

# Integrated Infrastructure Management Planning

## Executive Summary

This report is provided in response to the Executive Committee's motion for an update on the Integrated Infrastructure Management Plan (IIMP) cumulative impacts. It includes the updated cumulative impacts of the three Urban Growth Areas: Decoteau, Horse Hill and Riverview.

Integrated Infrastructure Management Planning is a high-level analysis that provides Council with information about the infrastructure required for development. The broad-based analysis provides a general indication of future cost implications and revenue potential.

The IIMP review was completed for the build-out of the Urban Growth Areas over a 30 to 39 year time frame, starting in 2016. Based on the information available at this time, the review generally shows that the Urban Growth Areas will require a developer infrastructure investment of approximately \$3.8 billion as well as a capital investment by the City and/or the Province and/or other sources of approximately \$1.4 billion.

As is typical for residentially focused areas, whose primary function is to provide housing and community amenities, the Urban Growth Areas' anticipated combined cumulative revenue over the 50 year analysis period is expected to be lower than the required combined capital, operating and life cycle costs the City is expecting to expend. The projected cumulative shortfall over the 50 year analysis period for the build-out of the Urban Growth Areas is anticipated to be in the order of \$1.4 billion.

In order to manage this shortfall, the City will need to continue its efforts to promote greater density and more effective utilization of infrastructure as well as grow the industrial and commercial sectors to balance the City's overall assessment base. Alternatively or in addition, the City may also need to consider increasing residential contributions which better reflect the costs of the City's current built-form, consider reviewing alternate means of paying for residential infrastructure in concert with an MGA review and/or consider reducing levels of service to citizens in some or all areas.

## Purpose

Integrated Infrastructure Management Planning is a process for the gathering, synthesis, presentation and use of data related to the provision of infrastructure to the three Urban Growth Areas. Information in this document is based on original information related to the Urban Growth Areas that was gathered in 2012 to 2015 and updated information gathered in 2015 and 2016.

The intent of Integrated Infrastructure Management Planning is to provide Council with information about the infrastructure required for the Urban Growth Areas' development, how it relates to existing infrastructure, timing, and the implications to the City's operations.

This report outlining Integrated Infrastructure Management Planning cumulative impacts is provided in response to an Executive Committee motion from the July 8, 2015, meeting. It includes the compilation and analysis of the combined development of the three Urban Growth Areas: Decoteau, Horse Hill, and Riverview.

At this time, the detailed impacts of development of the city's developing areas are not available. The Development Infrastructure Impact Model and the Integrated Infrastructure Management Planning process were developed to assess greenfield areas prior to the start of comprehensive development taking place, such as the Urban Growth Areas. A new approach and modification to the Development Infrastructure Impact Model will be required as well as a considerable amount of data collection in order to be able to determine the impacts of completing the partially developed greenfield areas within the city. Administration will be working to develop this new approach and model as part of the Growth Strategy Modelling Framework.

### **Integrated Infrastructure Management Planning Background**

The tax revenue generated by new residential areas is not meant to pay for the municipal programs and services associated with those neighbourhoods. Property taxation is a tax on wealth as represented by the assessment of residential and non-residential properties under regulations set by the Province.

Residential neighbourhoods exist to provide for housing and community amenities. Other areas of the city, such as industrial areas and commercial nodes, exist to provide employment and wealth generation. The amount of revenue the City needs from property taxation is determined for the City as a whole and takes into consideration the balance between residential and non-residential assessment. A residential neighbourhood is not a microcosm of the entire city and property taxes are not calculated on a neighbourhood basis.

It is difficult to capture all of the indirect costs and benefits that are attributable in whole or in part to new residential neighbourhoods. For example, the City collects dividends from EPCOR, earnings from its investments, and a substantial amount of non-residential tax revenue from dense commercial nodes including West Edmonton Mall, the Downtown core, and South Edmonton Common. These sources all help fund services provided to all neighbourhoods, but are difficult to include in a neighbourhood or area specific analysis. Additionally, secondary benefits accrue from the expenditures of those individuals deriving income directly or indirectly from the development industry. Economic impacts can be estimated by calculating expenditure multipliers. An expenditure multiplier estimates the final value of an incremental dollar spent once the direct and follow-on effects are

included. By way of illustration, Alberta's economic multiplier for construction is 1.6.<sup>1</sup> This means that a dollar of construction activity generates a gross gain of \$1.60 of economic activity for Alberta once direct and follow-on impacts are included. For the Urban Growth Areas, this equates to approximately \$8.3 billion over the construction time of the development, based on a \$5.2 billion investment in public infrastructure (See Tables 2 and 3). Private investment in housing and commercial areas is over and above this.

The challenges facing the City are to balance development costs with the strategic benefits of sustainable growth, to achieve an appropriate balance of residential to commercial/industrial development. Although the City of Edmonton has achieved some success in diversifying its revenue base, property tax remains the largest component of City revenue. The long term sustainability of cities in Canada will depend on a combination of smart, resource efficient growth mixed with a progressive form of revenue generation that provides for the services being enjoyed by the citizenry in the long term, without providing undue burden to any particular stakeholder.

#### **Area Structure Plan Background Information**

Decoteau, Horse Hill, and Riverview make up the City's Urban Growth Areas as identified on the Land Development Concept Map of the City's Municipal Development Plan, *The Way We Grow*. The areas are located at the extremities of the City in three quadrants: Southeast (Decoteau), Southwest (Riverview), and Northeast (Horse Hill).

The *Decoteau Area Structure Plan* is bounded by Anthony Henday Drive to the north, the City limits (41 Avenue SW) to the south, 50 Street SW to the west, and the City limits (Meridian Street SW) to the east. The area encompasses approximately 1,960 hectares and is expected to have a population of 74,565 people.

The *Horse Hill Area Structure Plan* is located north of Anthony Henday Drive and east of Manning Drive. The Area Structure Plan has a gross area of 2,793 hectares and is expected to have a population of 70,038 people.

The *Riverview Area Structure Plan* is bordered by Wedgewood Creek and Anthony Henday Drive to the north, the North Saskatchewan River to the east, and the City's boundary to the south and west. The Area Structure Plan has a gross area of 1,435 hectares and is expected to have a population of 50,422 people.

All three Area Structure Plan areas currently include existing uses that are being retained as-is, including existing country residential development, agricultural land, utilities, pipelines, and/or natural areas. These existing uses are not included in the Area

---

<sup>1</sup> Alberta Economic Multipliers 2006, Open Model Direct and Indirect Multipliers, pg 14. Edmonton, 2010

Structure Plan land use statistics as developable land and are also not included in this Integrated Infrastructure Management Planning analysis.

