

Honorable Deputy Administrator Heidi King
National Highway Traffic Safety Administration
1200 New Jersey Ave., SE
Washington, DC 20590

March 11, 2019

Dear Deputy Administrator King,

Please find enclosed an amended petition for rulemaking (from my original submission on February 4, 2019) that has the potential to save numerous lives, prevent serious bodily injury, and is extremely cost beneficial.

According to the National Highway Traffic Safety Administration's own Fatality Analysis Reporting System (FARS), in 2017 alone, 41 individuals were fatally injured and 38 seriously injured as they entered or exited their vehicles between the hours of 1800 and 0600. During dusk and dawn hours, approaching vehicles are unable to see occupants open and close their vehicle doors as they enter or exit their parked or standing vehicle. Applying a retroreflective luminant component on specific proprietary areas of a vehicle's interior doorframe will ensure that an open car door is visible to approaching drivers and the person entering or exiting the vehicle is within a "zone of illumination."

The total minimum to average incremental cost of installing a "zone of illumination" on every vehicle door under 10,000 GVWR is approximately \$34.5M-\$68.9M.

The cost benefits analysis estimates that the equivalent lives saved (ELS) from a "zone of illumination" requirement on each vehicle occupant door, incorporating a 25% effectiveness, would save approximately 8 to 10.25 lives annually with an annual cost savings per ELS (3 and 7 percent discounted) between \$74.5 and \$91.5 million. A summary of the analysis estimating incremental costs using low and average estimates, average and high estimates, and cost per equivalent lives saved is provided in the attached petition for rulemaking.

The petitioner respectfully requests that this petition for rulemaking become a safety priority for NHTSA leadership. We implore you and the Secretary's office to take positive action as quickly as possible and place this proposal on its rulemaking docket within the next quarter of 2019.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Peter Gold". The signature is written in a cursive, flowing style.

Peter Gold
CEO
InView Trim Corp

Petition for Rulemaking

A “zone of illumination” should be incorporated into Federal Motor Vehicle Safety Standard (FMVSS) No. 108, “Lamps, Reflective Devices, and Associated Equipment.”

Submitted by:

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Issue:

When individuals, outside or inside of a vehicle, attempt to open a door between dusk and dawn hours, approaching drivers often cannot see them. This places an unnecessary risk to these occupants and has resulted in numerous preventable serious injuries and fatalities.

This petition for rulemaking specifically requests that the National Highway Traffic Safety Administration (NHTSA) require a “zone of illumination,” which incorporates applying a luminant component (possibly conspicuity tape) to a portion of the vehicle’s door frame, lower door flange, and window frame portion of the motor vehicle door frame to ensure that when a vehicle’s doors is opened between dusk and dawn hours, the vehicle’s door edge, as well as, the person entering or exiting the vehicle are visible to approaching drivers. This “zone of illumination” should be incorporated into Federal Motor Vehicle Safety Standard (FMVSS) No. 108, “Lamps, Reflective Devices, and Associated Equipment.”

Rule:

FMVSS No. 108 should be amended to incorporate a “zone of illumination” requirement for all vehicle doors on newly sold motor vehicles within the United States.

The definition of “zone of illumination” should include the following language: incorporates applying a luminant component (possibly conspicuity tape) to a portion of the vehicle’s door frame, lower door flange, and window frame portion of the motor vehicle door frame to ensure that when the vehicle’s doors are opened between dusk and dawn hours, the vehicle’s door edge, as well as, the person’s silhouette entering or exiting the vehicle are visible to approaching drivers.

Analysis:

Has the NHTSA required the use of conspicuity or retroreflective tape to “increase the visibility” of other drivers of motor vehicles, “especially in the dark?” The answer is yes, and the requirement and standard has saved thousands of lives since its original incorporation into FMVSS 108 in December 1992. The regulations have been enhanced and have been incorporated within the Federal Motor Carrier Safety Administration’s (FMCSA) safety regulations as well as within FMVSS 108.

