Understanding the Economic Impacts of Investments in Affordable Housing

Framework Research

CANADIAN CENTRE FOR ECONOMIC ANALYSIS

Introduction

In addition to a literature review, CANCEA has been tasked with creating a framework for the studying, measurement, and verification of potential economic and social impacts of investment in affordable housing in Canada. This framework, which provides information on the units, methodology, data, and description of the impacts is provided below.

The purpose of this framework is the verification of expected outcomes for projects, with the studying and measuring focused on evaluating different project options. For example, when studying the impact of investment in housing for the disabled (the "study"), one would expect big healthcare opportunity gains (the "measure"). It is important to note that this framework is not about evaluating how a project performs.

Initial Data

Prior to any verification, study, and measurement of investment in affordable housing, it is necessary to have certain initial data available (or collected) in order to acquire inputs for the analysis. This data generates the baseline scenario, from which the impacts of investment in affordable housing can be compared to. Everything in the framework below is relative to this baseline and the indicators and units are relative to this baseline (i.e., can be thought of a "change in" the indicator).

In order to best capture the impact of investment in affordable housing, the following initial data should be collected:

- Investment, operations, and other services:
  - *Investment by building, amenity type*: the initial investment in affordable housing that should be broken down by the sector where the investment would be going and by the source of the investment (i.e., municipal funding, provincial funding, federal funding, not-for-profit funding, etc…). Such data should be available at an annual average by source and by region;
  - *Spending and operational costs by service type:* the ongoing maintenance of the asset over time which has impacts through the ongoing operation. Similar to above, such data should be provided by sector and by source or region and be in terms of annual averages; and
  - *Income from assets and operation*: affordable housing tenants would be paying rent which would generate rental income, albeit based on different rental regimes.
- Land use data: It is important to take into consideration the land use opportunity costs of investment in affordable housing. From a systems perspective, there is a difference between creating new affordable housing by demolishing old affordable housing units and rebuilding or building new units on land that is vacant or used by residents of the region that will require purchasing and redevelopment;
- Demographics of the affected population broken down by age, sex, household, and cohort population average facility condition index (FCI) before residing in new housing and after investment and taking up residency in new housing;
- Investment characteristics including location, funders, and number of new units; and
- Average rent paid in the region

- Evaluation time horizon assumption: Affordable housing has short-term (e.g., stimulus, jobs) and long-term (e.g., health care costs, crime costs) impacts that are due to different factors. The framework therefore requires the time horizon over which the impacts are to be measured. This assumption is then used to either accumulate or average out the impacts for reporting.

Investment in Affordable Housing Framework

Below is the recommended framework for the verification, study, and measurement of impacts of investment in affordable housing. The indicators and units mentioned below are all relative to a given baseline and reflect changes in the aforementioned indicators. Furthermore, where multipliers or literature are mentioned, it is important to note that they would be approved based on the scope of the project. It is important to note that the framework provided is primarily an ex ante framework for evaluating the potential impact of investment in affordable housing for decision making purpose. That being said, the right-most column provides some considerations for an ex post evaluation.

Impacts/Changes	Economic and Opportunity Gains		Ex Post Analysis
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	
GDP (total, by sector, region)			
Direct, indirect, induced	• **Units:** $ GDP accounting by sector, annual averages; • **Methodology:** Input/output model driven by investment and operational cost inputs; • **Data:** Statistics Canada; • **Description:** These are the impacts directly from the investment, indirect impacts through business to business interactions throughout the supply chain, and the impacts created through increased spending of those workers receiving incomes from projects.	• **Units:** $ Taxation revenues, all sources, level of government (govt.); • **Methodology:** Function of the direct, indirect, and induced impacts on GDP; • **Data**: Statistics Canada • **Description:** The taxation revenue that is generated through the direct, indirect, and induced processes from the general economic activity.	• **Units:** $ GDP accounting by sector, annual averages; • **Methodology:** Input/output model driven by the money spent/invested, what sectors it was spent on, and the timeline of the investment; • **Data:** Social housing providers.
Systemic economic	• **Units:** $ GDP accounting by sector, annual average; • **Methodology:** Determined through a private investment attraction and real estate values changes of the asset formed multipliers that are based on changes in real estate values, and the change in the FCI (Facility Conditions Index[1]); • **Data:** Regression based on Statistics Canada; • **Description:** The economic benefit of the asset formation (i.e., affordable housing) that generates $ GDP through private capital	• **Units:** $ Taxation revenues, all sources, level of govt.; • **Methodology:** Function of systemic GDP; • **Data**: Statistics Canada; • **Description:** The taxation revenue that is generated through economic activity generated by the formation of the asset.	• **Units:** $ GDP accounting by sector, annual averages; • **Methodology:** Regression analysis on the actual FCI change delivered to determine the proportion of private capital investment and real estate value changes due to the investment.

