TIGER BENEFIT-COST ANALYSIS (BCA) RESOURCE GUIDE

How to Use This Guide

This BCA Resource Guide is a supplement to the *2014 Benefit-Cost Analysis Guidance for Tiger Grant Applicants* also found on this site (http://www.dot.gov/tiger/guidance). It provides technical information that Applicants will need for monetizing benefits and costs in their Benefit-Cost Analyses, as well as guidance on methodology and a selection of frequently asked questions from past TIGER grant applicants.
This guide is divided into three sections:

I. **Recommended Monetized Values**
For the purposes of providing as fair an "apples-to-apples" comparison as possible, applicants should use standard monetization values recommended in this section, which represent some of the values that are accepted for common practice at the U.S. Department of Transportation.

II. **Technical Methodologies**
This section provides guidance on the technical details of monetizing carbon dioxide (CO_2) emissions costs according to the Social Cost of Carbon standard developed by Federal agencies, converting nominal dollars into real dollars, and calculating the value of fatalities and injuries from vehicular crashes.

III. **Frequently Asked Questions (FAQs)**
This section provides answers to frequently asked questions from past TIGER applicants, with topics ranging from the logistical to the technical.

Updates to this document will be dated accordingly (with the nature of the updates noted on this cover page) and posted to the TIGER Discretionary Grants website (http://www.dot.gov/tiger).

Updated 4/18/14

I. Recommended Monetized Values

Each project generates unique impacts in its respective community, and the TIGER Evaluation process respects these differences, particularly within the context of benefit-cost analysis. While the impacts may differ from place to place, the Department does recognize certain monetized values (and monetizing methodologies) as standard, such that various projects from across the country may be evaluated on a more equivalent "apples-to-apples" basis of comparison. The following table summarizes key values for various types of benefits and costs that the Department recommends that applicants use in their benefit-cost analyses. However, benefits and costs for any reliable analysis are not limited only to this table. The applicant should provide documentation of sources and detailed calculations for monetized values of additional categories of benefits and costs. Similarly, applicants using different values for the benefit/cost categories presented below below should provide sources, calculations, and rationale for divergence from recommended values.

Table 1. Recommended Monetized Values

Cost/Benefit Category	Recommended Monetized Value(s)	Reference and Notes
Value of Statistical Life (VSL)	$9,200,000 per fatality ($2013)	*Guidance on Treatment of the Economic Value of a Statistical Life in U.S. Department of Transportation Analyses (2014)* http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

<table>
<tr><th>Cost/Benefit Category</th><th>Recommended Monetized Value(s)</th><th>Reference and Notes</th></tr>
<tr><td>Value of Injuries</td><td>

AIS Level	Severity	Fraction of VSL	Unit value ($2013)
AIS 1	Minor	0.003	$ 27,600
AIS 2	Moderate	0.047	$ 432,400
AIS 3	Serious	0.105	$ 966,000
AIS 4	Severe	0.266	$ 2,447,200
AIS 5	Critical	0.593	$ 5,455,600
AIS 6	Unsurvivable	1.000	$ 9,200,000

</td><td>Guidance on Treatment of the Economic Value of a Statistical Life in U.S. Department of Transportation Analyses (2014)

http://www.dot.gov/office-policy/transportation-policy/guidance-treatment-economic-value-statistical-life

NOTE:
Accident data (particularly those provided through law enforcement records) are typically reported as a single number (e.g. “X number of crashes in Year Y”) and/or on the KABCO scale of crash severity. Applicants should convert these values to the AIS scale before applying the recommended monetized values. See Part II Section 3 (“Converting Available Accident Data into AIS Data”).</td></tr>
</table>

Cost/Benefit Category	Recommended Monetized Value(s)	Reference and Notes
Property Damage Only (PDO) Crashes	$3,927 per vehicle ($2013)	*The Economic and Societal Impact of Motor Vehicle Crashes, 2010 (forthcoming April 2014)* **NOTE:** Basis is PDO value of $3,682 ($2010) per vehicle involved in a PDO crash is an updated value currently used by NHTSA and based on the methodology and original 2000 dollar value referenced in *The Economic and Societal Impact of Motor Vehicle Crashes, 2010*, Page 12, Table 2, Summary of Unit Costs, 2000". Also, while the cost of PDO crashes is presented here in 2010 dollars, applicants should convert this value (along with other monetized values presented in this section) to dollars applicable to whatever base year you are using, using the methodology discussed below in **Part II, Section 2 ("Converting Nominal Dollars into Real (Constant) Dollars").** The Resource Guide converted this value into 2013 dollars.