NHTSA has only, however, called for the use of conspicuity tape on motor vehicles having a gross vehicle weight rating (GVWR) of more than 10,000 pounds, requiring them to “be equipped on the sides and the rear with a means for making them more visible on the road.”

On August 8, 1996, the NHTSA published a final rule requiring that truck tractors manufactured on or after July 1, 1997, be equipped with red-and-white retroreflective material similar to that required on the rear of the trailers they tow to increase nighttime conspicuity. These requirements were “set up by the FMCSA to help improve visibility in low light conditions and help reduce potentially fatal motor vehicle crashes into the sides or back of stopped or parked trucks and tractor trailers at night or in poor visibility.”

Furthermore, NHTSA stated in its March 2001 technical report on “The Effectiveness of Retroreflective Tape on Heavy Trailers” that:

The purpose of retroreflective tape is to *increase the visibility* of heavy trailers to other motorists, *especially in the dark*. At those times, the *tape brightly reflects* other motorists’ headlights and *warns them that they are closing* on a heavy trailer. In the dark, *without the tape*, many trailers *do not become visible to other road users until they are dangerously close*. The alternating red-and white pattern flags its bearer as a heavy trailer and at the same time helps other road users gauge their distance and rate of approach. This report evaluates the effectiveness of the tape in reducing side and rear impacts into heavy trailers - primarily in dark conditions where even a vigilant motorist might not see an untreated trailer in time to avoid a crash, and secondarily in daylight, where the tape might alert inattentive drivers that they are approaching a trailer. [*emphasis added*]

During NHTSA’s evaluation of the effectiveness of conspicuity or retroreflective tape the agency incorporated a special agreement with the State of Florida and Pennsylvania to “collect data” for their analysis. The petitioner believes that NHTSA should use this current research as a foundation for helping to determine the effectiveness of requiring a “zone of illumination” on motor vehicles having a gross vehicle weight rating (GVWR) of less than 10,000 pounds.

