Figure 58. Sample Benefit-to-Cost Analysis Worksheet

Evaluation No.: _____ Project No.: _____ Date: _____

Evaluator: _____

1. Initial implementation cost, I: $_____ 100,000_
2. Annual operating and maintenance costs
   before project implementation: $_____ 100_
3. Annual operating and maintenance costs
   after project implementation: $_____ 1,000_
4. Net annual operating and maintenance
   costs, K (#3 - #2): $_____ 900_
5. Annual safety benefits in number of accidents prevented:

Severity	Actual	–	Expected	=	Annual Benefit
a) Fatal accidents (fatalities)	0	–	0	=	0
b) Injury accidents (injuries)	4	–	2	=	2
c) PDO accidents (involvements)	5	–	3	=	2

6. Accident cost values (Source Department)

Severity	Cost
a) Fatal accident (fatality)	$ 500,000
b) Injury accident (injury)	$ 50,000
c) PDO accident (involvement)	$ 2,000

7. Annual safety benefits in dollars saved, B:
   - (5a) x (6a) = 500,000 x 0 = 0
   - (5b) x (6b) = 50,000 x 2 = 100,000
   - (5c) x (6c) = 2,000 x 2 = 4,000
   - Total = $104,000

8. Service life, n: 20 yrs   10. Interest rate: 10% = .10
9. Salvage value, T: $5,000 (Annual compounding interest)
11. EUAC Calculation:
    Capital recovery factor, CR = 0.1175
    Sinking fund factor, SF = 0.0175
    EUAC = I (CR) + K - T (SF)
    = 100,000 (0.1175) + 900 - 5,000 (0.0175) = 12,562
12. EUAB Calculation: EUAB = B = 104,000
13. B/C = EUAB/EUAC = 104,000 / 12,562 = 8.3
14. PWOC Calcuation:
    Present worth factor, PW = 8.5136
    Single payment present worth factor, SPW = 0.1486
    PWOC = I + K (SPW) - T (PW)
    = 100,000 + 900 (8.5136) - 5,000 (0.1486) = 106,919
15. PWOB Calculation:
    PWOB = B (SPW) = 104,000 (8.5136) = 885,414
16. B/C = PWOB/PWOC = 885,414 / 106,919 = 8.3