

EXECUTIVE SUMMARY

Urban sprawl. This concept has become so ubiquitous in the lexicon of professional planning that it has created entire volumes of research dedicated to its discussion. Beginning with the post-war construction boom in North America, there is little doubt that urban sprawl has changed the face of our cities and how we live. While this mass-produced version of modern life has helped facilitate years of economic growth in the construction and automotive industries, it has also created a whole host of new problems affecting the natural environment and human health.

A significant challenge faced by the professional planning community is how to effectively mitigate or even reverse the negative effects of urban sprawl. Fortunately, new technologies have emerged demonstrating that remedial measures along this mass scale are indeed possible. Photovoltaic generation technologies are one such technology that could be merged with existing built forms commonly associated with urban sprawl to help offset negative effects. To delve further into the topic of ‘retrofitting suburbia’ using photovoltaic generation technologies, this report uses the city of Kingston, Ontario as the setting in which to attempt to answer the following research questions:

RESEARCH QUESTION 1 - To what extent can deployment of PV technologies satisfy the electricity demands of residential neighbourhoods given existing built forms and their physical layout?

RESEARCH QUESTION 2 - How do built-form typologies and urban residential density impact on the viability of deploying PV technologies in residential areas?