Side Guard Cost Chart

Back of the Envelope Math

	AngelWing	SafetySkirt
 Definitions SUG Side Underride Guard (Side Impact Guard or Lateral Protection Device Plus/LPD+ mpg = miles per gallon AW = AngelWing SS = SafetySkirt Lbs = weight in pounds 1 year estimated miles = 100,000 miles Estimated cost of 53' dry van = \$25,000 Estimated weight of the trailer = 13,000 lbs Estimated trailer life is 15 years 		
It would be unreasonable to believe that the cost/lb of mass production of the SUG would be more than the cost/lb of a trailer. With the understanding of the <u>economies of scale</u> , the weight of the trailer in pounds is the constant this formula will work with.		
Formula to calculate cost per pound is as follows:		
Cost of trailer/weight of trailer = Cost per pound		
\$25,000/13,000 lbs = \$1.92/lb		
Estimated SUG weight	600 lbs	400 lbs
Estimated Cost to install	600 lbs x \$1.92/lb = \$1,152	400 lbs x \$1.92 = \$768
Estimated Cost/Year	\$1,152/15 yrs. = \$76.80/yr.	\$768/15 yrs. = \$51.29/yr.
Estimated Cost/Yr by mileage	\$76.80/100,000 miles = \$.0008/mile	\$51.29/100,000 miles = \$.0005/mile

FREIGHT RATE:		
DAT.com's April 16th Trendlines Report shows current national van rate averages are at \$2.10/mile		
Cost of added weight per mile formula is as follows:	(\$2.10/mile - \$.0008/mile = \$2.0992/mile) x 100,000 miles = \$209,920/yr	(\$2.10/mile - \$.0005/mile = \$2.0995/mile) x 100,000 miles = \$209,950/yr
(Rate/mile - cost of SUG/mile) x 100,000 miles	Decrease in Estimated Revenue:	Decrease in Estimated Revenue:
ESTIMATED REVENUE: Freight Rate (\$2.10) x 100,000 miles = \$210,000	\$210,000 - \$209,920 = \$80/yr	\$210,000 - \$209,950 = \$50/yr
FUEL SAVINGS:	Estimated Increase in mpg:	Estimated Increase in
Estimated <u>6.5 mpg</u> 100,000 miles/yr / 6.5 mpg = 15,385 gallons/yr. 15,385 gallons/yr x \$4/gallon = \$61,540/yr Estimated increase in mpg due to aerodynamics from SUG system = .08 mpg	6.5 mpg + .08 mpg = 6.58 mpg 100,000 miles/yr / 6.58 mpg = 15,198 gallons/yr 15,198 gallons/yr x \$4/gallon = \$60,792/yr Difference = Fuel Savings \$61,540/yr - \$60,792/yr = \$748/yr.	6.5 mpg + .08 mpg = 6.58 mpg 100,000 miles/yr / 6.58 mpg = 15,198 gallons/yr 15,198 gallons/yr x \$4/gallon = \$60,792/yr Difference = Fuel Savings \$61,540/yr - \$60,792/yr = \$748/yr .
ESTIMATED INCREASED REVENUE:	Fuel Savings - Loss of Freight Revenue =	Fuel Savings - Loss of Freight Revenue =
Fuel Savings - Loss of Freight Revenue	Estimated Increased Revenue with SUG: \$748 - \$80 = \$668/yr	Estimated Increased Revenue with SUG: \$748 - \$50 = \$698/yr
ESTIMATED INCREASED REVENUE OVER THE LIFE OF THE TRAILER:	Estimated Increased Revenue with SUG: \$748 - \$80 = \$668/yr	Estimated Increased Revenue with SUG: \$748 - \$50 = \$698/yr
Estimated Increased Revenue with SUG x 15 years	<mark>\$668/yr x 15 yrs =</mark> <mark>\$10,020</mark>	<mark>\$698/yr x 15 yrs =</mark> <mark>\$10,470</mark>

Jerry Karth 5/15/2023