Agenda – Council – June 21, 2017

Report – Standing Policy Committee on Innovation – May 26, 2017

Item No. 2 Winnipeg Parking Authority SOA - 2017 Business Plan (Selection Report)

STANDING COMMITTEE RECOMMENDATION:

On June 7, 2017, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Innovation and submitted the following to Council:

1. That the 2017 Business Plan for the Winnipeg Parking Authority including the 2017 budget and the 2018 and 2019 financial projections, as outlined in Appendix A, be received as information.

2. That funding be approved from the sale of Winnipeg Square Parkade originally allocated by Council March 23, 2011 as follows "That the balance of the funds (up to $2.0 million) be held until such time as a forthcoming report is considered by Council regarding the future of the Civic Centre Parkade.", be used to finance the Winnipeg Parking Authority's estimated share of the demolition of the Civic Parkade forecasted to occur in 2018.

3. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

Report – Standing Policy Committee on Innovation – May 26, 2017

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On June 7, 2017, the Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Innovation and submitted the matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On May 26, 2017, the Standing Policy Committee on Innovation concurred in the recommendation of the Winnipeg Public Service and submitted the matter to Council.

ADMINISTRATIVE REPORT

Title: Winnipeg Parking Authority (Special Operating Agency) Selection Report - 2017 Business Plan

Critical Path: Standing Policy Committee on Innovation - Executive Policy Committee - Council

AUTHORIZATION

Author	Department Head	CFO	CAO
C. Stewart/ Grant Heather	R. Topolniski COO, WPA	M. Ruta	D. McNeil

EXECUTIVE SUMMARY

An annual business plan for the Winnipeg Parking Authority (Special Operating Agency) is provided to Council each year. The business plan contains a multi-year budget for the Agency.

The business plan includes a strategic overview, the Agency's goals and strategies, performance measures and projected financial statements.

RECOMMENDATIONS

1. That the 2017 Business Plan for the Winnipeg Parking Authority including the 2017 budget and the 2018 and 2019 financial projections, as outlined in Appendix A, be received as information.

2. That council approve funding from the sale of Winnipeg Square Parkade originally allocated by Council March 23, 2011 as follows "That the balance of the funds (up to $2.0 million) be held until such time as a forthcoming report is considered by Council regarding the future of the Civic Centre Parkade.", be used to finance the Winnipeg Parking Authority's estimated share of the demolition of the Civic Parkade forecasted to occur in 2018.

3. That the proper officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

REASON FOR THE REPORT

A Business Plan is provided to Council annually in accordance with the Winnipeg Parking Authority Operating Charter.

IMPLICATIONS OF THE RECOMMENDATIONS

The attached 2017 Business Plan sets out the Winnipeg Parking Authority's plans for the future. Its 2017 budget will be submitted for approval to Council through the 2017 Operating and Capital Budget process. The Agency will continue to operate as the City of Winnipeg's service provider for parking and by-law enforcement services and ensure that it provides the best balance between sound business practices and the public good.

During 2017, Winnipeg Parking Authority will transfer $0.500 million to The City of Winnipeg – General Revenue Fund, representing a dividend, consistent with The City of Winnipeg 2017 – 2019 Adopted Operating Budget. The WPA did not transfer transfer any amount to The City of Winnipeg – General Revenue Fund in 2016.

HISTORY

The Winnipeg Parking Authority was designated as a Special Operating Agency effective January 1, 2005 with the mandate to manage city owned on and off-street parking resources, parking compliance, to advocate, encourage and develop growth in supply and service delivery standards of daily/hourly parking in Downtown Winnipeg, and to participate in municipal transportation demand management wherever possible.

As a Special Operating Agency, the Winnipeg Parking Authority is expected to operate according to sound business principles and fund its operations on a self-sustaining basis.

FINANCIAL IMPACT

Project Name: **First Year of Program** **2017**

Winnipeg Parking Authority (Special Operating Agency) 2017 Business Plan

	2017	2018	2019	2020	2021
Capital					
Capital Expenditures Required					
Less: Existing Budgeted Costs					
Additional Capital Budget Required	$ -	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal					
Debt - External					
Grants (Enter Description Here)					
Reserves, Equity, Surplus					
Other - Enter Description Here					
Total Funding	$ -	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ -				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs					
Less: Incremental Revenue/Recovery					
Net Cost/(Benefit)	$ -	$ -	$ -	$ -	$ -
Less: Existing Budget Amounts					
Net Budget Adjustment Required	$ -	$ -	$ -	$ -	$ -

Additional Comments:

See Appendix A for the 2017 to 2019 projected financial statements and notes.

Original signed by
Grant Heather, BA, CPA, CGA
Manager of Finance

CONSULTATION

In preparing this report there was consultation with:

Legal Services

OURWINNIPEG POLICY ALIGNMENT

SUSTAINABLE TRANSPORTATION
05-1 Public Transit System

SUBMITTED BY

Department: Winnipeg Parking Authority
Division
Prepared by: Colin Stewart/Grant Heather
Date: January 12, 2017
File No.

APPENDIX A

WINNIPEG PARKING AUTHORITY
SPECIAL OPERATING AGENCY (SOA)

BUSINESS PLAN

2017

Strategic Overview

The Winnipeg Parking Authority is a Special Operating Agency (SOA) of the City of Winnipeg with its own Operating Charter approved by Council. The SOA concept permits the Agency to operate in a business-like and transparent manner through managerial flexibilities including special delegations, exemptions and authorities.

