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## IMPACT ASSESSMENT OF TRANSPORTATION PROJECTS

The purpose of this section is to present a step-by-step example of how to use the methods introduced in this book to assess the impact of a transport infrastructure project on urban accessibility conditions using R.

Although accessibility analyses have been frequently used in scientific literature for more than two decades, only recently transport agencies and decision makers have begun to pay more attention to urban accessibility issues in their daily planning and operation of transport systems (Papa et al., 2015; Boisjoly and El-Geneidy, 2017). Much of this is due to the difficulty of incorporating accessibility analyses to project evaluation methodologies and to planning activities (Silva et al., 2017; Büttner, 2021).

In this section, we use a subway expansion project in Fortaleza (Brazil) as a case study to illustrate how to use the methods and R packages presented in the previous chapters to assess the accessibility impacts of transport projects. Chapter 6 presents a method to evaluate the effects of transportation investments not only on the average accessibility levels of the population, but also on the geographic and socioeconomic distribution of these impacts, which ultimately affect accessibility disparities. Applying the method involves using and manipulating different GTFS files, calculating travel time matrices, making decisions such as which accessibility measure to use, estimating accessibility levels, creating spatial visualizations of these estimates and calculating and analyzing inequality indicators. Therefore, this case study covers several topics discussed in the book and serves as a practical example of the concepts presented thus far.

It is important to mention that the evaluation of transportation projects, investments and policies should ideally encompass many different criteria. These criteria range from the degree of social participation in the policy development and decision-making process to their environmental, economic and social impacts. While assessing accessibility impacts is very important to identify the potential benefits of an intervention and to evaluate the performance of a transport network, it offers only a limited perspective of the effects of a given policy. Accessibility impact assessments should, therefore, complement and be accompanied by other analyses that investigate other potential impacts of transportation projects.

