

**NEW TRANSPORTATION LINKS AND URBAN AIR QUALITY: THE RED
HILL CREEK EXPRESSWAY, HAMILTON, ONTARIO**

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ABSTRACT

In most countries, municipal or regional infrastructure projects require an environmental impact assessment. Adding a link to an urban transportation network can have unanticipated environmental consequences. In this paper we demonstrate that in such cases the impact on car emissions can be obtained with the help of integrated transportation and land-use models. We make use of such a model, called IMULATE, and we assess the emissions impact of an expressway that is planned to pass through the Red Hill Creek valley in the city of Hamilton, Canada. The focus is on traffic from passenger cars in the morning peak period. We estimate emissions on a link-by-link basis for several scenaria that span the time period between 1991 and 2021. We demonstrate that the environmentally sensitive Red Hill Creek valley will be receiving considerable amounts of hydrocarbons (HC), carbon monoxides (CO) and nitrogen oxides (NO_x). Also, traffic on nearby links will increase considerably.