

OFFICE CONSOLIDATION

BYLAW NUMBER 2M2016

**BEING A BYLAW OF THE CITY OF CALGARY
TO ESTABLISH OFF-SITE LEVIES
PURSUANT TO SECTION 648
OF THE MUNICIPAL GOVERNMENT ACT**

(Amended by 41M2018, 2H2019)

WHEREAS pursuant to s.648 of the Municipal Government Act, R.S.A. 2000, c.M-26, as amended, and s. 4 of the City of Calgary Charter, 2018 Regulation, Alta Reg 40/2018, Council may provide for the imposition and payment of an off-site levy in respect of land that is to be subdivided, developed or redeveloped;

(2H2019, 2019 December 31)

AND WHEREAS pursuant to s.648 of the Municipal Government Act an off-site levy may be used to pay for all or part of the capital cost of infrastructure defined by Council or land required for or in connection with such infrastructure;

(2H2019, 2019 December 31)

AND WHEREAS The City of Calgary requires developers to contribute to the funding of the above-noted infrastructure;

AND WHEREAS following an extensive engagement and consultation process, The City of Calgary has calculated levies that are based on the application of the principles and criteria set out in the Principles and Criteria for Off-site Levies Regulation, AR 48/2004, , as outlined in The City of Calgary Off-site Levy & Community Services Charges Background Report, contained as Schedule “C” of this bylaw;

AND WHEREAS notice of this Bylaw has been provided pursuant to the provisions of section 606 and 648 of the Municipal Government Act;

NOW, THEREFORE, THE COUNCIL OF THE CITY OF CALGARY ENACTS AS FOLLOWS:

1. This bylaw may be cited as the “Calgary Off-site Levies Bylaw”.

OBJECT OF THE LEVY

2. This bylaw creates off-site levies to pay for all or part of the capital cost of new or expanded facilities or land required for or in connection with any new or expanded facilities for:
 - (a) the storage, transmission, treatment or supplying of water;
 - (b) the treatment, movement or disposal of sanitary sewage;
 - (c) storm sewer drainage;

- (d) roads required for or impacted by a subdivision or development;
- (e) public libraries;
- (f) emergency response stations;
- (g) police district offices;
- (h) recreation centres; or
- (i) transit buses.

(2H2019, 2019 December 31)

DEFINITIONS AND INTERPRETATION

3. (1) In this bylaw, the following definitions apply:

“approving authority” means a person or body appointed as a development authority or subdivision authority in accordance with the *Municipal Government Act*, and does not include an appeal board;

“commercial development” means the uses described in Table 3 of Schedule “B”;
“Established Area” means the area identified as “Established Area” on the map in Schedule “A”;

“community services charge” means a charge or charges imposed for public libraries, emergency response stations, police district offices, recreation centres, and transit buses as described in The City of Calgary Off-Site Levy and Community Services Charges Background Report attached to this Bylaw as Schedule “C”, as amended by The City of Calgary Off-Site Levy and Community Services Charges Background Report Addendum attached to this Bylaw as Schedule “D”;

(2H2019, 2019 December 31)

“Greenfield Area” means collectively the areas identified as “Greenfield Area by Watershed” on the map in Schedule “A”;

“industrial development” means the uses described in Table 3 of Schedule “B”;
“Interim Indemnity Agreement” means the standard City of Calgary Interim Indemnity Agreement;

“levy” or *“levies”* means either individually or collectively the *sanitary sewer levy*, *storm sewer levy*, *transportation levy*, *treatment plant levy*, *water levy*, or a *community services charge* imposed pursuant to this bylaw;

(2H2019, 2019 December 31)

“Manager, Growth Management” means *The City* employee appointed to the position of Manager, Growth Management, or the individual authorized to act in that person’s place;

“residential development” means the uses described in Table 3 of Schedule “B”;
“sanitary sewer levy” means an off-site levy created and imposed under this bylaw to pay for all or part of the capital costs of new or expanded facilities required for the movement or disposal of sanitary sewage;

“site development area” means any portion of land that is the subject of a subdivision or development permit application, and may be portions of, or all of, one or more areas of land described in a certificate of title or described in a certificate of title by reference to a plan filed or registered in a land titles office;

“storm sewer levy” means an off-site levy created and imposed under this bylaw to pay for all or part of the capital costs of the construction of new or expanded storm sewer drainage facilities;

“The City” means the municipal corporation of The City of Calgary;

“transportation levy” means an off-site levy created and imposed under this bylaw to pay for all or part of the capital costs of the construction of new or expanded roads required for or impacted by a subdivision or development;

“treatment plant levy” means an off-site levy created and imposed under this bylaw to pay for all or part of the capital costs of the construction of water and sanitary sewage treatment facilities;

“unit” means a Dwelling Unit or a Live Work Unit, but does not include a Secondary Suite or Backyard Suite, as those terms are defined in The City of Calgary Land Use Bylaw, 1P2007;

“water levy” means an off-site levy created and imposed under this bylaw to pay for all or part of the capital costs of new or expanded facilities required for the storage, transmission, or supply of water.

- (2) Headings or sub-headings are inserted for ease of reference and guidance purposes only and do not form part of this bylaw.
- (3) Each provision of this bylaw is independent of all other provisions and if any provision is declared invalid for any reason by a Court of competent jurisdiction, all other provisions of this bylaw remain valid and enforceable.
- (4) Where this bylaw cites or refers to any other Act, bylaw, regulation, agreement or publication, the citation or reference is to the Act, bylaw, regulation, agreement or publication as amended, whether amended before or after the commencement of this bylaw, and includes reference to any Act, bylaw, regulation, agreement or publication that may be substituted in its place.
- (5) All schedules attached to this bylaw form a part of this bylaw.

CALCULATION

4. (1) The city is divided into geographical areas as shown in Schedule ‘A’ for the purpose of calculating the *levies* to be imposed.

- (2) The *levies* were determined according to the calculations set out in The City of Calgary Off-site Levy & Community Services Charges Background Report, attached to this bylaw as Schedule "C", as amended by The City of Calgary Off-Site Levy and Community Service Charges Background Report Addendum attached to this Bylaw as Schedule "D".

(41M2018, 2018 December 31)

LEVIES

5. (1) Subject to subsections (4), (5) and (6), the following *levies* shall be imposed on all land within the *Greenfield Area* that is to be subdivided or developed for which such a *levy* has not previously been paid:

- (a) *sanitary sewer levy,*
- (b) *storm sewer levy,*
- (c) *transportation levy,*
- (d) *water levy,*
- (e) *treatment plant levy, and*
- (f) *community services charges.*

(2H2019, 2019 December 31)

- (2) Subject to subsections (4), (5) and (6), the *treatment plant levy* shall be imposed on all land within the *Established Area* that is to be subdivided or developed for which a *levy* for water or sanitary sewers has not previously been paid.

- (3) For the purpose of this bylaw only, despite subsection (2), the *treatment plant levy* must not be imposed on land that:

- (a) was the subject of a City of Calgary Master Development Agreement executed between January 1, 2000 and December 31, 2010,
- (b) was the subject of a City of Calgary Master Development Agreement executed between January 1, 2011 and December 31, 2011 and paid a 2010 levy rate, or
- (c) is the subject of a development permit for the addition of floor area for *commercial* or *industrial development* and the gross floor area is less than 150 square metres.

- (4) Despite subsections (1) and (2), a *levy* must not be imposed on land that is designated as environmental reserve or that is a skeletal road.

- (5) Despite subsections (1) and (2), where only portions of a parcel are subject to a subdivision or development permit approval, nothing shall prevent the imposition

of a *levy* on the remaining land, or portions thereof, on subsequent subdivision or development.

- (6) Despite subsections (1) and (2), the *Manager, Growth Management* may defer the imposition of a *levy* on all or part of a parcel where, in his or her sole discretion, there will be opportunity to collect the *levy* on future subdivision or development.
- (7) A *community services charge* is a *levy* and any reference to a “community services charge” in The City of Calgary Off-Site Levy and Community Services Charges Background Report attached to this Bylaw as Schedule “C”, as amended by The City of Calgary Off-Site Levy and Community Services Charges Background Report Addendum attached to this Bylaw as Schedule “D”, is deemed to be a reference to a *levy* in this Bylaw.

(2H2019, 2019 December 31)

AMOUNT OF LEVIES

- 6. (1) Subject to the following subsections and section 9, the rates and amounts of the *levies* to be imposed pursuant to this bylaw are the rates and amounts indicated in Schedule “B”.
- (2) Subject to subsection 5(4), in the *Greenfield Area*, the *levies* to be imposed pursuant to this bylaw are calculated at the rates per hectare, based on the watershed in which the lands are located as shown in Schedule “A” if applicable, multiplied by the number of hectares in the *site development area*.
- (3) Subject to subsection 5(4), in the *Established Area*, for *industrial developments*, or a combination of *industrial* and *commercial developments* on a development permit application, the *levy* to be imposed pursuant to this bylaw is the total gross floor area of *industrial* and *commercial development* approved in the development permit, multiplied by the rate for *industrial* and *commercial development*.
- (4) Subject to subsection 5(4), in the *Established Area*, for *residential, commercial*, or a combination of *residential* and *commercial development* on a development permit application, the amount of the *levy* to be imposed pursuant to this bylaw is:
 - (a) the total number of *units* and the total gross floor area of *commercial development* approved in the development permit, multiplied by the rates for each type of *unit* and the rate for *commercial development*, or
 - (b) where the combined equivalent population per hectare for *residential* and *commercial development* proposed in the development permit is greater than or equal to 285 equivalent population per hectare, the lesser of:
 - i. the calculation as set out in subsection (4)(a), or
 - ii. \$615,885.00 multiplied by the number of hectares in the *site development area*.

- (5) For the purpose of subsection (4), the equivalent population per hectare for *residential* and *commercial development* is calculated using the equivalent population formula indicated in Table 2 of Schedule “B” per type of development for the total number of *units* and the total gross floor area of *commercial development* on the *site development area*, divided by the *site development area*.
- (6) For the purpose of subsections (3) and (4), the number of *units* or gross floor area used to calculate the *levy* must exclude any *units* or gross floor area of *commercial* or *industrial development* that:
 - (a) are demolished or will be demolished, provided the development existed within ten years prior to the development permit application and was connected to both the water and sanitary sewer systems, or
 - (b) will be retained on site.
- (7) The amounts of the *levies* indicated in Schedule “B” will be automatically adjusted every year on January 1 by *The City* without amendment to this bylaw:
 - (a) for the *sanitary sewer levy*, *storm sewer levy*, *water levy*, and *treatment plant levy* by 3.3 per cent; and
 - (b) for the *transportation levy* and *community services charge*, by the percentage equal to the average Statistics Canada’s non-residential construction price index for Calgary for the previous 4 published quarters.
(2H2019, 2019 December 31)
- (8) Subject to section 5(6), the amounts of the *levies* to be imposed pursuant to this bylaw are determined:
 - (a) in the case of a development permit, on the date of the *approving authority’s* decision on a development permit, and
 - (b) in the case of a subdivision, on the date of execution of an *Interim Indemnity Agreement*.

PAYMENT OF LEVIES

- 7. (1) A *levy* that has been imposed on a subdivision pursuant to this bylaw must be paid as follows:
 - (a) 30 (thirty) per cent within one year of the date of execution of an *Interim Indemnity Agreement*,
 - (b) 30 (thirty) per cent within two years of the date of execution of an *Interim Indemnity Agreement*, and
 - (c) the remaining 40 (forty) per cent within three years of the date of execution of an *Interim Indemnity Agreement*.

- (2) A *levy* that has been imposed on a development pursuant to this bylaw must be paid on or before the release of the development completion permit.
- (3) Despite section 6 and subject to section 9, the amount of a *treatment plant levy* that has been imposed on land in the *Established Area* must only be paid as follows:
 - (a) 1/3 of the amount calculated pursuant to this bylaw, where the *approving authority's* decision on the development permit was made between February 1, 2016 and December 31, 2016,
 - (b) 2/3 of the amount calculated pursuant to this bylaw, where the *approving authority's* decision on the development permit was made between January 1, 2017 and December 31, 2017, and
 - (c) the full amount calculated pursuant to this bylaw, where the *approving authority's* decision on the development permit was made on or after January 1, 2018.
- (4) Interest on any outstanding *levy* or portion of a *levy* will be calculated from the time of the payment at the rate of one and one half per cent (1.5%) per month (18% per annum) or as otherwise provided by Bylaw 104/75.

AGREEMENTS

- 8. *The City* may enter into agreements with respect to the payment of *levies*.

TRANSITION

- 9.
 - (1) This bylaw applies to all subdivision or development approvals made on or after February 1, 2016.
 - (2) Despite subsection (1), a *treatment plant levy* must not be imposed on land in the *Established Area* on a development permit application which was received on or before January 31, 2016 and approved on or before January 31, 2018.
 - (3) Despite subsection (1), the provisions of previous bylaws imposing off-site levies continue to apply to all subdivision and development where:
 - (a) in the case of a development permit, the date of the *approving authority's* decision occurs on or before January 31, 2016, or
 - (b) in the case of a subdivision, the date of the *approving authority's* decision occurs on or before January 31, 2016 and the date of execution of a *Interim Indemnity Agreement* for that approval occurs on or before February 15, 2016.
 - (4) Except as provided for in subsection (3), Bylaw 34M2011 is hereby repealed.

- (5) Bylaw 41M2010 is hereby repealed.

OTHER LEVIES AND CHARGES

10. (1) In addition to the *levies* pursuant to this bylaw, the Centre City Levy Bylaw, Bylaw 38M2009, shall continue to apply.
- (2) Nothing in this bylaw prevents *The City* from imposing or collecting further or different levies or charges on any land subject to this bylaw.

ENACTMENT

11. This bylaw comes into force on February 1, 2016.

READ A FIRST TIME THIS 11TH DAY OF JANUARY, 2016.

READ A SECOND TIME THIS 11TH DAY OF JANUARY, 2016.

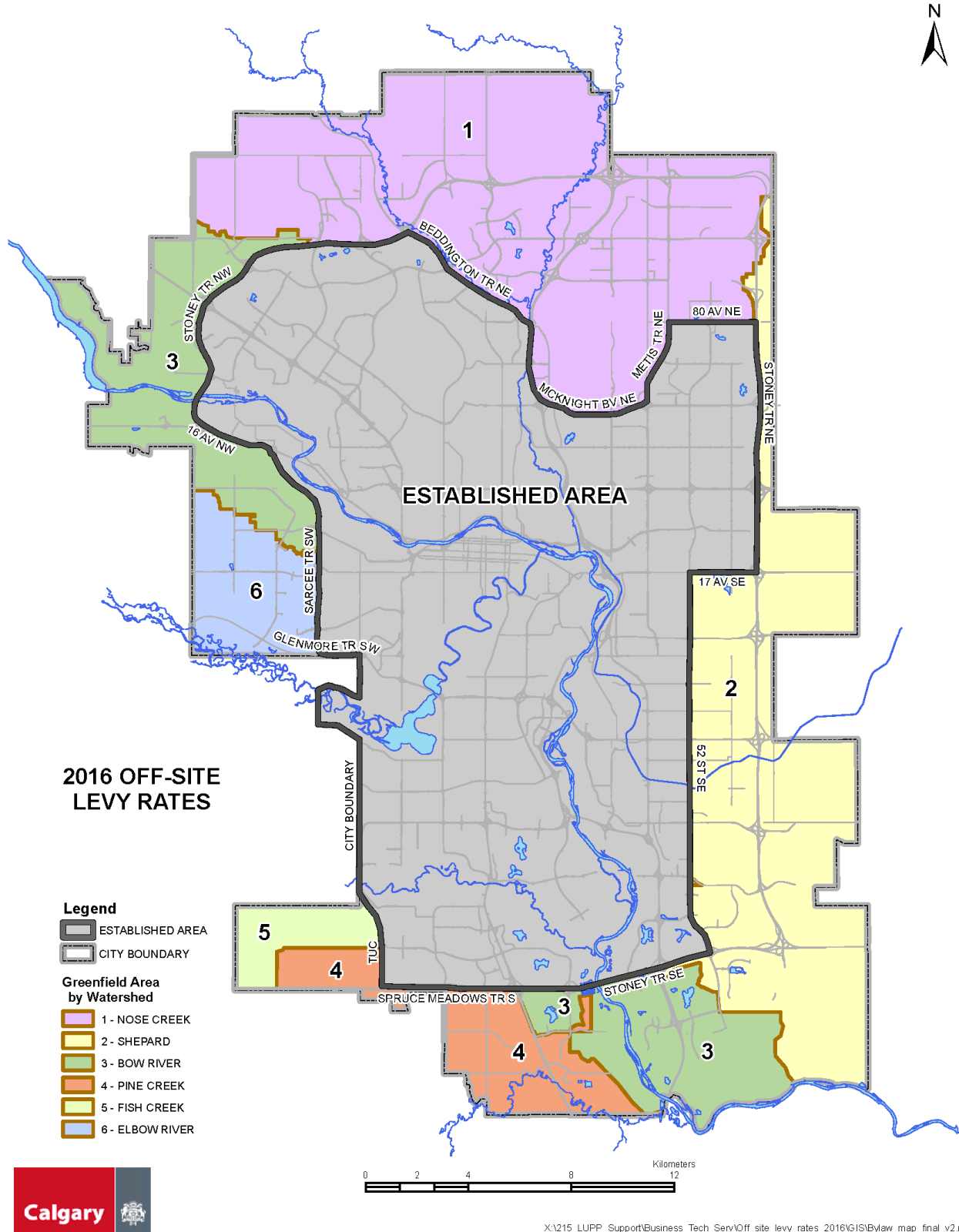
READ A THIRD TIME THIS 11TH DAY OF JANUARY, 2016.

(Sgd.) B. Pincott
DEPUTY MAYOR

(Sgd.) B. Hilford
ACTING CITY CLERK

SCHEDULE "A"

The following map illustrates the geographic areas and watersheds. Despite any changes made to grades or changes to natural drainage courses that might occur, the *levies* will be imposed according to the watersheds indicated on this map.



SCHEDULE "B"**TABLE 1 - Levy Rates in the Greenfield Area**

LEVY	2018 Rate(\$/ha)
<i>transportation levy</i>	\$133,740.00
Bow River	\$8,340.00
Elbow River	\$0.00
Fish Creek	\$21,511.00
<i>storm sewer levy</i> (by watershed)	Nose Creek \$16,868.00
	Pine Creek \$18,943.00
	Shepard \$44,110.00
<i>sanitary sewer levy</i>	\$50,127.00
<i>water levy</i>	\$43,413.00
<i>treatment plant levy</i>	\$138,359.00
<i>public libraries levy</i>	\$5,971.00
<i>emergency response stations levy</i>	\$19,545.00
<i>police district offices levy</i>	\$7,648.00
<i>recreation centres levy</i>	\$41,679.00
<i>transit buses levy</i>	\$4,007.00

(41M2018, 2018 December 31)
(2H2019, 2019 December 31)

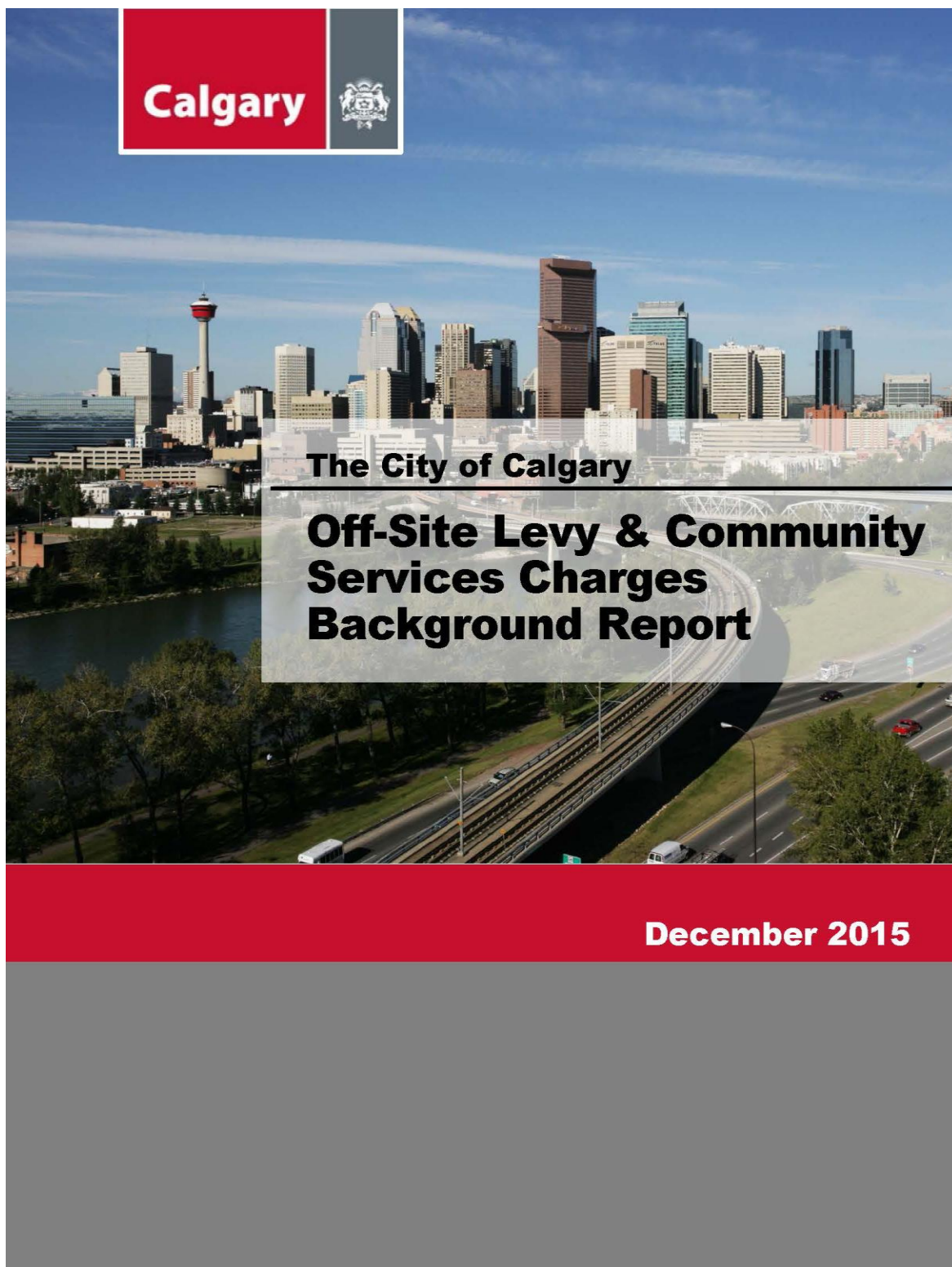
TABLE 2 - Levy rates for *treatment plant levy* in the *Established Area*

TYPE		LEVY RATE	Equivalent Population (EP)
Residential development	Single Detached development with only one unit	\$6,267.00 per unit	units × 2.9 EP/unit
	Semi-detached/Duplex development with only two units	\$5,619.00 per unit	units × 2.6 EP/unit
	Multi-Residential Grade-Oriented development with three or four units, regardless of the form, or five or more units, where the units are provided in a Cottage Housing Cluster*, Townhouse* or Rowhouse Building*	\$3,890.00 per unit	units × 1.8 EP/unit
	Multi-Residential Non Grade-Oriented development with five or more units, where the units are provided in a Multi-residential Development* but are not provided in a Cottage Housing Cluster*, Townhouse* or Rowhouse Building*	\$3,242.00 per unit if a unit contains 2 or more bedrooms	units × 1.5 EP/unit
		\$2,593.00 per unit if a unit contains less than 2 bedrooms	units × 1.2 EP/unit
Commercial development		\$36.62/m ² of gross floor area	gross floor area × 0.017 EP/m ²
Industrial development		\$17.58/m ² of gross floor area	gross floor area × 0.008 EP/m ²
* The terms “Cottage Housing Cluster”, “Townhouse”, “Rowhouse Building”, and “Multi-Residential Development” have the same meanings as provided for in the City of Calgary Land Use Bylaw, 1P2007 and include any similar uses defined in a Direct Control District.			