The Urban Growth Areas are planned to include variety of low to high density residential housing, district park sites with recreation centres, parks and natural areas, libraries, police facilities, fire stations, schools, commercial and mixed use sites, and/or business employment areas.

### **Methodology**

Integrated Infrastructure Management Planning is typically conducted by working closely with City departments, utilities, and development proponents. In this Integrated Infrastructure Management Planning update, Infrastructure and Funding Strategies used information included in the initial analyses and supplemented it with updated information from various City departments.

The Integrated Infrastructure Management Planning review was completed for the build-out of the individual Urban Growth Areas over a 30 to 39 year timeframe (Decoteau – 39 years, Horse Hill – 36 years, Riverview – 30 year), starting in 2016. This build-out time frame matches the timelines submitted by area developers at the time of the Area Structure Plan and/or Neighbourhood Structure Plan submissions and is in line with the City's build-out forecasts for the areas. However, it should be noted that the build-out time frame is not necessarily based on future market demands for new housing. Additionally, there may be local challenges that may prevent these lands from being expeditiously serviced and developed. These challenges include non-participating landowners refusing to allow services be installed on their properties to facilitate development on other properties; local natural and topographical features that may require the infrastructure to be installed from a direction not typical of orderly contiguous growth. An example of the latter would be having Decoteau grow from a southwest to east/northeast direction due to the requirement to install an off-site sanitary trunk line that would connect Decoteau at 50 Street SW and 41 Avenue SW in order to service approximately two-thirds of the area.

Fully built-out refers to all forms of development being built within a given area. New neighbourhood growth in greenfield areas typically begins with low density housing with some medium density housing in the form of row housing. The other forms of housing plus commercial and employment activity are usually built later once the area has been established. Notwithstanding the non-market factors mentioned above, low density housing could be fully built-out as soon as five to ten years prior to other uses being fully developed.

### **Scenario Analysis**

The Integrated Infrastructure Management Planning analysis includes the cumulative impacts related to the development of Decoteau over a 39 year time horizon, Horse Hill over a 36 year time horizon, and Riverview over a 30 year time horizon. Construction within these areas is anticipated to begin in 2016.

This section provides data resulting from the analysis of the development build-out scenario. The next section, Building Perspective, provides context to the data.

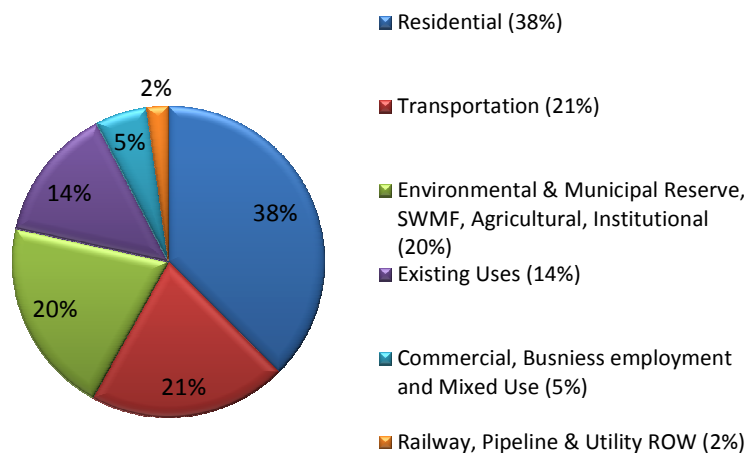
### General Area Information

Information included in the approved Area Structure Plans and Neighbourhood Structure Plans was used to complete this analysis and includes land use, population projections, and residential unit information. This information forms the basis for the calculations and justifications for required infrastructure in the proposed communities. Complementing this base data, current service standards in combination with long term planning and consideration for the capacity of existing facilities nearby contribute to the infrastructure projections.

### Gross Area Breakdown

The land use breakdown of the Urban Growth Areas is shown in Figure 1. Out of a total area of approximately 6187 hectares, approximately 38% (2320 hectares) is allocated for the development of residential units, 21% (1306 hectares) is allocated to existing and future road allowances and future transit centres, 20% (1260 hectares) is allocated to environmental reserve, municipal reserve, institutional, agricultural and stormwater management facilities, 14% (866 hectares) is allocated to existing uses, 5% (332 hectares) is allocated to commercial, business employment and mixed use developments, and the remaining 2% (102 ha) is allocated to railway, pipeline and utility rights-of-way.

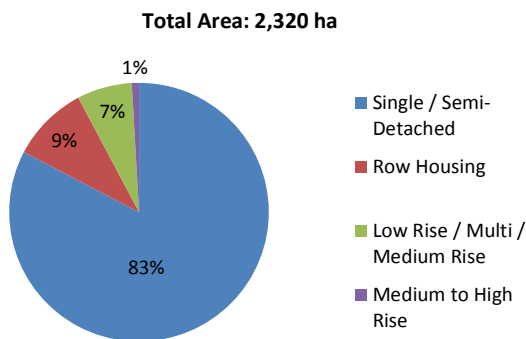
**Figure 1 – Land Use Breakdown**



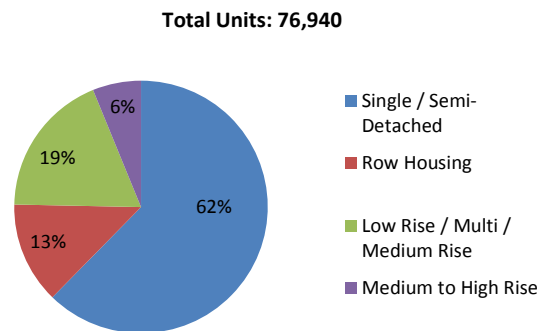
Net Residential Area Breakdown

There are four different residential housing types planned for the Urban Growth Areas; including single and semi-detached housing, row housing, low-rise to medium-rise apartments up to 4 stories, and medium to high rise apartments (which includes buildings 5 stories and higher). Figures 2, 3 and 4 provide additional information on the residential breakdown by area of the different residential housing types (Figure 2), by the number of units in each housing type (Figure 3), and by population associated with each housing type (Figure 4).

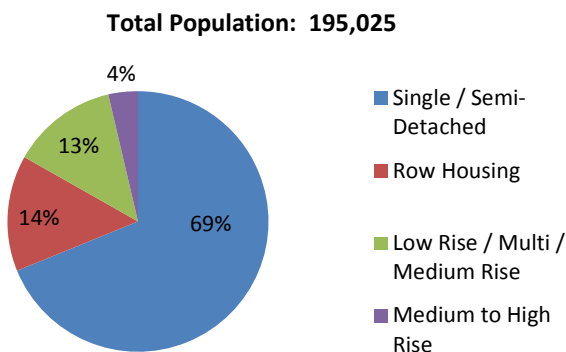
**Figure 2 – Residential Split by Land Area**



**Figure 3 – Residential Split by Number of Units**



**Figure 4 – Residential Split by Population**



The average residents per unit and average units per hectare are detailed in Table 1.

