating (GVWR). Potential stakeholders for this demonstration include, but are not limited to, local, state, and other jurisdictions; private truck fleets; truck manufacturers and suppliers; and industry associations such as the Truck Rental and Leasing Association, American Truck Association, and National Truck Equipment Association. The

[10] It is possible the benefits would most accrue to actors (e.g., other road users) different from the actors who have to invest (truck industry). If so, it would raise the issue of incentives and policy.

demonstration will build on recent and ongoing implementation of side guards in certain states, including New York and the District of Columbia, the nascent availability of side guards by OEMs and aftermarket suppliers, and voluntary adoption by large fleets. Volpe anticipates focusing demonstration activities on addressing actual and perceived cost barriers to users (e.g., via incentives) as well as the availability of side guards in the truck supply chain (e.g., by increasing awareness or requiring the technology). Volpe may engage FHWA's State Transportation Innovation Council (STIC) network and use this model to incentivize jurisdictions to demonstrate side guards and to provide operational and safety data to inform future adoption choices. Volpe will prepare a summary report based on the results of the demonstration. This activity is envisioned to be coordinated with a matching concurrent project to be funded by OST-R in support of side guard adoption outreach activity and communication.

4.0. Deliverables and Period of Performance

The period of performance is twenty-four (24) months from the date that the InterAgency Agreement (IAA) is executed and initial funding is provided.

Table 1 shows the initial deliverables and target dates.

Table 1 Deliverables and Target Dates

Task	Deliverable/Milestone/Activity	Target Date (months after IAA execution)
1	Project plan	1
2	Literature review draft report	6
3	Vehicle part interactions draft report	10
4	Cost-benefit analysis draft report	16
5	Final report	Draft 20 Final 21
6	Demonstration report	23
	Progress reports	15th of each month

The dates outlined in this section are the best estimates at the writing of this SOW. The Volpe Center will use reasonable, good faith efforts to complete the work, including procurements, in a timely and efficient manner to be able to meet the milestones in this SOW. The COR and the Volpe Center will discuss and jointly agree upon any significant changes to the schedule. If the project Period of Performance changes, the COR and the Volpe Center Project Manager will modify the IAA.

5.0. SOW Cost Estimates and Spend Plan:

Total estimated cost is $200,000, broken out in Table 2 below.

Table 2 Estimated Cost Breakout

Task	Cost (labor & other direct costs)
Project Management, including Project Management Plan and Status Reports	$15,000
Literature Review and Analysis Report	$40,000
Analysis of Potential Interactions of Side Guards	$40,000
Cost-Benefit Analysis	$60,000
Final Report	$25,000
Technology Demonstration	$20,000
TOTAL	**$200,000**

The Volpe Center Resource Plan is as follows:

Direct Labor - $ 174,000
Contracts – $10,000 (document proofing and 508 compliance)
Travel - $15,000 (two trips to IIHS,[11] NTEA,[12] SAE COMVEC, and/or NYC Fleet Safety Forum; one trip to a truck manufacturer; one or two to Washington, DC; two persons / trip)
Other - $1,000 (conference calls, web meetings)

Total - $200,000

The costs outlined in this section are the best estimates at the writing of this SOW. Resources may need to be re-allocated among the tasks as the project proceeds. Any significant reallocation of funds will be jointly agreed upon by the FMCSA PM and the Volpe Center PM and reflected in an updated PMP.

6.0 Assumptions and Constraints

1. An exhaustive analysis of all types of truck bodies, parts and accessories (Task 3) and of all potential costs and benefits (such as secondary effects due to reduced truck emissions or crash congestion) is out of scope, given schedule and budget.
2. Delays in FMCSA or third-party vendor activities will delay the Schedule of Milestones to be developed under Task 1 and may necessitate an extension of the period of performance of the interagency agreement.
3. Work is subject to available funding.

7.0. Terms and Conditions

1. The cost estimates in this agreement are based on information available at the time of writing the SOW. FMCSA and Volpe will discuss and jointly agree to any significant changes to

[11] Insurance Institute for Highway Safety; Volpe participated in the first Underride Roundtable at IIHS in May 2016.
[12] National Truck Equipment Association

these cost estimates or reallocation of funding among the tasks and will update the PMP accordingly. If the project scope is modified or expanded, FMCSA and the Volpe Center will modify the IAA/RA.

2. Volpe work shall be on a best effort basis (not fixed price) and charges will reflect only actual costs, without profit or fee.
3. At the technical close out of the project (when all deliverables have been completed and all charges have been recorded), Volpe will return any unexpended funds to the customer in a timely manner.
4. Volpe will use reasonable, good faith efforts to complete the work, including procurements, in a timely and efficient manner to be able to meet the milestones in this SOW. FMCSA and Volpe will discuss and jointly agree upon any significant changes to the schedule. If the project Period of Performance changes, FMCSA and Volpe will modify the IAA/RA.