As described in the United States Department of Transportation’s Benefit-Cost Analysis Guidance for Discretionary Grant Programs (Dec. 2018, p. 6), a blend of “localized data with national estimates or industry standards to complete a more robust analysis” can be applied. The default parameters for the 2019 INFRA Cal-B/C tool are a blend of California and national values assessed at a 2017 base year.

Users should revise default parameters if more applicable values exist for a project being assessed. Revisions can be made within the “Parameters” tab of the Excel workbook by entering a new value into the individual cell. In addition, assumptions identified in the “Project Information” tab (red or blue cells) can be adjusted based for a specific project, e.g., average vehicle occupancy, percent truck, roadway type, etc. The table below is a comparison of California and national values—assumed 2019 INFRA Cal-B/C values are highlighted in yellow.

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters** | **Cal-B/C Values** | **Fed. Values** | **Notes** |
| **Current Dollar Value applied in tool** | 2017 | 2017 | All assumed Cal-B/C parameters are adjusted for 2017 dollars. Assumed Cal-B/C values in the model have been escalated to 2017 dollars, as recommended in the guidance.  |
| **Real Discount Rate** | 4.00% |  7.00% |  A sensitivity analysis of 3% is no longer required. |
| **Average Vehicle Occupancy** |   | 1.68 | Cal-B/C factors in peak and non-peak average vehicle occupancy, whereas the federal guidance uses a single AVO figure. Thus, the default values apply to California statewide average.  |
| Non-peak – 1.3Peak – 1.15 |
| **Period of analysis** | Construction, plus 20 years after completion. | Construction, plus 20 years after completion in most situations. | Federal guidance suggests applying no more than 30 years for analytical purposes after project completion. |
|
|
|
|
|

|  |
| --- |
| ***Travel Time Parameter*s** |
| **Statewide Average Hourly Wage** ($/hr.) | $27.50  |   |  California values extracted from BLS data. |
| **Heavy and Light Truck Drivers Average Hourly Wage** ($/hr.)  | $20.50  |   |  California values extracted from BLS data.  |
| **Heavy and Light Truck Drivers Benefits and Costs** ($/hr.)  | $10.69  |   |  California values extracted from BLS data.  |
| **Automobile/Personal** ($/hr./per) | $13.75  | $14.80  | For calculation methodology, see Cal-B/C tech doc. (Volume 4), pp. II-37 to II-38. |
|   |
| [Link: http://www.dot.ca.gov/hq/tpp/offices/eab/benefit\_cost/files/Cal-BCTechSupplementVol4v4.pdf](http://www.dot.ca.gov/hq/tpp/offices/eab/benefit_cost/files/Cal-BCTechSupplementVol4v4.pdf)  |
| **Truck/Business** ($/hr./veh.) | $31.20  | $26.50  | For calculation methodology, see Cal-B/C tech doc. (Volume 4), pp. II-37 to II-38. |
| [Link: http://www.dot.ca.gov/hq/tpp/offices/eab/benefit\_cost/files/Cal-BCTechSupplementVol4v4.pdf](http://www.dot.ca.gov/hq/tpp/offices/eab/benefit_cost/files/Cal-BCTechSupplementVol4v4.pdf)  |
| **Auto & Truck Composite/All Purpose** ($/hr./veh) | $19.05  | $14.80  | Federal weighted average based on a typical distribution of local travel by surface modes (95.4% personal, 4.6% truck). California assumes a different distribution (91% personal, 9% truck). Applicants should apply their own distribution of business versus personal travel if available. |
| **Transit/Transit Rail Operators** ($/hr./per) | $13.75 (passenger)  | $14.80 (local personal travel) | Cal-B/C only values “transit” per passenger. Federal guidance states, for wait times, the value should be doubled. Values for personal travel based on local travel values and intercity personal travel are described in US DOT’s Value of Travel Time guidance. A valuation of the “transit operator” is also not a factor in the Cal-B/C model.  |
|  |
| $20.70 (intercity personal travel) |
| $48.90 (transit rail operator) |
| ***Average Fuel Price*** |
| **Automobile (regular unleaded)** ($/gal) | $3.08  |   | Fuel prices for gasoline and diesel were extracted the US Energy Information Administration's 2017 Petroleum and Other Liquids annual report. |
| For calculation methodology, see Cal-B/C tech doc. (Volume 4), pp. II-37 to II-38. pp. II-37 to II-46. |
|   |
| [Link: http://www.dot.ca.gov/hq/tpp/offices/eab/benefit\_cost/files/Cal-BCTechSupplementVol4v4.pdf](http://www.dot.ca.gov/hq/tpp/offices/eab/benefit_cost/files/Cal-BCTechSupplementVol4v4.pdf)  |
| **Truck (diesel)** ($/gal.) | $3.067  |   | Fuel prices for gasoline and diesel were extracted the US Energy Information Administration's 2017 Petroleum and Other Liquids annual report. |
|   |
| [Link: http://www.dot.ca.gov/hq/tpp/offices/eab/benefit\_cost/files/Cal-BCTechSupplementVol4v4.pdf](http://www.dot.ca.gov/hq/tpp/offices/eab/benefit_cost/files/Cal-BCTechSupplementVol4v4.pdf)  |
| **State Sales Tax (gasoline)**  | 2.25% |   | Value is applicable to California.  |
| **State Sales Tax (diesel)** | 13.00% |   | Value is applicable to California.  |
| **Average Local Sales Tax** | 0.50% |   | Value is applicable to California.  |
| **Federal Fuel Excise Tax (gasoline)** ($/gal.) | $0.184  |   |   |
| **Federal Fuel Excise Tax (diesel)** ($/gal.) | $0.244  |   |   |
| **State Fuel Excise Tax (gasoline)** ($/gal.) | $0.417  |   | Value is applicable to California.  |
| **State Fuel Excise Tax (diesel)** ($/gal.) | $0.36  |   | Value is applicable to California.  |
| ***Non-Fuel Cost Per Mile*** |
| **Automobile**  | $0.319  |   | Federal guidance does not provide an estimate. Non-fuel costs are based on 2016 Cal-B/C estimate and escalated to 2017 using OMB Table 10.1 GDP. Cal-B/C auto value assessed at 3.13 cents (2016) and base value for truck is ATRI (2014) value. |
| **Truck/Light Duty Vehicles** | $0.437  | $0.39  | Cal-B/C breaks out fuel and non-fuel costs. US DOT Guidance factors in fuel costs when estimating vehicle operation costs. Truck was escalated using 2017 divided by 2014 indices, as the base year in the model was 2016. |
| **Commercial Trucks** |   | $0.90  | Cal-B/C breaks out fuel and non-fuel costs for commercial trucks. US DOT Guidance factors in fuel costs, repair, insurance, permits, license, etc. |