**Table 1 – Residential Land Uses**

	Area (ha)	Units per hectare	Number of Units	% of Net Residential Area	People per Unit	Population	Average Market Value
Single / Semi-Detached	1918	25	47,941	82.7%	2.8	134,233	424,908
Row Housing	223	45	10,015	9.6%	2.8	28,042	327,841
Low Rise / Multi / Medium Rise	158	90	14,240	6.8%	1.8	25,634	338,339
Medium to High Rise	21	225	4,744	0.9%	1.5	7,116	334,177
Business Employment/Commercial	332						7,039,494
<b>TOTAL (Residential Only)</b>	<b>2320</b>		<b>76,940</b>	<b>100%</b>		<b>195,025</b>	

### *Infrastructure Breakdown*

The amount of infrastructure to be built by the developer, the City of Edmonton and/or the Province is a function of many things, including the design of the community, the service standards provided, the amount and density of population served, and the presence of existing infrastructure.

Table 2 and 3 summarize the infrastructure required for the three Urban Growth Areas, their approximate costs in 2016 dollars, and the party responsible for their construction.

**Table 2 – Developer Funded Infrastructure**

Infrastructure Type	Cost (2016\$)
Drainage Infrastructure	\$2,351,000,000
Transportation Infrastructure	\$1,455,000,000
<b>TOTAL</b>	<b>\$3,806,000,000</b>

**Table 3 – City/Province Funded Infrastructure**

Infrastructure Type	Quantity	ASP Cost (2016\$)
Recreation Centre (#)	3	\$347,000,000
Library (#)	2	\$36,000,000
Police Facilities and Equipment		\$47,000,000
Fire Station (#)	5	\$65,000,000
Parks (ha)	396	\$95,000,000
Transit		\$148,000,000
Roads and Interchanges		\$519,000,000
Waste Collection		\$105,000,000
<b>TOTAL</b>		<b>\$1,362,000,000</b>

### *Qualifications for Tables 2 and 3*

The following additional information is provided to help qualify the quantities and costs in Tables 2 and 3:



### *Community Facilities*

It is anticipated that a Community Recreation Facility will be constructed in each of the three Urban Growth Areas. The facilities are anticipated to be constructed when the area population reaches approximately 50% build-out. The facilities may include an aquatic centre, arena and/or indoor sports component, as well as other multi-purpose components. The actual timing of the construction of the facility is contingent on funding availability, site land assembly, infrastructure, and population.

Table 3 includes the full cost of the Recreation Centres in Decoteau and Horse Hill. The Recreation Centre proposed in the Riverview is anticipated to serve both Riverview and Edgemont and as such, Table 3 includes only Riverview's proportional share of the Recreation Centre based on area population.

### *Drainage Services*

Drainage costs are anticipated to include storm and sanitary sewers, service connections, stormwater management facilities, pump stations, outfalls, etc. These costs are expected to be entirely borne by the area developers.

The capital costs for the storm and sanitary systems included in Table 2 are based on the initial quantities and costs provided by the developers at the time the original Integrated Infrastructure Management Plans were prepared, updated unit cost information, and Area Master Plan information.

### *Edmonton Public Library*

Edmonton Public Library identified requirements for a library facility in Horse Hill and in Riverview. The future libraries are planned to be integrated within the respective Recreation Centres and as such timing of the facilities is relational to the recreation facilities.

Edmonton Public Library has stated that a library will not be located in the Decoteau area. The area residents will be served by the Meadows Library as well as a future library to be developed west of the Decoteau area in the longer term.

### *Edmonton Police Services*

Planning for Edmonton Police Service facilities considers the City as a whole. Divisional stations are typically required to serve area populations of 150,000 to 160,000 people. Edmonton Police Services anticipates that development of Decoteau and other areas on the south side as well as the development in Horse Hill and its surrounding area will each result in the need for an additional divisional station. The proportional share of the costs of the new divisional stations for the Urban Growth Areas is included in Table 3. The capital costs related to the purchase of new police vehicles to service these three Urban Growth Areas as also included in the table.

### *Parks*

The Urban Growth Areas will include a total of 396 hectares of park space. It is anticipated that the park space includes District Activity Parks, school/park sites, urban



village parks, pocket parks, greenways, and natural areas. The City's capital cost for area park space development included in Table 3 is anticipated to be made up of signage, turf establishment, trees, parking, and servicing costs. The development timing of the park spaces is contingent on several factors including the area development pace, population, funding availability, land assembly, school board prioritization, and community involvement.

For the purpose of Integrated Infrastructure Management Planning analysis at the Area Structure Park level, park amenities such as trails, playground equipment or special facilities (such as washrooms) are not included in the costing. Therefore, the capital expenditures for parks may actually be higher than indicated in Table 3.

#### *Transportation - Roadways*

The developer funded transportation infrastructure in Table 2 include the costs of constructing local roads, collector roads, arterial roads, shared use paths, as well as the developer contribution to interchange construction or improvement currently included in the Arterial Roads for Development Bylaw.

For analysis purposes only, it is assumed that all arterial costs over and above the costs that are or are anticipated to be included in the Arterial Roads for Development Bylaw will be City funded. It is further assumed for analysis purposes only that any interchange or flyover construction or improvement required for development of the Urban Growth Areas, over the developer contribution, will be City funded. The arterial, interchange and flyover costs are included in Table 3.

Costs for interchange and flyover improvements were apportioned to the Urban Growth Areas based on discussions with Transportation, taking into account the developer contribution, the facility location, and the anticipated area traffic volumes.

LRT costs were not included in the analysis.

#### *Transportation- Transit*

Bus service requirements have been identified for the Urban Growth Areas and include the requirements for the provision of bus service within proposed areas as well as required transit centres.

Two transit centres are planned for the Horse Hill and one is planned for Riverview. The Decoteau area will not require a transit centre as its buses will make use of the planned transit centre / park and ride facility in the Walker Neighbourhood.

#### *Waste Management*

The cost of additional infrastructure for Waste Management Collection Services is included in Table 3. The cost includes collection vehicles, facility expansion, bins, and the areas proportional share of an Eco-Station, as applicable.

A new Eco-Station is anticipated to be required in the Horse Hill area to provide service to areas in north-east Edmonton. It is anticipated in the short to medium term that the Ambleside Eco-Station will accommodate the Decoteau and Riverview areas. In the longer term, with additional development in south Edmonton, an additional Eco-station may be required.

