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**A methodology for measuring the relationships between land use and population growth to evaluate future land use and transport plans**

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A key goal within urban and regional area planning is to ensure that the proposed land use strategies will contribute to achieve overall goals on CO2 reductions. However, to which extend these plans are implemented in models that estimate the transport demand varies. In fact, very few Metropolitan Planning agencies attempt to capture the effects of land use strategies on transport demand on vice versa. A reason is argued to be that including land use strategies in transport demand modelling is costly, data intensive and complex.

In a Norwegian context one of the major challenges is that the current transportation models do not contain linkages between land-use and transportation. Rather, the methodology for estimating the future population, consist of extrapolating the population using the historical population growth within the regions. This approach, while being easy to implement, provide an inadequate foundation for the analysis as the expected population in the future does not contain the effects of locally or regionally decided land use strategies. This paper addresses these concerns by developing a methodology that enables the transport models to contain the effects from local and regional land use plans or strategies, as well as the relationships between accessibility, travel-costs and population growth without changing the overall programming of the transport model. The paper furthermore propose a methodology for quantifying land use strategies, and thereby identifying the areas in which the current and/or planned land usage restrict or redistribute further growth. An aspect largely overlooked in the current land use transport-interaction literature.

Based on the experiences from quantifying the local area plans in three major urban regions in Norway, the paper will describe the dominant factors that local areal-plans play in determining the population development, and discuss how traditional transportation models can be transformed into containing land use transport interaction capabilities without a need for reprograming. Our results suggest that land use strategies play a key in determining future transport demand and that following the standard methodology can give biased estimates.