[1] The FCI is an asset management tool that is used within the industry to measure a constructed asset's condition at a specific point in time (BC Housing, 2011). The FCI for a building is obtained by dividing the value of the repairs needed to the asset by the total value of the asset to arrive at a percentage.

	attraction and potential wealth effects of real estate values.		
a) Private capital investment attraction	• **Units:** $ annual average; • **Methodology:** Determined through a multiplier that is based on the private investment attraction of the asset formed, the real estate values, and the change in the FCI; • **Data:** Regression based on Statistics Canada; • **Description:** The attraction of private capital due to the formation of asset (i.e., affordable housing) that occurs beyond what input/output modeling will recognize.		• **Units:** $ private capital investment from actual FCI; • **Methodology:** Regression analysis on the actual FCI change delivered to determine the proportion of private capital investment changes due to the investment.
b) Imputed rent	• **Units:**$ annual average; • **Methodology:** Multiplier of regional premium[2] and multipliers that range based on an FCI and literature estimates; • **Data:** Regression based on Statistics Canada; • **Description:** The economic benefit (e.g., imputed rent) driven by the formation of the asset (i.e., affordable housing) from its impact upon real estate values in the region.		• **Units:** $ imputed rent change from actual FCI; • **Methodology:** Regression analysis on the actual FCI change delivered to determine the proportion of real estate value changes due to the investment.

[2] Regional premium: Real estate values can be decomposed into premiums relative to a reference case, by dwelling type. Depending upon the change in land-use, a new real estate premium would be applied to determine the expected change in real estate values from the development. For more information about approach refer to: Canadian Centre for Economic Analysis. Regional Express Rail's Impact on Housing Affordability in the Greater Golden Horseshoe. December, 2016.

Impacts/Changes	Economic and Opportunity Gains		Ex Post Analysis
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	
Job years (total, by sector, region)			
Direct, indirect, induced	• **Units:** Job years, annual average, by sector; • **Methodology:** Input/output model driven by the investment and operational costs and average wages; • **Data:** Statistics Canada; • **Description:** Similar to GDP, these are the jobs that are supported/created through the direct development of affordable housing, the business to business interactions through the supply chain, and the increased spending of workers receiving income form projects.		• **Units:** $ GDP accounting by sector, annual averages; • **Methodology:** Input/output model driven by the money spent/invested, what sectors it was spent on, and the timeline of the investment; • **Data:** Social housing providers.
Systemic economic	• **Units:** Job years, annual average, by sector; • **Methodology:** Input/output models driven by investment and operational costs and average wages; • **Data:** Statistics Canada; • **Description:** Similar to GDP, these are the jobs that are supported/created through the economic benefit of the asset generated through its utility.		• **Units:** $ GDP accounting by sector, annual averages; • **Methodology:** Regression analysis on the actual FCI change delivered to determine the proportion of private capital investment and real estate value changes due to the investment.

Impacts/Changes	Economic and Opportunity Gains		Ex Post Analysis
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	
Direct investment, operations and other services: Income and Costs			
Investment by building, amenity type			
a) By sector		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider; • **Description:** This is the investment provided, by sector.	• **Units:** $ investment actual by sector • **Data:** Social housing providers.
b) By source		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider; • **Description:** This is the investment provided, by source (i.e., municipal, provincial, federal, and private/NFP).	• **Units:** $ investment source actual by organization • **Data:** Investment providers.
Spending, operational costs by service type			
a) By sector		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider; • **Description:** This is the operational costs of ongoing maintenance of the asset by sector.	• **Units:** $ spending actual by sector cost type • **Data:** Operating providers.

b) By source		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider; • **Description:** This is the operational costs of ongoing maintenance of the asset by source.	• **Units:** $ spending source actual by organization • **Data:** Operating providers.
Income from assets and operation			
a) Rental rate regimes		• **Units:** $ income from assets and services; • **Methodology:** Input data from initial data sources (units of affordable housing times average rent); • **Data:** Provided by CMHC or affordable housing provider; • **Description:** The income that is generated through affordable housing tenants paying rent. It would vary based on the rental rate regime.	• **Units:** $ rent actual received by organization • **Data:** Operating providers.

