



Transportation Infrastructure Impacts Calculator

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A tool that will aid in the evaluation of a proposed transportation project





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TOOL CAPABILITIES

process data concerning travel time, vehicle operating costs, environmental effects, accidents statistics, and vehicular flow

model economic intersectoral effects of changes in the transport sector

process and facilitate the comparison of different factors using monetary units

summarize the overall impacts of proposed transportation infrastructure projects



ASSUMPTIONS, SCOPE, and LIMITATIONS



All computations shall be done in 2020 prices

Co-benefits approach will be limited to the calculation of savings in travel time, vehicle operating cost, and environmental costs



The 2012 Input-Output Accounts of the Philippines shall be used in the development of the I/O model component of the tool.





Compare Results and Apply IGES Co-Benefit Methodology

- Travel Time Savings
- Vehicle Operation Cost Reduction
- Reduced Emission

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Evaluating Proposed Transportation Infrastructure Projects in Metro Manila Using the Transport Co-Benefit Analysis

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Benefit of travel time saving

Travel time cost per year

$$BT = BT_0 - BT_W$$

$$BT_{i} = \sum_{j} \sum_{l} (Q_{i,j,l} * T_{l} * \alpha_{j}) * 365$$

where

 BT_i is the total travel time cost per year, $Q_{i,j,l}$ is the traffic volume for j vehicle type on link l, T_l is the average travel time on link l, and α_j is the value of time for j vehicle type.



Benefit of travel operating cost reduction $BR = BR_0 - BR_W$

Travel operating cost per year

$$BR_{i} = \sum_{j} \sum_{l} (Q_{i,j,l} * L_{l} * \beta_{j}) * 365$$

where

 BR_i is the total travel operating cost per year, $Q_{i,j,l}$ is the traffic volume for j vehicle type on link l, L_l is the length of link l, and β_j is the value of operating cost for j vehicle type







Benefit of travel emission cost reduction

on $BE = BE_0 - BE_W$

Travel emission cost per year

$$BE_{i} = \sum_{i} \sum_{j} Q_{i,j,l} * L_{l} * EF_{j,p,v} * C_{p} * 365$$

where

 BE_i is the total travel emission cost per year, $Q_{i,j,l}$ is the traffic volume for *j* vehicle type on link *l*, L_l is the length of link *l*,

 $EF_{j,p,v}$ is the emission factor for mode j, pollutant p, and travel speed y, and C_p is the marginal cost of pollutant p





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THANKS!





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