TABLE 3 – Residential, Commercial and Industrial Development

<p>1. <i>Residential development</i> means a use identified on a development permit, and any use that is ancillary to the principal use listed on a development permit, listed in the following City of Calgary Land Use Bylaw 1P2007 Schedule A Group of Uses, in place on the date of passage of this bylaw:</p> <p>a. Residential Group, with the exception of Hotel.</p>
<p>2. <i>Industrial development</i> means a use identified on a development permit, and any use that is ancillary to the principal use listed on a development permit, that is one of the following:</p> <p>a. a use listed in the following City of Calgary Land Use Bylaw 1P2007 Schedule A Group of Uses, in place on the date of passage of this bylaw:</p> <p>i. Direct Control Uses, with the exception of the following:</p> <ol style="list-style-type: none"> 1. Adult Mini-theatre, 2. Emergency Shelter, 3. Gaming Establishment – Casino, 4. Jail; <p>ii. General Industrial Group,</p> <p>iii. Industrial Support Group, with the exception of the following:</p> <ol style="list-style-type: none"> 1. Artist's Studio, 2. Health Services Laboratory – Without Clients, <p>iv. Storage Group; or</p> <p>b. one of the following specific uses:</p> <ol style="list-style-type: none"> i. Auction Market – Other Goods, ii. Auction Market – Vehicles and Equipment, iii. Bulk Fuel Sales Depot, iv. Fleet Service, v. Large Vehicle Service, vi. Large Vehicle and Equipment Sales, vii. Large Vehicle Wash, viii. Recreational Vehicle Sales, ix. Recreational Vehicle Service, or x. Restored Building Products Sales Yard.
<p>3. <i>Commercial development</i> means a use identified on a development permit, and any use that is ancillary to the principal use listed on a development permit, that is neither <i>residential development</i> nor <i>industrial development</i>.</p>

SCHEDULE “C” Off-Site Levy & Community Services Charges





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EXECUTIVE SUMMARY

This Background Report forms part of the Off-Site Levy Bylaw. In addition to outlining the infrastructure included in the Bylaw, the Background Report describes how the review was undertaken and details the growth assumptions, infrastructure projects and cost estimates underpinning the levies. It offers transparency on how the levies were calculated and outlines how the levies will be used in the future.

The review of the Off-Site Levy Bylaw has been a transparent and collaborative effort between The City and Industry from the outset. This approach is consistent with the Principles and Criteria for Off-Site Levies Regulation within the *Municipal Government Act* (MGA), which requires that “calculation of the levy is to be determined in consultation with affected landowners and developers” (Alberta Regulation 48/2004).

The proposed Off-Site Levy Bylaw itemizes the new or expanded off-site infrastructure that is necessary to serve growth in the city. The following types of infrastructure are included in the Off-Site Levy Bylaw:

- Water and wastewater treatment facilities
- Water distribution and wastewater collection infrastructure
- Drainage infrastructure
- Transportation Infrastructure
- Emergency response stations;
- Recreations centres;
- Public libraries;
- Transit buses; and
- Police district stations.

For all infrastructure projects included in the levies, analysis of benefit is determined and ensures that costs included in the levies and charges are based on the benefit allocated to growth in the development areas of the city.

Table 1 provides the proposed off-site levy rates and community services charges for growth in The City's Greenfield Area.



Table 1 - Proposed Off-Site Levy Rate for Greenfield Area

Infrastructure	2016 Proposed Rate (\$/Ha)
Transportation	\$136,789
Water Resources - Water and Wastewater	\$206,434
Water Resources - Drainage by Catchment	
Nose Creek	\$11,325
Bow River	\$6,983
Pine Creek	\$16,812
Shepard	\$42,704
Fish Creek	-
Elbow River	-
Community Services	\$78,850
Total	\$422,073 to \$464,777

Table 2 summarizes the proposed off-site levy rates for growth in The City's Established Area.

Table 2 - Off-Site Treatment Plant Levy Rate for Proposed Established Area Developments

	Residential \$/Unit				
	Single Detached	Semi-Detached /Duplex	Multi-Residential Grade-Oriented	Multi-Residential Non Grade-Oriented (2 Bedroom or More)	Multi-Residential Non Grade-Oriented (1 Bedroom or Less)
Total Treatment Off-site Levy per Unit Type	\$6,267	\$5,619	\$3,890	\$3,242	\$2,593
Commercial Development Levy Rate: \$36.62/ m² of Gross Floor Area					
Industrial Development Levy Rate \$17.58/ m² of Gross Floor Area					
Maximum Rate for Density ≥ 285 Equivalent Population/Hectare: \$615,885/Ha.					

For the Established Area levy, credits at the above rates will be applied for existing or recent developments on the proposed development site that have been or will be demolished.



The City of Calgary Off-Site Levy Bylaw & Community Services Charges
Background Report

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CHAPTER 1 – INTRODUCTION

1.1 Background

Calgary is one of the fastest growing municipalities in North America – increasing by 100,000 people in the last three years. To meet the ever-changing demands driven by growth, The City of Calgary established a collaborative cross-corporate team called *Build Calgary* in 2014. The Build Calgary team was tasked with the following two goals:

- 1) Implement a funding approach that provides the necessary infrastructure to accommodate projected growth; and
- 2) Work with partners to create a transparent approach to sustainable infrastructure funding for the orderly, economic and beneficial development of land.

The Off-Site Levy Bylaw project is one of the key initiatives of Build Calgary. In 2011, The City of Calgary approved an Off-Site Levy Bylaw and resolution to establish charges for off-site infrastructure impacts related to growth. In 2015, The City of Calgary initiated a review and major update of its transportation, water resources and community services charges for development. The need for a significant update to the Off-Site Levy Bylaw and community services charges was triggered by a number of factors, including:

- The amount of new greenfield development being driven by strong population growth;
- Demand for new infrastructure driven by anticipated growth in established areas;
- The need for a best practice approach to fund future infrastructure that balances financial impact on capital budgets, Calgary's competitive advantage, fairness to taxpayers and utility customers and impacts on affordability; and
- The levies be kept current with infrastructure needs and costs.

The proposed Off-Site Levy Bylaw itemizes the new or expanded off-site infrastructure that is necessary to serve growth in the city. The following types of infrastructure are included in the Off-Site Levy Bylaw:

- Water and wastewater treatment facilities
- Water distribution and wastewater collection infrastructure
- Drainage infrastructure
- Transportation Infrastructure
- Emergency response stations
- Recreations centres
- Public libraries
- Transit buses
- Police district stations

The proposed off-site levy and community services charges ensure that those who will use and benefit from the infrastructure pay their share of the costs in a fair and equitable manner. The proposed off-site levy and community services charges create certainty by providing stable charges to the development industry and by allowing the orderly and timely construction of infrastructure as determined by The City.



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1.2 Purpose of the Background Report

This Background Report forms part of the Off-Site Levy Bylaw (the Bylaw). It describes how the review was undertaken and details the growth assumptions, infrastructure projects and cost estimates underpinning the levies. It offers transparency on how the levies were calculated and outlines how the levies will be used in the future.

The Background Report includes the following elements:

- **Chapter 1** provides the need and purpose of the off-site levy review as well as the key guiding principles and legislative context guiding its preparation.
- **Chapter 2** describes the stakeholder engagement process adopted for the review.
- **Chapter 3** outlines the relationship of the Off-Site Levy Bylaw to other municipal documents, timeframe for the off-site levy programs, allocation of costs between existing and new development, application of the levies in different areas of the city, and the unit of charge.
- **Chapter 4** presents the growth projections and land absorption assumptions used in calculating the off-site levy.
- **Chapters 5, 6 and 7** summarize the costs of each off-site levy programs (i.e. transportation, water resources and community services) and shows how the levy rates are calculated.
- **Chapter 8** includes a summary of how and when the levies will be collected, exemptions to the off-site levy, grace periods and how the levies will be monitored and reviewed.



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1.3 Legislative and Regulatory Background

This section outlines the legislative and regulatory framework underpinning The City of Calgary's Off-Site Levy Bylaw and Background Report. Section 648 of the *Municipal Government Act* (MGA) allows municipalities to impose a levy to help pay for the capital costs for new or improved infrastructure identified in Section 648 of the MGA that is required to service growth. When establishing an off-site levy, The City must comply with the MGA and Principles and Criteria for Off-Site Levies Regulation, (Alberta Regulation 48/2004) which provides in part:

- 3(1)** In determining the levy costs, the municipality is to retain the flexibility to negotiate the levy in good faith and in a manner that recognizes the unique or special circumstances of the municipality.
- 3(2)** There is to be full and open disclosure of all levy costs and payments.
- 3(3)** There is a shared responsibility between the municipality and developers for addressing and defining existing and future infrastructure requirements and all beneficiaries of development are to be given the opportunity to participate in the cost of providing and installing infrastructure in the municipality on an equitable basis related to the degree of benefit.
- 3(4)** Where necessary and practicable, the municipality is to coordinate infrastructure provisions and services with neighbouring municipalities.
- 3(5)** There is to be a correlation between the levy and the impacts of new development.
- 3(6)** The methodology for determining the levy is to be consistent across the municipality, while recognizing variations among infrastructure types.
- 3(7)** The method of calculation for the levy is to be clear.
- 3(8)** The information used to calculate the levy is to be kept current.
- 3(9)** The calculation of the levy is to include, but is not limited to:
 - description of the specific infrastructure facilities,
 - description of the benefiting areas,
 - supporting technical data and analysis, and
 - estimated costs and mechanisms to address cost increases over time.
- 3(10)** Calculation of the levy is to be determined in consultation with affected landowners and developers.
- 3(11)** The levy is subject to annual reporting requirements.

Although the MGA is currently under review by the Province of Alberta, the Bylaw has been developed to adhere with current legislation.



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CHAPTER 2 – PROJECT APPROACH AND STAKEHOLDER PARTICIPATION

2.1 Process for Reviewing the Off-Site Levy Bylaw

The approach to reviewing the Off-Site Levy Bylaw follows six phases. Each of the phases is described below and illustrated in Figure 1.

- **Understand/Principles Phase** – The first phase sought to understand the current assumptions around off-site levies, the current process for determining infrastructure needs and the current approach to allocating who builds, funds and finances infrastructure.
- **Options Identification Phase** – The second phase identified options for where and when growth will occur, alternate service levels and timeframes for providing infrastructure and different ways infrastructure might be built, funded and allocated. This phase included the first stakeholder engagement session.
- **Analysis and Assessment Phase** – The third phase required finalizing the growth assumptions, analysing infrastructure needs and assessing the aforementioned options from a financial and legislative perspective. This phase included the second stakeholder engagement session.
- **Calculations Phase** – The fourth phase involved developing the financial model for the new off-site levies. During this process numerous iterations were created and analysed, considering alternate methodologies.
- **Consultation and Council Process** – The fifth phase included the final stakeholder engagement session, preparing the Background Report and presenting the outcomes of the project at a Council Public Hearing.
- **Implementation Phase** – The implementation phase is on-going and ensures the processes are in place to begin charging the new levy rates and charges.



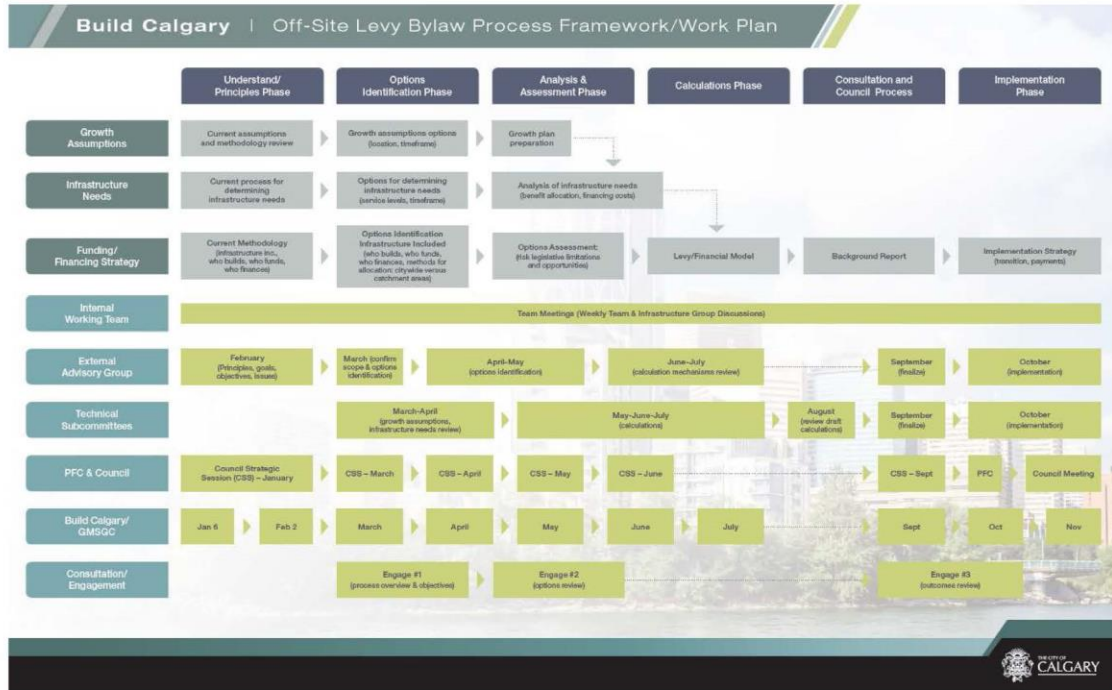
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The City of Calgary Off-Site Levy Bylaw & Community Services Charges Background Report

Figure 1 - Off-Site Levy Bylaw & Community Services Charges Process





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2.2 Stakeholder Engagement

The review of the Off-Site Levy Bylaw has been a collaborative effort between The City and Industry from the outset. This approach is consistent with the *Principles and Criteria for Off-Site Levies Regulation* within the MGA, which requires that "calculation of the levy is to be determined in consultation with affected landowners and developers" (Alberta Regulation 48/2004).

The extent of stakeholder engagement during the Off-Site Levy Bylaw process is illustrated in Table 3. The following table provides a summary of the engagement process with further detail provided in Appendix A.

Table 3 - Stakeholder Engagement Summary

Engagement Group	Members	Purpose	Frequency of Meetings
Internal Working Team	Predominantly city staff from various departments	<ul style="list-style-type: none"> Developed guiding principles and framework of the work plan Defined infrastructure projects, timing, cost estimates and options for funding 	<ul style="list-style-type: none"> Weekly 32 meetings since Jan 29
External Advisory Group	City staff and external representatives from various sectors of the development industry including greenfield, inner-city and industrial	<ul style="list-style-type: none"> Acted as Industry sounding board Developed guiding principles for the project Finalized the scope of the project Reviewed options related to methodology, calculation of levy, funding 	<ul style="list-style-type: none"> Every 3 weeks 14 meetings since Mar 11
Technical Subcommittee	City staff, external industry representatives and technical consultants	<ul style="list-style-type: none"> Undertook technical analysis Finalized the methodology and calculations 	<ul style="list-style-type: none"> Weekly 20 meetings since May 5
Council	City staff and Council	<ul style="list-style-type: none"> Updated on progress of project Receive feedback 	<ul style="list-style-type: none"> Bi-monthly
Build Calgary /GMSGC/ALT	Build Calgary, General Managers Strategic Growth Committee (GMSGC) and Administrative Leadership Team (ALT)	<ul style="list-style-type: none"> Weekly meetings with Build Calgary and monthly updates with GMSGC/ALT 	<ul style="list-style-type: none"> Monthly
Stakeholder Information Sessions	Developers (Greenfield and Established Area), community leaders, consultants, various committees and interest groups	<ul style="list-style-type: none"> First session - overview of the Off-Site Levy Bylaw project and its objectives. Second session -review of options Third session - review project outcomes. 	<ul style="list-style-type: none"> Quarterly Sessions in Apr, Jun & Oct



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Established Area – Initial Group	City staff, large and small infill developers and interest groups that are related to Established Area of the city.	<ul style="list-style-type: none"> • Provided status of the work plan and receive relevant feedback • Acted as an Industry sounding board • Reviewed options related to the methodology and calculation of levy unique to the established areas of the city. 	<ul style="list-style-type: none"> • 4 meetings since June 11
Established Area – Stakeholder Group	Established Area developers, consultants, and industry representatives	<ul style="list-style-type: none"> • Sessions were held in November and December with attendance of 40 to 55 industry representatives 	<ul style="list-style-type: none"> • 2 meetings since November
Established Area – Working Group	Established Area developers, consultants, and industry representatives	<ul style="list-style-type: none"> • Ad hoc committee of representatives of Established Area group to develop strategy for Established Area levies 	<ul style="list-style-type: none"> • 5 meetings since November
One on Ones	City staff and developers	<ul style="list-style-type: none"> • City staff met with members of the development industry at various occasions to discuss the Off-Site Levy Bylaw and the process. 	<ul style="list-style-type: none"> • At least 21 meetings since January

2.3 Guiding Principles

An important early output from the stakeholder engagement process was a set of eleven principles to guide the preparation of the new Off-Site Levy Bylaw. The principles were jointly created by Industry and City staff to ensure the interests of stakeholders were considered throughout the project.

- **Guiding Legislation** – Understand the current legislation and risks associated with off-site levies and charges. Seek opportunities to manage or mitigate the risks and to identify opportunities for agreed upon legislative changes, whether by City Charter or amendments to the MGA, or both.
- **Certainty** – The Off-Site Levy Bylaw should contribute to overall growth management and infrastructure processes that provide cash flow, cost and infrastructure certainty. The funds collected should be used as intended.
- **Policy Alignment** – Promote achievement of goals within the Municipal Development Plan, Calgary Transportation Plan and The City of Calgary planning and financial policies.
- **Financial Sustainability** – Create an off-site levy bylaw that contributes to a sustainable financial framework for growth-related infrastructure that is in the best interest of current and future citizens of Calgary.



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- **Benefit Allocation** – Costs of off-site infrastructure should be borne by those who benefit. The benefit allocation should be determined using a defined methodology that appropriately allocates infrastructure costs to growth, existing residents and/or regional customers.
- **Fairness and Equity** – Fairness and equity will be a primary consideration when determining benefit allocation, and costs, which should be distributed equitably including considerations for existing and future development.
- **Clarity and Transparency** – Methodologies and calculations used to determine the amount of the off-site levy will be clear and transparent.
- **Accountability** – Information supporting the off-site levies will be disclosed, including annual reporting on the collection and allocation of levies.
- **Collaboration** – Opportunities for collaboration with a diverse set of stakeholders will be provided during this process and in the future.
- **Efficiency** – Strive to create an off-site levy bylaw that can be easily administered.
- **Competitiveness** – Ensure that economic competitiveness for The City of Calgary is of primary consideration, especially as it relates to competition within the Calgary region and for each type of residential, commercial and industrial development.



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CHAPTER 3 – DEVELOPING THE OFF-SITE LEVY PROGRAM

3.1 Relationship to Legislation and Municipal Documents

Several sources have been consulted in order to develop this off-site levy program, including the following:

- *Municipal Government Act (MGA)*
- Principles and Criteria for Off-Site Levies Regulation, (Alberta Regulation 48/2004)
- Calgary Municipal Development Plan (MDP)
- Calgary Transportation Plan (CTP)
- Route Ahead: A Strategic Plan for Transit in Calgary (Transit's 30 year Strategic Plan)
- Investing in Mobility: 10 year Transportation Infrastructure Investment Plan
- Investing in Communities: 10 year Community Services & Protective Services Infrastructure Investment Plan
- Water Infrastructure Investment Plan: 10 Year Water Resources Capital Plan
- Calgary Recreation Master Plan 2010 - 2020
- Team Spirit: Advancing Amateur Sport for All Calgarians, A 10 year Strategic Plan for Sport Facility Development and Enhancement
- Calgary Fire Department 30 Year Infrastructure Master Plan
- Calgary Fire Department Infrastructure Requirement: Proposed Plan for Growth Related Stations
- Employment Areas Growth and Change
- Calgary Public Library 2010 Library Master Facility Plan

3.2 Timeframe for Off-Site Levies

The timeframe or cost recovery window used for calculating the off-site levies for transportation, water resources and community services programs varies by infrastructure categories considering long-term capital planning and financing horizons for the various infrastructure types.

The timeframe for the transportation program is 60 years, while the water resources program is 10 years for all water resources infrastructure except treatment facilities. Treatment facilities levies are not tied to a fixed program timeframe, but use a cost of capacity model to allocate costs. This model considers recently constructed projects with available capacity for growth along with projects planned in the next 10 years. The community services programs are based on the average cost of facilities needed to serve development with an estimate of costs provided for 30 years. Further information on population and growth projections is provided in Chapter 4.



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3.3 City-wide versus Area-Specific Off-Site Levies

In a city-wide off-site levy, the same levy rate is applied regardless of the location of the development. An area-specific off-site levy typically divides the community into different areas according to geographic areas or other distinctive characteristics based on technical reasons.

As part of the off-site levy review the impact of projected growth on infrastructure was reviewed to determine if the charges should be levied on a city-wide or area-specific basis. The following table summarizes the outcome of the review and where the levies are applied.

Table 4 - City-wide versus Area-Specific Off-Site Levies and Community Services Charges

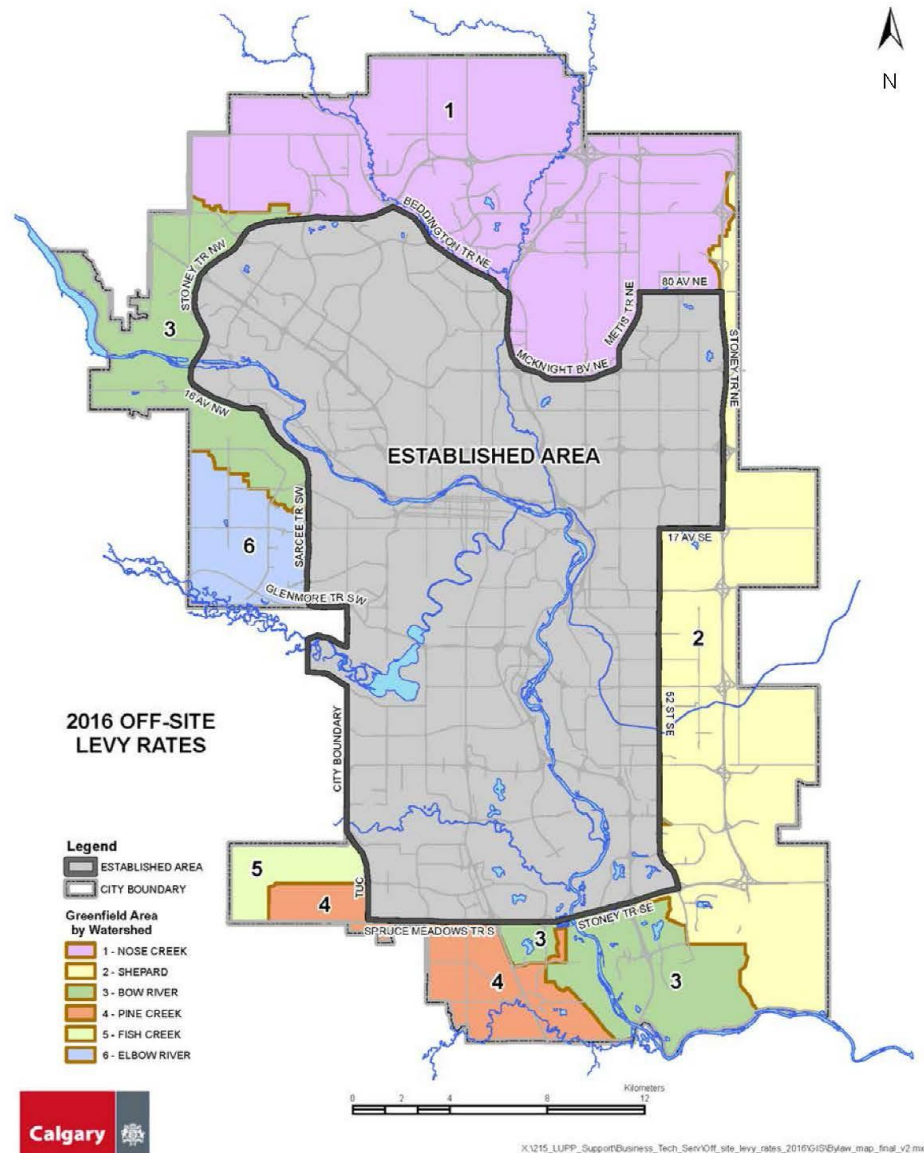
Area	Infrastructure Type	City-wide or Area-Specific
Greenfield Area	<ul style="list-style-type: none"> Water Resources – Water Distribution & Wastewater Collection Transportation Community Services 	City-Wide (Greenfield Only) The same rate is levied across the Greenfield Area as infrastructure benefits and impacts are evenly distributed.
	<ul style="list-style-type: none"> Water Resources - Drainage 	Area-Specific (Greenfield Only) The levy for drainage is applied to specific greenfield catchments as benefits and impacts are attributed to specific catchments of the Greenfield Area.
Established Area & Greenfield Area	<ul style="list-style-type: none"> Water Resources - Water Treatment and Wastewater Treatment 	City-Wide (Established & Greenfield) The levy rates differ by development type based on development impact. Levy is applied to all areas based on equivalent population.