#### Demographic Based Cost and Revenue Projections

Forecasting financial impacts into the future is a speculative exercise. The following analysis projects costs and revenues for the proposed development out for 50 years, 11 years past the projected total build-out period of the Urban Growth Areas. These projections are based on assumptions, which in a large part consist of what is known of the development at the present time, the current costs for the provision of service and infrastructure, and the length of time required to build both the overall development, as well as the individual components (commercial centres, high density residential projects, etc.) that make it up. The use of the results of this analysis should take this, and the context of the City as a whole, into consideration. The major assumptions used on the analysis are detailed in the end of this report.

The analysis completed considers one build-out development scenario for each of the three Urban Growth Areas. The build-out of Decoteau is anticipated to occur over a 39 year time frame, Horse Hill over a 36 year time frame, and Riverview over a 30 year time frame.

As any projection is just that, a projection based on defensible assumptions, it is important to consider that the eventual build-out of the areas may well be different than that shown in this analysis. The analysis examines the build-out of the three Urban Growth Areas according to the proposed Area Structure Plans and does not consider alternative land use concepts, different development guidelines or patterns, or different densities.

#### Scenario Demographics

Under the proposed development scenario, the total population of the proposed Urban Growth Areas of 195,025 people would be achieved in approximately 39 years as is shown in Figure 5.

Figure 5 – Population Build-Out

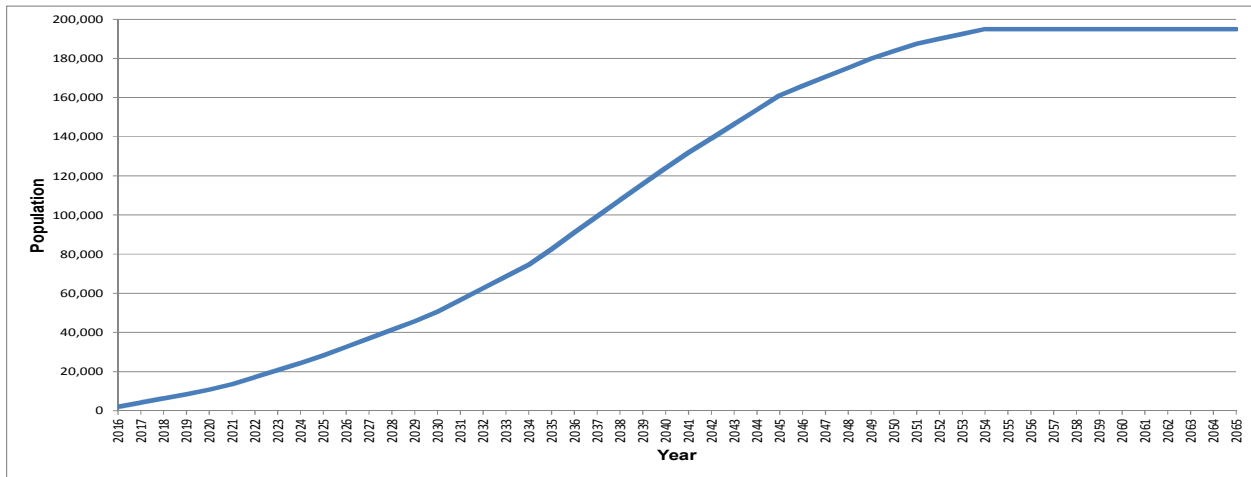
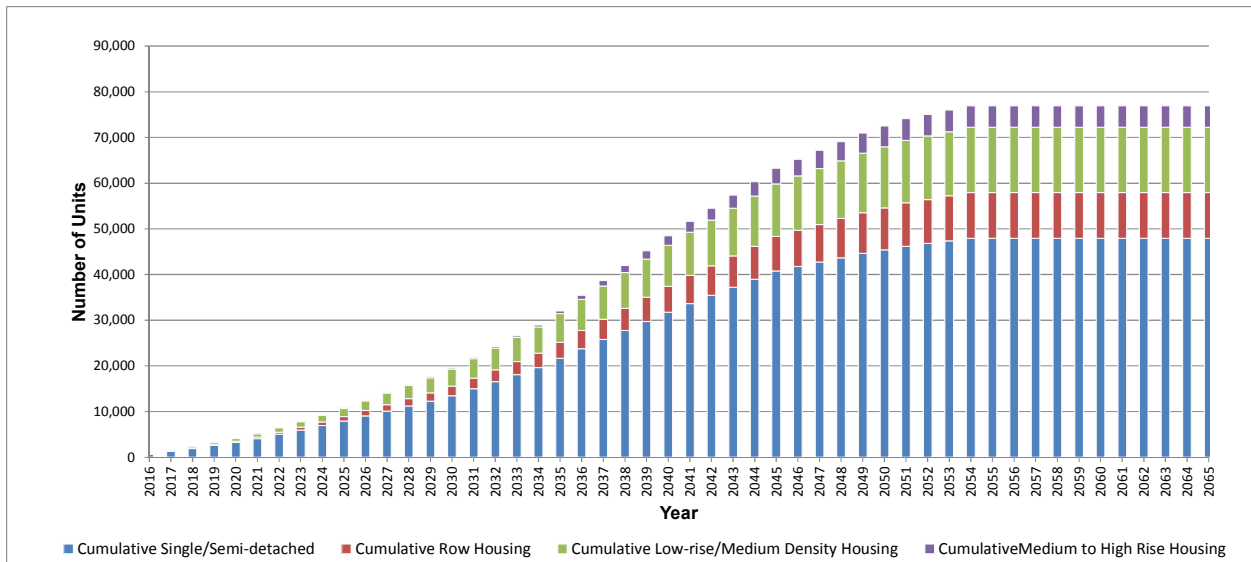


Figure 6 depicts how the projected population growth in Figure 5 translates into housing units of different types. It is cumulative, and shows the relative distribution over time.

