

A LUTI application to analyze effects and impacts of a Low-Traffic Zone for the urban agglomeration of Grenoble

The Tranus Land Use and Transport Model for the Urban Area of Grenoble (TRUG) was instituted as part of the CITIES¹ research project, in collaboration with the Urban Planning Agency of the Grenoble Region (AURG). The aim is to test the operational potential of land use and transport integrated models (LUTI) and to provide the Grenoble Region Planning Agency (AURG) with a decision support tool. Tranus is a spatial input/output aggregate model, based on equilibrium between supply and demand (of transport, real estate, land use) and with production probabilistically distributed in the study area. The TRUG model aims to simulate and test the evolution of households' residential location choices, as a consequence of the application of the urban development and transport policies included in the Territorial Coherence Scheme of the Grenoble Urban Region (SCOTRUG). SCOTRUG's strategy is essentially to reduce urban sprawl in rural areas by increasing the attractiveness and supply of residential housing in major urban areas. The limits of new residential urbanization set by SCOTRUG are reproduced in the model, simulating the consumption of residential surfaces according to accessibility by zone, general transport costs, housing prices and economic attractiveness. The TRUG model was also used in the framework of the MOBILAIR² research project. The general objective of this application is to estimate through a chain of models, which includes models of emissions and concentration of pollutants, the health impacts due to air pollution, following the introduction of a Low-Traffic Zone (LTZ) for private vehicles in the urban agglomeration of Grenoble. Two possible LTZ configurations have been implemented and tested, which consider, in addition to the interventions envisaged in the SCOTRUG, respectively a strong or a weak success of a LTZ (in function of two different renew scenarios for the private car fleet, between polluting and non-polluting vehicles). In this work will be illustrated the results of simulations relating to both LTZ configurations scenarios in the urban agglomeration of Grenoble, in terms of evolution in traffic and transport demand, effects on the consumption of residential areas and on distribution of households and jobs in the study area. These results allow us to feed the debate on the meaning of an implementation of a LTZ for the urban agglomeration of Grenoble and to reflect on what impact could occur on the functioning of the urban system and on the report of balance between center and periphery.

¹ Cities : Calibrage et validation de modèles Transport – usagE des Sols ; financé par l'Agence nationale de la recherche – ANR (www.agence-nationale-recherche.fr/?Projet=ANR-12-MONU-0020).

² MOBIL'AIR : Mobility and improvement of air quality (<https://mobilair.univ-grenoble-alpes.fr/>)