Figure 2 illustrates The City's Established Area and the six catchments within the Greenfield Area. Those Greenfield catchments are: Bow River, Elbow River, Fish Creek, Nose Creek, Pine Creek and Shepard.



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Figure 2 - Off-Site Levy Bylaw Areas





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3.4 Units of Charge

Off-site levy rates in The City's Greenfield Area is levied per hectare for all development types and for all infrastructure types.

In the Established Area, the off-site levy rate applied is only for water and wastewater treatment infrastructure. In order to apply the levy on a consistent basis for both Greenfield Area development and Established Area development, impact on treatment infrastructure capacity is determined based on equivalent population added for each type of development. For the Greenfield Area, the average equivalent population per hectare of development is determined and the corresponding levy per hectare calculated. For the Established Area, the equivalent population impact is determined based on the type of development proposed. For residential development in the Established Area, off-site levy rates are calculated based on equivalent population added by a single detached, semi-detached/duplex, and multi-residential units based on the incremental number of units added. For non-residential development in the Established Area, a rate is determined based on the average equivalent population (employees) added per square metre of gross floor area for non-residential development based on the amount of floor space added. For the Established Area, a credit will be applied based on the existing development that existed on the redevelopment of the site prior to the current proposed development. Details of the determination of the credit is included in Section 6.4.

3.5 Allocation of Benefit

For each proposed infrastructure project, costs are allocated between existing development, new growth and regional benefit. The methods to allocate the benefit of projects vary by infrastructure type and specific details are provided in the specific infrastructure sections. Considerations in determining allocation of benefit include:

- Improvement above current level of service to which all benefit
- Resolution of existing deficiencies
- Regional benefit provided
- Renewal or replacement of existing infrastructure which benefits existing users
- Capacity provided
- Projects that are required solely to accommodate new growth

The method used to determine greenfield needs for community services infrastructure is based solely on greenfield demand for libraries, fire halls, recreation centres, police district stations and transit buses. Therefore, the facilities and infrastructure costs determined through this method are 100% allocated to greenfield.

3.6 Determination of Carry-Forward Levy Fund Balances

When off-site levies and community services charges are updated, current account balances for the various levy funds should reflect whether expenditures, in the previous collection window, have exceeded or lagged amounts collected. If expenditures exceed collections, then the fund will have a surplus balance and if expenditures lag collections then the fund will have a deficit balance. To determine appropriate fund



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balances, expenditures should be based on the levy project actual costs and the percentage of those costs to be covered by levy funds as determined by the previous levy calculations. Often, municipalities will use other funds available to advance the levy portion of projects until sufficient levy funds are collected. As a result, the actual expenditures of levy funds may not always reflect the theoretical allocation of costs to be covered by levies.

The requirement to carry-forward surplus and deficit balances into the new levy or charge calculations depends on the model used to calculate the levies or charges. For off-site levies and charges that are calculated based on the cost of capacity or cost of facilities required to serve incremental development or population, carry-forward fund balances from previous levy programs are not credited toward the calculation. This cost of capacity method, in principle, determines the appropriate amount to charge new development for additional capacity. Any previous funds collected were collected to provide capacity for previous development or growth. For the current levy and charges calculations in this report, the cost of capacity model applies to all the community service charges and the water and wastewater treatment levies.

For all other infrastructure categories included in this report (transportation and non-treatment related water resources), calculations are timeframe based cost recovery models. These models are based on recovering identified projects costs over a defined development area determined by the timeframe for recovery. As the development timeframe advances, projects are built and levies are collected, however, these amounts are never exactly the same. Therefore, when levies are recalculated based on a new development window, the levy fund will either have a deficit or a surplus balance. Carry forward of deficit fund balances into the new levy calculation ensures that the municipality receives the total amount of projects allocated to be recovered through off-site levies. Carry forward of surplus funds ensures that development receives the benefit of amounts pre-collected for projects that remain on the project list and that surplus amount is credited toward the new levy calculation.



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CHAPTER 4 – GROWTH PROJECTIONS

This chapter provides an overview of growth projections that support the Bylaw. Growth projections are important to the process as they provide the information needed to determine the infrastructure required to support identified development windows. The growth projections also identify the benefitting population and area over which infrastructure costs are allocated. Dividing the growth infrastructure costs by the growth projection areas or the growth population equivalents produces the levy per hectare or unit amounts referenced in the Bylaw.

4.1 Projected Population Growth – Amount and Distribution

Projecting Based on Policy and Trend

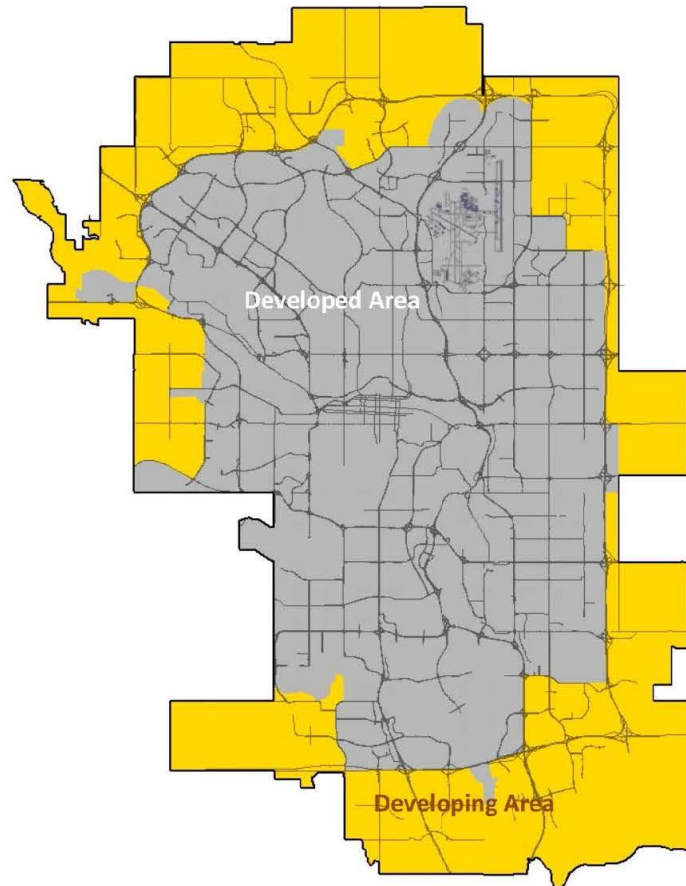
The population growth projections used for the levies and charges are based on Calgary's MDP. Approved by City Council in 2009, this plan sets the vision for growth in the city over the next 60 years including both the amount and the location of growth. The MDP projects that Calgary's population will grow by 1.2 million people between 2006 and 2076, increasing from 1.0 million to 2.2 million. As this projection was prepared in 2009, the projection has been adjusted to meet actual socio-economic circumstances that have affected actual growth rates since 2009. The current 60 year forecast for the off-site levy calculations has been revised up by an additional 342,000 people to reflect the higher growth trend in recent years.

The MDP contains a range of policies intended to achieve the vision for the pattern of Calgary's growth over time. In particular, the MDP provides a vision for the estimated growth in the city to occur in The City's Established and Greenfield Areas at the time the MDP was prepared. The MDP refers to the Established and Greenfield areas as the Developed Area and Developing Area respectively. The Developed Area is considered to be all communities that were completely constructed prior to the approval of the MDP in 2009 and as shown in Figure 3. The Developing Area is considered to be all communities that had no or only partial urban development prior to approval of the MDP. The MDP vision includes an increasing share of growth in the Developed Area, specifically 33 percent of growth by 2039 and 50 percent of growth over the next 60 to 70 years.



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Figure 3 – The City of Calgary MDP - Developed and Developing Areas



In addition to the MDP's vision for the split of growth between Developed and Developing Areas, projecting the location of future growth also takes into consideration The City's corporate forecast for population growth and development data such as the suburban lot inventory, subdivision plans and permitting activity that reflect market conditions.

In establishing a population for 2076, population growth and distribution have been projected for five year windows out to 2043. The result is a comprehensive, high resolution forecast that incorporates present day growth patterns, near term development intentions, emerging demographic trends, and the vision of the MDP. Table 5 provides the population projections for the development windows.



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Table 5 - Population Projections

Areas (as defined in the MDP)	Total Population				
	2006 (actual census pop.)	2014 (actual census pop.)	2024	2039	2076
Developed Area	849,967	882,241	949,691	1,179,480	1,589,520
Developing Area	141,792	312,953	523,896	730,332	920,064
City Total	991,759	1,195,194	1,473,586	1,909,812	2,509,584

Table 5 demonstrates how the overall projection assumes that the share of growth in Developed Areas increases through the time period. Recent census data shows that the share in Developed Area growth is shifting towards this projection with 16% of population growth experienced since 2006 occurring in the Developed Areas.

4.2 Greenfield Growth Area Projections

Land area is the basis for allocating growth infrastructure costs for greenfield development. To determine levies and charges for greenfield development starting in 2016, the developable Greenfield Area is determined for each levy program timeframe. The developable Greenfield Area does not include areas with development agreements in place as the levies and charges have already been determined and fixed for those areas. Furthermore environmental reserve and skeletal roads are excluded from the determination of the developable Greenfield Area.

To determine the Greenfield Area, growth is categorized as follows: residential growth, non-residential growth supporting residential development and industrial growth.

Projections for Residential Greenfield Growth

The amount and location of future growth in greenfield areas is guided by land-use patterns and intensity standards (people and jobs per hectare) in the MDP and are further refined through Area Structure Plans (ASPs) and planning applications. Greenfield development is tracked through The City's Suburban Residential Growth report which provides information on achieved densities and corresponding people and jobs per hectare.



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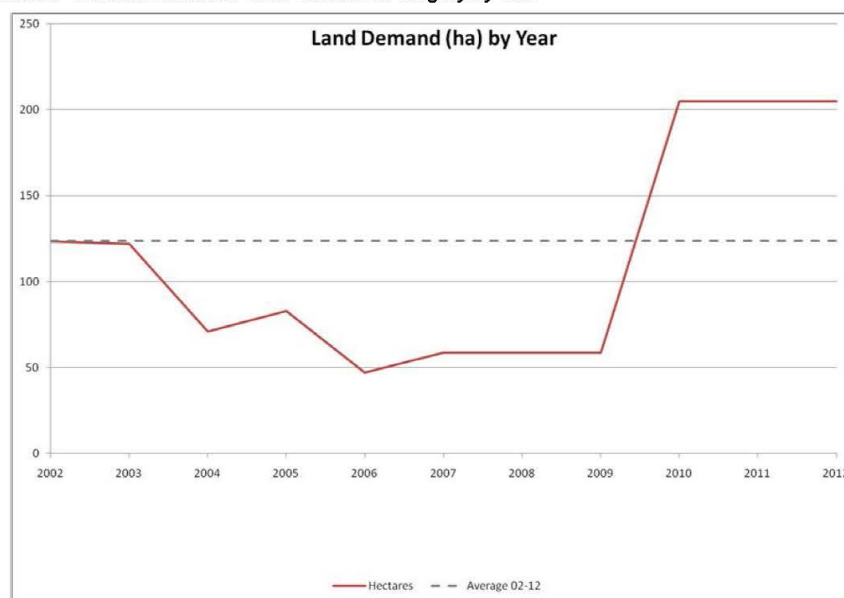
Projections for Non-Residential Greenfield Growth Supporting Residential Growth

Supporting non-residential uses include: retail centres, institutional uses, high schools, public lakes/water bodies and regional open spaces. The amount of this type of development area is estimated at 15% to the residential greenfield growth area projection. If ASPs are available, supporting non-residential area estimates provided in the ASP are used in place of the 15% estimate.

Projections for Greenfield Industrial Growth

Industrial greenfield development includes new development built under an industrial use in one of the city's industrial areas. The projection for industrial lands is based on the actual industrial land development experienced between 2002 and 2012. However, industrial land development is variable over time as illustrated in Table 6. The annual development of industrial land varied from a low of 50 hectares to a high of over 200 hectares per year.

Table 6 - Historic Industrial Land Demand in Calgary by Year



The City uses the average industrial land development over this time period of 125 hectares per year for projecting the demand for industrial land over the development window forecasts. This is a reasonable approximation over an extended timeframe of city growth.

Table 7 provides a summary of Greenfield Area projections for residential, supporting non-residential and industrial development, for the development windows used to determine the levies and charges. The numbers reflect developable land, which is total land less environmental reserve and skeletal roads.



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Table 7 - Estimated Greenfield Land Development Projections

Year	Residential (ha)	Non-Residential (ha)	Industrial (ha)	Total Greenfield Area for Levies and Charges
2016-2024 (9 years) ¹	2,418	70	1,125	3,613
2015-2024 (10 years)	2,687	78	1,250	4,015
2015-2044 (30 years)	6,341	371	3,750	10,462
2015-2074 (60 years)	10,307	538	7,500	18,345

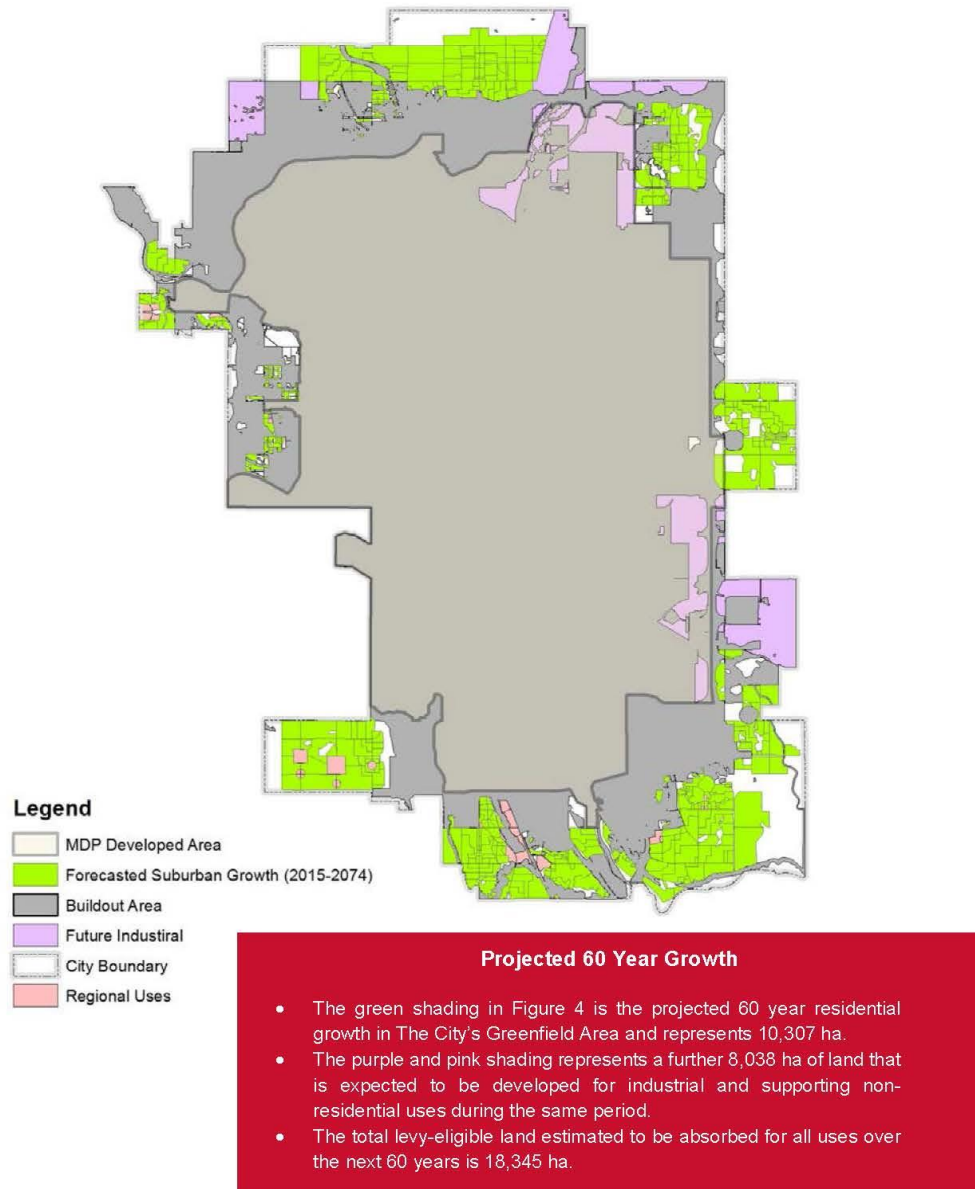
¹ –9 year horizon is used in some of the utilities calculations, as Water Resources is already one year into their 2015-2024 Water Infrastructure Investment Plan (WIIP)

Figure 4 illustrates where future growth is anticipated to occur within The City's Greenfield Area for the 60 year horizon. The size of the growth areas corresponds to the data provided in Table 7.



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Figure 4 - Projected 60 Year Growth in Developing Areas





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CHAPTER 5 – TRANSPORTATION PROGRAM

5.1 Introduction

The City's MDP and related CTP sets out a clear framework for development over approximately a 60 year timeframe with mobility and development intrinsically linked. The future growth patterns envisioned in the plans create more compact and connected communities through a capital program which supports the increased use of active modes and transit while also maintaining auto mobility into the future. The transportation off-site levy provides a mechanism for greenfield growth to contribute to the increasing cost to provide transportation infrastructure to support the growth of the city.

The basis of the transportation levy is that future transportation infrastructure costs are levied to greenfield development based on the benefit allocated to greenfield development. As such, the benefit that existing development and growth in the Established Area will receive from future transportation infrastructure is not included in the levy.

The costs of the following types of transportation infrastructure are included in the levy

- Interchanges
- Structures over major geographic barriers (rail/creeks/ravines)
- Skeletal Roads (Expressways)
- Transportation Utility (TUC) Road connections
- Pedestrian Overpasses
- All Greenfield Traffic Signals
- Additional lanes and facilities for the purpose of Bus Rapid Transit (BRT)

Costs for operating, lifecycle or maintenance of transportation infrastructure, and roads/transit operations are not included in the levy. No costs associated with Light Rail Transit (LRT) are included in the levy.

The City of Calgary's Municipal Development Plan and Transportation Plan set out a clear framework for development growth over a 60 year timeline with associated transportation infrastructure requirements to build out the plans, as envisioned. As such, the timeframe for examining long term infrastructure needs was chosen to be 60 years.

5.2 Determining Transportation Infrastructure Needs

The City of Calgary's *Regional Transportation Model*, was used to determine the transportation infrastructure required to build out the growth patterns envisioned over 60 years within the CTP. In order to determine benefit to the Greenfield Area, the model was broken down into two areas: Greenfield Area (those areas without development at the time of the analysis) and Established Area (areas that have been predominantly developed already). As the travel patterns and transportation choices differ for the two areas, it is reasonable to determine infrastructure needs and benefit based on the two areas over the chosen timeframe.

The following table provides a summary of infrastructure and costs to support build out of the city over 60 years. A detailed project list and maps showing the location of the projects is included in Appendix B.

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Table 8 - Total Transportation Infrastructure Costs

Infrastructure	Total Transportation Infrastructure Costs (\$millions)	
	Established Areas Projects	Greenfield Areas Projects
Interchanges	\$4,161.7	\$1,911.0
Greenfield Traffic Signals	\$0	\$81.4
Major Structures	\$600.0	\$263.0
Expressway/Ring Rd Connections	\$0	\$233.3
Road Widening	\$824.0	\$0
Pedestrian Overpasses	\$84.0	\$42.0
Bus Rapid Transit Infrastructure	\$392.0	\$90.0
Total	\$6,061.7	\$2,620.6

These costs include the capital costs of construction of new infrastructure required to support greenfield growth. Estimates are generally based on Class V cost estimates, as per the Corporate Project Management Framework definitions. For near term projects where additional design work has been undertaken and more refined cost estimates are available, these estimates are used in the calculations. Where grants or provincial highway funding are provided from other levels of government for a specific project and obtained only to be applied to that specific project, those amounts are applied to the project costs above. Should project specific funding be received, grant amounts will be taken into consideration for future calculations.

5.3 Allocation of Benefit

The City of Calgary's *Regional Transportation Model* (RTM) was used to determine the allocation of benefit to greenfield growth for both Greenfield and Established Area infrastructure. Within the RTM, Vehicle Kilometres Travelled (VKT) were analyzed as a reflection of use (benefit) of the various pieces of infrastructure and then broken out for traffic generated from greenfield areas and traffic generated from the Established Area on the two categories of infrastructure. Based on the Established Area in the model in 2011, the greenfield benefit of Established Area infrastructure was found to be 17% and for greenfield area infrastructure the benefit to greenfield was 67%. This analysis considers regional traffic and provides an adjustment of benefit for regional traffic.

The final percentage of benefit to greenfield growth is provided in Table 9.



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Table 9 - Allocation of Benefit

Transportation Infrastructure Category	% Benefit to Greenfield Development
Greenfield Area Transportation Infrastructure	67%
Established Area Transportation Infrastructure	17%

The following table summarises the allocation of transportation infrastructure costs to greenfield growth.

Table 10 - Allocation of Transportation Infrastructure Costs to Greenfield Growth

Infrastructure	Transportation Infrastructure Costs (\$millions) Allocated to Greenfield Growth	
	Established Area Projects	Greenfield Area Projects
Interchanges	\$707.5	\$1,280.4
Greenfield Traffic Signals	\$0	\$54.5
Major Structures	\$102.0	\$176.2
Expressway/Ring Road Connections	\$0	\$156.3
Road Widening	\$140.1	\$0
Pedestrian Overpasses	\$14.3	\$28.1
Bus Rapid Transit Infrastructure	\$66.6	\$60.3
Total	\$1,030.5	\$1,755.9

Through development of greenfield lands since 2011, the Greenfield Area has decreased in size, while the Established Area has increased in size over the same build-out window. The allocation of benefit, therefore, needs to be adjusted to reflect the impact of growth from the smaller Greenfield Area. As of 2015, approximately 10% of the Greenfield Area growth has developed and shifted to the Established or existing development area. As a result, a reduction of 10% benefit is applied to the greenfield levy calculation provided in Section 5.5.