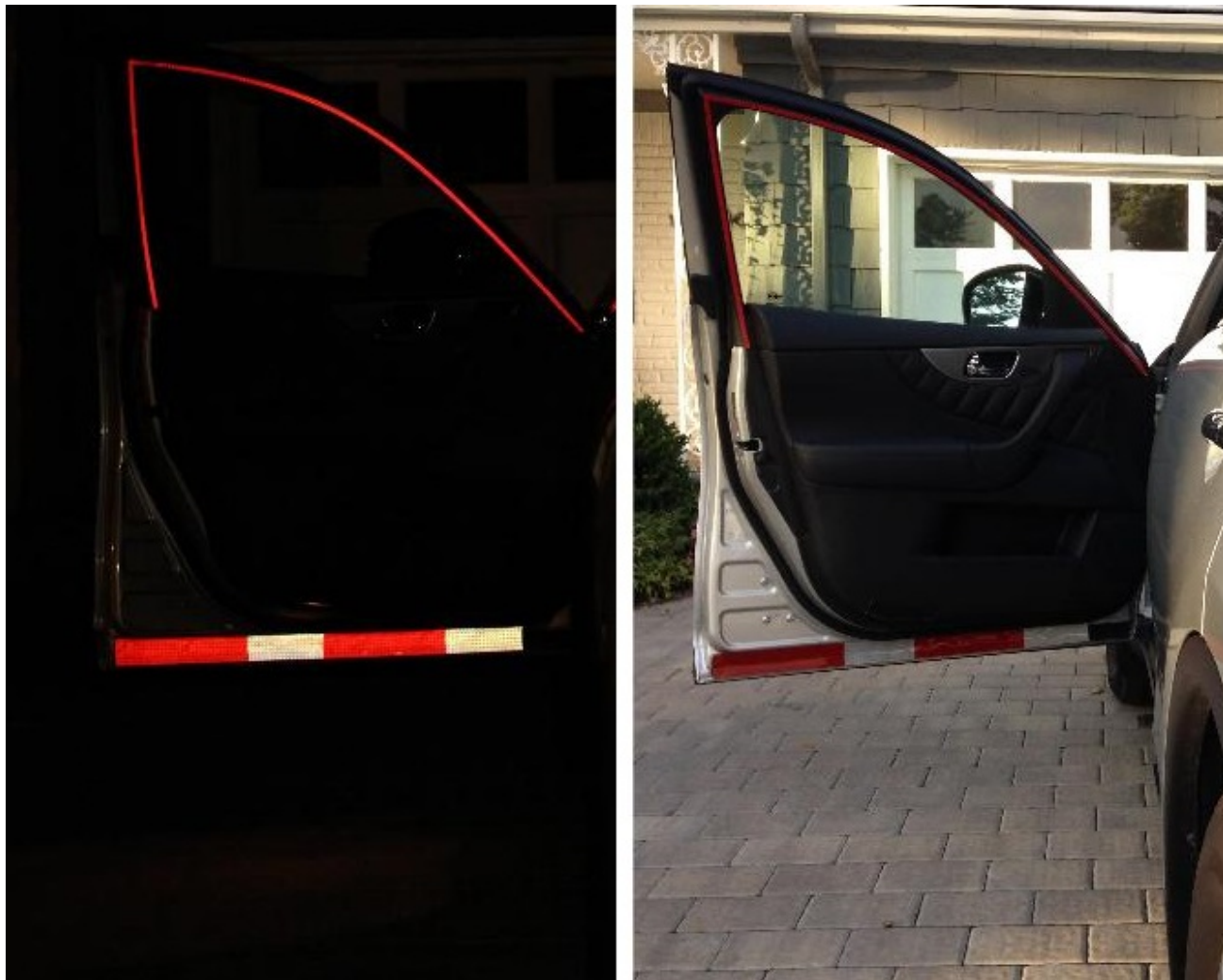
This rulemaking petition would be classified as a “nonsignificant” rule, since according to Executive Order 12866 – Regulatory Planning and Review, a “significant regulatory action” is defined as having “an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities.” This rulemaking petition would also be cost beneficial under the guidelines that the Office of Information and Regulatory Affairs (OIRA) of the Office of Management and Budget provides to agencies.

On average, each door on a passenger vehicle has approximately a 42-inch lower edge, which would be illuminated by conspicuity or retroreflective tape, which would be required by this petition for rulemaking, and would be included as part of the “zone of illumination.” Considering that both legs of individuals opening or exiting a vehicle would measure approximately 12 inches in width combined, that would leave 30 inches of reflective tape to alert approaching drivers that 1) the vehicle’s door is open and 2) that there is a person within the “zone of illumination.” This will warn approaching drivers, up to 1000 feet away, that a vehicle’s door is open and an individual is either entering or exiting the vehicle, as well as, next to the vehicle. When the vehicle door is in its open position, with the illuminant component applied to a portion of the vehicle’s doorframe, lower door flange, and window frame, the vehicle’s door is fully visible to approaching drivers. Please refer to Figure 1 (below) for day and evening photos representing what would constitute a “zone of illumination.” Additionally, while Figure 1 utilizes retroreflective tape to show the “zone illumination,” OEMs may also use retroreflective paint that will not be visible to their costumers during the day.

Current optional systems that may be equipped on vehicle doors, such as a small reflector or a small light do not provide approaching drivers with the ability to see a vehicle occupant exiting or an individual entering their vehicle. Since those devices are small and the vehicle occupant can block them

from view of approaching drivers they are obsolete and ineffective in helping to reduce the number of serious injuries or fatalities that happen each year.

Figure 1 - A Visual Representation of a Vehicle with Attached Retroreflective Tape Producing a "Zone of Illumination"



Data Provided in FARS

The petitioner focused on Fatality Analysis Reporting System (FARS) to determine the number of injuries and fatalities associated with pedestrians' entering/exiting parked/standing vehicles. Data for fatalities caused by factors such as entering/exiting parked/standing vehicles, as well as, identified factors for "other" and "unknown" are provided in Table 1 for years 2013 through 2016. The FARS data factor of "entering/exiting parked/standing vehicle" accounted for an average of 0.625 percent of the fatalities of pedestrians each year.

