**BCA List of References**

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FEMA, 2009. BCA Reference Guide. Sub-reference: HAZUS-MH MR3 Flood Technical Manual, Table 14.10.

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U.S. Department of Transportation, 2022. Benefit-Cost Analysis Guidance for Discretionary Grant Programs, March 2022 (Revised).

| **BCA Tables and calculations:** | **Resource:**  |
| --- | --- |
| Table A-1: Value of Reduced Fatalities and Injuries | Traffic Impact Study and Access Modification Justification (Pages 70-87) (Page 83)**Fatality: 4 (1.33 por año)****Injured: 119 (66.33 per year)**These numbers are for 3 years. |
| Table A-2: Property Damage Only (PDO) Crashes | Traffic Impact Study and Access Modification Justification (Page 83)**423 Property Damage** **$4,600 x 423 PD = $1,945,800** |
| Table A-3: Value of Travel Time Savings | Source: DOT Benefit Cost Analysis Guidance for Discretionary Grant Programs of March 2022, Traffic Study AC-200241, PPA Calculations |
| Table A-4: Average Vehicle Occupancy Rates for Highway Passenger Vehicles | Traffic Impact Study and Access Modification Justification (pages 20-37) |
| Table A-5: Vehicle Operating Costs | Average Annual Cost for Road Maintenance by Operational Maintenance Level[R9RoadMaintanceAnnualCost.xlsm (usda.gov)](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd528063.pdf) |
| Table A-6: Damage Costs for Emissions per Metric Ton | Categorical ExclusionAppendix A: (Carbon Monoxide Emissions Screening) [https://panzardi.sharepoint.com/:b:/s/BCAPROJECTS/EVPTl12-Z-FGld5sCErc7BEB6314jx0cTic\_HJMskTFOPg?e=gGW3GK](https://panzardi.sharepoint.com/%3Ab%3A/s/BCAPROJECTS/EVPTl12-Z-FGld5sCErc7BEB6314jx0cTic_HJMskTFOPg?e=gGW3GK) |
| Table A-7: Inflation Adjustment values | U.S. Department of Transportation, 2022. Benefit-Cost Analysis Guidance for Discretionary Grant Programs, March 2022 (Revised). |
| Table A-8: Pedestrian Facility Improvements Revealed Preference Values | Categorical Exclusion(Page 13-17) [https://panzardi.sharepoint.com/:b:/s/BCAPROJECTS/EVZQl9BUgFtJgjR2RMzwTC0Bj-dMbiMlXqEoE1mwiIW05Q?e=thrDn4](https://panzardi.sharepoint.com/%3Ab%3A/s/BCAPROJECTS/EVZQl9BUgFtJgjR2RMzwTC0Bj-dMbiMlXqEoE1mwiIW05Q?e=thrDn4)Presentation: [https://panzardi.sharepoint.com/:b:/s/BCAPROJECTS/ERkphZJUUfVGtWhwiHprQZIBGY7sX8xOnJXyTaGfmFhcFg?e=o981Si](https://panzardi.sharepoint.com/%3Ab%3A/s/BCAPROJECTS/ERkphZJUUfVGtWhwiHprQZIBGY7sX8xOnJXyTaGfmFhcFg?e=o981Si) |
| Table A-9: Cycling Facility Improvement Revealed Preference Values | Categorical ExclusionPages 15-17 |
| Table A-10: Transit Facility Amenity Revealed and Stated Preference Values | Traffic Study, JABA |
| Table A-11: Transit Vehicle Amenity Values | Traffic Study, JABA**Puerto Rico Highway and Transportation Authority, CMF Clearinghouse** |
| Table A-12: Mortality reduction Benefits of Induced Active Transportation Values | Traffic Study, JABA |
| Table A-13: External Highway Use Costs: Noise and Congestion Values | Traffic Study, JABA;Noise Study, JABA |
|   |  |
| **Calculations:** |  |
| Inflation Adjustment Calculation | See Excel Tables in BCA Report  |
| Discounting Calculation | See Excel Tables in BCA Report  |
| Calculation of Benefits to Existing and Additional Users | See Excel Tables in BCA Report  |
| Value of Time Savings Calculation | See Excel Tables in BCA Report  |
| Crash Modification Factor Calculation | See Excel Tables in BCA Report  |
| Safety Benefits Calculation | See Excel Tables in BCA Report  |
| Emissions Benefits Calculation | See Excel Tables in BCA Report  |
| Pedestrian Journey Quality Valuation Calculation | See Excel Tables in BCA Report  |
| Reduced Crowding Calculation | See Excel Tables in BCA Report  |
| Residual Value Calculation | See Excel Tables in BCA Report  |
| Cycling Journey Quality Valuation Calculation | See Excel Tables in BCA Report  |
| Active Transportation Mortality Reduction Benefit Calculation | See Excel Tables in BCA Report  |



**BCA TABLE**



**BCA TABLE**



**RESOURCE**

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Traffic Impact Study and Access Modification Justification



**BCA TABLE**



**BCA TABLE**