5.4 Levy Calculations

The proposed off-site levy for transportation infrastructure has been calculated according to the principles, assumptions and approach discussed in this Background Report. The basic calculation is shown in the following figure.



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Figure 5 - Transportation Off-Site Levy Calculation

$$\text{Levy Rate} = \frac{\text{GF Area Reduction}(\%) \times [(\text{GF Costs}(\$) \times \text{GF Benefit}(\%)) + (\text{Established Costs}(\$) \times \text{GF Benefit}(\%))]}{60 \text{ year GF Developable Area}(\text{Ha})}$$

$$\text{Levy Rate} = \frac{0.9 \times [(\$2,620\text{M} \times 67\%) + (\$6,061\text{M} \times 17\%)]}{18,345 \text{ Ha}} = \$136,789/\text{Ha}$$

5.5 Transportation Levy Summary

Table 11 provides a summary of the transportation levy information provided.

Table 11 - Proposed Transportation Off-Site Levy

Proposed Transportation Off-Site Levy	Totals
Total Growth Infrastructure Cost	\$8.68 Billion
Greenfield Area (Ha)	18,345 Ha
Greenfield Levy Allocation of Cost	\$2.5 Billion
City Allocation of Cost	\$6.18 Billion
Proposed Transportation Levy (\$/Ha)	\$136,789



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CHAPTER 6 – WATER RESOURCES PROGRAM

6.1 Introduction

Growth can be challenging for The City to ensure that water, sanitary and storm infrastructure requirements are met with available funding. The City endeavours to maintain service levels while supporting new development infrastructure needs. Growth related infrastructure is required to treat and distribute water to new developments, transport sewage from homes to treatment plants, and to drain storm water from the point of origin to the appropriate release point in one of our rivers in order to pre-treat storm water and prevent flooding.

The Water Resources off-site levy program is divided into the following three components:

- **Water Distribution & Wastewater Collection** – including upgrades and extensions to water distribution infrastructure and wastewater collection infrastructure.
- **Drainage Systems** – including new and upgraded drainage facilities and collection systems
- **Water and Wastewater Treatment** – including new plants, upgrades and capacity for wastewater and water treatment

The City's 10 year capital plan for water resource infrastructure is approximately \$350 million per year with half this attributable to growth related infrastructure. Treatment plants account for 60% of the growth related capital budget, with the majority of these costs related to wastewater plant upgrades and expansions. The remaining 40% of the growth related costs are associated with linear networks for infrastructure such as pipe extensions and upgrades.

The water distribution and wastewater collection projects included in the water resource off-site levy program are identified in either the Water Long Range Plan, the Sanitary Long Range Plan, or ASPs for greenfield areas and associated technical studies, such as Master Drainage Plans. Treatment plant upgrades are identified in the Water Treatment Plant Master Plan and Sanitary Long Range Plan. For near term upgrades, conceptual and/or preliminary design studies have been undertaken and are used as a basis for the costs to determine the off-site levies.

In developing the water resources levy program there were four of the Guiding Principles, as described in Section 2.3 above, that were particularly important:

- **Certainty** – A primary objective of the water resources program is to provide revenue assurance to the utilities.
- **Financial Sustainability** – Long term financial sustainability of the utilities is extremely important. There are two parts to this objective. The first is resiliency to ensure that the framework for funding and financing of growth infrastructure is responsive to changing growth levels. The second part is to manage financial risks in the business.
- **Fairness and Equity** – Fairness and equity ensures that those benefiting from the infrastructure are paying for that benefit.
- **Efficiency** – Finally, the water resources program provides an efficient levy process that is simple to administer and understand.



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6.2 Water Distribution & Wastewater Collection

Water Distribution & Wastewater Collection Projects & Costs

The water distribution and wastewater collection projects for the levy program are determined for a 10 year timeframe based on The City's 10 year capital planning process. As 2016, is year two of The City's current 10 year capital plan, the levy calculations cover the remaining nine years of that plan.

The water distribution and wastewater collection off-site levy is applied across all greenfield areas and represents trunk main and other capacity improvements required to support development. The following table summarises the new water distribution and wastewater collection projects required to accommodate The City's nine year growth projections. Further details on costs are provided in Appendix C.

Table 12 - Water Distribution & Wastewater Collection Infrastructure Costs

Infrastructure	Total Future Water Distribution & Wastewater Collection Infrastructure Costs (\$millions)
Water distribution (Upgrades)	\$129.6
Water distribution (Extensions)	\$136.8
Wastewater collection (Upgrades)	\$356.9
Wastewater collection (Extensions)	\$140.1
Total	\$763.4

Cost estimates used in the levy calculation are assumed to be Class V cost estimates, as per the Corporate Project Management Framework definitions. These estimates include engineering, contingency and project administration. The cost estimates for the projects were taken from the Spending Plan, the 2015-2018 Water Infrastructure Investment Plan and the Proposed Water Infrastructure Investment Plan for 2019-2024.

Water Distribution & Wastewater Collection Allocation of Benefit

Water distribution and wastewater collection projects are divided into two categories – upgrades and extensions. All sanitary linear extensions and water linear extensions are the extension of pipes to serve new development areas and are 100% attributable to new growth. Sanitary and water upgrades are located within the Established Area of the city and may provide some benefit to existing development or customers. The costs allocated to growth for upgrades are undertaken on a project by project basis and the detailed allocations can be found in Appendix C. For both upgrades and extensions, the costs determined to benefit growth are further allocated to established, greenfield and regional growth based on the forecasted population and jobs for these areas within the infrastructures overall catchment area. The allocation benefit is based on the Established and Greenfield Areas as of 2015 and the associated allocation of benefit determined accordingly.

Table 13 summarises the allocation of water distribution and wastewater collection infrastructure costs to greenfield growth.



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Table 13 - Greenfield Allocation of Water Distribution & Wastewater Collection Infrastructure Costs

Infrastructure	Greenfield Water Distribution & Wastewater Collection Infrastructure Costs (\$m)
Water distribution (Upgrades)	\$16.8
Water distribution (Extensions)	\$76.7
Wastewater collection(Upgrades)	\$62.4
Wastewater collection (Extensions)	\$140.1
Total	\$296.0

Water Distribution & Wastewater Collection Levy Calculation

The water distribution and wastewater collection levies include all infrastructure costs allocated to greenfield over the nine year timeframe. As all distribution and collection projects are debt financed, the costs to be recovered from development include all the principal and interest costs within the nine years. This includes previously constructed projects where debt payments are still outstanding and future debt payments from projects planned to be constructed in the nine year program. All forecasted projects assume financing over a 25 year debenture term which spreads the costs over a longer window of development. The rate is calculated by taking the aforementioned costs and dividing them by the forecasted developable, non-levied lands for the next nine years. The basic calculation is shown in the following figure.

Figure 6 - Water Distribution & Wastewater Collection Off-Site Levy Calculation

Debt Servicing for Greenfield Growth Related Capital Costs (9 yrs.) = Cost Base Future Value
$\frac{\text{Cost Base Future Value}}{(1 + \text{Discount Rate})^{n1 \dots n9}} = \text{Cost Base Present Value}$ <p><i>n=timeline for capital investment</i></p>
$\frac{\text{Cost Base Present Value}}{\text{Greenfield Developable Land Forecast (9 yrs.)}} = \text{Off-site Levy}$

Table 14 - Proposed Water Distribution and Collection Off-Site Levy

Water Distribution	
Proposed Water Distribution Levy (\$/Ha)	\$32,325 / Ha.
Water Collection	
Proposed Wastewater Collection Levy (\$/Ha)	\$44,449 / Ha.



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6.3 Drainage System

Drainage System Projects & Costs

Drainage system projects are determined for a ten year timeframe based on The City's ten year capital plan. This timeframe is the basis for the off-site levy program for drainage systems projects. As 2016, is year two of the ten year program, the levy calculations covers only nine years of the program.

The drainage system off-site levy that applies to any subject lands depending on which of the six major watershed catchments areas the subject lands are located within. Those catchments are: Bow River, Elbow River, Fish Creek, Nose Creek, Pine Creek and Shepard. The total cost of drainage system projects required to accommodate The City's nine year growth projections is \$67.9 million. Further details on costs are provided in Appendix C.

Cost estimates used in the levy calculation are assumed to be Class V cost estimates, as per the Corporate Project Management Framework definitions. These estimates include engineering, contingency and project administration. The cost estimates for the projects were taken from the 2015-2018 Spending Plan, 2015-2018 Water Infrastructure Investment Plan and the proposed Water Infrastructure Investment Plan for 2019-2024.

Drainage System Allocation of Benefit

Projects included in the drainage system off-site levy provide benefit to both greenfield growth and growth in the established areas of The City's six major watershed catchments areas. None of the drainage projects included in the levy calculation benefit existing development or regional areas. As such drainage system costs are allocated completely to either Greenfield Area development or Established Area development in the six catchments. Drainage off-site levies are only calculated and applied in the Greenfield Area and include only the project costs determined to benefit the Greenfield Area of the drainage catchment.

Drainage System Growth Infrastructure Needs

The following table summarises the allocation of drainage system infrastructure costs to greenfield growth and established areas growth.

Table 15 - Allocation of Drainage System Costs to Growth

Infrastructure	Drainage System Infrastructure Costs (\$millions)
Greenfield Area	\$44.5
Established Area	\$23.4
Total	\$67.9

Drainage System Levy Calculation

The drainage system levies include all infrastructure costs allocated to greenfield development over the nine year timeframe. All project costs to be recovered from development may include a combination of principal and interest costs, cash funded project costs and any cash payments required under Construction Financing



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Agreements (CFAs) within the nine year timeframe. This includes costs from previously constructed projects where debt payments are still outstanding and future debt payments from projects to be constructed in the nine year program. All forecasted projects assume financing over a 25 year debenture term which spreads the costs over a longer window of development.

Determining the financing option to use is driven by available funds. The following table shows the financing option applied to each catchment.

Table 16 – Finance Option by Catchment

Catchment	Financing Option
Nose Creek	Cash (CFAs)
Bow River	Cash/Debt
Pine Creek	Cash/Debt
Shepard	Debt

The rate is calculated by taking the aforementioned costs and dividing them by the forecasted developable lands in each catchment for the next nine years. The simplified calculation is shown in the following figure.

Figure 7 – Drainage System Off-Site Levy Calculation

Debt Servicing for Greenfield Growth Related Capital Costs (9 yrs.) = Cost Base Future Value
$\frac{\text{Cost Base Future Value}}{(1 + \text{Discount Rate})^{n1 \dots n9}} = \text{Cost Base Present Value}$ <p><i>n=timeline for capital investment</i></p>
$\frac{\text{Cost Base Present Value}}{\text{Greenfield Developable Land Forecast (9 yrs.)}} = \text{Off-site Levy}$

The proposed off-site levy for drainage systems is shown in the following table.

Table 17 – Proposed Drainage System Levy by Catchment

Catchment	\$ per Hectare
Nose Creek	\$11,325
Bow River	\$6,983
Pine Creek	\$16,812
Shepard	\$42,704
Fish Creek	-
Elbow River	-



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6.4 Water & Wastewater Treatment

Water & Wastewater Treatment Project Costs

The water and wastewater treatment off-site levy is applied to growth across The City's Greenfield and Established Areas and is based on allocating capacity costs for treatment upgrades to the expected equivalent population served. It is assumed that capital costs related to existing and future expansion will serve the expected equivalent population growth up to 2035 for wastewater and 2025 for water. The following table summarises the total costs of the water and wastewater treatment projects that are triggered in the ten year Water Infrastructure Investment Plan. Further details on costs are provided in Appendix C.

Table 18 – Water & Wastewater Treatment Infrastructure Costs

Infrastructure	Total Water & Wastewater Treatment Infrastructure Costs (\$millions)
Water Treatment Plants	\$97.5
Wastewater Treatment Plants	\$1,302.4
Total	\$1,399.9

Cost estimates used in the levy calculation are assumed to be Class V cost estimates, as per the Corporate Project Management Framework definitions. These estimates include engineering, contingency and project administration. The cost estimates for the projects were taken from the Spending Plan, Approved 2015-2018 Water Infrastructure Investment Plan and the Proposed Water Infrastructure Investment Plan for 2019-2024.

Water & Wastewater Treatment Projects Allocation of Benefit

Allocation of benefit to existing customers in the city is determined on a project by project basis and include costs associated with regulatory requirements to serve the existing equivalent population. Included in the portion of the projects allocated to growth is an allocation for regional growth. The portion of water and wastewater treatment growth infrastructure that benefits the regional areas is allocated based on the forecasted population and jobs for each of those areas. Further detail on the allocation of benefit for each project is provided in Appendix C.

The following table summarises the allocation of water and wastewater treatment infrastructure costs to growth in the city including both Greenfield and Established Areas growth

Table 19 - Allocation of Water & Wastewater Treatment Infrastructure Costs to Growth

Infrastructure	Water & Wastewater Treatment Infrastructure Costs (\$m)
Water Treatment Plants	\$76.6
Wastewater Treatment Plants	\$941.4
Total	\$1017.7



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Water & Wastewater Treatment Levy Calculation

The approach to calculating the water and wastewater treatment off-site levy was to distribute capital costs to new and existing customers in proportion to the customer's usage of the facilities and the investment required to develop the facilities.

The result is an off-site levy that reflects the costs of providing the capacity needed by customer growth. For the purpose of the calculation, it was assumed that future capital investments are to be financed by a 10 year debt term. The financing costs for existing capacity are based on existing finance terms with debentures ranging between 15, 20 and 25 year terms.

The water and wastewater treatment off-site levy for all areas of the city is calculated by taking the aforementioned costs and dividing them by the total capacity available expressed in equivalent population to obtain a charge per equivalent population.

Figure 8 - Calculation for Value of Capacity per Equivalent Population (EP) for Water & Wastewater Treatment Off-Site Levy

$$\begin{aligned} \text{Debt Servicing Costs for Existing and Future Capacity Future Values} &= \text{Available Capacity Future Value} \\ \frac{\text{Available Capacity Future}}{(1 + \text{Discount Rate})^{n1 \dots n}} &= \text{Present Value of Available Capacity} \\ n &= \text{forecasted years to reach available capacity} \\ \frac{\text{Present Value of Available Capacity}}{\text{Equivalent Population (EP) Served}} &= \text{Value of Capacity per EP} = \$2161/\text{EP} \end{aligned}$$

Greenfield Area Levy for Treatment

The Levy is applied to the Greenfield Area based on the average equivalent population density of 60 EP/hectare as this is the current average density of EP achieved in greenfield developments.

Figure 9 - Calculation for Greenfield Water & Wastewater Treatment Infrastructure Off-Site Levy

$$\begin{aligned} \text{Value of Capacity per EP} \times \text{Average EP per Hectare} &= \text{Greenfield Off-Site Levy Present Value} \\ \$2161/\text{EP} \times 60 \text{ EP per Hectare} &= \$129,660/\text{Hectare} = \text{Greenfield Off-Site Levy Present Value} \end{aligned}$$



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Established Area Levy for Treatment

For the Established Area, the off-site levy is applied by dwelling type for residential development, and by gross floor area (sq.m.) for commercial and industrial developments. For residential developments, one resident or occupant is equal to one equivalent population. For non-residential developments, one employee is equal to 0.61 of an equivalent population. Equivalent population ratios are determined through analysis of system flow data.

Expected average equivalent population (EP) or occupancy per dwelling type is derived from The City of Calgary census data (2010-2014), research of comparable municipalities along with other stakeholder information provided.

Table 20 – Residential Equivalent Population by Unit Type

Single Detached	Semi-Detached /Duplex	Multi-Residential Grade-Oriented	Multi-Residential Non Grade-Oriented (2 Bedroom or More)	Multi-Residential Non Grade-Oriented (1 Bedroom or Less)
2.9 EP/Unit	2.6 EP/Unit	1.8 EP/Unit	1.5 EP/Unit	1.2 EP/Unit

For commercial developments, the expected average number of employees is based on the current estimated city employment intensity rate of 36 sq.m./employee. For industrial developments, the average rate of 75 sq.m./employee is derived from employment intensity assumptions in *The Guide to the MDP and CTP*. Based on these average intensities of employment for non-residential land-uses, Table 21 provides the calculation for equivalent population per square meter of gross floor area for non-residential development.

Table 21 - Non-Residential Equivalent Population per Square Metre of Gross Floor Area

Commercial Development	Industrial Development
$\text{EP/employee} \div \text{m}^2/\text{employee} = \text{EP/ m}^2$ $0.61 \text{ EP/employee} \div 36 \text{ m}^2/\text{employee} =$ <p>0.017 EP/m² gross floor area</p>	$\text{EP/employee} \div \text{m}^2/\text{employee} = \text{EP/ m}^2$ $0.61 \text{ EP} \div 75 \text{ m}^2/\text{employee} =$ <p>0.008 EP/m² of gross floor area</p>

Based on the above equivalent population calculations, Table 22 provides the calculation for the Established Area levy before any credit is applied for existing development.



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Table 22 - Calculation for Established Area Water & Wastewater Treatment Infrastructure Off-Site Levy

	Single Detached	Semi-Detached /Duplex	Multi-Residential Grade-Oriented	Multi-Residential Non Grade-Oriented (2 Bedroom or More)	Multi-Residential Non Grade-Oriented (1 Bedroom or Less)
Average EP per unit	2.9 EP/Unit	2.6 EP/Unit	1.8 EP/Unit	1.5 EP/Unit	1.2 EP/Unit
Water Treatment Off-site Levy per Unit Type	\$1,137	\$1,019	\$706	\$588	\$470
Wastewater Treatment Off-site Levy Per Unit Type	\$5,130	\$4,599	\$3,184	\$2,654	\$2,123
Total Treatment Off-site Levy per Unit Type	\$6,267	\$5,619	\$3,890	\$3,242	\$2,593
Commercial Development Levy Rate: \$36.62/ m² of Gross Floor Area					
Industrial Development Levy Rate \$17.58/ m² of Gross Floor Area					

Established Area - Credit for Existing Development

Developments in the Established Area may have existing development to be demolished or recently demolished buildings that were previously allocated capacity for water and wastewater treatment. Where new development in the Established Area replaces previous development, a reduction in the levy will be determined based on the levy unit and floor area rates included in Table 22. The reduction will be applied if development previously existed on the site within the last 10 years and was connected to both the water and wastewater systems.

Established Area Maximum Levy Rate For High Density Residential & Commercial Development:

To provide incentive for high density developments, The City is setting a maximum levy rate for high density residential, mixed use or commercial development that achieve a density for the proposed development of 285 EP/Hectare or greater. The proposed development density is calculated as follows.

$$\text{Proposed Density} = \text{Proposed EP} \div \text{Site Development Area (Ha.)}$$

$$\text{Proposed EP} = [(\text{Units} \times \text{EP/Unit}) + (\text{Sq. M. Commercial Gross Floor Area} \times 0.017 \text{ EP/Sq. M.})]$$



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The maximum levy rate for developments that achieve a density of 285 EP/Hectare or greater will pay the maximum rate of \$2161/EP x 285 EP/Hectare: The levy calculation for developments achieving this density is:

$$\text{\$2161 /EP} \times 285 \text{ EP/Ha} \times \text{Site Development Area (Ha)} = \text{\$615,885/Ha} \times \text{Site Development Area (Ha)}$$



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6.4 Water & Resources Levy Summary

The following table summarizes the proposed water resources off-site levy rates in The City's Greenfield Area as shown in Figure 2.

Table 23 - Proposed Off-Site Levy Rate for Greenfield Area

Infrastructure	2016 Proposed Rate (\$/Ha)
Water Resources - Water and Wastewater	\$206,434
Water Resources - Drainage by Catchment	
Nose Creek	\$11,325
Bow River	\$6,983
Pine Creek	\$16,812
Shepard	\$42,704
Fish Creek	-
Elbow River	-
Total	\$206,434 to \$249,138

The following table summarizes the proposed water resources off-site levy rates for growth in The City's Established Area as shown in Figure 2.

Table 24 - Off-Site Levy Rate for Proposed Established Area Development

	Single Detached	Semi-Detached /Duplex	Multi-Residential Grade-Oriented	Multi-Residential Non Grade-Oriented (2 Bedroom or More)	Multi-Residential Non Grade-Oriented (1 Bedroom or Less)
Water Treatment Off-site Levy per Unit Type	\$1,137	\$1,019	\$706	\$588	\$470
Wastewater Treatment Off-site Levy Per Unit Type	\$5,130	\$4,599	\$3,184	\$2,654	\$2,123
Total Treatment Off-site Levy per Unit Type	\$6,267	\$5,619	\$3,890	\$3,242	\$2,593
Commercial Development Levy Rate: \$36.62/ m² of Gross Floor Area					
Industrial Development Levy Rate: \$17.58/ m² of Gross Floor Area					
Maximum Rate for Density ≥ 285 EP/Ha: \$615,885/Ha × Site Development Area (Ha)					



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CHAPTER 7 – COMMUNITY SERVICES PROGRAM

7.1 Introduction

Infrastructure included in the community services charges are public libraries (Calgary Public Library), emergency response stations (Calgary Fire Department), police district offices (Calgary Police Service), recreation centres (Recreation) and transit buses (Transit). The growth timeframe used to calculate the community services program costs is 30 years. This chapter presents the proposed community services charge for each infrastructure category and explains how each was calculated. A summary of the proposed charge amounts is shown in the Table 25. Further information on levels of service and infrastructure costs are provided in Appendix D.

Table 25 - Proposed Community Services Charges

Community Services	(\$/Ha)
Public Libraries (Calgary Public Library)	\$5,971
Emergency Response Stations (Calgary Fire Department)	\$19,545
District Offices (Calgary Police Service)	\$7,648
Recreation Centres (Recreation)	\$41,679
Transit Buses (Transit)	\$4,007
Total	\$78,850

7.2 Public Libraries (Calgary Public Library)

Growth Infrastructure Needs

The provision of new library services will be driven by growth in The City's Greenfield Areas. To meet future demand, 0.36 ft² of public library space will need to be provided per person. During this 30 year window (2015-2044), the greenfield growth population is projected to be 340,918, which would require approximately 122,730 ft² of library space, totalling an infrastructure need of \$62,469,814.

Charge Calculations

The proposed community services charge for public library infrastructure has been calculated according to the principles, assumptions and approach discussed in this Background Report. The details and assumptions are provided in Appendix D. The basic calculation is shown in the following table.



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Table 26 - Public Libraries: Community Services Charge Calculation

Greenfield population (2015-2044)	340,918
Library Requirements per person (sf)	0.36
Library 2015 Costs per sf	509
Total Infrastructure Cost	62,469,814
Greenfield Area (Ha)	10,462
Proposed Levy – Public Libraries (\$/Ha)	\$5,971

7.3 Emergency Response Stations (Calgary Fire Department)

Growth Infrastructure Needs

The Calgary Fire Department has determined on average that an emergency response station will serve a greenfield development area containing 30,000 persons. During the 30 year window (2015-2044), the greenfield growth population is projected to be 340,918, which would require approximately 11.4 emergency response stations be provided, totalling an infrastructure need of \$204,480,000.

Charge Calculations

The proposed community services charge for fire infrastructure has been calculated according to the principles, assumptions and approach discussed in this Background Report. The details and assumptions are provided in Appendix D. The basic calculation is shown in the following table.