Impacts/Changes	Economic and Opportunity Gains		Ex Post Analysis
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	
Systemic economic drivers: other			
Real estate values	• **Units:** $ annual average; • **Methodology:** Multiplier of regional real estate premium and multipliers based on FCI and literature estimates; • **Data:** Regression based on Statistics Canada; • **Description:** Changes in real estate values that are attributed to the formation of the asset (i.e., affordable housing).		• **Units:** $ real estate values estimated from FCI; • **Methodology:** Regression analysis on the actual FCI change delivered to determine the real estate value changes due to the investment.
Health care: Socio-economic determinants of health		• **Units:** $ saved/redirected (opportunity gain), disease count changes, incidence, prevalence; • **Methodology:** Epidemiologically established multipliers, which are a function of risk factors, such socio-economic determinants of health and FCI; • **Data:** Literature; • **Description:** Literature reports health benefits associated with the provision of affordable housing based on improvement in the quality of housing and the actual provision of housing. Literature has associated poor housing with increased risk of stress (Hopton & Hunt, 1996), depression (Shenassa, Daskalakis, Liebhaber, & Braubach, 2007); asthma (Bornehag, et al., 2001); and the ripple effect of comorbid conditions (depression has been linked to an increased likelihood of stroke (National Institute of Mental Health, 2011)).	• **Units:** $ saved/redirected (opportunity gain), disease count changes, incidence, prevalence; • **Methodology:** Incidence and prevalence of disease in the housing population before and after investment; • **Data:** Social housing providers.
Social Services		• **Units:** $ saved/redirected (opportunity gain), social services counts saved; • **Methodology:** Literature estimates of changes of services times the average service cost; • **Data:** Literature; • **Description:** Access to affordable housing not only allows individuals to reduce social assistance claims (through reduced rent or employment outcomes) but also benefits	• **Units:** $ saved/redirected (opportunity gain), social services counts saved; • **Methodology:** Incidence and prevalence of social service use in the housing population before and after investment; • **Data:** Social housing providers.

		homeless individuals who use social services (Zon, Molson and Oschinski 2014).	
Crime		• **Units:** $ saved/redirected (opportunity gain), crime counts saved; • **Methodology:** Multiplier of current crime rates based on literature estimates times the average cost to the justice system; • **Data:** Literature; • **Description:** Poor quality housing is related to poor quality neighbourhoods which is associated with higher crime rates. Literature has shown that improved in housing and therefore neighbourhoods is associated with a decrease in violent and property crimes (Rigakos, 2006).	• **Units:** $ saved/redirected (opportunity gain), crime counts saved; • **Methodology:** Incidence and prevalence of crime in the housing population before and after investment; • **Data:** Social housing providers.

Ex Post Challenges

The above outlined framework is primarily an ex ante approach to the studying, measuring, and validation of the economic impacts of investment in affordable housing. That is, the potential economic value of the investment as part of a decision making process. Once the investment has been made, some contributors of value will be difficult to follow-up with the actual value created (eg. GDP given it is very difficult to decouple actual GDP with what had actual happened within a region given many moving pieces).

That being said, it is possible to determine some ex post impacts of investment in affordable housing. The ex poste metrics include:

- Direct, indirect, and induced:
  - Was the investment money actual spent?
  - What sectors was the investment spent on?
  - What timeline was it spent on?
- Systems:
  - Regression analysis using actual changes in FCI to understand the kind of private capital attraction and real estate changes that may have occurred.
- Health/Social:
  - Ex post is possible but requires an understanding of the incidence and prevalence of the population prior and post.

Data and Methodological Availability and Limitation

As is highlighted in the first section and the framework section, the ability to provide ex ante analysis into the economic impact of affordable housing relies heavily on available data to inform a model and the actual methodology to be able to measure the impact. The table below provides an overview of some of the metrics and impacts highlighted in the framework and any challenges present regarding data or methodological availability.