Cost/Benefit Category	Recommended Monetized Value(s)	Reference and Notes
Value of Travel Time	(see table below)	*Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis (Revision 2 – corrected)* http://www.dot.gov/office-policy/transportation-policy/guidance-value-time

Recommended Hourly Values of Travel Time Savings (2013 U.S. $ per person-hour)

Category	Surface Modes* (except High-Speed Rail)	Air and High-Speed Rail Travel
Local Travel		
Personal	$12.42	
Business	$25.23	
All Purposes **	$12.98	
Intercity Travel		
Personal	$17.39	$33.05
Business	$24.44	$60.74
All Purposes **	$18.90	$44.24
Truck Drivers	$25.75	
Bus Drivers	$26.69	
Transit Rail Operators	$45.77	
Locomotive Engineers	$38.14	
Airline Pilots and Engineers	$83.32	

* Surface figures apply to all combinations of in-vehicle and other transit time. Walk access, waiting, and transfer time in personal travel should be valued at $24.85 per hour for personal travel when actions affect only those elements of travel time.

** These are weighted averages, using distributions of travel by trip purpose on various modes. Distribution for local travel by surface modes: 95.4% personal, 4.6% business. Distribution for intercity travel by conventional surface modes: 78.6% personal, 21.4% business. Distribution for intercity travel by air or high-speed rail: 59.6% personal, 40.4% business. Surface figures derived using annual person-miles of travel (PMT) data from the 2001 National Household Travel Survey. http://nhts.ornl.gov/. Air figures use person-trip data.

Cost/Benefit Category	Recommended Monetized Value(s)	Reference and Notes
Value of Emissions	<table><tr><th>Emission Type</th><th>$ / short ton ($2013)</th><th>$ / metric ton ($2013)</th></tr><tr><td>Carbon dioxide (CO_2)</td><td>(varies)*</td><td>(varies)*</td></tr><tr><td>Volatile Organic Compounds (VOCs)</td><td>$1,813</td><td>$1,999</td></tr><tr><td>Nitrogen oxides (NOx)</td><td>$7,147</td><td>$7,877</td></tr><tr><td>Particulate matter (PM)</td><td>$326,935</td><td>$360,383</td></tr><tr><td>Sulfur dioxide (SOx)</td><td>$42,240</td><td>$46,561</td></tr></table> * See **"Social Cost of Carbon (3%)"** values below.	*Corporate Average Fuel Economy for MY2017-MY2025 Passenger Cars and Light Trucks* (August 2012), page 922, Table VIII-16, "Economic Values Used for Benefits Computations (2010 dollars)" http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FRIA_2017-2025.pdf The Resource Guide converts these values into 2013 dollars. **NOTE:** Emissions units are frequently reported as "tons" throughout documents such as the CAFE rulemaking referenced above. There is a distinction between short tons, long tons, and metric tons, however. Carbon dioxide emissions (as reported in the SCC guidance and elsewhere) are typically reported in metric tons, whereas emissions for VOCs, NOx, PMs, and SOx are measured in short tons. The English "long ton" is not used in these tabulations. A short ton is 2000 lbs., while a metric ton is approximately 2,205 lbs., and a long ton is 2,240 lbs.

Cost/Benefit Category	Recommended Monetized Value(s)	Reference and Notes
Social Cost of Carbon (3%)	(see tables below)	*Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866* (May 2013; revised November 2013), page 18, Table A1 "Annual SCC Values: 2010-2050 (2007$/metric ton CO_2)" http://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/technical-update-social-cost-of-carbon-for-regulator-impact-analysis.pdf **NOTE:** - The social cost of carbon as reported by the Technical Update represents the present value (discounted to the year shown) of marginal future climate damage, in five-year intervals through 2050, valued in 2007 dollars per metric ton of carbon dioxide, and discounted to the year shown at varying annual rates. The Resource Guide interpolates between the "3%" values shown in the Technical Update to create an annual series, converts it into 2013 dollars using the GDP deflator, and rounds to the nearest dollar. - See **Part II, Section 1 ("Clarification on the Social Cost of Carbon (SCC) Guidance and the Annual SCC Values")**, for methodology of how to use 3% SCC values in TIGER BCA.