Table 27 - Emergency Response Station: Community Services Calculation

Greenfield Population	340,918
Emergency Response Station per person	30,000
Infrastructure Need / # Facilities	11.36
Cost per Emergency Response	18,000,000
Total Infrastructure Cost	204,480,000
Greenfield Area (Ha)	10,462
Proposed Levy – Emergency Response Stations	\$19,545

7.4 Police District Offices (Calgary Police Service)

Growth Infrastructure Needs

The Calgary Police Service has determined on average that a police district office will serve a catchment area containing 149,000 persons. During the 30 year window (2015-2044), the greenfield growth population is projected to be 340,918, which would require approximately 2.29 new police district offices totalling an infrastructure need of \$80,016,035.



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Charge Calculations

The proposed community services charge for police infrastructure has been calculated according to the principles, assumptions and approach discussed in this Background Report. The details and assumptions are provided in Appendix D. The basic calculation is shown in the following table.

Table 28 - Police District Offices: Community Services Calculation

Greenfield Population	340,918
District Office per person	149,000
Infrastructure Need / # Facilities	2.29
Cost per District Office	\$34,941,500
Total Infrastructure Cost	\$80,016,035
Greenfield Area (Ha)	10,462
Proposed Levy – Police District Offices (\$/Ha)	\$7,648

7.5 Recreation Centres (Recreation)

Growth Infrastructure Needs

Identification of future regional recreation centres is guided through the development of ASPs.. The catchment for a small regional recreation facility is 63,000 people. During this 30 year window (2015-2044), the greenfield growth population from 2015- 2044 is projected to be 340,918, which would require approximately 5.4 recreation centres be provided, totalling an infrastructure need of \$435,046,000.

Charge Calculations

The proposed community services charge for recreation infrastructure has been calculated according to the principles, assumptions and approach discussed in this Background Report. The details and assumptions are provided in Appendix D. The basic calculation is shown in the following table.

Table 29 - Recreation Facilities: Community Services Calculation

Greenfield Population	340,918
Average ASP Population	63,000
Infrastructure Need / # Facilities	5.41
Cost per Recreation Centre	80,600,000
Total Infrastructure Cost	436,046,000
Greenfield Area (Ha)	10,462
Proposed Levy – Recreation Facilities (\$/Ha)	\$41,679



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7.6 Transit Buses (Transit)

Growth Infrastructure Needs

During the 30 year window (2015-2044), the greenfield growth population is projected to be 340,918, which would require approximately 102 transit buses be provided, totalling an infrastructure need of \$41,922,000.

Charge Calculations

The proposed community services charge for transit buses has been calculated according to the principles, assumptions and approach discussed in this Background Report. The basic calculation is shown in the following table.

Table 30 - Transit Buses: Community Services Calculation

Greenfield Population	340,918
Transit Buses per person	6/20,000
Infrastructure Need / # Buses	102
Cost per Bus	\$411,000
Total Infrastructure Cost	\$41,922,000
Greenfield Area (Ha)	10,462
Proposed Levy – Transit Buses (\$/Ha)	\$4,007



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8.0 SUMMARY OF OFF-SITE LEVIES

8.1 Summary of Proposed Off-Site Levy Rates

The following tables summarize the proposed off-site levy rates for growth in The City's *Greenfield Area* as shown in Figure 2.

Table 31 - Proposed Off-Site Levy Rate for Greenfield Area

Infrastructure	2016 Proposed Rate (\$/Ha)
Transportation	\$136,789
Water Resources - Water and Wastewater	\$206,434
Water Resources - Drainage by Catchment	
Nose Creek	\$11,325
Bow River	\$6,983
Pine Creek	\$16,812
Shepard	\$42,704
Fish Creek	-
Elbow River	-
Community Services	\$78,850
Total	\$422,073 to \$464,777

The following tables summarize the proposed off-site levy rates for growth in The City's *Established Area* as shown in Figure 2.

Table 32 - Proposed Off-Site Levy Rate for Established Area

	Single Detached	Semi-Detached / Duplex	Multi-Residential Grade-Oriented	Multi-Residential Non Grade-Oriented (2 Bedroom or More)	Multi-Residential Non Grade-Oriented (1 Bedroom or Less)
Total Treatment Off-site Levy per Unit Type	\$6,267	\$5,619	\$3,890	\$3,242	\$2,593
Commercial Development Levy Rate: \$36.62/ m² of Gross Floor Area					
Industrial Development Levy Rate: \$17.58/ m² of Gross Floor Area					
Maximum Rate for Density ≥ 285 EP/Ha: \$615,885/Ha × Site Development Area (Ha)					



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8.2 Exemptions to the Off-Site Levy

The only land area to be exempt from off-site levies payable are:

- Environmental Reserve
- Skeletal roads

8.6 Monitoring and Accounting

There is currently a process in place that will continue to be refined for the accounting of levy funds. Administration will continue to improve the reporting process to provide off-site levy fund annual reporting which is reconciled with *The City of Calgary Annual Report* (financial statements). Administration will continue to collaborate with industry on this work to ensure the annual Off-Site Levy Fund Report is clear and transparent on how the levy funds are collected and spent.

8.6 Reviewing the Off-Site Levy Bylaw and the Community Services Charges

Amendments to the Off-Site Levy Bylaw may be required from time to time to keep the calculations current. Adjusting the numbers may be necessary to account for the receipt of unanticipated specific grants, or to support changes required to facilitate developer funding arrangements, or to correct errors that may be identified. The overall methodology will not be reviewed for five years to provide certainty and minimize administrative costs. Amendments required would likely be identified at the time of the preparation of the Annual Levy Report and would be brought forward to Council at the appropriate time and as close as possible to the anniversary of the effective date of the Bylaw.



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APPENDIX A – STAKEHOLDER ENGAGEMENT

The following table provides greater detail on those who participated in the stakeholder engagement process.

Table 33 - Stakeholder Engagement Process

Engagement Group	Members	Purpose	Frequency of Meetings
Internal Working Team	Predominantly city staff from various departments – Kathy Dietrich, Sarah Alexander, Matthew Sheldrake, Kathy Davies Murphy, Tom Hopkins, Scott Pickles, Nazrul Islam, John Kwong, Jill Floen, Joel Armitage, Oyinola Shyllon, Mauro Ficaccio, Lesley Kalmakoff, Ed Lem, Lesia Luciuk and Lynda Cooke (Urban Systems).	<ul style="list-style-type: none"> Developed guiding principles of the project Developed framework of the work plan and implement Defined infrastructure projects, timing, cost estimates and options for funding 	<ul style="list-style-type: none"> Weekly 32 meetings since Jan 29
External Advisory Group	City Staff and external representatives from various committees and interest groups of the development industry – Kathy Dietrich, Sarah Alexander, Joel Armitage, Beverly Jarvis, Chris Plosz, Colin Campbell, Grace Lui, Dennis Inglis, Jill Floen, Greg Bodnarchuk, Guy Huntingford, Jay German, John Kwong, Mike Selinger, Nazim Virani, Paul Battistella, Paul Derksen, Ryan Boyd, Robert A. Homersham.	<ul style="list-style-type: none"> Acted as Industry sounding board Developed guiding principles for the project Finalized the scope of the project Reviewed options related to methodology, calculation of levy, funding 	<ul style="list-style-type: none"> Every 3 weeks 14 meetings since Mar 11
Technical Subcommittee	City Staff, external industry representatives and technical consultants – Kathy Dietrich, Sarah Alexander, Amie Blanchette, Joel Armitage, Alexandra E. Burdeyney, Kathy Davies Murphy, Greg Bodnarchuk, Guy Huntingford, Tom Hopkins, Sarah Huber, Jay German, Jayden Tait, Lynda Cooke, Paul Derksen, Ryan Boyd, Tony Pasquini, Scott Pickles.	<ul style="list-style-type: none"> Developed the framework and analysis of the options considered Undertook technical analysis Finalized the methodology and calculation of the Off-Site Levy Bylaw. 	<ul style="list-style-type: none"> Weekly 20 meetings since May 5
Council	City Staff and Council	<ul style="list-style-type: none"> Updated on progress of project Receive feedback 	<ul style="list-style-type: none"> Bi-monthly
Build Calgary /GMSGC/ALT	Build Calgary and General Managers Strategic Growth Committee	<ul style="list-style-type: none"> Weekly meetings with Build Calgary and monthly updates with GMSGC/ALT 	<ul style="list-style-type: none"> Monthly
Stakeholder Information Sessions	Attendees included: Developers and home builders from both greenfield and established areas; various financial institutions; community associations; tax watch groups; real estate and affordable housing groups	<ul style="list-style-type: none"> The first session presented an overview of the Off-Site Levy Bylaw project and its objectives. The second session reviewed the available options and the third reviewed the project outcomes. 	<ul style="list-style-type: none"> Quarterly Sessions in April, June & October



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Established Area – Initial Group	Members external to The City representing the large and small infill developers and interest groups that are related to the redevelopment areas of the city. Internal departmental representatives were brought in when appropriate –David White, Amie Blanchette, Ryan Bosa, Eileen Stan, Chris Elkey, Nazim Virani, Jayden Tait, Beverly Jarvis, Paul Battistella, Oliver Trutina, Kate Thompson, Aaron Vimy, Jennifer Dobbin, Annie MacInnis, Travis Oberg, George Trutina, Iain McCorkindale, James Robertson	<ul style="list-style-type: none"> • Provided status of the work plan and receive relevant feedback • Acted as an Industry sounding board • Reviewed options related to the methodology and calculation of levy unique to the established areas of the City. 	<ul style="list-style-type: none"> • 4 meetings since June 11
Established Area – Stakeholder Group	Established Area developers, consultants, and industry representatives	<ul style="list-style-type: none"> • Sessions were held in November and December with attendance of 40 to 55 industry representatives 	<ul style="list-style-type: none"> • 2 meetings since November
Established Area – Working Group	Members external to The City representing the large and small infill developers and interest groups that are related to the redevelopment areas of the city. Internal departmental representatives were brought in when appropriate –David White, Amie Blanchette, Eileen Stan, Beverly Jarvis, Paul Battistella, Oliver Trutina, Mike Brander, Chris Ollenberger, Jaydan Tait, Guy Huntingford, Josh White, Richard Morden and Paul Derksen	<ul style="list-style-type: none"> • Ad hoc committee of representatives of Established Area group to develop strategy for Established Area levies 	<ul style="list-style-type: none"> • 5 meetings since November
One on Ones	City Staff and developers	<ul style="list-style-type: none"> • City staff met with members of the development industry at various occasions to discuss the Off-Site Levy Bylaw and the process. 	<ul style="list-style-type: none"> • At least 21 meetings since January



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A.1 Engagement Sessions Summary

There were three city-wide engagement session held during the Off-Site Levy Bylaw initiative:

- The first session was on April 30. This session was attended by approximately 80 people and included a presentation on the overall process and the, understand/principles phase. The principles and project deliverables were discussed. Attendees provided input by responding to questions and providing comments. The response was generally positive.
- The second session was on June 24. This session was attended by approximately 80 people and included a presentation on the progress since April 30. It started with an update of work done to that point including: guiding principles were established, issues were identified, project scope was defined, understanding of previous (2011 - current) levy regime, completion of the growth assumptions, initial list of projects and their cost estimates, weekly technical subcommittee meetings, looking at various options (options identification phase). We then described the upcoming work including the calculations phase and the scenario analysis. We also gave a high level view of how levies are calculated that included the growth assumption and initial project lists and their cost estimates. The attendees were then asked to provide general comments and ask questions. The feedback was generally positive.
- The third session was held on October 15 and attended by approximately 80 people. It was the final stakeholder session and the main focus was on presenting the proposed rates and to receive feedback on the rates and any further outstanding questions. The date of the public hearing was provided to participants and feedback from the industry was collected in the same manner as the previous sessions.



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APPENDIX B – TRANSPORTATION PROGRAM

Table 34 - Transportation: Infrastructure Project List

Established Area Transportation Infrastructure List		
Category	Project Name	Total Cost (millions)
Interchanges	14 ST SW / Anderson Rd I/C	\$70.0
	Deerfoot Tr / Glenmore Tr Interchange Improvements	\$80.0
	Deerfoot Tr / Beddington Tr / 11 ST NE I/C (Ultimate)	\$80.0
	Deerfoot Tr / 16 AV NE - Add 3rd Level for Through Movements and basket weaves	\$130.0
	Deerfoot Tr / Memorial Dr - ultimate	\$100.0
	Deerfoot Tr / Peigan Tr / Barlow Tr Ultimate I/C	\$100.0
	Deerfoot Tr / Glenmore Tr / Blackfoot Tr Ultimate I/C	\$130.0
	Deerfoot Tr / Anderson Rd / Bow Bottom Tr Ultimate I/C	\$100.0
	Anderson / Macleod Directional Ramps	\$80.0
	Deerfoot Tr / 17 AV SE EBL Directional and Basket weaves btw Memorial and 17 AV SE	\$150.0
	Deerfoot Tr new CD System between Glenmore Tr and Peigan Tr (Inc twin Calf Robe bridge)	\$300.0
	16 AV NE / 19 ST NE I/C (with Revisions to 16 AV NE / Barlow Tr I/C)	\$72.0
	McKnight Blvd / Aviation Blvd (12th St) I/C	\$50.0
	TCH/Bowfort Road I/C	\$71.7
	Macleod Tr / 162 AV SW I/C	\$65.0
	Sarcee Tr / Richmond Rd I/C	\$77.0
	Macleod Tr / Heritage Dr I/C	\$80.0
	Macleod Tr / Lake Fraser Gate I/C	\$50.0
	Crowchild Tr / Flanders AV I/C Upgrade	\$20.0
	Macleod Tr/25 Avenue IC	\$70.0
	Glenmore Tr: west of Ogden Road to Barlow Trail (widening plus 2 I/C's)	\$180.0
	Glenmore Tr / 52 ST SE I/C including widening 4 - 6 lanes to 52nd St)	\$101.0
	McKnight Blvd / Barlow Tr I/C	\$70.0
	McKnight Blvd / 19th St I/C	\$50.0
	Sarcee Tr / Bow Tr I/C	\$100.0
	Shaganappi Tr / John Laurie Blvd I/C	\$70.0
	Glenmore Tr / Richard Rd I/C	\$50.0
	Anderson Rd / 24 ST SW I/C	\$70.0
	Anderson Rd / Woodpark Blvd I/C	\$70.0
	Anderson Rd / Elbow Dr I/C	\$70.0
	Anderson Rd / Bonaventure Dr I/C	\$70.0
	Anderson Rd / Acadia Dr I/C	\$70.0
	Peigan Tr / 26 ST NE I/C	\$70.0
	Peigan Tr / 36 ST NE I/C	\$70.0



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Established Area Transportation Infrastructure List		
Category	Project Name	Total Cost (millions)
	Crowchild Tr / 24 AV NW - I/C and C/D System (Inc New Bridge over University Dr)	\$150.0
	Crowchild Tr / University Dr / 16 AV NW - Upgrade/Revise I/Cs	\$150.0
	Deerfoot Tr / 32 AV NE I/C Revs (4 lanes EB to 12 ST SE (East Int), 3 thru lights, taper to 2)	\$45.0
	Deerfoot Tr / 50 AV SW I/C	\$70.0
	Deerfoot Tr / McKnight Blvd - Upgrade I/C	\$70.0
	McKnight Blvd/68th St NE	\$70.0
	26 AV SW Connector / Blackfoot Tr I/C	\$100.0
	Grade Separation at Railway Crossing: 52nd Street (23rd Ave to Hubalta Road)	\$25.0
	Grade Separation at Railway Crossing: Peigan Tr (CN)	\$25.0
	Grade Separation at Railway Crossing: 52nd Street & 50th Ave (CN)	\$25.0
	Grade Separation at Railway Crossing: Barlow at 50th Ave (CN)	\$25.0
	14 ST NW / Country Hills Blvd I/C	\$70.0
	Shaganappi Tr / Country Hills Bv I/C	\$70.0
	Shaganappi Tr / Northland Dr I/C	\$70.0
	Shaganappi Tr / Edgemont Bv I/C	\$70.0
	McKnight Blvd / 47 ST NE I/C	\$70.0
	McKnight Blvd / Falconridge Bv I/C	\$70.0
	Total	\$4,161.7
Major Structures	Glenmore Causeway - Widen to 8 Core Lanes with CD System	\$300.0
	Crowchild Tr - Bridge over Bow River - Widen from 6 to 8 Lanes	\$300.0
	Total	\$600.0
Road Widenings	Glenmore Tr - Widen from 4 to 6 Lanes - Crowchild Tr to Sarcee Tr	\$17.0
	Peigan Tr - Widen from 2 to 4 Lanes - Barlow Tr SE to Stoney Tr	\$35.0
	Anderson Road: Bonaventure Dr to Deerfoot Tr (widen EB lanes 2-3)	\$3.0
	Country Hills Blvd: Barlow Tr to Coventry Blvd (widen 4-6 lanes)	\$20.0
	McKnight Blvd - Widen from 4 to 6 Lanes - Edmonton Tr to 4 ST NW	\$37.0
	Trans Canada Highway: Crowchild Tr. To Shag Tr. (widen 4-6 lanes)	\$17.0
	16 AV NE - Widen from 4 to 6 Lanes - Barlow Tr to East Freeway	\$35.0
	Beddington Tr - Widen from 4 to 6 Lanes - CHB to Stoney Tr	\$14.0
	Anderson Rd - Widen from 4 to 6 Lanes - 24 ST SW to 14 ST SW	\$10.0
	Sarcee Tr: Glenmore to Bow Tr (widen 4-6 lanes), + major utilities	\$50.0
	Sarcee Tr: Bow Tr to TCH (widen 4-6 lanes), (due to slope stability)	\$40.0
	Barlow Tr - Widen from 4 to 6 lanes - Memorial Dr to 16 Av NE	\$15.0
	McKnight Blvd - Widen from 4 to 6 Lanes - 19th St to Barlow Tr	\$5.0
	16 AV NW - Widen 4 to 6 Lanes - Shaganappi to Sarcee, 6 lane bridge, CPR underpass	\$150.0
	Bow Tr - 37 St W to Sarcee Tr - Widen to 6 lanes	\$50.0
	50 AV SW - New 4 Lane Road from Macleod Tr to Deerfoot Tr SE	\$70.0
	14 ST SW - Widen from 2 to 4 Lanes - Anderson Rd to Canyon Meadows Dr	\$15.0
	Shaganappi Tr - Widen from 6 to 8 Lanes - Stoney Tr to Country Hills Blvd	\$10.0
	114 Avenue SE, widen 2 to 4 lanes - 52 Street to 68 Street	\$15.0
	130 Avenue SE - 4 lanes from Mclvor Bv to Stoney Tr (& 2-4 lanes 52 st to Mclvor Bv)	\$16.0



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Established Area Transportation Infrastructure List		
Category	Project Name	Total Cost (millions)
	Deerfoot Tr - Widen from 6 to 8 Lanes - Memorial to Stoney Tr, (major median structures)	\$200.0
	Total	\$824.0
Pedestrian Overpasses	Marquis of Lorne Tr, east of Macleod Tr	\$6.0
	LRT/CPR tracks, from Shalom Wy to Shawmeadows Rise SE	\$6.0
	Deerfoot Tr, 600 Douglas Woods Place SE to Douglasdale Business Park	\$6.0
	Macleod Tr, north of 25 Avenue, Eriton to LRT station	\$6.0
	16 Avenue NW, Stadium Shopping Centre to Foothills Hospital	\$6.0
	Nose Creek, 32 Avenue NE	\$6.0
	Deerfoot Tr N, at 40 Avenue NE	\$6.0
	McKnight Bv NE, west of 52 St NE	\$6.0
	Deerfoot Tr, at Beddington Tr NE	\$6.0
	Beddington Tr, from Country Hills CI to Sandstone	\$6.0
	17 Avenue SW, from Aspen Landing to future Springbank Hill lands	\$6.0
	Anderson Station, across Macleod Tr at north end of site	\$6.0
	Chinook mall, across Macleod Tr at 61 Avenue S	\$6.0
	Canada Olympic Park, across 16 Avenue to Bowness Community	\$6.0
	Total	\$84.0
BRT Infrastructure	17 Avenue SE Transit way, Blackfoot Truck Stop to Stoney Trail	\$203.0
	South Crosstown	\$20.0
	North Crosstown	\$50.0
	South West Crosstown	\$40.0
	Route 305 Improvements	\$10.0
	Shaganappi HOV	\$35.0
	52 Street E, Saddleridge to Seton	\$38.0
	Connecting Westbrook to NW MAC	\$60.0
	162 Avenue SW, Shawnessy to SW Ring Road	\$75.0
	Green Trip Provincial funding for BRT Projects (EB1 to EB4)	-\$139.0
	Total	\$392.0
Established Area Transportation Infrastructure List: TOTAL		\$6,061.7



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Greenfield Transportation Infrastructure List		
Category	Project Name	Total Cost (millions)
Interchanges	Métis Tr / Airport Tr I/C	\$70.0
	Airport Tr / Stoney Tr NE (Ultimate)	\$60.0
	Macleod Tr / 194 AV SE I/C	\$70.0
	Macleod Tr / 210 AV SE I/C	\$70.0
	West 22X/53 St SW Interchange	\$70.0
	West 22X/ 85th St W Interchange	\$70.0
	West 22X/69 St W interchange	\$70.0
	Deerfoot Tr / 212 AV SE I/C	\$16.0
	104 St / Marquis of Lorne (Fly Over) SE	\$30.0
	120 St / Marquis of Lorne I/C SE	\$70.0
	East Freeway/130th Ave SE I/C (To/from the North)	\$40.0
	East Freeway/106th Ave Trail Fly Over	\$30.0
	Glenmore Tr / 68 ST SE I/C	\$70.0
	Glenmore / Garden Rd SE	\$70.0
	Glenmore / 116th E I/C Se (Second Structure and Upgrade requirements)	\$70.0
	Peigan Tr / 52 ST NE I/C	\$70.0
	Peigan Trail/68th St I/C	\$60.0
	East Freeway / Memorial Dr Flyover	\$30.0
	16 AV NE / 68 ST NE I/C	\$70.0
	East Freeway/ 32 AV NE Flyover	\$30.0
	64 Ave / East Freeway Flyover	\$30.0
	Airport Trail/36th St NE I/C	\$40.0
	Airport Trail/60th St NE I/C	\$75.0
	Métis Tr / 64 AV NE I/C	\$70.0
	Metis Trail/128th Ave NE I/C	\$70.0
	60 St / Stoney Tr I/C NE	\$50.0
	Deerfoot Tr / 128 AV NE I/C	\$60.0
	Deerfoot Tr / Country Hills Blvd I/C (second structure)	\$30.0
	Deerfoot Tr/Airport Trail Ultimate	\$50.0
	160 Ave / Hwy 2 NE (second structure and upgrade requirements)	\$30.0
	11th Street/Stoney Trail I/C	\$50.0
	Centre St / Stoney Tr (second structure and upgrade requirements)	\$15.0
	14 St / Stoney I/C	\$40.0
	Shaganappi Tr/Stoney Tr (second structure and upgrade requirements)	\$15.0
	Centre St / Hwy 566 I/C	\$80.0
	Crowchild Tr / 12 Mile Coulee Rd I/C	\$70.0
Total		\$1,911.0