Since there are factors that are classified as "other" and "unknown," NHTSA should also consider if any of those fatalities or injuries should be included in the cost benefit analysis for this rulemaking petition. At this time, NHTSA utilizes a narrow definition of "pedestrian" which may result in a lack of reporting

of fatalities and injuries for persons entering or exiting their vehicle within the coded crash factor of 320. This definition is used by states when reporting and inputting data into the FARS, and is also used by decision makers for policy development, by researcher and safety advocates.

Currently, NHTSA defines a pedestrian as:

... any person on foot, walking, running, jogging, hiking, sitting or lying down who is involved in a motor vehicle traffic crash. Also, a traffic crash is defined as an incident that involves one or more vehicles where at least one vehicle is in transport and the crash originates on a public trafficway. Crashes that occurred exclusively on private property, including parking lots and driveways, [are] excluded.

NHTSA should consider amending the definition of a “pedestrian” to include fatalities and injuries involved in individuals entering or occupants exiting a vehicle that occur on private property. This will likely increase the number of reported pedestrian deaths and injuries that would be entered into the database.

Table 1 - FARS DATA for Pedestrians Fatalities

2013 FARS DATA (USA)			2014 FARS DATA (USA)			2015 FARS DATA (USA)			2016 FARS DATA (USA)		
Factors	Number	Percent	Factors	Number	Percent	Factors	Number	Percent	Factors	Number	Percent
Entering/exiting parked/standing vehicle	27	0.6	Entering/exiting parked/standing vehicle	37	0.8	Entering/exiting parked/standing vehicle	22	0.4	Entering/exiting parked/standing vehicle	40	0.7
Other factors	241	5	Other factors	148	3	Other factors	149	2.7	Other factors	195	3.3
Unknown	709	14.8	Unknown	768	15.6	Unknown	1016	18.5	Unknown	959	16
Total	4779	100	Total	4910	100	Total	5495	100	Total	5987	100

By quarrying the FARS data for pedestrian fatalities and injuries, the petitioner was able to determine the number injuries and fatalities that occurred using “crash type” code 320, which is for “Entering/Exiting Parked or Stopped Vehicle.” This information is provided below in Table 2 through Table 5. The FARS Data from 2014 though 2017 has been filtered for accidents that occurred between 1800 hours through 0600 hours. These times would account for vehicle operations between dusk and dawn hours.

Table 2 – 2014 FARS DATA - Pedestrian Filtered for Entering/Exiting Parked or Stopped Vehicle

State Number	Case Number	Vehicle Number	Person Number	Fatality Number	Age	Death Date	Death Time	Injury	Person Type	Crash Location	Crash Type
34	246	0	1	1	63	26	505	4	5	3	320
36	79	0	1	1	56	5	9999	4	5	3	320
1	196	0	1	1	33	9	2017	4	5	3	320

35	19	0	2	2	30	30	416	4	5	3	320
6	2725	0	1	1	41	28	113	4	5	3	320
28	343	0	1	1	42	19	2003	4	5	3	320
48	1	0	1	1	24	1	451	4	5	3	320
6	838	0	1	1	72	7	2245	4	5	3	320
35	19	0	1	2	54	30	416	4	5	3	320
12	2090	0	1	1	51	6	2044	4	5	2	320
37	592	0	1	1	30	18	2249	4	5	3	320
11	11	0	1	1	3	4	2107	4	5	3	320
34	140	0	1	1	21	24	105	4	5	3	320
46	28	0	1	1	21	2	457	4	5	3	320
13	528	0	1	1	25	4	2153	4	5	3	320
22	572	0	1	1	61	3	1935	4	5	3	320
39	876	0	1	1	43	23	2353	4	5	3	320
4	584	0	1	1	62	18	2229	4	5	3	320
21	143	0	1	1	19	13	1802	4	5	3	320
28	526	0	1	1	33	13	2010	4	5	3	320
44	23	0	1	1	22	21	2340	4	5	3	320
6	461	0	1	1	50	4	1815	4	5	3	320
13	799	0	1	1	20	3	2312	4	5	3	320
39	542	0	1	1	56	25	1929	4	5	3	320
		TOTAL	25	26							