Figure 6 – Residential Unit Build-Out

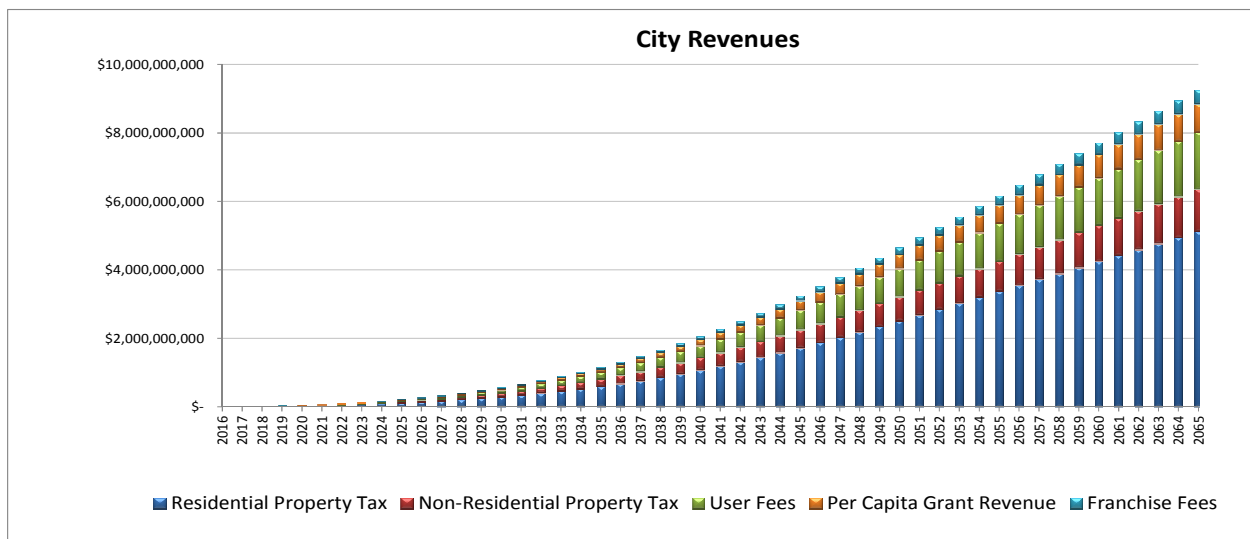


Revenue Expectations

City revenues come from a variety of sources. In this analysis, those revenues resulting from the proposed community directly were considered. Indirect revenues, such as EPCOR dividends are not included in this analysis. Figure 7 depicts the expected revenues over 50 years and identifies revenues by one five sources:

1. Franchise Fees: The City receives revenue from Atco Gas and EPCOR Electric customers for the use of public road allowances for their distribution networks.
2. Per Capita Grant Revenue: The City of Edmonton relies on provincial and federal grants for a portion of its capital program. Without them, the City is not sustainable given its limited revenue generation options and increasing obligations and service expectations. Although it is difficult to model Grant funding as it varies by program, a general observation is that it increases proportionately with population. A per capita revenue allocation was developed based on existing grants and applied within to the model.
3. User Fees: Individual City departments and business units may charge fees for the service they provide. Examples include transit fees, recreation centre fees, and parking meters.
4. Non-Residential Property Tax: Commercially zoned areas like strip malls, convenience stores, and grocery stores help form complete communities and provide employment and critical services. They also contribute to the City’s tax base, and therefore projected revenues from those areas that are within the Urban Growth Areas are included.
5. Residential Property Tax: All residential units pay municipal tax based on the current year’s mill rate and the assessed value of the property. As residential units are created in the model based on population growth, the taxes paid by these units are accounted for.

**Figure 7 – Cumulative Revenues**

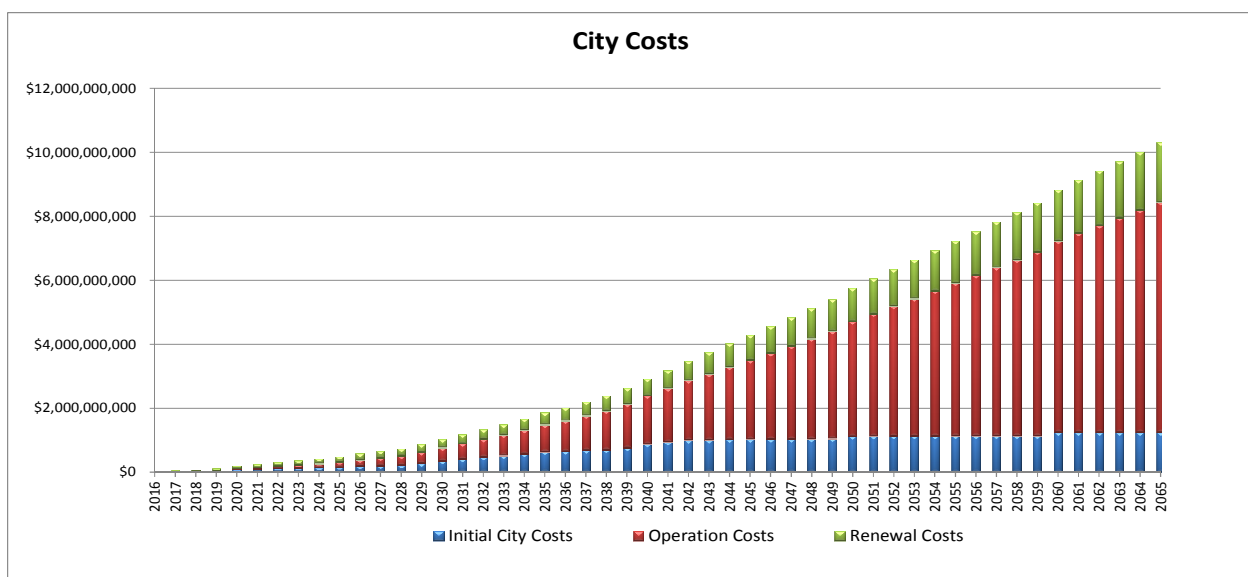


### City Expenditure Expectations

City expenditures are attributable to the provision of a mix of services in the community, building new infrastructure required to provide that service, and maintaining and renewing infrastructure in the community that provides the service the community needs, and enjoys. Figure 8 depicts city costs over a 50 year time span. The expenditure is attributed to three categories:

1. **Initial City Costs:** This represents infrastructure built and funded by the City, and includes police and fire stations and equipment, community facilities, parks, as well as transportation and transit facilities. Initial City Costs are funded via the City's capital budget.
2. **Renewal Costs:** Renewal costs represent the reinvestment required to keep the community's infrastructure to an accepted physical standard. These costs are derived from the infrastructure built by both the developer and the City, and include rehabilitative actions throughout the life of the assets, as well as replacement costs at the end of the expected life of the asset within the 50 year timeframe of the model. The costs shown calculate the renewal costs at the expected time of expenditure (i.e. not amortized throughout the life of the asset), and therefore some replacement costs for long lived infrastructure such as sewers are not represented in the scope of the analysis. Renewal Costs are funded via the City's capital budget.
3. **Operating Costs:** Operating costs represent the set of on-going activities and expenses that allow the use of an asset for its intended function. These costs include those required for the use of the asset (e.g. electricity, fuel) and those costs required for the provision of the service provided (e.g. labour). Operating costs are funded via the City's operating budget.