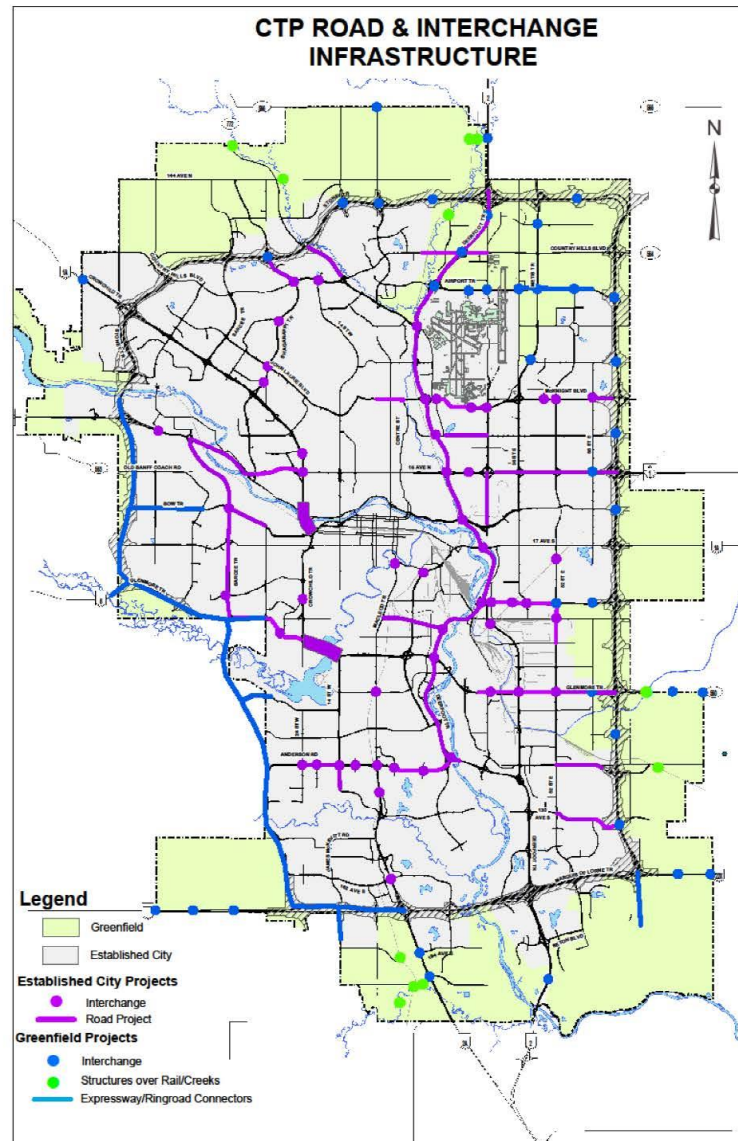
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Greenfield Transportation Infrastructure List		
Category	Project Name	Total Cost (millions)
Road Structures over Rail/Creek	CP Rail at 194th Ave SW	\$25.0
	CP Rail at 210th Ave SW	\$25.0
	210 Ave SW at Pine Creek	\$20.0
	Pine Creek Crossing in South Macleod	\$25.0
	CP Rail at 114th Ave SE	\$25.0
	WID Canal Crossing at Glenmore Trail SE	\$20.0
	144th Ave at West Nose Creek	\$25.0
	160th Ave at West Nose Creek	\$25.0
	160th Ave at Rail and Creek Crossing (6 Lane X-section over creek, rail, service road)	\$53.0
	11th St at Nose Creek/CPR Rail Crossing	\$20.0
	Total	\$263.0
Expressways	Airport Tr - Barlow Tr, Airport - 19 St interchanges and widening 36 St to 60 St NE	\$83.0
	88 Street SE skeletal road extension	\$17.0
	Total	\$100.0
Ring Road Connections	SW and West Ring Road Connections	\$133.3
	Total	\$133.3
Greenfield Traffic	296 signals required	\$81.4
	Total	\$81.4
Pedestrian Overpasses	Stoney Tr, between Centre St and 14 St NW	\$6.0
	Stoney Tr, between Centre St and 11 St NE	\$6.0
	Airport Tr, east of Metis Tr, between Cityscape and Savannah	\$6.0
	Country Hill Bv NE, west of Stoney Trail, between North Cornerstone and South Cornerstone	\$6.0
	52 Street SE, between Auburn Bay and Mahogany	\$6.0
	Bow River, between Legacy and Cranston	\$12.0
	Total	\$42.0
BRT Infrastructure	162 Avenue SW, SW Ring Road to west side of Providence	\$90.0
	Total	\$90.0
Greenfield Transportation Infrastructure List: TOTAL		\$2,620.7



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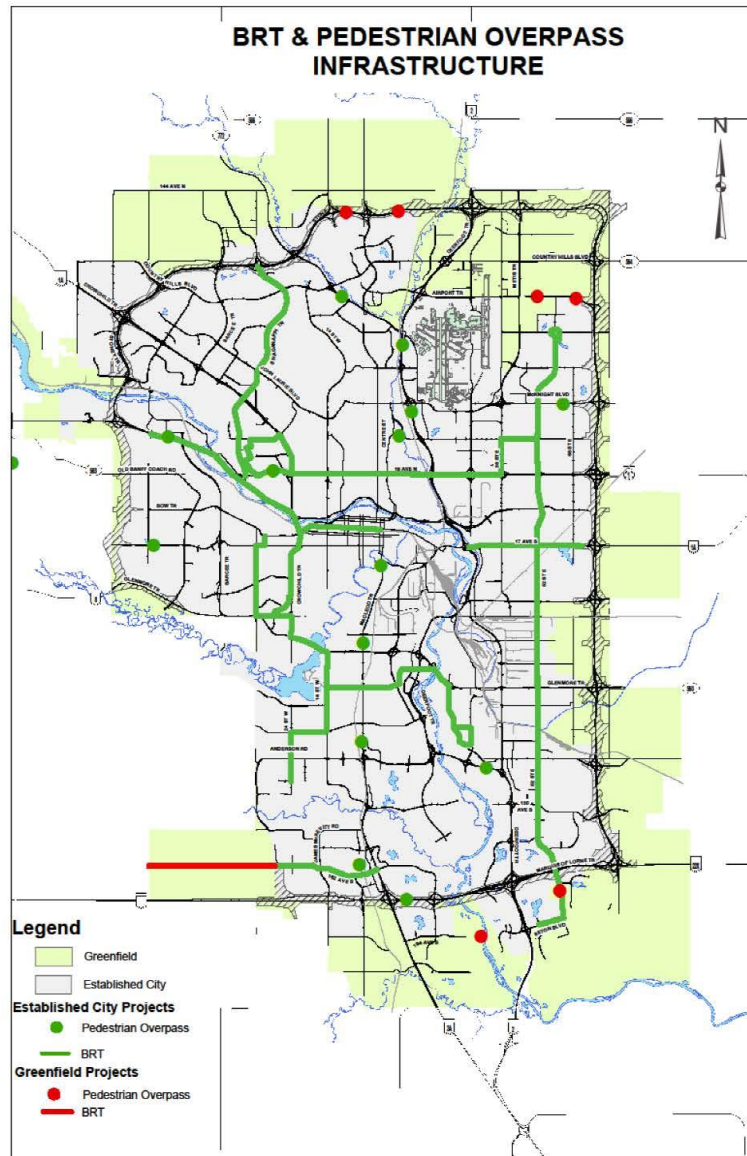
Figure 10 - CTP Road Interchange Infrastructure





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Figure 11 - BRT & Pedestrian Overpass Infrastructure





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APPENDIX C – WATER RESOURCES PROGRAM

Table 35 - Water Resources Infrastructure Project Lists

Category	Project Name	Allocation				Total Cost (millions)
		% Growth	% Greenfield	% Established	% Regional	
Water Distribution & Wastewater Collection						
Water Linear Extension Infrastructure	Ogden Feeder Main	100.0%	27.9%	55.0%	17.1%	\$38.5
	Lower Sarcee Feeder Main	100.0%	71.1%	15.7%	11.8%	\$30.9
	210 Ave SW Pump Station	100.0%	69.1%	17.8%	13.0%	\$15.0
	210 Ave Feeder Main	100.0%	69.1%	17.8%	13.0%	\$12.0
	East McKenzie FM	100.0%	29.8%	54.6%	15.6%	\$6.4
	Northridge FM Ph 1 and 2	100.0%	83.2%	16.8%	0.0%	\$30.7
	Northridge Reservoir	100.0%	83.2%	16.8%	0.0%	\$3.2
	Total					\$136.8
Sanitary Linear Extension Infrastructure	North Ridge Macdonald Trunk	100.0%	100.0%	0.0%	0.0%	\$7.1
	West Pine Creek Sanitary Trunk Ph 2	100.0%	100.0%	0.0%	0.0%	\$46.6
	Seton Tunnel Ph 1	100.0%	100.0%	0.0%	0.0%	\$31.8
	Seton Tunnel Ph 2	100.0%	100.0%	0.0%	0.0%	\$18.8
	144 Ave NE San Trunk	100.0%	100.0%	0.0%	0.0%	\$24.1
	North Beddington San Ph 2 CFA	100.0%	100.0%	0.0%	0.0%	\$8.9
	Beddington Creek II East Leg	100.0%	100.0%	0.0%	0.0%	\$2.7
	Total					\$140.1
Sanitary Upgrade Infrastructure	Redevelopment	TBD	0.0%	100.0%	0.0%	\$20.9
	Saddle Ridge Sanitary Upgrade	100.0%	46.2%	53.8%	0.0%	\$5.1
	Bowness Trunk Upgrade	87.0%	19.3%	40.5%	40.2%	\$48.6
	Shouldice Trunk Upgrade	61.0%	11.6%	69.3%	19.1%	\$24.0
	Nose Creek Trunk Upgrade	88.0%	48.4%	18.3%	33.3%	\$87.7
	Inglewood Trunk Upgrade	87.0%	24.0%	57.4%	18.7%	\$55.9
	McKenzie Siphon Upgrade	38.0%	40.5%	59.5%	0.0%	\$7.4
	17th Ave Trunk Upgrade	TBD	0.0%	100.0%	0.0%	\$4.6
	Beltline Trunk Upgrade	TBD	0.0%	100.0%	0.0%	\$1.5
	Forest Lawn LS Sewer Upgrading 1	55.0%	0.0%	100.0%	0.0%	\$6.7
	Forest Lawn LS Sewer Upgrading 2	68.0%	0.0%	100.0%	0.0%	\$6.6
	Fish Creek West Sub Trunk	TBD	0.0%	TBD	TBD	\$14.3
	Tsuu Tina Connection Upgrade	TBD	0.0%	TBD	TBD	\$9.4
	Elbow Drive Trunk Upgrade 1	TBD	0.0%	100.0%	0.0%	\$1.4
	Elbow Drive Trunk Upgrade 2	TBD	0.0%	100.0%	0.0%	\$16.1
	Penbrooke Trunk Upgrades	89.0%	0.0%	100.0%	0.0%	\$46.7
	Total					\$356.9



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Category	Project Name	Allocation				Total Cost (millions)
		% Growth	% Greenfield	% Established	% Regional	
Water Upgrade Infrastructure	Airdrie FM Tie-in and Meter Chamber Relocation	100.0%	100.0%	0.0%	0.0%	\$1.4
	Pump Station 36 Installation	100.0%	83.2%	16.8%	0.0%	\$0.2
	Redevelopment	TBD	0.0%	100.0%	0.0%	\$11.5
	South Glenmore Reservoir Basin II	60.0%	29.8%	54.6%	15.6%	\$40.4
	Bears paw Pump Station STN012 Upgrade	37.0%	28.3%	40.6%	31.1%	\$6.6
	Bears paw Pump Station STN020 Upgrade	37.0%	28.3%	40.6%	31.1%	\$2.0
	Nose Hill Feedermain	37.0%	28.3%	40.6%	31.1%	\$37.8
	Country Hills Blvd Uptown Feedermain	37.0%	28.3%	40.6%	31.1%	\$29.8
Total						\$129.6
Drainage Facilities & Network						
Drainage Facilities & Network	North Ridge Macdonald Trunk	100.0%	100.0%	0.0%	0.0%	\$7.5
	Redevelopment	TBD	0.0%	100.0%	0.0%	\$20.8
	Priddis Storm Trunk Outfall	100.0%	100.0%	0.0%	0.0%	\$23.8
	144 Av NE Storm Trunk 4	100.0%	100.0%	0.0%	0.0%	\$0.0
	North Beddington Storm Trunk	100.0%	100.0%	0.0%	0.0%	\$1.7
	Riverbend Trunk Pond	TBD	0.0%	100.0%	0.0%	\$2.6
	Seton Storm Trunk	100.0%	100.0%	0.0%	0.0%	\$8.0
	Seton Storm Trunk Ph 2	100.0%	100.0%	0.0%	0.0%	\$3.5
Total						\$67.9
Water & Wastewater Treatment						
Wastewater Treatment Plants	BB WWTP Blower Upgrades	100.0%	44.3%	32.3%	23.5%	\$23.1
	BB WWTP 13.2&5kV System Expansion	100.0%	44.3%	32.3%	23.5%	\$44.5
	Bonnybrook Capacity Upgrade	100.0%	44.3%	32.3%	23.5%	\$128.0
	BBWWTP Plant D Expansion	100.0%	44.3%	32.3%	23.5%	\$552.0
	Power Management System	100.0%	44.3%	32.3%	23.5%	\$3.6
	Power Distribution Upgrades	50.0%	44.3%	32.3%	23.5%	\$2.6
	600V System Upgrades	50.0%	44.3%	32.3%	23.5%	\$3.1
	BB Struvite Recovery	20.0%	44.3%	32.3%	23.5%	\$20.2
	BB Dewatering Building	50.0%	44.3%	32.3%	23.5%	\$88.5
	BB Centrate / Supernatant Treatment	80.0%	44.3%	32.3%	23.5%	\$31.0
	FC WWTP Capacity Assessment	100.0%	31.5%	44.3%	24.2%	\$89.7
	South Catchment Capacity Upgrade	100.0%	31.5%	44.3%	24.2%	\$316.2
Total						\$1,302.4
Water Treatment Plants	GM WTP Capacity Expansion	100.0%	56.6%	23.5%	20.0%	\$64.5
	BPWTP Capacity Upgrades	100.0%	44.8%	35.4%	19.8%	\$4.9
	Bears paw RTF Fourth Thickener	20.0%	56.6%	23.5%	20.0%	\$2.4
	Glenmore UV Disinfection	100.0%	56.6%	23.5%	20.0%	\$22.4
	Bears paw UV Disinfection	100.0%	44.8%	35.4%	19.8%	\$3.4
Total						\$97.5



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Table 36 - Greenfield Allocation of Historical Debt Servicing for Water Distribution, Wastewater Collection & Drainage

As of 2014 Dec 31 st (in million \$)	Outstanding Debt	Debt Servicing
Water Distribution	\$ 130.1	\$ 174.6
Wastewater Collection	\$ 123.1	\$ 165.3
Drainage	\$ 69.0	\$ 87.7

Table 37 - Wastewater Treatment (Costs in Thousands \$)

Treatment Plant	Forecasted Capital Costs (2015-2024)	Borrowing Cost	Total Forecasted Costs (Future Value)	Historical Costs	Total Costs for Available Capacity	Net Present Value	Available Capacity (Equiv. Pop.)
Bonnybrook	\$ 614,700	\$ 132,434	\$ 747,134	\$ -	\$ 747,134	\$ 567,263	321,479 EP
Pine Creek + Fish Creek	\$ 326,704	\$ 80,336	\$ 407,040	\$ 91,236	\$ 498,276	\$ 352,050	189,498 EP
Pine Creek Historical				\$ 46,369	\$ 46,369	\$ 39,287	30,830 EP
TOTAL						\$ 958,600	541,807 EP

Table 38 - Water Treatment Plants (Costs in Thousands \$)

Treatment Plant	Forecasted Capital Costs (2015-2024)	Borrowing Cost	Total Forecasted Costs FV	Historical Costs	Total Costs for Available Capacity	NPV	Available Capacity (Equiv. Pop.)
Glenmore	\$ 69,552	\$ 16,111	\$ 85,664	\$ -	\$ 85,664	\$ 64,148	
Bearspaw	\$ 7,003	\$ 1,708	\$ 8,710	\$ -	\$ 8,710	\$ 6,504	
Total Future WTP						\$ 70,652	185,846 EP
Historical Capacity				\$ 47,350	\$ 47,350	\$ 40,847	98,301 EP
TOTAL						\$ 111,499	284,147 EP

Cash Flow Analysis and Assumptions Used

A cash flow analysis was undertaken to account for the timing of projects and receipt of off-site levies. Interest earnings or borrowing costs are, therefore, accounted for in the calculation as allowed under the MGA. Based on the development forecast, the analysis calculated the off-site levy rate that is required to finance the discounted development related capital spending plan including provisions for any borrowing. The 10 year forecast for Municipal Price Index (3.3%) was used for discounting and escalation rates. The following tables summarize the assumptions used in the calculation of the water and wastewater off-site levies.



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Table 39 - Interest Rates Used

Projected Borrowing	25 Year Term	10 Year Term
2016	3.50%	2.5%
2017	4.00%	3.0%
2018	4.50%	3.5%
2019	4.75%	3.8%
2020	5.00%	4.0%
2021	5.25%	4.3%
2022	5.50%	4.5%
2023	5.50%	4.5%
2024	5.50%	4.5%

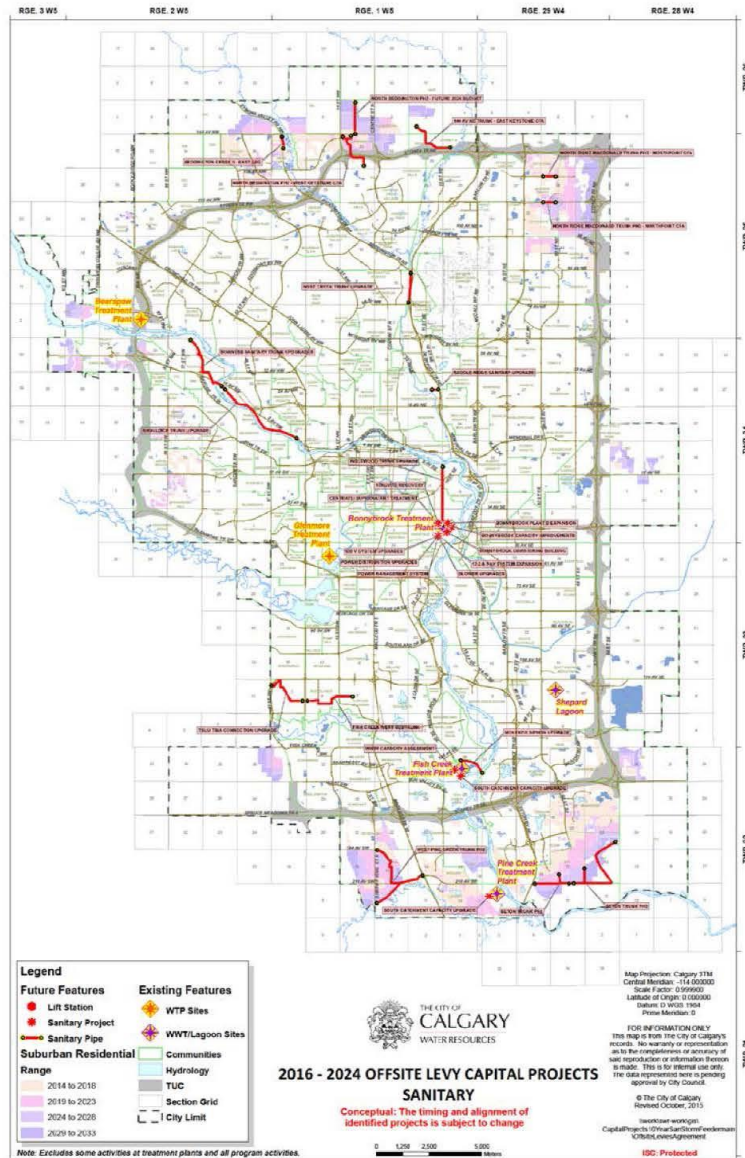
Table 40 - Land Forecast in Hectares

Projected Borrowing	Residential	Industrial / Commercial	Total
2016	276	125	401
2017	276	125	401
2018	276	125	401
2019	276	125	401
2020	276	125	401
2021	276	125	401
2022	276	125	401
2023	276	125	401
2024	276	125	401



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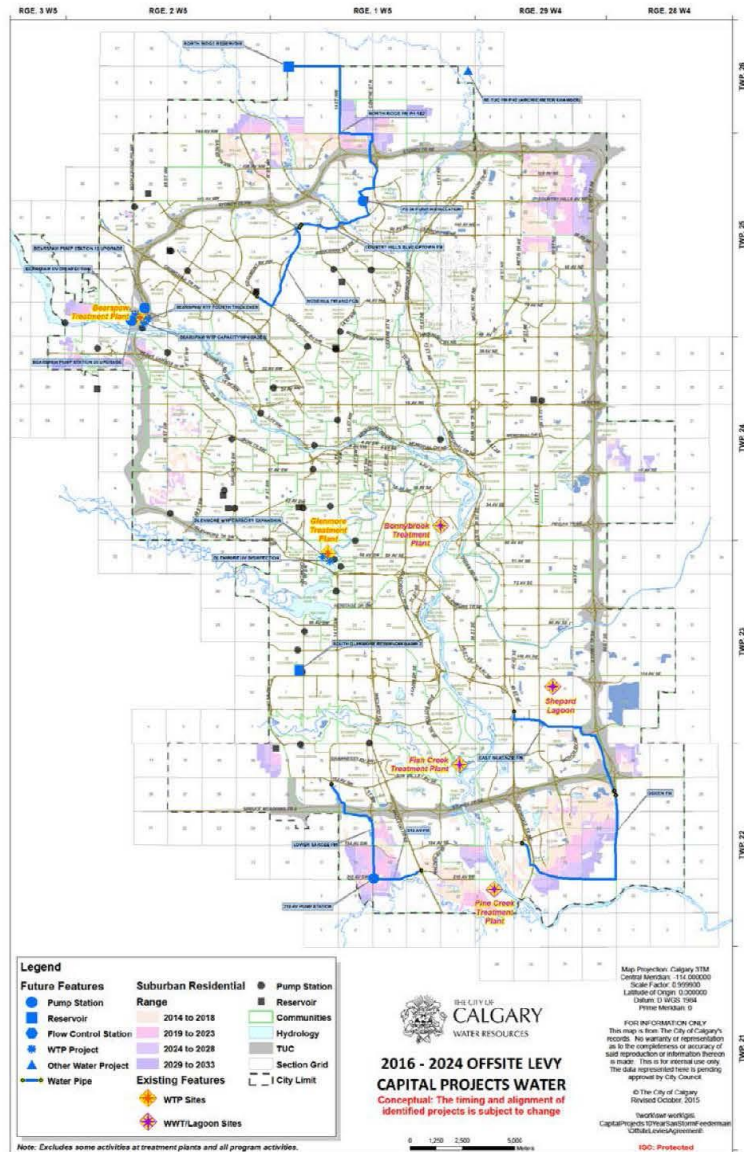
Figure 12 - Wastewater Collection Projects





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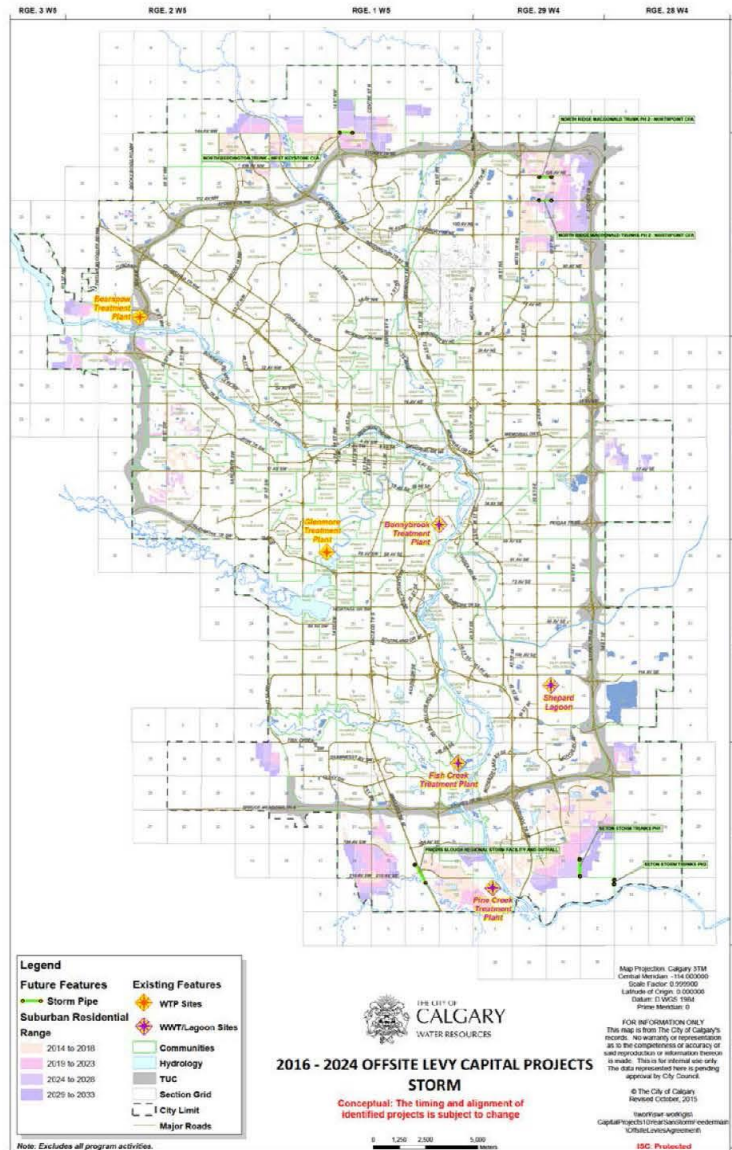
Figure 13 - Water Distribution Projects





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Figure 14 - Drainage Projects





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APPENDIX D – COMMUNITY SERVICES PROGRAM

D.1 Public Libraries (Calgary Public Library)

The key strategic document used to develop this off-site levy for public libraries was the Calgary Public Library (CPL) Master Facility Plan, Beyond the Box (2010).