Year	3% SCC (2013$)
2010	36
2011	37
2012	38
2013	39
2014	40
2015	42
2016	43
2017	44
2018	45
2019	46
2020	47
2021	48
2022	49
2023	50
2024	51
2025	53
2026	53
2027	54
2028	55
2029	56
2030	57

Year	3% SCC (2013$)
2031	58
2032	59
2033	60
2034	61
2035	62
2036	63
2037	65
2038	66
2039	67
2040	68
2041	69
2042	70
2043	70
2044	71
2045	72
2046	73
2047	74
2048	76
2049	77
2050	78

II. Technical Methodologies

1. Clarification on the *Social Cost of Carbon* (SCC) Guidance and the Annual SCC Values

As noted in the recommended emissions values from Section I, there is no longer a fixed unit cost to carbon dioxide (CO_2) emissions. The Federal interagency Social Cost of Carbon (SCC) guidance states that the value of carbon dioxide emissions changes over time and should be discounted at the lower discount rates of 2.5%, 3%, or 5%.

However, the lack of 7% SCC values does not mean that applicants should ignore 7% discounting for the BCA. The document and its findings imply that carbon emissions are valued differently from other benefits and costs from the perspective of discount rate. Applicants should continue to calculate discounted present values for all benefits and costs (that *exclude* carbon dioxide emissions) at 7% and 3%, as recommended by OMB Circular A-94[1]. To these non-carbon NPV benefits, the Applicant should then add the corresponding net value of carbon dioxide emissions, as calculated from the 3% SCC value. The methodology for calculating this net value of carbon dioxide emissions is described below:

i. Determine your base year and the life cycle years for the project. Look up the corresponding 3% average value for each corresponding year in which the carbon dioxide emissions occur. The TIGER Program recommends the use of the 3% average values as provided in the document *Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866* (May 2013; updated November 2013)[2] on page 39 in Table A-1 "Annual SCC Values 2010-2050 (in 2007 dollars)".

   a. **Example:** Our project has base year 2014, with project life through 2020. We want to know how to value a carbon dioxide emissions reduction of 100 metric tons in 2020.

   b. **[NOTE]** The SCC values are given in 2007 dollars. We convert these to 2013 base year dollars by multiplying by the corresponding CPI ratio.

ii. Multiply the quantity of tons reduced in 2020 by the 3% SCC value in that same year.

   a. **Example:** 100 tons x $52.00= $5,200.00 benefits in 2020.

iii. Discount forward the 2020 carbon dioxide benefits *only* to the base year (2014) present value at the same SCC discount rate (3%). Recall that

$$PV = \frac{FV}{(1+i)^t}$$

Where
PV= Present discounted value of a future payment from year *t*
FV = Future Value of payment in year *t*
i = Discount rate applied
t = Years in the future for payment (where base year of analysis is *t* = 0)

[1] White House Office of Management and Budget, Circular A-94 *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs* (October 29, 1992) (http://www.whitehouse.gov/sites/default/files/omb/assets/a94/a094.pdf).

[2] Interagency Working Group on Social Cost of Carbon, United States Government, *Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866* (May 2013; revised November 2013) http://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/technical-update-social-cost-of-carbon-for-regulator-impact-analysis.pdf

a. **Example:** NPV in 2014 (for year 2020 benefits) = $5,200.00 / [(1.03)^6] = $4,354.92

iv. Add the sum of these yearly NPV SCC values to the calculated net present value of all other benefits (which will exclude carbon emissions).

a. **Example:** Add $4,354.92 to the non-Carbon net benefits (discounted at 7% and 3%) for year 2020 to get the total NPV benefits for year 2020.

The spreadsheet on the following page demonstrates what the methodology would look like for a sample multi-year analysis.