Metrics/Impacts	Data Availability	Methodological Issues
Faculty Condition Index	FCI accounting is well established asset management (Rush, 1991). Major centres should have such data. May require a shift for smaller centres to update their asset management approach. Maintenance and repair schedules might be used to estimate the FCI of buildings and the units contained within.	Knowing what the FCI of the housed population was prior to the investment may be a challenge if the housed population is unknown prior to residence. Surveying the housed population could remedy this ex post.
Investment characteristics	Should be able to be provided.	None

Cohort Demographics (health, social assistance, and crime)	Short of being able to survey the resident population directly, the health benefits of social housing can be estimated through the change of socio-economic determinants of health risk factors.	Same issue as knowing what the FCI of the housed population was prior to the investment, particularly if the housed population is unknown prior to residence. Surveying the housed population could remedy this ex post.
Land Use Data	This will largely depend upon the counterfactual land use understanding of the social housing investors close to the ground.	The purpose is to capture the opportunity cost or gain of using land for social housing. If current land use is in disrepair or is vacant, the challenge is easier as it would constitute an improvement. When land is productively used for other purposes, it will be unclear if an opportunity gain or cost is at play. Would then have to rely upon planning opinions of local municipalities.
General Economic Activity	No issue	No issue
Government (public sustainability and opportunity gains)	Same issues as FCI accounting and land use.	Some soft issues around imputed rent and private capital attraction. But generally these contributions will not dominate the analysis.
Direct, indirect, and induced	No issue	No issue
Private Capital Investment	Same issues as FCI accounting and land use.	Same issues as FCI accounting and land use.
Real Estate Values	Same issues as FCI accounting and land use.	Same issues as FCI accounting and land use.

Investment in Affordable Housing Framework (Wellbeing and SROI Impacts)

Impacts/Changes	Economic and Opportunity Gains		Wellbeing and Social Return on Investment (SROI)	
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents (of investment)
GDP (total, by sector, region)				
Direct, indirect, induced	• **Units:** $ GDP accounting by sector, annual averages; • **Methodology:** Input/output model driven by investment and operational cost inputs; • **Data:** Statistics Canada; • **Description:** These are the impacts directly from the investment, indirect impacts through business to business interactions throughout the supply chain, and the impacts created through increased spending of those workers receiving incomes from projects.	• **Units:** $ Taxation revenues, all sources, level of government (govt.); • **Methodology:** Function of the direct, indirect, and induced impacts on GDP; • **Data**: Statistics Canada • **Description:** The taxation revenue that is generated through the direct, indirect, and induced processes from the general economic activity.	• **Units:** $ Income accounting by sector, annual average; • **Methodology**: Input/output models driven by the investment and operational costs; and • **Data**: Statistics Canada; • **Description**: These are the income impacts directly from the investment, indirect impacts through business to business interactions throughout the supply chain, and the impacts created through increased spending of those workers receiving incomes from projects.	• **Units:** $ Income accounting as households, annual average; • **Methodology:** Input/output model driven by the investment and operational cost; • **Data:** Statistics Canada; • **Description:** The additional income that residents of the affordable housing have due to the investment in affordable housing.
Systemic economic	• **Units:** $ GDP accounting by sector, annual average; • **Methodology:** Determined through a private investment attraction and real estate values changes of the asset formed multipliers that are based on changes in real estate values, and the change in the FCI (Facility Conditions Index[3]); • **Data:** Regression based on Statistics Canada; • **Description:** The economic benefit of the asset formation (i.e., affordable housing) that generates $ GDP through private capital attraction and potential wealth effects of real estate values.	• **Units:** $ Taxation revenues, all sources, level of govt.; • **Methodology:** Function of systemic GDP; • **Data**: Statistics Canada; • **Description:** The taxation revenue that is generated through economic activity generated by the formation of the asset.	• **Units:** $ Income accounting by sector, annual average; • **Methodology**: Input/output model driven by the investment and operational costs; • **Data**: Statistics Canada; • **Description**: The income changes generated by the asset formation (i.e., affordable housing) through private capital attraction and potential wealth effects of real estate values.	
c) Private capital investment attraction	• **Units:** $ annual average; • **Methodology:** Determined through a multiplier that is based on the private investment attraction of the asset formed, the real estate values, and the change in the FCI;			

[3] The FCI is an asset management tool that is used within the industry to measure a constructed asset's condition at a specific point in time (BC Housing, 2011). The FCI for a building is obtained by dividing the value of the repairs needed to the asset by the total value of the asset to arrive at a percentage.