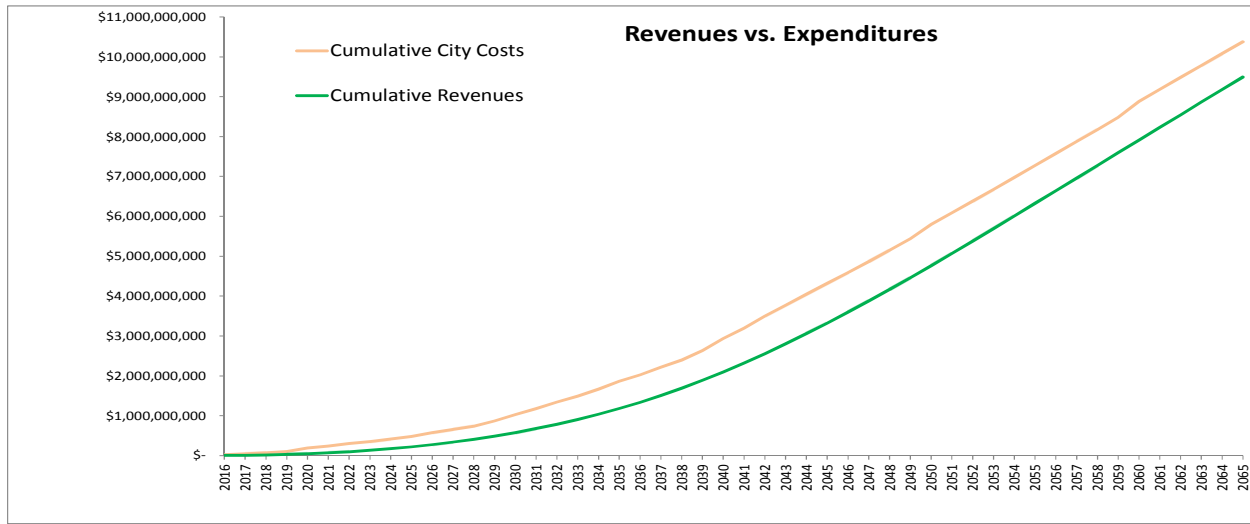
**Figure 8 – Cumulative City Costs of Area Build-Out**



### Summary of Revenues and Expenditures

Figure 9 shows the difference between the City's revenues and expenditures for the proposed Urban Growth Areas over a projected 50 year period. At year 50, the projected cumulative shortfall resulting from the build-out of the Urban Growth Areas is \$1.4 billion.

**Figure 9 – Urban Growth Areas Revenues and Expenditures**



### **Building Perspective**

#### Infrastructure Planning

The Urban Growth Areas are anticipated to require approximately \$1.4 billion in capital investment by the City. Major infrastructure needs to be carefully planned, timed and funded to meet the needs of the development.

As the Urban Growth Areas are located on the boundary of the City and will require improvements along Provincial roadways, development of the areas will require collaboration with adjacent counties and/or the Province to properly plan and upgrade the required infrastructure to serve the development area.

As Area Structure Plans are high level plans, some assumptions were made that will be reworked at the Neighbourhood Structure Plan Stage. It is anticipated that the information presented in this report will change as planning in the areas progresses and more is known. The Integrated Infrastructure Management Planning Framework calls for further analysis at the Neighbourhood Structure Plan level, presenting more refined information while placing the proposed neighbourhood in context with the Area Structure Plans and surrounding City development. So far, the approved Neighbourhood Structure Plans in the Urban Growth Areas have generally resulted in

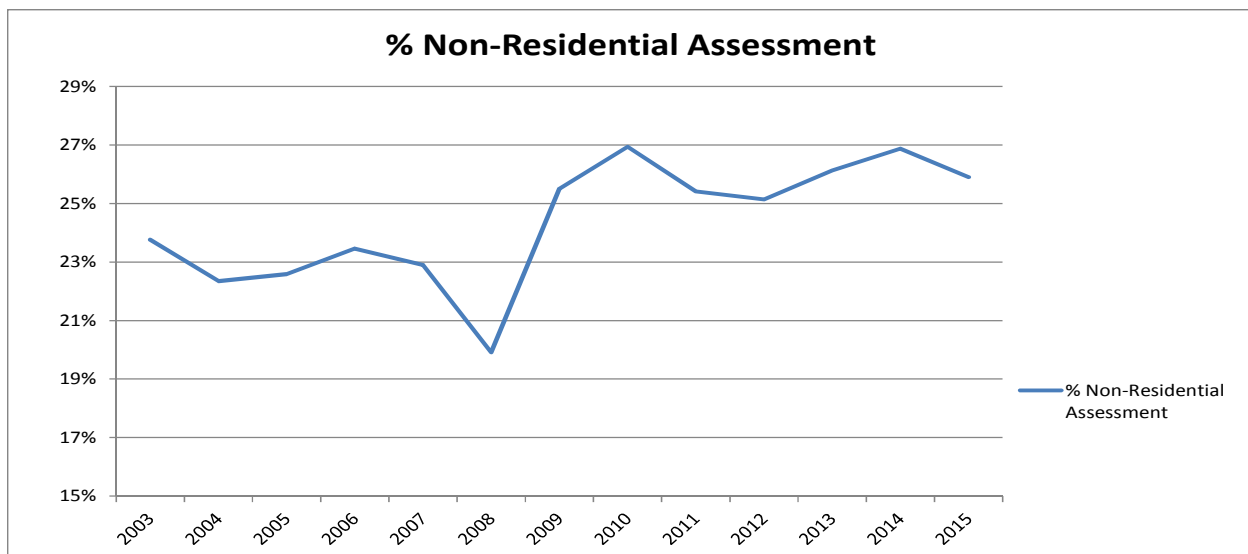
higher densities than expected in the original Area Structure Plans and therefore better revenue to cost ratios.

### Sustainability through Balanced Growth

The overall balance of residential and non-residential land in the City of Edmonton is important in a number of ways. Residential areas provide places for people to live and build community. Non-residential areas provide employment, services, and amenities among other things. Both contribute to and are an essential part of the fabric of the City. Maintaining a healthy balance between them is critical.

It is therefore important to consider how proposed development, in any form, contributes to the overall balanced growth of the City of Edmonton. Figure 10 indicates the percentage of non-residential assessment out of the total assessment value of all property in the City since 2003. It shows that non-residential assessment made up approximately 26% of the total assessment base of the City in 2015.

**Figure 10 – Non-Residential Assessment**



How does the proposed development of the Urban Growth Areas affect this balance? Generally, residential areas have less than 25 % of their assessment base as non-residential, and the proposed Urban Growth Areas are projected to have between 6.5% (Horse Hill and Riverview) and 8.3% (Decoteau) of their assessment as non-residential.

As the City grows its residential areas, it must also grow its non-residential areas to maintain balanced growth. Conversely, the City must grow its residential areas to balance growth in non-residential areas. In other words, for the City as a whole to maintain the current ratio, there needs to be approximately \$5 billion of non-residential assessment for every \$20 billion in residential assessment growth.