Table 3 – 2015 FARS DATA - Pedestrian Filtered for Entering/Exiting Parked or Stopped Vehicle

State Number	Case Number	Vehicle Number	Person Number	Fatality Number	Age	Death Date	Death Time	Injury	Person Type	Crash Location	Crash Type
6	192	1	1	1	37	1282015	527	4	5	3	320
5	475	1	1	2	54	12212015	2345	4	5	3	320
39	521	1	1	7	20	7292015	2303	4	5	3	320

17	715	1	1	1	41	10032015	358	4	5	3	320
23	93	1	1	1	21	9182015	2104	4	5	3	320
23	118	1	1	4	34	11262015	1959	4	5	3	320
31	7	1	1	1	55	1182015	2022	4	5	3	320
21	430	2	1	1	48	88888888	8888	1	5	3	320
18	740	1	1	2	74	11032015	546	4	5	3	320
6	98	1	1	1	80	1212015	1831	4	5	3	320
39	606	1	1	1	38	8282015	151	4	5	3	320
12	914	1	1	2	59	5192015	1919	4	5	3	320
28	61	1	1	1	49	2192015	2155	4	5	2	320
48	3172	1	1	1	44	7062015	300	4	5	3	320
25	296	1	2	1	48	9262015	1929	4	5	3	320
22	30	1	1	1	30	1122015	2140	4	5	3	320
6	1611	2	1	1	60	88888888	8888	2	5	3	320
36	610	1	1	2	36	3192015	2056	4	5	3	320
26	574	1	1	2	28	8172015	2345	4	5	3	320
6	1611	1	1	1	29	9252015	2054	4	5	3	320
47	757	1	1	2	51	11142015	9999	4	5	3	320
		TOTAL	22	36							

Table 4 – 2016 FARS DATA - Pedestrian Filtered for Entering/Exiting Parked or Stopped Vehicle

State Number	Case Number	Vehicle Number	Person Number	Fatality Number	Age	Death Date	Death Time	Injury	Person Type	Crash Location	Crash Type
6	3412	0	1	1	47	88888888	8888	1	5	3	320
6	3028	0	1	1	66	12162016	2237	4	5	3	320
34	520	0	1	1	32	88888888	8888	0	5	2	320
13	790	0	1	1	20	8032016	2312	4	5	3	320
55	141	0	1	1	22	1102016	2236	4	5	3	320

6	1285	0	2	1	59	88888888	8888	3	5	3	320
42	1024	0	1	1	22	12102016	315	4	5	3	320
42	721	0	2	1	25	88888888	8888	3	5	3	320
6	2432	0	2	1	38	88888888	8888	1	5	2	320
51	525	0	1	1	37	10082016	210	4	5	3	320
12	506	0	2	1	45	88888888	8888	3	5	2	320
17	1033	0	1	1	52	12262016	2145	4	5	3	320
12	2200	0	1	1	48	10092016	430	4	5	3	320
6	1305	0	1	1	62	3312016	42	4	5	3	320
36	98	0	1	1	48	2282016	530	4	5	3	320
24	302	0	1	1	50	10112016	614	4	5	3	320
10	27	0	1	1	36	5162016	2019	4	5	3	320
51	508	0	1	1	34	10162016	236	4	5	3	320
6	1805	0	1	1	51	9302016	1830	4	5	3	320
39	274	0	1	1	38	5122016	35	4	5	3	320
39	1028	0	2	1	23	88888888	8888	2	5	3	320
6	2813	0	1	1	55	12102016	315	4	5	3	320
26	226	0	1	1	54	4192016	2040	4	5	3	320
53	492	0	1	1	56	12082016	2058	4	5	3	320
6	2544	0	2	1	39	88888888	8888	1	5	3	320
		TOTAL	31	25							