Level of Service

There exists a number of methods to measure the amount of library service provided by municipalities to citizens. The most common method is square feet per capita which is used by The City of Calgary. Information collected by the Canadian Urban Library Council (CULC) notes the average sq ft per capita of participating members (approximately 32 Canada wide members who reported into CULC for 2013) as 0.54 sq ft per capita¹.

Library Trends

Library sizes have increased as libraries have added technology and additional formats of materials to their more traditional fare. Libraries have also added more meeting and gathering space to reflect the expanding role of public libraries as centers of community life. The amount of space required by a public library depends on the unique needs of the individual community. In traditional library planning methodology, libraries use a variety of standards to calculate required building size for an area.

Library Sizing

The location and size of a library are dependent on a number of variables, including the distance to other libraries, the presence of natural or man-made travel barriers, the availability of suitable sites and the interest of complementary site partners. User penetration has been shown to decline significantly with distance. CPL combines these factors with the population of the proposed service area when determining location and size of library projects. CPL recognizes the financial benefits and end-user convenience of co-locating but it is not a requirement.

Over the last 15 years, most new libraries have been co-located with recreation amenities and have averaged nearly 18,000 sq ft. This is a size that balances operating costs for the CPL and travel distances for users in a suburban setting. Calgary and other municipalities have a great deal of similarities when it comes to programming pieces between libraries across Canada. The CULC identifies its member's average branch library size as 16,722² Sq ft.

For greenfield development areas, library infrastructure costs are based on the baseline library size of 18,000 sf and 0.36 sf of library required per capita

¹ Based on 2013 Canadian Public Library Statistics, <http://www.culc.ca/cms/lib/2013%20CULC%20Library%20Statistics.pdf>

² From Canadian Urban Library Council – 2013 KPIs, <http://www.culc.ca/cms/lib/2013%20CULC%20Branch-Level.pdf>



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Infrastructure Costs

The following table identifies costing from a variety of co-located libraries based on budgeted (B) and actual (A) costs.

Table 41 - Precedent Costs from a Variety of Co-located Libraries

Library	CPL Land (acres)	Gross Library Size (per sf)	Library Development Costs			Total	Total Cost per sf
			Building Development	Furniture, Fixtures & Equipment	Site Development		
Genesis Phase 1 (2011)	1.89	18,783	\$ 5,100,000 (A)	\$ 1,165,240 (A)	\$ 1,140,000 (A)	\$ 7,405,240	\$ 394
Seton (2018)	1.45	24,100	\$ 8,630,000 (B)	\$ 2,200,000 (B)	\$1,820,000 (B)	\$ 12,650,000	\$ 525
Quarry Park (2016)	1.26	13,455	\$ 4,670,000 (A)	\$ 800,000 ³ (B)	\$ 860,000 (A)	\$ 6,330,000	\$ 470
Average	1.54	18,799	\$ 6,133,333	\$ 1,388,413	\$ 1,273,333	\$ 8,795,080	\$ 463
Contingency (10%)							\$ 46
Revised Average							\$ 509

** FFE does not include costs associated with materials, books etc.

*** includes purchase cost, acreage assessment, off-site servicing, on-site servicing & improvements

The projected costing for a co-located library in 2015 is shown in the following table (rounded / priced per sf).

Table 42 - Projected Cost for a Co-located Library in 2015

Component	2015 Costs
Building Development	\$ 327 per sf
Furniture, Fixtures and Equipment	\$ 74 per sf
Site Development (acquisition & development cost) per acre	\$826,839 / acre
Total Costs per sf	\$509 per sf

³ Quarry Park FFE was reduced due to the transfer of FFE from Glenmore Square Branch in Ogden



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The following tables outline the projected forecasted infrastructure costs for the Greenfield Area of the City.

Table 43 - Greenfield Forecasted Infrastructure Costs (2015-2044)

Sector	Population Change	Library Requirement (pop x 0.36 sf)	2015 Cost (library x \$509 sf)
Total	340,918	122,730	62,469,814

D.2 Emergency Response Stations (Calgary Fire Department)

The key strategic document used to develop this community services charge for fire services was the Calgary Fire Department's 30 year Infrastructure Plan (2014-2043).

Level of Service

Identification of a need for an emergency response station is dependent on many different factors including, but not limited to, actual and forecasted incident volumes, actual and simulated response times, existing and/or proposed population sizes, geographic layout and geographic size, identified risks (existing and, if possible, proposed), and area land use zoning.

Given Calgary's risk environment and to measure its level of preparedness to respond to emergencies, Calgary Fire Department (CFD) identified in its Service Level and Response Time Targets plan, the number of fire stations per capita would be at or near comparable Canadian cities⁴. The population protected per station is a rough indicator of the workload the Calgary Fire Department (CFD) can expect and is based on the resident population protected (it does not include visitors or non-resident workers).

In 2008, the fire station per capita comparisons equalled approximately 25,000 persons. CFD chose to use the population protected per station for every 30,000 persons as a measure for communities on the periphery.

⁴ Comparable cities include but are not restricted to: Mississauga, Vancouver, Regina, Ottawa, Edmonton, Toronto and Montreal.



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Infrastructure Costs

The following table outlines the cost of providing a new facility and how this was determined.

Table 44 - Emergency Response Station Facility Costs (Actuals)

Component	2015 Costs	
	3-Bay Station (Seton ⁵ , 23,842 sf ⁶)	
Building Construction	\$14,354,930	
Construction		11,012,623.90
Consulting		1,801,888.04
Contingency (10%)		1,281,450
Equipment (Machinery, Duty Gear, Installation)		13,412.09
FFE (i.e. furniture / equipment)		82,615.57
Misc		162,939.81
Land (serviced)	\$2,606,265	2.74 acres⁷
Apparatus	\$1,027,350	
Engine		840,000
Equipment		187,350
Total Costs	\$17,988,545	

D.3 District Office (Police)

The key strategic document used to develop this community services charge for future district offices was the Calgary Police Service's (CPS) Facilities Master Plan 2016–2025 / 2025-2035 (anticipated completion 2016).

Level of Service

Utilizing current information coupled with the findings from the future CPS Facilities Master Plan, it is determined that the average of 149,000 people are served by one district station

⁵ Seton Emergency Response is shared with four City of Calgary business units. Other space allocation is as follows: Calgary Police Service (2,650 sf), Animal Bylaw Services (3,143 sf), Parks (2,230 sf), shared common (3,990 sf).

⁶ Emergency Response specific area with their proportionate allocation of shared common.

⁷ Total land purchase price for multi-use facility was 4.7 acres with lands allocated to Emergency Response and Corporate Properties. Price was \$950,000 acre.



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Infrastructure Costs

The following table outlines the cost of providing a new facility and how this was determined.

Table 45 - Police District Office Costs (Projected)

Component	2015 Costs		
	Component Cost	Size	Cost Per Unit
Building Construction⁸	\$22,500,000	45,000 sf (4,180 s.m.)	\$500 / sf
Consulting	\$2,000,000	-	-
Site Development	\$2,000,000	5 acres	\$400,000 / acre
Contingency (10%)	\$2,650,000		
Public Art (1%)	\$291,500		
Land - Includes raw land purchase price and land servicing costs (i.e. building site, drainage, paving and landscaping)	\$5,500,000	5 acres	\$1.1 M / acre
Total Costs	\$34,941,500⁹		

D.4 Recreation Centres (Recreation)

The projected infrastructure needs identified in this section are guided by the 2015 Facility Development and Enhancement Study (FDES), and facilitated by on-site delivery of programs and services during community build out.

Level of Service

The City's goal is to develop smaller regional facilities that can be built out as the community grows rather than building larger regional facilities which will take much longer to build. The provision of a recreation facility is population based. The City is using a catchment population of 40,000 to 80,000 people for a small regional recreation facility. The current average population catchment within approved/planned ASPs is 63,000 people/recreation centre. The charge will be based on average recreation centre coverage of 63,000 people.

⁸ Building costs do not include furniture, fixture and equipment (FF&E). While FF&E is a capital cost associated with growth these expenses will be covered through operating.

⁹ While capital costs related to Police patrol and investigative fleet have been excluded from this calculation, this capital investment required to service growth should be revisited.



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Infrastructure Costs

The following table outlines the cost of providing a new facility and how this was determined.

Table 46 - Small Recreation Centre Costs

Component	2015 Costs, Facility Development & Enhancement Study Proposed Baseline		
	Component Cost	Size	Cost Per Unit
Building Construction - includes parking; on-site servicing; project administration; consultant fees.	\$47,678,000 ¹⁰	125,000 ¹¹¹² sf	\$380 / sf
Site Development - includes servicing, grading, parking etc.	3,165,000	-	-
Contingency (10%)	5,084,300		
Soft Costs - includes design, permits geotechnical testing / reports, land use etc.	6,537,653	-	-
Public Art (1%)	624,650		
Land (serviced)	\$13,200,000	12 acres	\$1.1 M / acre
Furniture & Equipment	\$4,312,475		
Total Costs	\$80,602,078		

* Facility costs represent baseline condition which includes aquatics, gymnasium, fitness, meeting spaces and support services (daycare and food services). Amenities beyond this level of service which provides a higher level of service include but are not limited to ice rinks, dry-land sport fieldhouses, art studios, performing art theatres, climbing walls, and youth centres.

¹⁰ Variance from June 16, 2015 figure are the result of: removal of Quarry Park methane mitigation, owner internal costs, and alignment with an "optimized facility" as per the Facility Development & Enhancement Study (2015).

¹¹ The proposed 125,000 sq. ft. facility is of a size that will effectively and efficiently meet regional recreation needs while not being of a size (e.g. Rocky Ridge Regional Recreation Facility: 284,000 sq. ft.) that will require significantly more funds and thus time to construct (i.e. a smaller facility can be built in a timely manner to meet the needs of developing communities). Note: the above calculation provides 1.98 sq. ft. of facility per person in the catchment area of 63,000 people. This aligns with the FDES recommendation of 2 sq. ft. per person

¹² Variance from June 16, 2015 is the result of a more detailed analysis by square foot and alignment with the "optimized facility" as per the Facility Development & Enhancement Study (2015).



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D.5 Transit Buses (Transit)

Level of Service

The need for transit buses in greenfield communities is based on existing average transit bus route coverage. Current transit bus requirement in greenfield neighborhoods is six buses per 20,000 population.

Infrastructure Costs

The average cost of a new transit bus in 2015\$ is \$411,000.



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GLOSSARY

Area-Specific Off-Site Levies	Levies determined for different areas according to geographic zones or other distinctive areas based on technical reasons
Build Calgary	A collaborative cross-corporate team formed by the City of Calgary
Carry-Forward Levy Fund Balances	Current account balances for existing levy funds incorporated into updated levy calculations.
City-wide Off-Site Levies	The same levy cost is applied regardless of the location of the development
Commercial Development	A use identified on a development permit, and any uses that are ancillary to the principal use listed on a development permit, that are neither <i>residential development</i> nor <i>industrial development</i> .
Cost of Capacity Method	Determines the appropriate amount to charge new development for additional capacity.
Cottage Housing Cluster	A development form as defined in the City of Calgary Land Use Bylaw 1P2007
Developed Area	Developed Area is identified in the MDP and is considered to be all communities that were completely constructed prior to the approval of the MDP.
Developing Area	The Developing Area is identified in the MDP and is considered to be all communities that had no or only partial urban development prior to approval of the MDP.
Development Agreement	A legal contract between The City and the Developer that sets out the terms and conditions under which development of the lands are to take place within the city including the responsibility to construct public facilities and associated financial obligations.
Established Area	Area of the city as shown in Figure 2 of this report to be charged the Established Area levy.
Greenfield Area	Area of the city as shown collectively the areas identified as "Greenfield Area by Watershed" in Figure 2 of this report to be charged the Greenfield Area levy.
Gross Floor Area	Development building gross floor area as defined in the Land-Use Bylaw
Industrial Development	<p>A use identified on a development permit, and any uses that are ancillary to the principal use listed on a development permit, listed in the following City of Calgary Land Use Bylaw 1P2007 Schedule A Group of Uses:</p> <ul style="list-style-type: none"> a. Direct Control Uses, with the exception of the following specific uses: <ul style="list-style-type: none"> i. Adult Mini-theatre, ii. Emergency Shelter, iii. Gaming Establishment – Casino, iv. Jail; b. General Industrial Group; c. Industrial Support Group, with the exception of the following specific uses: <ul style="list-style-type: none"> i. Artist Studio, ii. Health Services Laboratory – Without Clients, d. Storage Group; or e. One of the following specific uses:



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	<ul style="list-style-type: none"> i. Auction Market – Other Goods, ii. Auction Market – Vehicles and Equipment, iii. Restored Building Products Sales Yard , iv. Bulk Fuel Sales Depot, v. Fleet Service, vi. Large Vehicle Service, vii. Large Vehicle and Equipment Sales, viii. Large Vehicle Wash, ix. Recreational Vehicle Sales, or x. Recreational Vehicle Service.
Multi-Residential Grade-Oriented	Development with 3 or 4 units, regardless of form OR 5 or more units, where the units are provided in a Cottage Housing Cluster, Townhouse or Rowhouse building
Multi-Residential Non Grade-Oriented (1 Bedroom or Less)	Development with 5 or more units, where the units are provided in a Multi-Residential Development that are not provided in a Cottage Housing Cluster, Townhouse or Rowhouse building and has 1 bedroom or less.
Multi-Residential Non Grade-Oriented (2 Bedroom or More)	Development with 5 or more units, where the units are provided in a Multi-Residential Development that are not provided in a Cottage Housing Cluster, Townhouse or Rowhouse Building and has 2 bedrooms or more.
Non-Residential Growth	Development associated with industrial, commercial and institutional land uses.
Off-Site Levy Bylaw Project	The Off-Site Levy Bylaw project is a review and major update of The City of Calgary's transportation, water resources and community services charges for off-site infrastructure impacts related to growth.
Residential Development	A use identified on a development permit, and any uses that are ancillary to the principal use listed on a development permit, listed in the following City of Calgary Land Use Bylaw 1P2007 Schedule A Group of Uses: a. Residential Group (except Hotel)
Rowhouse	A development form as defined in the City of Calgary Land Use Bylaw 1P2007
Semi-Detached / Duplex	Development with only 2 units
Single Detached	Development with only 1 unit
Site Development Area	Area of land that is the subject of a development permit, and may be portions of, or all of one or more areas of land described in a certificate of title or described in a certificate of title by reference to a plan filed or registered in a land titles office
Townhouse	A development form as defined in the City of Calgary Land Use Bylaw 1P2007
Watershed Catchment Area	An area of land where surface water from rain, melting snow, or ice converges to a single point at a lower elevation, usually the exit of the basin, where the waters join another waterbody, such as a river, lake, reservoir, estuary, wetland, sea, or ocean.



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ACRONYMS

MGA	Municipal Government Act
GMSGC	The City of Calgary's General Managers Strategic Growth Committee
ALT	The City of Calgary's Administrative Leadership Team
MDP	Calgary Municipal Development Plan
CTP	Calgary Transportation Plan
LRT	Light Rail Transit
RTM	The City of Calgary's Regional Transportation Model
VKT	Vehicle Kilometres Travelled
CFA	Construction Financing Agreement
EP	Equivalent Population
ASP	Area Structure Plan
CPS	Calgary Police Services
CFD	Calgary Fire Department
CPL	Calgary Public Library
CULC	Canadian Urban Library Council
FDES	Facility Development and Enhancement Study

Calgary



SCHEDULE "D"

The City of Calgary
**Off-Site Levy and Community
Services Charges Background
Report Addendum**

October 2018



Off-Site Levy and Community Services Charges
Background Report Addendum

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EXECUTIVE SUMMARY

On 30 July 2018, Council approved the New Community Growth Strategy 2018. Certain transportation and water resources infrastructure required to service these new communities was not contemplated at the time of the 2016 Off-site Levy Bylaw. Council directed that this infrastructure be incorporated into the existing Bylaw 2M2016.

This Off-site Levy & Community Services Charges Background Report Addendum (hereafter referred to as the "Background Report Addendum") in combination with the Off-site Levy & Community Services Charges Background Report (December 2015) (the "2015 Background Report") forms part of the Off-site Levy Bylaw. The Background Report Addendum details the amended assumptions, infrastructure projects and capital costs underpinning the revisions to the levies based on the inclusion of new growth-related infrastructure to be funded through the Off-site Levy program. Jointly with the 2015 Background Report, the Background Report Addendum details the process used to deliver the update, infrastructure needs, calculation methodology and assumptions utilized to establish the amended Off-Site Levies.

These amendments are limited to only consider the inclusion of new growth-related infrastructure that provides servicing to new communities not previously contemplated under the 2016 Off-site Levy Bylaw. To support development of these new communities, additional infrastructure is required under the following infrastructure types: a

- Transportation
- Water Distribution
- Wastewater Collection
- Drainage Systems

This Background Report Addendum outlines amendments made in the determination of the Off-Site Levies to incorporate the new transportation and utility infrastructure. No changes are proposed for the Water Treatment Plant levies or the Community Services Charges, which means the levies applied in the Established Areas are unchanged. The proposed amendments align with the guiding principles established in consultation with stakeholders in 2015 and apply a consistent calculation methodology to the 2016 Off-site Levy Bylaw.

In alignment with the 2016 Off-site Levy Bylaw, the amendments ensure those who will use and benefit from the infrastructure pay their share of the costs in a fair and equitable manner. The amendments create certainty by providing stable charges to the development industry and by allowing the orderly and timely construction of infrastructure as determined by The City.



Table 1 provides a summary of the Levy Rates amended based on the inclusion of new infrastructure as detailed in the Background Report Addendum.

Table 1 – Amended Off-site Levy Rates for Greenfield Area

Infrastructure	2018 Rate (\$/Ha)
Transportation	\$133,740
Water Distribution	\$43,413
Wastewater Collection	\$50,127
Drainage Systems - By Catchment	
Bow River	\$8,340
Elbow River	\$0
Fish Creek	\$21,511
Nose Creek	\$16,868
Pine Creek	\$18,943
Shepard	\$44,110



1.0 INTRODUCTION

Calgary is a great city known worldwide for its quality of life and robust economy. As a result, it has continued to experience rapid growth. Despite the recent economic downturn, Calgary is forecast to grow by 1.3 million people in the next 60 years. Growth provides numerous benefits along with a requirement for investment in services and infrastructure to support the growth.

Developers fund the capital cost of the local infrastructure within new communities such as roads, sidewalks, parks and underground utilities. Growth also creates a need for additional or expanded infrastructure that is off-site from these communities such as water and wastewater systems, and major roads and interchanges. One of the tools used to help fund the capital cost of this infrastructure is to charge developers off-site levies. The Municipal Government Act (MGA) authorizes municipalities to create off-site levies that can be imposed at the time of subdivision or development permit approval.

In 2015, The City initiated a review and major update of off-site levies related to new or expanded transportation, water resources and community services infrastructure. Extensive stakeholder engagement contributed to the review and development of the 2016 Off-site Levy Bylaw, which was approved by Council on 2016 January 11.

On 30 July 2018, Council approved 14 new greenfield communities for development as part of the New Community Growth Strategy 2018. Certain transportation and water resources infrastructure required to service these new communities was not contemplated at the time of the 2016 Off-site Levy Bylaw. Council directed that this infrastructure be incorporated into the existing Bylaw 2M2016.

To reflect the approval of new growth areas, this Background Report Addendum has been developed to outline amendments made to the levy calculations to support the inclusion of new growth-related infrastructure to be funded through the Off-site Levy. The Background Report Addendum in combination with the Off-site Levy 2015 Background Report forms part of the Off-site Levy Bylaw.

1.1 Purpose of the Background Report Addendum

The amendments outlined within the Background Report Addendum are limited to the incorporation of new growth-related infrastructure not previously contemplated under the 2016 Off-site Levy Bylaw that provides servicing to the new communities. It adds to, but does not replace, the 2015 Background Report.

Additional infrastructure has been identified for the following infrastructure types:

- Transportation
- Water Distribution
- Wastewater Collection
- Drainage Systems

No changes are proposed for the Treatment Plant Levy or the Community Services Charges, which means the levies applied in the Established Areas are unchanged. Amendments outlined within the Background Report Addendum remain consistent with the guiding principles established in consultation with stakeholders in 2015. In response to the guiding principles of *Certainty, Clarity and Transparency* and *Efficiency*, the methodology and fundamental, underlying assumptions utilized to calculate the levy rates adopted in 2016 have not been altered. However, the amendments articulated in the Background Report Addendum recognize the additional infrastructure needs and ensure those that benefit from the infrastructure, pay for the infrastructure (*Benefit Allocation*) and that the *Financial Sustainability* of the Off-site Levy Program remains robust.



2.0 STAKEHOLDER ENGAGEMENT

Extensive stakeholder engagement contributed to the review and development of the 2016 Off-site Levy Bylaw, which was approved by Council 2016 January 11. As the proposed amendments will not impact established area landowners, and given the nature of the amendments, a more focused approach was utilized to consult with greenfield stakeholders. This approach is consistent with the Principles and Criteria for Off-Site Levies Regulation within the MGA, which requires that "...the municipality must consult in good faith on the calculation of the levy with stakeholders in the benefiting area where the levy will apply" (Alberta Regulation 187/2017).

Administration worked with BILD Calgary Region to formulate a working group consisting of greenfield developers with and without newly identified infrastructure requirements to service the new growth areas. The working group met four times between 2018 August 27 and 2018 September 18. The intent of these meetings was to review, discuss and provide feedback related to the proposed infrastructure being added, amendment approach and levy calculations.

In addition to consulting with the working group, an information package related to the amendments was distributed to Industry organizations (BILD, NAIOP, BOMA) to notify stakeholders of the proposed amendments and provide opportunities for feedback. Lastly, an information session was held on 2018 September 21, to provide an in-person opportunity for stakeholders to attend and provide feedback on the proposed amendments. Stakeholders were notified through the information package, meetings with industry, and through BILD Calgary Region circulation for the information session; approximately 35 members of industry attended.