	• **Data:** Regression based on Statistics Canada; • **Description:** The attraction of private capital due to the formation of asset (i.e., affordable housing) that occurs beyond what input/output modeling will recognize.			
d) Imputed rent	• **Units:**$ annual average; • **Methodology:** Multiplier of regional premium[4] and multipliers that range based on an FCI and literature estimates; • **Data:** Regression based on Statistics Canada; • **Description:** The economic benefit (e.g., imputed rent) driven by the formation of the asset (i.e., affordable housing) from its impact upon real estate values in the region.			

[4] Regional premium: Real estate values can be decomposed into premiums relative to a reference case, by dwelling type. Depending upon the change in land-use, a new real estate premium would be applied to determine the expected change in real estate values from the development. For more information about approach refer to: Canadian Centre for Economic Analysis. Regional Express Rail's Impact on Housing Affordability in the Greater Golden Horseshoe. December, 2016.

Investment in Affordable Housing Framework

Impacts/Changes	Economic and Opportunity Gains		Wellbeing and Social Return on Investment (SROI)	
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents (of investment)
Job years (total, by sector, region)				
Direct, indirect, induced	• **Units:** Job years, annual average, by sector; • **Methodology:** Input/output model driven by the investment and operational costs and average wages; • **Data:** Statistics Canada; • **Description:** Similar to GDP, these are the jobs that are supported/created through the direct development of affordable housing, the business to business interactions through the supply chain, and the increased spending of workers receiving income form projects.		• **Units:** Job years , annual average; • **Methodology:** Input/output model driven by the investment and operational costs and average wages; • **Data:** Statistics Canada; • **Description:** Similar to GDP, these are the community level jobs that are created through the direct development of affordable housing, the business to business interactions through the supply chain, and the increased spending of workers receiving income form projects.	• **Units:** Job years , annual average; • **Methodology:** Input/output model driven by the investment and operational costs and average wages; • **Data:** Statistics Canada; • **Description**: Similar to GDP, these are the affordable housing resident jobs that are created through the direct development of affordable housing, the business to business interactions through the supply chain, and the increased spending of workers receiving income form projects.
Systemic economic	• **Units:** Job years, annual average, by sector; • **Methodology:** Input/output models driven by investment and operational costs and average wages; • **Data:** Statistics Canada; • **Description:** Similar to GDP, these are the jobs that are supported/created through the economic benefit of the asset generated through its utility.		• **Units:** Job years, annual average; • **Methodology:** Input/output models driven by investment and operational costs and average wages; • **Data:** Statistics Canada; • **Description:** Similar to GDP, these are the community level jobs that are created through the economic benefit of the asset generated through its utility.	

Impacts/Changes	Economic and Opportunity Gains		Wellbeing and Social Return on Investment (SROI)	
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents (of investment)
Direct investment, operations and other services: Income and Costs				
Investment by building, amenity type			• **Unit:** Units of amenities, buildings (affordable housing units) per capita; • **Methodology:** Statistics Canada • **Data:** Provided by project, Statistics Canada • **Description:** This is the investment provided measured by the community/regional level outcomes, such as units and buildings.	
c) By sector		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider; • **Description:** This is the investment provided, by sector.		
d) By source		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider; • **Description:** This is the investment provided, by source (i.e., municipal, provincial, federal, and private/NFP).		
Spending, operational costs by service type				
c) By sector		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider;		

		• **Description:** This is the operational costs of ongoing maintenance of the asset by sector.		
d) By source		• **Units** $ annual average source attribution (note that these represent costs, therefore would be negative values); • **Methodology:** Input data from initial data sources; • **Data:** Provided by CMHC or affordable housing provider; • **Description:** This is the operational costs of ongoing maintenance of the asset by source.		
Income from assets and operation				
b) Rental rate regimes		• **Units:** $ income from assets and services; • **Methodology:** Input data from initial data sources (units of affordable housing times average rent); • **Data:** Provided by CMHC or affordable housing provider; • **Description:** The income that is generated through affordable housing tenants paying rent. It would vary based on the rental rate regime.		• **Units:** $, average annual; • **Methodology**: This would focus only on new units and would be calculated by subtracting the rental regime rent from what residents would normally be paying for market rent; • **Data**: Provided by CMHC or affordable housing provided; • **Description**: The average annual income that is saved through affordable housing tenants paying affordable rent. It would vary based on the rental rate regime.