Table 5 – 2017 FARS DATA - Pedestrian Filtered for Entering/Exiting Parked or Stopped Vehicle

State Number	Case Number	Vehicle Number	Person Number	Fatality Number	Age	Death Date	Death Time	Injury	Person Type	Crash Location	Crash Type
6	453	0	1	2	24	24	2128	4	5	3	320
6	453	0	2	2	36	24	2130	4	5	3	320
6	562	0	1	1	25	8	105	4	5	3	320

6	1144	0	1	1	73	28	1916	4	5	3	320
6	1245	0	1	1	68	.	.	4	5	3	320
6	1321	0	1	1	74	25	2307	4	5	3	320
9	115	0	1	1	31	9	119	4	5	3	320
12	1564	0	1	1	46	88	8888	2	5	3	320
13	1011	0	1	1	77	13	2344	4	5	3	320
13	1083	0	1	1	21	1	2001	4	5	3	320
13	1335	0	1	1	22	2	2055	4	5	3	320
17	928	0	1	1	71	17	2214	4	5	3	320
18	73	0	1	1	15	18	2352	4	5	3	320
24	378	0	1	1	53	12	2129	4	5	3	320
26	608	0	1	1	47	26	2111	4	5	3	320
29	425	0	1	3	32	4	2205	4	5	3	320
29	425	0	2	3	2	4	2205	4	5	3	320
34	172	0	1	2	57	2	2046	4	5	3	320
34	172	0	2	2	80	2	2046	4	5	3	320
34	196	0	1	1	23	12	57	4	5	3	320
34	567	0	1	1	44	30	451	4	5	2	320
36	494	0	1	1	50	7	232	4	5	3	320
37	464	0	1	1	77	14	.	4	5	3	320
37	770	0	1	1	64	17	1801	4	5	3	320
39	149	0	1	1	35	4	2235	4	5	3	320
39	1047	0	1	1	74	26	2143	4	5	3	320
42	121	0	1	2	27	99	9999	4	5	3	320
42	580	0	1	1	66	21	2222	4	5	3	320
49	92	0	2	1	6	88	8888	3	5	3	320
49	92	0	3	1	64	88	8888	3	5	3	320
51	414	0	1	1	65	4	145	4	5	3	320

55	67	0	1	1	57	23	231	4	5	3	320
		Total	38	41							

Table 6 - FARS DATA 2014 - 2017 Injuries & Fatalities for Entering/Exiting Parked or Stopped Vehicles between Dusk & Dawn

Year	Injuries (1800-0600 hrs)	% of Total number of Injuries	Fatalities (1800-0600 hrs)	% of Total Fatalities	Total Injuries	Total Fatalities
2014	25	60.98%	26	63.41%	41	41
2015	22	55.00%	36	59.02%	40	61
2016	31	56.36%	25	51.02%	55	49
2017	38	73.08%	41	75.93%	52	54
Average	29		32		47	51.25

Petition for Rulemaking Cost-Benefit Analysis

Preliminary estimates of the costs of requiring a “Zone of Illumination” on motor vehicles with a GVWR of less than 10,000 pounds shows that this rulemaking would be cost beneficial and should be placed on NHTSA’s docket as a “nonsignificant” rulemaking.

The benefits analysis estimates the equivalent lives saved (ELS) are approximately 8 to 10.25 lives. The cost per ELS (3 and 7 percent discounted) is \$74.5 million to \$91.5 million annually. A summary of the analysis estimating incremental costs using low and average estimates, average and high estimates, and cost per equivalent lives saved is shown below in Table 7. These data and cost numbers do not include the cost benefits of the decreased injuries that would also occur on a yearly basis. Incorporating this monetary value would increase the cost benefit analysis in favor of making the changes to FMVSS 108.

