# METHODOLOGY

Methodologically, we combine a geographical information systems approach with a questionnaire survey and analysis of census data. The key steps in the project include database development; data integration and analysis; and dissemination. Consistent with the objectives listed above, the research will be accomplished in five stages.

1. Demographic data will be obtained from the 2001 Canadian Census to create demand side database(s) that allow us to identify spatial concentrations of immigrants, seniors, and low-income groups and the socioeconomic characteristics of the areas within which they live. Spatial analysis techniques will be used to calculate segregation measures such as location quotients and isolation index to identify concentrations or dispersions of each vulnerable population at the census tract level, the census territorial unit closest to a neighbourhood definition. The socioeconomic character of census tracts where each vulnerable population is concentrated will be compared with those tracts without vulnerable populations. Entropy statistics will also be used to characterize the diversity within each census tract.

2. A survey of the three vulnerable populations will be completed to ascertain their awareness, use, and satisfaction with various human services in York Region. The survey data will enable us to assess the validity of the estimated demand from the census information. It will indicate which services are salient for each group, whether there is a perceived need for each service, and levels of use. The survey will be conducted through York University's Institute of Social Research, Canada's foremost academic survey centre (See attached quote).

3. We will build a geo-referenced supply-side relational database of human services relevant to the provision of educational services for children and adults, housing services, settlement services, and services to promote employment and small business development. The database will contain locational and service information for each service provider. York Link, an electronic directory in York Region, will be used as a base source of information, supplemented by mailing lists used by York Regions' HSPC. Citizenship and Immigration Canada – Ontario Office, one of our partners, will provide information on their settlement programs. We will describe the types of services and their frequency at each location, and document for each its service capacity. Buffering and other techniques will allow us to estimate the catchment areas of York Region's human service providers as well as how accessible they are to the region's vulnerable populations.

4. We will use GIS to integrate the supply and demand databases. Various spatial analytic tools entailing the region's public transit information system will be used to calculate for each of the vulnerable populations their access to each service. Access will be evaluated by a variety of measures including average distance, average travel time by public transit, percentage of the population within specified

distances and travel times of a facility or service, and number of service providers available within specified distances and travel times of a census tract (Lo and Wang 2005, Smoyer-Tomic et al. 2004). Since the mobility constraints for each vulnerable population are different, we will compare the utility of the various measures of access across services and across populations.

5. The factors that influence access to human services for each vulnerable group will be evaluated. Using regression analysis, we will examine how various social and economic characteristics of each group affect their access to each service. Interpretation of the regression analysis will draw on the information about satisfaction with services collected in the questionnaire survey.

The data required for this project will come from several sources. Most of the necessary census data (including boundary files and street network files) are available through the Data Liberation Initiative. Specialized crosstabulations about immigrants are available through CERIS, the Toronto Joint Centre of Excellence for Research on Immigration and Settlement. Additional crosstabulations for low-income households and seniors will be purchased from Statistics Canada. York Region Planning and Development Services will also contribute special geospatial data, describing transportation infrastructure (roads, and transit), administrative boundaries, and locations of some service facilities. The research team will commission ISR for a survey.