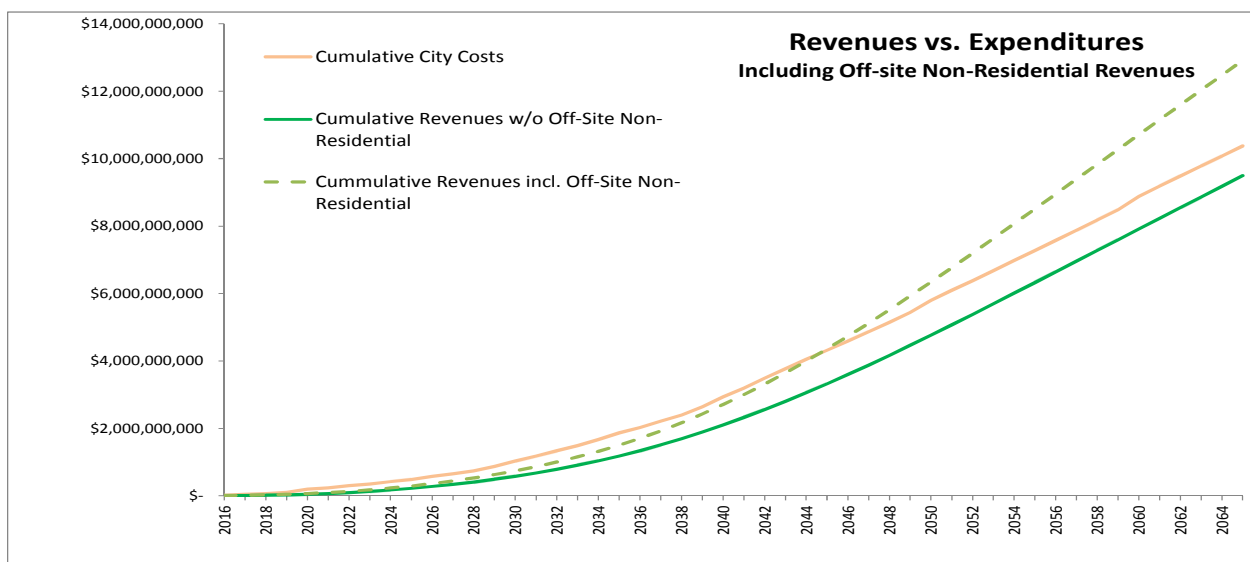


Currently in Edmonton, the residential and non-residential classes each contribute approximately 50 percent to the overall tax requisition. As the residential assessment base is approximately three times larger than the non-residential assessment base, the tax rate ratio varies between the two classes and the non-residential class pays approximately 2.5 to 3 times more per assessment dollar than the residential class. It should be noted that the trend in Edmonton over the last few years has been an increasing burden shifting towards the residential tax payer as the residential class takes on a greater proportion of the total assessment base. The residential share of property taxes has increased from 48.7% in 2005 to 50.8% in 2015.

Figure 10 shows that there is some volatility in the percentage of non-residential assessment over the 12 year period. Of particular note is the dip in 2008, which occurred as a result of a significant increase in residential assessments during the same year. It should be noted however, that the City of Edmonton has a budget-based approach to tax rates, the City's tax levy is unaffected by changing market conditions and fluctuations between the residential and non-residential assessment percentages. Given the City's approximately even split between residential and non-residential contributions however, different property types within an assessment class may experience significant increase in their tax burden as assessment values decrease or increase to maintain the overall tax requisition.

Figure 11 illustrates the importance of balanced growth and the benefit of maintaining the current non-residential assessment ratio.

**Figure 11 – Urban Growth Areas Revenues and Expenditures (including off-site non-residential revenues)**



The above figure is identical to Figure 9; however it also shows the effect on the revenue outlook by including off-site non-residential assessments. The premise in this

figure is that if the City maintains its current balance of approximately 25% non-residential assessment, by developing commercial and industrial areas throughout the City, this additional revenue helps to offset the fiscal imbalance indicated by looking at the Urban Growth Areas by themselves.

Based on the analysis completed, in order to maintain 25% non-residential assessment ratio, the Urban Growth Areas would require an additional \$8.3 billion in non-residential assessments throughout the City of Edmonton, over and above the commercial and business employment areas planned within the Urban Growth Areas. It is uncertain at this point whether this magnitude of non-residential assessments can be achieved within the City's existing industrial areas and may be largely dependent on the timing and type of development to be constructed in the Edmonton Energy and Technology Park. A review of the City's Industrial Land Strategy is currently underway and its findings will inform the City's future industrial outlook. The findings of this strategy review are expected this summer.

Should this level of non-residential assessment not be achieved over the build-out of the Urban Growth Areas, the City may need to consider changing the current residential to non-residential tax split from an even split to a higher percentage from the residential area, which would increase residential contributions and better reflect the costs of the City's current built-form. Alternatively, the City may need to consider decreasing levels of service in some or all areas and/or looking to alternate funding mechanisms that permit the tax levy to be supplemented, such as those sought with changes to the MGA. For example, if the City had the ability to charge a levy for all of the required infrastructure currently considered to be City and/or Provincial costs within the Urban Growth Areas (\$1.4 billion), this would make up the expected funding shortfall between revenues and costs over the 50 year analysis time horizon.

#### Committed Infrastructure

With both an aging and growing city, balancing investment choices between renewal and growth is a significant challenge. As infrastructure ages, more maintenance and rehabilitation is required to ensure that it is performing well and continuing to meet the needs of citizens. At the same time, demands arise for new infrastructure to support growth. The 2012-2014 Capital Budget allocated 54% to growth projects and 46% to renewal projects. The approved 2015-2018 Capital Budget allocates 58% for growth and 42% for renewal.

Table 4 shows the existing commitment and financial obligations associated with the City's developing neighbourhoods. The Capital Cost indicated in Table 4 is for funding new infrastructure and does not include cost related to infrastructure renewal, maintenance, or operations.