3.0 GROWTH PROJECTIONS

Growth projections identify the benefiting area and population over which infrastructure costs are allocated. Dividing the growth infrastructure cost by the benefiting area or population produces the levy rate per hectare or unit amounts referenced in the Bylaw.

Overall growth projections, as outlined in Chapter 4 of the Off-site Levy 2015 Background Report, along with the residential, non-residential, and industrial share of annual growth remain consistent with the December 2015 Background Report. Through the approval of the New Community Growth Strategy 2018, the projected distribution of residential growth between the watershed catchments from 2019-2024 was amended to reflect a revised growth pattern accounting for the new areas. This redistribution impacts the drainage system levies, which are calculated with a catchment-based methodology; the city-wide levies are unaffected by these revisions.



4.0 AMENDMENTS

4.1 Transportation

The City of Calgary's Municipal Development Plan and Calgary Transportation Plan set out a clear framework for development growth over a 60-year timeline with associated transportation infrastructure requirements to build out the plans, as envisioned. The transportation Off-site Levy provides a mechanism for greenfield growth to contribute to the cost of transportation infrastructure based on the benefit allocated to greenfield development.

4.1.1 INFRASTRUCTURE NEEDS

Through the approval of the New Community Growth Strategy 2018 on 2018 July 30, the 80th Avenue / Stoney Trail Overpass was identified as an additional infrastructure need not contemplated in the 2016 Bylaw. Details related to the 80th Avenue / Stoney Trail Overpass are described in Table 2. The cost estimates are based on a Class V cost estimate, as per the Corporate Project Management Framework definitions. Cost estimates for new infrastructure were determined through the New Community Growth Strategy 2018 process.

Table 2 – New Transportation Infrastructure Costs

Infrastructure	New Greenfield Area Project	Total New Greenfield Area Transportation Infrastructure Cost (\$millions)
Interchanges	80 th Avenue / Stoney Trail Overpass	\$8.5

Appendix A of the Background Report Addendum has been updated to include the newly identified infrastructure project.

The total transportation greenfield capital costs identified in the 2016 Bylaw were \$2,620 million. Inclusion of the 80th Avenue / Stoney Trail Overpass results in a revised greenfield capital cost of \$2,629 million as displayed in Table 3.

Table 3 – Total Transportation Infrastructure Costs

Infrastructure	Total Transportation Infrastructure Costs (\$millions)
Established Areas Projects	\$6,062
Greenfield Areas Projects	\$2,629



4.1.2 AMENDMENT APPROACH

The transportation levy is based on a city-wide approach over a 60-year time horizon. The amendment approach does not contemplate adjustments to the growth projections or the allocation of benefit assigned to greenfield growth determined in the 2016 Bylaw. The new infrastructure identified contributes to the overall city transportation network and provides benefit to greenfield growth anticipate over 60-year time horizon. As such, the amendment approach recalculates the 2016 levy based on the new total transportation infrastructure costs allocated to greenfield development over the 60-year time horizon. The recalculated levy is then adjusted annually to determine the 2019 transportation levy rate.

4.1.3 LEVY CALCULATION

Details of the methodology and benefit allocation remain unchanged from Chapter 5 of the Off-site Levy 2015 Background Report.

The levy calculation remains unchanged from the original 2015 Background Report methodology:

$$\text{Levy Rate} = \frac{\text{GF Area Reduction (\%)} \times [(\text{GF Costs (\$)} \times \text{GF Benefit (\%)} + \text{Established Costs (\$)} \times \text{GF Benefit (\%)}]}{60 \text{ year GF Developable Area (Ha)}}$$

Based on the updated total greenfield transportation costs identified in Table 3 the amended levy calculation is as follows:

$$\text{Levy Rate (2016 Recalculation)} = \frac{0.9 \times [(\$2,629\text{M} \times 67\%) + (\$6,062\text{M} \times 17\%)]}{18,345 \text{ Ha}} = \$136,976/\text{Ha}$$

The transportation levy is adjusted annually on January 1 in the amount of the percentage equal to the average Statistics Canada non-residential construction price index (NRCPI) for Calgary for the previous four published quarters. The transportation levy rate effective 2018 December 31 is \$133,740 per hectare, as displayed in Table 4. This rate will be subject to the annual adjustment, which will be applied on 2019 January 1.

Table 4: Transportation Levy

Year	Transportation Levy
2018	\$133,740



4.2 Water Resources

The Water Resources Off-site Levy program is divided into the following three components:

- Water Distribution & Wastewater Collection – including upgrades and extensions to water distribution infrastructure and wastewater collection infrastructure.
- Drainage Systems – including new and upgraded drainage facilities and collection systems
- Water and Wastewater Treatment – including new plants, upgrades and capacity for wastewater and water treatment

A variety of additional water distribution, wastewater collection and drainage systems infrastructure needs were identified to provide service to new growth areas that were not contemplated in the 2016 Bylaw. No additional infrastructure needs were identified for water and wastewater treatment; these levies remain unchanged from the 2015 Background Report.

Through development of the Water Resources levy program in 2015 four Guiding Principles, as described in Section 2.3 of the 2015 Background Report, were particularly important. These specific principles guided the amendment approach utilized and are as follows:

- **Certainty** – A primary objective of the water resources program is to provide revenue assurance to the utilities.
- **Financial Sustainability** – Long term financial sustainability of the utilities is extremely important. There are two parts to this objective. The first is resiliency to ensure that the framework for funding and financing of growth infrastructure is responsive to changing growth levels. The second part is to manage financial risks in the business.
- **Fairness and Equity** – Fairness and equity ensures that those benefiting from the infrastructure are paying for that benefit.
- **Efficiency** – Finally, the water resources program provides an efficient levy process that is simple to administer and understand.

4.2.1 AMENDMENT APPROACH

In 2015 the Water Resources levy program methodology to calculate water distribution, wastewater collection and drainage systems levy rates was updated. The levy program was based on a 10-year timeframe reflective of The City's 10-year capital planning process (2015-2024). When the Bylaw was passed in 2016 the levy calculation was adjusted to 9 years based on the timeframe remaining in the 10-year capital plan.

In alignment with the guiding principles articulated above, the amendment approach updates the new infrastructure needs identified within the remaining 6-year timeframe (2019-2024) based on the new growth areas and recalculates the water, wastewater and drainage systems levy rates. Recognition of the new infrastructure needs in the levy rates reflects a responsiveness to the funding and financing of new infrastructure needs to support development of the new communities along with a reciprocal need to ensure those benefiting pay for the infrastructure. This provides a consistent approach to the levy calculation methodology established through extensive stakeholder engagement in 2015.

The levy calculation in the 2015 Background Report included a number of assumptions to calculate the levy rate, including interest rate projections and project timelines. All assumptions remain consistent with the



2016 Bylaw, save for total project costs to allow for the inclusion of new growth infrastructure and residential growth distribution to account for the new growth areas.

4.2.2 INFRASTRUCTURE NEEDS

The water distribution and wastewater collection off-site levies are applied across all greenfield areas, while application of the drainage system levy is dependent on which of the six major watershed catchments areas the subject lands are located within. These catchments are: Bow River, Elbow River, Fish Creek, Nose Creek, Pine Creek and Shepard.

Table 5 summarises the total costs for water distribution, wastewater collection and drainage systems infrastructure required to service growth from 2016 – 2024. Further details on costs are provided in Appendix B of the Background Report Addendum.

Table 5 - Water Distribution, Wastewater Collection and Drainage Systems Total Infrastructure Costs

Infrastructure	Total Infrastructure Costs -2016 Bylaw (\$millions)	Total New Infrastructure Costs (\$millions)	Total Infrastructure Costs – 2016 – 2024 (\$millions)
Water Distribution	266.4	98.3	364.7
Wastewater Collection	497.0	29.1	526.1
Drainage Systems	67.9	24.0	91.9
Total	831.3	151.3	982.6

Cost estimates used in the levy calculation are generally Class V cost estimates, as per the Corporate Project Management Framework definitions. These estimates include engineering, contingency and project administration. Cost estimates for new infrastructure were determined through the New Community Growth Strategy 2018 process.

4.2.3. ALLOCATION OF BENEFIT

Water Distribution & Wastewater Collection

The approach to allocating costs to greenfield growth for the new infrastructure needs identified is consistent with the 2016 Bylaw - all sanitary and water linear extensions to serve new development areas are 100% attributable to new growth, while costs allocated to growth for upgrades are undertaken on a



project by project basis. Detailed allocations can be found in Appendix B of the Background Report Addendum.

Table 6 summarises the allocation of water distribution and wastewater collection infrastructure costs to greenfield growth. The allocation includes infrastructure identified in the 2016 Bylaw plus the new infrastructure needs identified.

Table 6 - Greenfield Allocation of Water Distribution & Wastewater Collection Infrastructure Costs

Infrastructure	Total Infrastructure Costs – 2016 – 2024 (\$millions)	Greenfield Water Distribution & Wastewater Collection Infrastructure Costs – 2016 - 2024 (\$millions)
Water Distribution	364.7	186.2
Wastewater Collection	526.1	231.6
Total	890.8	417.8

Drainage Systems

The approach to allocating costs to greenfield growth for new infrastructure needs identified is consistent with the 2016 Bylaw - none of the drainage projects included in the levy calculation benefit existing development or regional areas and drainage system levy rates only include the project costs determined to benefit the Greenfield Area of the drainage catchment.

Table 7 summarises the allocation of drainage system infrastructure costs to green growth. The allocation includes infrastructure identified in the 2016 Bylaw plus the new infrastructure needs identified.

Table 72 – Greenfield Allocation of Drainage System Infrastructure Costs

Infrastructure	Total Infrastructure Costs – 2016 – 2024 (\$millions)	Greenfield Drainage System Infrastructure Costs – 2016 - 2024 (\$millions)
Greenfield Area	91.9	68.5

4.2.4. LEVY CALCULATION

The calculation utilized for the amended levy rates for water distribution, wastewater collection and drainage systems is consistent with Chapter 6 of the Off-site Levy 2015 Background Report. The amended calculation accounts for the inclusion of new infrastructure costs and adjusts the residential distribution of growth to reflect future growth within new growth areas. The calculation utilized for water, wastewater, and drainage systems levy rates is as follows.



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Debt Servicing for Greenfield Growth-Related Capital Costs (9 yrs.) = Cost Base Future Value

$$\frac{\text{Cost Base Future Value}}{(1 + \text{Discount Rate})^{n1 \dots n9}} = \text{Cost Base Present Value}$$

$$\frac{\text{Cost Base Present Value}}{\text{Greenfield Developable Land Forecast (9 yrs.)}} = \text{Off-site Levy}$$

Table 83 – 2018 Water Distribution and Wastewater Collection Levy Rate (\$/Ha.)

Water Distribution	\$43,413
Wastewater Collection	\$50,127

The proposed Off-site Levy for drainage systems is shown in the following table.

Table 9 – 2018 Drainage System Levy Rate by Catchment

Catchment	\$ per Hectare
Bow River	\$8,340
Elbow River	-
Fish Creek	\$21,511
Nose Creek	\$16,868
Pine Creek	\$18,943
Shepard	\$44,110

Water distribution, wastewater collection and drainage system levy rates are increased annually on January 1 by 3.3 per cent. The proposed rates in Tables 8 and 9 will be effective 2018 December 31. These rates will be subject to the annual January 1 increases, which will be applied on 2019 January 1.



5.0 SUMMARY OF OFF-SITE LEVIES

5.1 Summary of Amended Off-site Levy Rates for Greenfield Area

Table 10 below provides a summary of the 2018 Levy Rates amended based on the inclusion of new infrastructure as detailed in the Background Report Addendum. These rates will come into effect 31 December 2018 and be subject to the annual adjustments applied on 1 January 2019.

Table 10 – Amended Off-site Levy Rates for Greenfield Area

Infrastructure	2018 Rate (\$/Ha)
Transportation	\$133,740
Water Distribution	\$43,413
Wastewater Collection	\$50,127
Drainage Systems - By Catchment	
Bow River	\$8,340
Elbow River	-
Fish Creek	\$21,511
Nose Creek	\$16,868
Pine Creek	\$18,943
Shepard	\$44,110



APPENDIX A – TRANSPORTATION

Table 11 (Update to Table 34 in 2015 Background Report) – Greenfield Infrastructure Transportation Project List
 New infrastructure is identified in **red text**.

Category	Project Name	Total Cost (millions)
Interchanges	Métis Tr / Airport Tr I/C	\$70.0
	Airport Tr / Stoney Tr NE (Ultimate)	\$60.0
	Macleod Tr / 194 AV SE I/C	\$70.0
	Macleod Tr / 210 AV SE I/C	\$70.0
	West 22X/53 St SW Interchange	\$70.0
	West 22X/ 85th St W Interchange	\$70.0
	West 22X/69 St W interchange	\$70.0
	Deerfoot Tr / 212 AV SE I/C	\$16.0
	104 St / Marquis of Lorne (Fly Over) SE	\$30.0
	120 St / Marquis of Lorne I/C SE	\$70.0
	East Freeway/130th Ave SE I/C (To/from the North)	\$40.0
	East Freeway/106th Ave Trail Fly Over	\$30.0
	Glenmore Tr / 68 ST SE I/C	\$70.0
	Glenmore / Garden Rd SE	\$70.0
	Glenmore / 116th E I/C Se (Second Structure and Upgrade requirements)	\$70.0
	Peigan Tr / 52 ST NE I/C	\$70.0
	Peigan Trail/68th St I/C	\$60.0
	East Freeway / Memorial Dr Flyover	\$30.0
	16 AV NE / 68 ST NE I/C	\$70.0
	East Freeway/ 32 AV NE Flyover	\$30.0
	64 Ave / East Freeway Flyover	\$30.0
	Airport Trail/36th St NE I/C	\$40.0
	Airport Trail/60th St NE I/C	\$75.0
	Métis Tr / 64 AV NE I/C	\$70.0
	Metis Trail/128th Ave NE I/C	\$70.0
	60 St / Stoney Tr I/C NE	\$50.0
	Deerfoot Tr / 128 AV NE I/C	\$60.0
	Deerfoot Tr / Country Hills Blvd I/C (second structure)	\$30.0
	Deerfoot Tr/Airport Trail Ultimate	\$50.0
	160 Ave / Hwy 2 NE (second structure and upgrade requirements)	\$30.0
	11th Street/Stoney Trail I/C	\$50.0
	Centre St / Stoney Tr (second structure and upgrade requirements)	\$15.0
	14 St / Stoney I/C	\$40.0
	Shaganappi Tr/Stoney Tr (second structure and upgrade requirements)	\$15.0
	Centre St / Hwy 566 I/C	\$80.0
	Crowchild Tr / 12 Mile Coulee Rd I/C	\$70.0
	80 th Avenue / Stoney Trail Overpass	\$8.5
	Total	\$1,919.5



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Road Structures over Rail/Creek	CP Rail at 194th Ave SW	\$25.0
	CP Rail at 210th Ave SW	\$25.0
	210 Ave SW at Pine Creek	\$20.0
	Pine Creek Crossing in South Macleod	\$25.0
	CP Rail at 114th Ave SE	\$25.0
	WID Canal Crossing at Glenmore Trail SE	\$20.0
	144th Ave at West Nose Creek	\$25.0
	160th Ave at West Nose Creek	\$25.0
	160th Ave at Rail and Creek Crossing (6 Lane X-section over creek, rail, service road)	\$53.0
	11th St at Nose Creek/CPR Rail Crossing	\$20.0
Total		\$263.0
Expressways	Airport Tr - Barlow Tr, Airport - 19 St interchanges and widening 36 St to 60 St NE	\$83.0
	88 Street SE skeletal road extension	\$17.0
Total		\$100.0
Ring Road Connections	SW and West Ring Road Connections	\$133.3
	Total	\$133.3
Greenfield Traffic	296 signals required	\$81.4
	Total	\$81.4
Pedestrian Overpasses	Stoney Tr, between Centre St and 14 St NW	\$6.0
	Stoney Tr, between Centre St and 11 St NE	\$6.0
	Airport Tr, east of Metis Tr, between Cityscape and Savannah	\$6.0
	Country Hill Bv NE, west of Stoney Trail, between North Cornerstone and South Cornerstone	\$6.0
	52 Street SE, between Auburn Bay and Mahogany	\$6.0
	Bow River, between Legacy and Cranston	\$12.0
Total		\$42.0
BRT Infrastructure	162 Avenue SW, SW Ring Road to west side of Providence	\$90.0
	Total	\$90.0
Greenfield Transportation Infrastructure List: TOTAL		\$2,629.2

APPENDIX B – WATER RESOURCES

Table 12 (Update to Table 35 in 2015 Background Report) – Water Distribution, Wastewater Collection and Drainage Systems Infrastructure Project Lists

New infrastructure is identified in **red text**.

Category	Project Name	Allocation				Total Cost (millions)
		% Growth	% Greenfield	% Established	% Regional	
Water Distribution & Wastewater Collection						
Water Linear Extension Infrastructure	Ogden Feeder Main	100.0%	27.9%	55.0%	17.1%	\$38.5
	Lower Sarcee Feeder Main	100.0%	71.1%	15.7%	11.8%	\$30.9
	210 Ave SW Pump Station	100.0%	69.1%	17.8%	13.0%	\$15.0
	210 Ave Feeder Main	100.0%	69.1%	17.8%	13.0%	\$12.0
	East McKenzie FM	100.0%	29.8%	54.6%	15.6%	\$6.4
	Northridge FM Ph 1 and 2	100.0%	83.2%	16.8%	0.0%	\$30.7
	Northridge Reservoir Land	100.0%	83.2%	16.8%	0.0%	\$3.2
	Northridge Reservoir	100.0%	83.2%	16.8%	0.0%	\$12.1
	North Ridge West Leg Feedermain	100.0%	83.2%	16.8%	0.0%	\$20.8
	Belvedere Water Feeder Main Ph 1 and 2	100.0%	100.0%	0.0%	0.0%	\$23.0
	Haskayne Feedermain	100.0%	100.0%	0.0%	0.0%	\$11.3
	Providence 146 Ave Feedermain, Starlight East Pump Station and Westview Reservoir and Land	100.0%	100.0%	0.0%	0.0%	\$31.1
					Total	\$235.0
Sanitary Linear Extension Infrastructure	North Ridge Macdonald Trunk	100.0%	100.0%	0.0%	0.0%	\$7.1
	West Pine Creek Sanitary Trunk Ph 2	100.0%	100.0%	0.0%	0.0%	\$46.6
	Seton Tunnel Ph 1	100.0%	100.0%	0.0%	0.0%	\$31.8
	Seton Tunnel Ph 2	100.0%	100.0%	0.0%	0.0%	\$18.8
	144 Ave NE San Trunk	100.0%	100.0%	0.0%	0.0%	\$24.1
	North Beddington San Ph 2 CFA	100.0%	100.0%	0.0%	0.0%	\$8.9
	Beddington Creek II East Leg	100.0%	100.0%	0.0%	0.0%	\$2.7
	Belvedere Sanitary Trunk	100.0%	100.0%	0.0%	0.0%	\$6.0
	Glacier Ridge East Basin Sanitary Trunk	100.0%	100.0%	0.0%	0.0%	\$4.0
	Glacier Ridge West Basin Sanitary Trunk	100.0%	100.0%	0.0%	0.0%	\$8.2
	Haskayne Sanitary Trunk	100.0%	100.0%	0.0%	0.0%	\$3.9
	Rangeview Sanitary Trunk Laterals	100.0%	100.0%	0.0%	0.0%	\$7.0
					Total	\$169.1
Sanitary Upgrade Infrastructure	Redevelopment	TBD	0.0%	100.0%	0.0%	\$20.9
	Saddle Ridge Sanitary Upgrade	100.0%	46.2%	53.8%	0.0%	\$5.1
	Bowness Trunk Upgrade	87.0%	19.3%	40.5%	40.2%	\$48.6
	Shouldice Trunk Upgrade	61.0%	11.6%	69.3%	19.1%	\$24.0
	Nose Creek Trunk Upgrade	88.0%	48.4%	18.3%	33.3%	\$87.7
	Inglewood Trunk Upgrade	87.0%	24.0%	57.4%	18.7%	\$55.9
	McKenzie Siphon Upgrade	38.0%	40.5%	59.5%	0.0%	\$7.4
	17th Ave Trunk Upgrade	TBD	0.0%	100.0%	0.0%	\$4.6
	Beltline Trunk Upgrade	TBD	0.0%	100.0%	0.0%	\$1.5
	Forest Lawn LS Sewer Upgrading 1	55.0%	0.0%	100.0%	0.0%	\$6.7
	Forest Lawn LS Sewer Upgrading 2	68.0%	0.0%	100.0%	0.0%	\$6.6



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	Fish Creek West Sub Trunk	TBD	0.0%	TBD	TBD	\$14.3
	Tsui Tina Connection Upgrade	TBD	0.0%	TBD	TBD	\$9.4
	Elbow Drive Trunk Upgrade 1	TBD	0.0%	100.0%	0.0%	\$1.4
	Elbow Drive Trunk Upgrade 2	TBD	0.0%	100.0%	0.0%	\$16.1
	Penbrooke Trunk Upgrades	89.0%	0.0%	100.0%	0.0%	\$46.7
	Total					\$356.9
Category	Project Name	Allocation				Total Cost (millions)
		% Growth	% Greenfield	% Established	% Regional	
Water Upgrade Infrastructure	Airdrie FM Tie-in and Meter Chamber Relocation	100.0%	100.0%	0.0%	0.0%	\$1.4
	Pump Station 36 Installation	100.0%	83.2%	16.8%	0.0%	\$0.2
	Redevelopment	TBD	0.0%	100.0%	0.0%	\$11.5
	South Glenmore Reservoir Basin II	60.0%	29.8%	54.6%	15.6%	\$40.4
	Bearspaw Pump Station STN012 Upgrade	37.0%	28.3%	40.6%	31.1%	\$6.6
	Bearspaw Pump Station STN020 Upgrade	37.0%	28.3%	40.6%	31.1%	\$2.0
	Nose Hill Feedermain	37.0%	28.3%	40.6%	31.1%	\$37.8
	Country Hills Blvd Uptown Feedermain	37.0%	28.3%	40.6%	31.1%	\$29.8
	Total					\$129.6
Drainage Facilities & Network						
Drainage Facilities & Network	North Ridge Macdonald Trunk	100.0%	100.0%	0.0%	0.0%	\$7.5
	Redevelopment	TBD	0.0%	100.0%	0.0%	\$20.8
	Priddis Storm Trunk Outfall	100.0%	100.0%	0.0%	0.0%	\$23.8
	144 Av NE Storm Trunk Outfall*	100.0%	100.0%	0.0%	0.0%	\$10.4
	North Beddington Storm Trunk	100.0%	100.0%	0.0%	0.0%	\$1.7
	Riverbend Trunk Pond	TBD	0.0%	100.0%	0.0%	\$2.6
	Seton Storm Trunk	100.0%	100.0%	0.0%	0.0%	\$8.0
	Seton Storm Trunk Ph 2	100.0%	100.0%	0.0%	0.0%	\$3.5
	Glacier Ridge West Basin Storm Trunk and Outfall	100.0%	100.0%	0.0%	0.0%	\$3.8
	Haskayne Storm Outfall	100.0%	100.0%	0.0%	0.0%	\$2.0
	Providence Storm Trunk and Outfall	100.0%	100.0%	0.0%	0.0%	\$7.8
		Total				

*144 Av NE Storm Trunk Outfall was included in the 2015 Background Report with no project cost. This has been amended in the Background Report Addendum to reflect the projected project cost.