|  |
| --- |
| ***Accident Cost Parameters*** |
| **Cost of Fatality/Killed** | $9.8M | $9.6M | Accident costs are based on reported federal benefit-cost guidance rate for 2017. The assumed rate in the 2016 Cal-B/C model differs.  |
|   |
|  |
| **Level A (Severe)/Incapacitating** | $467,000  | $459,100  | Accident costs are based on reported federal benefit-cost guidance rate for 2017. The assumed rate in the 2016 Cal-B/C model differs.  |
|   |
|  |
| **Level B (Moderate)/Non-incapacitating** | $127,100  | $125,000  | Accident costs are based on reported federal benefit-cost guidance rate for 2017. The assumed rate in the 2016 Cal-B/C model differs.  |
|   |
|  |
| **Level (Minor)/Possible Injury** | $65,000  | $63,900  | Accident costs are based on reported federal benefit-cost guidance rate for 2017. The assumed rate in the 2016 Cal-B/C model differs.  |
|   |
|  |
| **Cost of Property Damage (PDO)** |  $4,374 |  $4,300 | Accident costs are based on reported federal benefit-cost guidance rate for 2017. The assumed rate in the 2016 Cal-B/C model differs.  |
|
|
|
| ***Pollutant Emissions*** |
| **CO** | $75 - $160  |  $0 | Cal-B/C estimates are based on 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)”. Values are inflated from 2010 dollars to 2016 dollars using the GDP deflator. Cal-B/C rates vary depending on project location. Cal-B/C calculation methodology can be viewed in its tech. doc. vol. 4, pp. II-51 to II-61. Cal-B/C value differs based on geographic three regional categories within California.Link: http://www.dot.ca.gov/hq/tpp/offices/eab/benefit\_cost/files/Cal-BCTechSupplementVol4v4.pdf  |
|   |
| No value identified in the federal guidance document; therefore, no value assessed. |
| **CO2** | $38  | $0.91 | USDOT recommends using a monetary value of $1 per metric ton (2017) for the social cost of carbon based on the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026* report. However, Cal-B/C’s CO**2** unit of measurement is in short ton. Thus, the conversion value is $1 per metric divided by 1.1023 short ton equals $0.91.  |
| **NOX** | $13,900 – $63,900 | $8,300  | Cal-B/C value differs based on geographic three regional categories within California.Applied federal rate but rounded to nearest hundreds and escalated to 2017.  |
| **PM10** | $107,700 –$523,300  | $377,800  | Cal-B/C value differs based on geographic three regional categories within California.Applied federal rate but rounded to nearest hundreds and escalated to 2017.  |
| **SO2** | $54,400 – $196,600 | $48,900  | Cal-B/C value differs based on geographic three regional categories within California.Applied federal rate but rounded to nearest hundreds and escalated to 2017.  |
| **VOC** | $1,025 – $3,970 | $2,000  | Cal-B/C value differs based on geographic three regional categories within California.Applied federal rate but rounded to nearest hundreds and escalated to 2017.  |