Table 7 - Cost Benefit Analysis for Petition

Material + Installation

Minimum to average incremental cost of the integration of a “zone of illumination” on every passenger door per vehicle	\$2.00 - \$4.00
Number of passenger vehicle needing “zones of illumination” annually incorporating 2017 US Sales	17,234,743
Total minimum to average incremental cost of “zone of illumination” installation	\$34.5M-\$68.9M

Benefits Estimates

Target Population (vehicle occupants entering or exiting a motor vehicle between 1800 and 0600 hours) average to high injury estimates	32-41 lives; 29-38 injuries
Estimated effectiveness of conspicuity or retroreflective tape	0.25 for fatalities, 0.2 for injuries
Equivalent lives saved (undiscounted) average to high estimates	8-10.25
Equivalent lives saved (3% discounted) average to high estimates	7.76-9.94
Equivalent lives saved (7% discounted) average to high estimates	7.44-9.53

Cost/Benefit Analysis

Cost per equivalent lives saved (undiscounted) – injuries have not been incorporated into this equivalent lives saved analysis. There are 29 injuries per year on average that would provide even greater cost savings to this analysis when incorporated.	\$76.8M-\$98.4M
Cost per equivalent lives saved (3% discount)	\$74.5M-\$95.4M
Cost per equivalent lives saved (7% discount)	\$71.4M-\$91.5M

Guidance from the U.S. Department of Transportation identifies \$9.6 million as the value of a statistical life (VSL) to be used for Department of Transportation analysis assessing the benefits of preventing fatalities for the base year of 2016. The preliminary estimates for “zones of illumination” on passenger vehicles under 10,000 pounds GVWR (minimum of \$71.4 million per equivalent lives saved) is a strong indicator that these systems will be cost effective (current VSL \$9.6 million).

“Dooring” is an additional and important safety issue that can be improved by amending FMVSS 108 to require a “zone of illumination”

In addition to safety issues associated with the incorporation of a “zone of illumination” for approaching vehicles there is a serious safety concern for approaching bicyclists and motorcyclists. “Dooring” injuries and fatalities occur when individuals riding bicycles or driving motorcycles are unable to detect that a car door is opening or is open in time to avoid a collision.

Between 2012 through 2015, the City of San Francisco saw bicycle injuries and fatal collisions total 1,235. The “dooring” issue accounted for 16% of the number of collisions or a total number of 203. Although a November 3, 2016 San Francisco Municipal Transportation Agency (SFMTA) report failed to indicate how many of the 203 collisions involved fatalities, nor the time of day these accidents occurred, on average, there were over 50 injuries per year that were attributed to “dooring.”

The City of Chicago reports even worse numbers regarding “dooring” issues. According to the Illinois Department of Transportation, there were 302 “dooring” accidents that occurred in 2015, 203 in 2014, 270 in 2013, 334 in 2012 and 336 in 2011. The data for the 302 “dooring” accidents that occurred in 2015 indicates that 93 of the accidents occurred between 1800 and 0600 or between dusk and dawn hours.

Bicyclists utilizing a forward facing light, would have been alerted to an opening or open car door, from the reflection of the “zone of illumination,” and would have likely avoided a collision. If a 25% effectiveness is used, it has the potential of avoiding 23.25 “dooring” accidents. Since the majority of the accidents have a Class A or B injury, a decision to incorporate the data regarding “dooring” as part of the cost benefit analysis for the “zone of illumination” petition would further strengthen the positive safety arguments for this petition to move forward as an amendment to FMVSS 108.

Preliminary data provided from the cities of San Francisco and Chicago included in this petition are only the tip of the iceberg when it comes to data on the “dooring” issue. Unfortunately, the data in FARS does not correspond to the data provided from the City of San Francisco or by the Illinois Department of Transportation likely because of inconsistent reporting issues. Considering the number of fatalities that occur as a result of the “dooring” safety issue, the petitioner believes the “zone of illumination” proposal provided in this petition would likely decrease the number of injuries and fatalities seen as part of the “dooring” issue found in major urban areas.