Impacts/Changes	Economic and Opportunity Gains		Wellbeing and Social Return on Investment (SROI)	
	General economic activity	Government: Public sustainability and opportunity gains within GDP accounting	Community/Region	Residents (of investment)
Systemic economic drivers: other				
Real estate values	• **Units:** $ annual average; • **Methodology:** Multiplier of regional real estate premium and multipliers based on FCI and literature estimates; • **Data:** Regression based on Statistics Canada; • **Description:** Changes in real estate values that are attributed to the formation of the asset (i.e., affordable housing).		• **Units:** Percent change in average house price; • **Methodology:** Multiplier of regional premium and multipliers that range based on an FCI and literature estimates; • **Data:** Regression based on Statistics Canada; • **Description:** The economic benefit of the asset (i.e., affordable housing) driven by its utility. Captured by the increased real estate values.	
Health care: Socio-economic determinants of health		• **Units:** $ saved/redirected (opportunity gain), disease count changes, incidence, prevalence; • **Methodology:** Epidemiologically established multipliers, which are a function of risk factors, such socio-economic determinants of health and FCI; • **Data:** Literature; • **Description:** Literature reports health benefits associated with the provision of affordable housing based on improvement in the quality of housing and the actual provision of housing. Literature has associated poor housing with increased risk of stress (Hopton & Hunt, 1996), depression (Shenassa, Daskalakis, Liebhaber, & Braubach, 2007); asthma (Bornehag, et al., 2001); and the ripple effect of comorbid conditions (depression has been linked to an increased likelihood of stroke (National Institute of Mental Health, 2011)).	• **Units:** Disease count changes, incidence, prevalence; • **Methodology:** Epidemiologically established multipliers, which are a function of risk factors, such as FCI; • **Data:** Literature; • **Description:** Literature reports health benefits associated with the provision of affordable housing based on improvement in the quality of housing and the actual provision of housing. Literature has associated poor housing with increased risk of stress (Hopton & Hunt, 1996), depression (Shenassa, Daskalakis, Liebhaber, & Braubach, 2007); asthma (Bornehag, et al., 2001); and the ripple effect of comorbid conditions (depression has been linked to an increased likelihood of stroke (National Institute of Mental Health, 2011)).	
Social Services		• **Units:** $ saved/redirected (opportunity gain), social services counts saved; • **Methodology:** Literature estimates of changes of services times the average service cost; • **Data:** Literature; • **Description:** Access to affordable housing not only allows individuals to reduce social assistance claims (through reduced rent or employment outcomes) but also benefits		• **Units:** Counts per capita; • **Methodology**: Literature estimates of changes of services; • **Data**: Literature; • **Description**: Access to affordable housing not only allows individuals to reduce social assistance claims (through reduced rent or employment outcomes) but also benefits homeless individuals who use social services (Zon, Molson and Oschinski 2014).

		homeless individuals who use social services (Zon, Molson and Oschinski 2014).		
Crime		• **Units:** $ saved/redirected (opportunity gain), crime counts saved; • **Methodology:** Multiplier of current crime rates based on literature estimates times the average cost to the justice system; • **Data:** Literature; • **Description:** Poor quality housing is related to poor quality neighbourhoods which is associated with higher crime rates. Literature has shown that improved in housing and therefore neighbourhoods is associated with a decrease in violent and property crimes (Rigakos, 2006).	• **Units:** Counts per capita; • **Methodology**: Literature estimates of changes of crime counts; • **Data**: Literature; • **Description**: Poor quality housing is related to poor quality neighbourhoods which is associated with higher crime rates. Literature has shown that improved in housing and therefore neighbourhoods is associated with a decrease in violent and property crimes (Rigakos, 2006).	