Table 2. Sample Calculation for Applying Social Cost of Carbon to TIGER Benefit-Cost Analysis

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
Year	**Calendar Year**	**Non-CO2 Benefits (2013$)**	**Non-CO2 Costs (2013$)**	**Net non-CO2 Benefits [C+D]**	**7% NPV Non-CO2 Benefits [E/(1.07^A)]**	**3% NPV Non-CO2 Benefits [E/(1.03^A)]**	**CO2 Reduced (Metric Tons)**	**3% SCC (2013$)**	**Undiscounted CO2 Costs @ 3% Avg SCC [H*I]**	**NPV CO2 Costs @ 3% Avg SCC [J/(1.03^A)]**	**7% NPV Total Benefits [F+K]**	**3% NPV Total Benefits [G+K]**
0	2014	$0	($5,000,000)	($5,000,000)	($5,000,000)	($5,000,000)	-25	$44.00	($1,100.00)	($1,100.00)	($5,001,100)	($5,001,100)
1	2015	$0	($1,500,000)	($1,500,000)	($1,401,869)	($1,456,311)	-25	$45.00	($1,125.00)	($1,092.23)	($1,402,961)	($1,457,403)
2	2016	$0	($1,500,000)	($1,500,000)	($1,310,158)	($1,413,894)	-25	$46.00	($1,150.00)	($1,083.99)	($1,311,242)	($1,414,978)
3	2017	$5,000,000	($150,000)	$4,850,000	$3,959,045	$4,438,437	100	$47.00	$4,700.00	$4,301.17	$3,963,346	$4,442,738
4	2018	$5,000,000	($150,000)	$4,850,000	$3,700,042	$4,309,162	100	$49.00	$4,900.00	$4,353.59	$3,704,396	$4,313,516
5	2019	$5,000,000	($150,000)	$4,850,000	$3,457,983	$4,183,653	100	$51.00	$5,100.00	$4,399.30	$3,462,382	$4,188,052
6	2020	$5,000,000	($150,000)	$4,850,000	$3,231,760	$4,061,799	100	$52.00	$5,200.00	$4,354.92	$3,236,115	$4,066,154
7	2021	$5,000,000	($150,000)	$4,850,000	$3,020,336	$3,943,494	100	$52.00	$5,200.00	$4,228.08	$3,024,564	$3,947,722
8	2022	$5,000,000	($150,000)	$4,850,000	$2,822,744	$3,828,635	100	$54.00	$5,400.00	$4,262.81	$2,827,007	$3,832,898
				TOTALS	**$12,479,882**	**$16,894,975**			$27,125.00	$22,623.64	$12,502,507	**$16,917,599**

2. Converting Nominal Dollars into Real (Constant) Dollars

In providing the recommended monetized values from Section I, this Guide provides numbers from their original source documents whenever possible. This means that the various values provided (and any other additional figures found in the general BCA literature) are monetized in several different years' dollars. However, establishing an "apples-to-apples" comparison of monetized benefits and costs requires a comparison of dollar values for a single base year. Conversion from nominal dollars into real (constant) dollars is a necessary task for Applicants. Two methods for conversion are discussed below.

GDP Price Deflators. In order to convert nominal dollars from one year to another, one can simply multiply by the ratio of annual GDP price deflators, as reported by the US Department of Commerce's Bureau of Economic Analysis.[3]

In order to convert Year Y dollars into Year Z dollars, conduct the following calculation:

(Year Z $) = (Year Y $) x [(Year Z GDP Price Deflator)/(Year Y GDP Price Deflator)]

i. **Example:** What is the 2013 real value of $1,000,000 earned in 2000 using annual GDP price deflators (2010=100)?

(2013 Real Value of $1,000,000) = ($1,000,000) x (105.315/80.911)
= $1,301,615.34

Consumer Price Index (CPI). Another similar method of converting dollars is to multiply by the ratio of annual average Consumer Price Indices (CPIs), as reported by the US Department of Labor's Bureau of Labor Statistics,[4] as in the following calculation:

(Year Z $) = (Year Y $) x [(Year Z CPI)/(Year Y CPI)]

ii. **Example:** What is the 2013 real value of $1,000,000 earned in 2000 using annual average urban CPIs?

(2013 Real Value of $1,000,000) = ($1,000,000) x (232.594/172.2)
= $1,350,720

It is worth noting that the CPI in the above example (and its corresponding hyperlink) is for urban areas only, and that BLS does provide CPI numbers for specific expenditure categories (see http://www.bls.gov/cpi/ for more comprehensive CPI data).

The differences between using the GDP price deflator and CPI are sufficiently small that either methodology is acceptable for the TIGER BCA. For the purposes of transparency, it would be useful for Applicants to note which method they used, if applicable.