**Table 4 – Approved Neighbourhoods and Area Structure Plans**

Sectors	Capital Construction Costs (\$ Million)		Population Demographics		
	Current Funded	Future Funded	NSP Projected	2014 Population	% Complete
North	\$190	\$530	238,898	86,239	36%
South	\$90	\$1,460	392,595	91,437	23%
West	\$60	\$980	169,582	32,377	19%
<b>Total</b>	<b>\$340</b>	<b>\$2,970</b>	<b>801,075</b>	<b>210,053</b>	<b>26%</b>

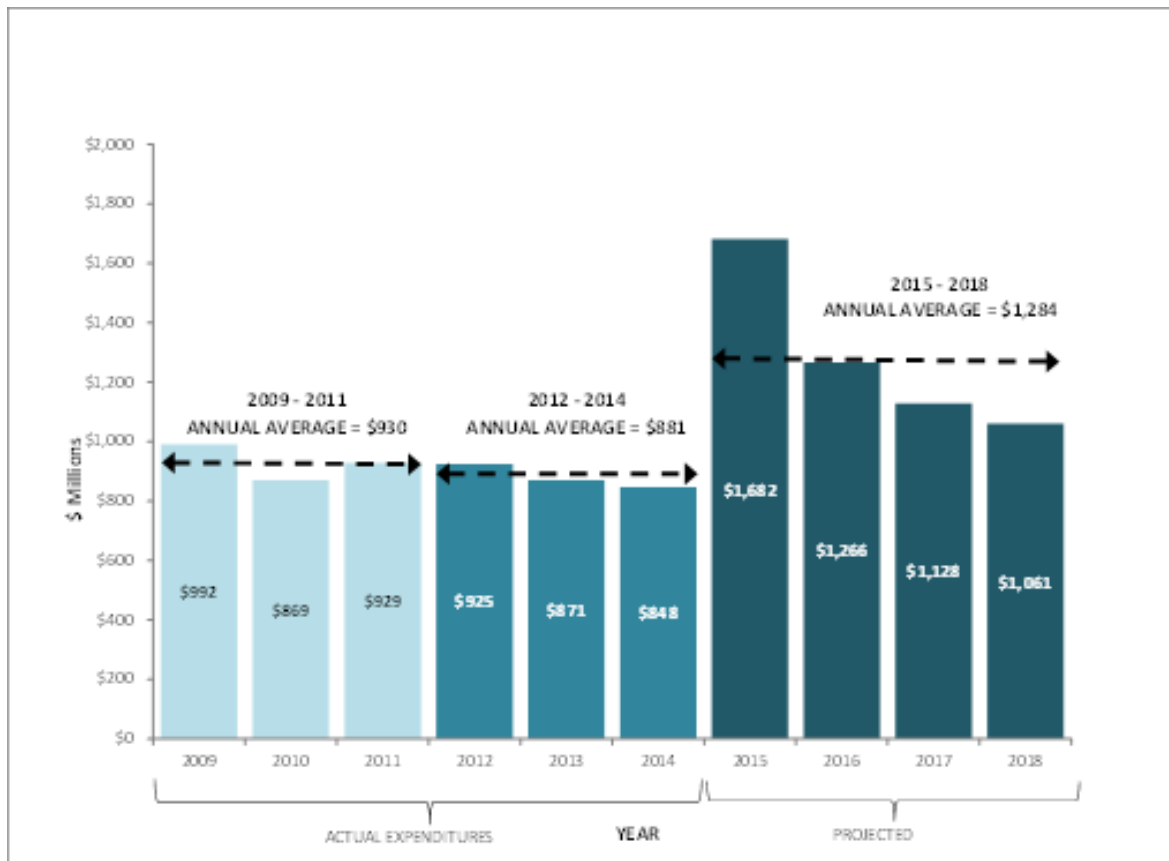
The infrastructure represented in the current funded column is either currently under construction, or will be in the not too distant future. The future funded column represents the balance of infrastructure required to complete the city's developing residential neighbourhoods, including the future neighbourhoods within the Urban Growth Areas. The current and future funded columns include City-funded infrastructure associated with neighbourhood development but do not include infrastructure with a city-wide or regional benefit such as LRT or interchanges.

In some cases, the neighbourhoods may take between 20 and 40 years to complete. This should be considered when putting these costs into context. Long term planning for infrastructure requirements in new growth areas involves understanding how the area will build out and how quickly it will build out, giving planners an idea of what is required now versus what will be required in the future.

During the capital budgeting process, City departments evaluate infrastructure needs in new areas and make recommendations for funding to Council.

The costs listed in Table 4 are significant, but the City commitment to its capital expenditure is even more significant. Figure 12, from the proposed 2015-2018 Capital Budget, shows historical and projected funding levels/breakdowns from 2009 to 2018. Administration makes funding and budget recommendations on a City-wide basis. Prioritization considers all capital requirements throughout the City, and incorporates the strategy and objectives of The Way Ahead.

**Figure 12 – 2009-2018 Average Yearly Expenditures per Budget Period**



**Assumptions**

The analysis presented in this report involves the combination of modelling using the Development Infrastructure Impact Model, coupled with area and sector specific analysis performed by the business units responsible for both the infrastructure and the provision of service. The gathering and analysis was performed by the Infrastructure and Funding Strategies Section with assistance of Sustainable Development, Integrated Infrastructure Services, Citizen Services, City Operations, Edmonton Public Library, Edmonton Police Services, and Financial and Corporate Services.

Area Specific Assumptions

With respect to the area being analyzed, the following was assumed:

1. The population was modeled to fill out independently of neighbourhoods. The model started area build-out in 2016.
2. Assessment averages were calculated using 2015 residential and commercial data.
3. Other area specific assumptions are identified in the qualifications following Table 2 and Table 3 in the report.

*Assumptions for the Development Infrastructure Impact Model*

As with any analytical procedure, the results of a model are dependent on the accuracy of the input data, and the strength of its underlying assumptions. In order to achieve a consistent corporate approach, certain assumptions were made to ensure that all area development-related infrastructure is compared on the same basis. The following describes some of the assumptions used in the Development Infrastructure Impact Model:

1. Area Structure Plans do not typically include specific infrastructure quantities, rather general land areas for road right-of-ways and municipal reserve. In the original Integrated Infrastructure Management Plans completed in support of Area Structure Plans approval, Administration worked with the developers' consultants to ascertain certain quantities in addition to those typically found in Area Structure Plans document. Those same quantities were vetted with the appropriate City department and updated as required then used in the updated analysis. Given that an Area Structure Plans represents a high level design for the area and is subject to change, the resulting quantities, costs and revenues are also subject to change. It is expected that more detail and accuracy can be achieved as the neighbourhood planning progresses within the plan area.
2. The timing for the areas' residential, business employment and commercial developments was initially provided by the developer's consultant at the time the initial Integrated Infrastructure Management Planning work. For Horse Hill and Riverview areas, the original timelines were used but they were adjusted to reflect a 2016 development start.
3. An assumption was made with respect to when all of the required infrastructure within an area would be completed and in service. For modelling purposes, it was assumed that when an area structure plan reaches 100% of its ultimate population, all City and developer built infrastructure would be in place.
4. Operation and Maintenance as well as Service Delivery Costs are calculated based on the City of Edmonton 2016 Operating Budget specific to each Asset as follows:
  - Linear assets (roads and drainage) - \$ per kilometer
  - Parks - \$ per hectare
  - All Others - \$ per capita
5. Major rehabilitation and renewal costs are asset specific and are based on typical lifecycle costs and timetables.
6. Tax rates and average assessments for both residential and commercial uses are based on the 2015 tax year.

Prepared by: Infrastructure and Funding Strategies  
February 2016