[3] https://research.stlouisfed.org/fred2/series/USAGDPDEFAISMEI

[4] U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index – All Urban Consumers (CPI-U), U.S. City Average, All Items (http://www.bls.gov/cpi/cpid1401.pdf).

3. Converting Available Accident Data into AIS Data

As indicated by the information in Section I, this Guide recommends monetizing the value of injuries according to the maximum Abbreviated Injury Scale (AIS).[5] However, the Department does recognize that accident data that are available to Applicants may not be reported as AIS numbers. Law enforcement data may use the KABCO Scale, which is a measure of the observed severity of the victim's functional injury at the crash scene. In some cases, the Applicant may only have a single reported number of accidents on a particular project site, but have no injury and/or injury severity data for any of those accidents. With accidents reported in KABCO-scale or with unknown injury/severity information, it is necessary for the Applicant to convert the available data into AIS.

Table 3. Comparison of Injury Severity Scales (KABCO vs AIS vs Unknown)

Reported Accidents *(KABCO or # Accidents Reported)*		Reported Accidents *(AIS)*	
O	No injury	**0**	No injury
C	Possible Injury	**1**	Minor
B	Non-incapacitating	**2**	Moderate
A	Incapacitating	**3**	Serious
K	Killed	**4**	Severe
U	Injured (Severity Unknown)	**5**	Critical
# Accidents Reported	Unknown if Injured	**6**	Unsurvivable

The National Highway Traffic Safety Administration (NHTSA) provides a conversion matrix (Table 4) that allows KABCO-reported and generic accident data to be re-interpreted as AIS data. The premise of the matrix works in this way: it is understood that an injury observed and reported at the crash site may actually end up being more/less severe than the KABCO scale indicates. Similarly, any accident can – statistically speaking – generate a number of different injuries for the parties involved. Each column of the conversion matrix represents a probability distribution of the different AIS-level injuries that are statistically associated with a corresponding KABCO-scale injury or a generic accident.

[5] The maximum Abbreviated Injury Scale is also sometimes represented by the acronym "MAIS." For the purposes of this Guide, any reference to "MAIS" is equivalent to "AIS".

Table 4. KABCO/Unknown – AIS Data Conversion Matrix

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	O *No injury*	**C** *Possible Injury*	**B** *Non-incapacitating*	**A** *Incapacitating*	**K** *Killed*	**U** *Injured Severity Unknown*	**# Non-fatal Accidents** *Unknown if Injured*
AIS 0	0.92534	0.23437	0.08347	0.03437	0.00000	0.21538	0.43676
1	0.07257	0.68946	0.76843	0.55449	0.00000	0.62728	0.41739
2	0.00198	0.06391	0.10898	0.20908	0.00000	0.10400	0.08872
3	0.00008	0.01071	0.03191	0.14437	0.00000	0.03858	0.04817
4	0.00000	0.00142	0.00620	0.03986	0.00000	0.00442	0.00617
5	0.00003	0.00013	0.00101	0.01783	0.00000	0.01034	0.00279
Fatality	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000
Sum(Prob)	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***	***1.00***

Source: National Highway Traffic Safety Administration, July 2011.

For example, if an injury is recorded as "O" on the KABCO scale at the crash site, there is about a 92.5% probability that it is indeed a "No injury" (AIS 0). But there is a 7.26% chance that it is a Minor injury (AIS 1), a 0.198% chance that it may turn out to be a Moderate injury (AIS 2), a small 0.008 chance that it is a Serious injury (AIS 3), and an even smaller 0.003% chance that it is actually a Critical injury (AIS 5). Recalling the Value of Injuries from Table 1, this would mean that one "O" reported injury is valued at about $3,100 ($2013) and interpreted as a willingness-to-pay to avoid the accident. This value results from multiplying the "O" accident's associated AIS-level probabilities by the recommended unit Value of Injuries, and then summing the products.

Table 5. KABCO– AIS Data Conversion for KABCO "O" Accident

AIS 0	0.92534	$ -	$ -
AIS 1	0.07257	$ 27,600	$ 2,002.93
AIS 2	0.00198	$ 432,400	$ 856.15
AIS 3	0.00008	$ 966,000	$ 77.28
AIS 4	0.00000	$ 2,447,200	$ -
AIS 5	0.00003	$ 5,455,600	$ 163.67
AIS 6	0.00000	$ 9,200,000	$ -
		TOTAL	**$ 3,100.03**

Tables 6 and 7 provide sample calculations for the monetization ($2013) of fatalities and injuries from accidents. By converting KABCO data into AIS and then monetizing according to the recommended values, the Applicant represented in Table 6 may be providing a baseline value of fatalities and injuries caused by 27 accidents reported in the most recent calendar year.[6] The same Applicant may have calculated the values in Table 7 to estimate their benefits of their project, which they anticipate may reduce accident rates (by at least one fatal accident and 5 non-fatal accidents per year).

[6] Accident data may not be presented on an annual basis when it is provided to Applicants (i.e. an available report requested in Fall 2011 may record total accidents from 2005-2010). For the purposes of the BCA, is important to annualize data when possible.

Table 6. Sample Calculation for Monetizing Value ($2013) of 27 Reported KABCO-scaled Accidents (O=15, C-=5, B=5, A=3, K=2, U=2)

(1)	(2)		(3)		(4)		(5)		(6)		(7)	
	O *No injury*		**C** *Possible Injury*		**B** *Non-incapacitating*		**A** *Incapacitating*		**K** *Killed*		**U** *Injured Severity Unknown*	
Accident Counts	**15**	**$ Value** [Pr(AIS_x)*Value(AIS_x)]	**5**	**$ Value** [Pr(AIS_x)*Value(AIS_x)]	**5**	**$ Value** [Pr(AIS_x)*Value(AIS_x)]	**3**	**$ Value** [Pr(AIS_x)*Value(AIS_x)]	**2**	**$ Value** [Pr(AIS_x)*Value(AIS_x)]	**2**	**$ Value** [Pr(AIS_x)*Value(AIS_x)]
AIS 0	13.88010	$ -	1.17185	$ -	0.41735	$ -	0.10311	$ -	0.00000	$ -	0.43076	$ -
1	1.08855	$ 30,043.98	3.44730	$ 95,145.48	3.84215	$ 106,043.34	1.66347	45,911.77	0.00000	$ -	1.25456	$ 34,625.86
2	0.02970	$ 12,842.28	0.31955	$ 138,173.42	0.54490	$ 235,614.76	0.62724	$ 271,218.58	0.00000	$ -	0.20800	$ 89,939.20
3	0.00120	$ 1,159.20	0.05355	$ 51,729.30	0.15955	$ 154,125.30	0.43311	$ 418,384.26	0.00000	$ -	0.07716	$ 74,536.56
4	0.00000	$ -	0.00710	$ 17,375.12	0.03100	$ 75,863.20	0.11958	$ 292,563.64	0.00000	$ -	0.00884	$ 21,633.24
5	0.00045	$ 2,455.02	0.00065	$ 3,546.14	0.00505	$ 27,550.78	0.05349	$ 291,820.04	0.00000	$ -	0.02068	$ 112,821.81
Fatality	0.00000	$ -	0.00000	$ -	0.00000	$ -	0.00000	$ -	2.00000	$ 18,400,000.00	0.00000	$ -
SUBTOTALS	**15.00**	**$ 46,500.48**	**5.00**	**$ 305,969.46**	**5.00**	**$ 599,197.38**	**3.00**	**$ 1,319,898.29**	**2.00**	**$ 18,400,000.00**	**2.00**	**$ 333,556.67**

TOTAL VALUE OF FATALITIES & INJURIES	**$ 21,005,122.28**

Table 7. Sample Calculation for Monetizing ($2013) Accident Reduction (1 Fatal Accident, 5 Non-fatal Accidents)

Accident Counts	**1**	**$ Value** Fatalities * VSL	**5**	**$ Value** [Pr(AIS_x)*Value(AIS_x)]
AIS 0	0.00000	$ -	2.18380	$ -
1	0.00000	$ -	2.08695	$ 57,599.82
2	0.00000	$ -	0.44360	$ 191,812.64
3	0.00000	$ -	0.24085	$ 232,661.10
4	0.00000	$ -	0.03085	$ 75,496.12
5	0.00000	$ -	0.01395	$ 76,105.62
Fatality	1.00000	$ 9,200,000.00	0.00000	$ -
SUBTOTALS	**1.00**	**$ 9,200,000.00**	**5.00**	**$ 633,675.30**

TOTAL VALUE OF FATALITIES & INJURIES	**$ 9,833,675.30**