The Agency's strategic direction, as set out by its Operating Charter, Business Plan and Annual Report, places emphasis on management for results, bottom-line accountability, cost-savings, customer satisfaction and full disclosure.

Mission

The Winnipeg Parking Authority is a Special Operating Agency of the City of Winnipeg, dedicated to providing world class public parking solutions to a world class city.

Vision

The Winnipeg Parking Authority facilitates proactive and effective public parking solutions, balanced and progressive client and customer relationships, enlightened and forward-oriented regulation and space management, and the best practical use of municipal parking resources to meet the changing needs of the City of Winnipeg, its constituent shareholders, stakeholders, clients and individual customers, as guided by best practices in the public parking industry.

Values

The Agency is committed to:

- providing a high quality and fairly priced public parking product on a full cost recovery basis.
- balancing public good initiatives with business goals where appropriate.
- earning the trust and respect of Winnipeggers.
- establishing a reputation for fair and enlightened monitoring and problem resolution.
- maximizing service value to customers and client groups through accountability and efficiency.
- providing service excellence through innovation and continuous improvement.
- serving as a positive example to peers and competitors.
- building client-agency relationships through cooperative problem solving.
- establishing an efficient, responsible, accountable, supportive, and compassionate workplace.

- achieving group goals through personal commitment, organization, consultation, teamwork, and empowerment.

Guiding Principles

The Agency functions in accordance with:

- best practices in parking business planning and implementation.
- best practices in parking services accountability, auditability and transparency.
- assessed requirements in terms of costs and benefits, supply and demand, and growth and development.

Mandate

- Provide an efficient, responsive and exemplary on- and off street, short- mid- and long-term public parking resource.
- Provide an efficient and responsible off-street, short- mid- and long-term parking resource for municipal employees and vehicles.
- Provide guidance and advice to City staff, development agencies, and other organizations on parking issues.
- Cooperate with, and use parking resources in support of client organizations, agencies, partners and stakeholder associations.
- Optimize the operational and financial performance of parking facilities so as to deliver service excellence.
- Provide exemplary service standards in all customer and client transactions.

Strategic Goals and Strategies for 2017-2019

Provide an efficient, responsive and exemplary on and off-street, short- mid- and long-term public parking resource.

- Conduct a comprehensive review of the Residential Permit Program and Loading Zones including best practices in other municipalities to, where appropriate, recommend changes to improve the management of on-street resources.
- Conduct surveys and data analysis of on and off-street parking in the downtown and in selected other locations within the city to ensure updated information is available for the development of policy recommendations to Council.
- Implement measures as directed by Council in order to generate desired turnover levels at on-street metered locations in the vicinity of the Sports, Hospitality and Entertainment District (SHED) and the Cultural district.
- Based on customer usage levels, bring forward recommendations to Council for adjustment to metered parking zones.
- Continue ongoing evaluation of emerging paystation technologies to assess options for future replacement and/or enhancement of on-street service.
- Conduct a pilot project to assess the potential for electronic pay by phone only locations at specific on-street locations.

Provide exemplary service standards in all customer and client transactions.

- Continue to proactively engage with the City's 311 service to provide accurate and timely information on private uses of the public right of way to the public.
- Upgrade the 24 hour dispatch centre to allow for provision of support to other civic departments and more efficient information transfer with the City's 311 service.
- Provide support where appropriate to other civic departments in ensuring compliance with relevant bylaws and/or expansion of fine payment options for customers.
- Continue to work with the Provincial Department of Justice and the City's Legal Services department on ways to improve the court process for parking related municipal by-law offences through implementation of screening and adjudication processes envisioned by The Municipal Bylaw Enforcement Act.

- Upgrade various equipment utilized for by-law compliance, including life-cycle replacement of Automated Licence Plate Recognition vehicles and replacement of handheld computers.

- Conduct upgrades to parking management information systems to allow for expanded e-business and a new permit management system and further enhancements to customer service.

Cooperate with, and use parking resources in support of client organizations, agencies, partners and stakeholder associations.

- Continue to collaborate with key stakeholders such as CentreVenture, Business Improvement Zones and other civic departments in relation to on and off-street parking in order to facilitate the continued development in a manner that balances the needs of residents, businesses and sustainability within the context of Our Winnipeg.

Optimize the operational and financial performance of parking facilities so as to deliver service excellence.

- In the context of the city's asset management framework, develop lot specific service level agreements to ensure operational responsibilities and budgetary responsibilities are defined for both capital and operational maintenance needs.

- Conduct additional service enhancements to the Millennium Library facility including upgrades to the entrance ramps, roll-up doors and customer information signage.

- In conjunction with the Planning, Property and Development Department, develop a long-term plan for the site of the Civic Centre Parkade as part of the City's overall asset management framework.

Provide guidance and advice to City staff, development agencies and other organizations on parking issues.

- Continue to engage with Planning, Property & Development and other civic departments as appropriate in discussions concerning the Downtown Zoning By-Law and the Private Parking By-Law to ensure that civic parking policies contribute to downtown development in line with the principles outlined in Our Winnipeg.

Service Lines

Primary:

1. **On-Street Public Parking Services** including parking metering, revenue collection, cash control, parking monitoring and enforcement, disabled and fire route, sign placement, maintenance and replacement, all permit and prepayment programs.
2. **Off-Street Public Parking and Special Events Services** including routine daily and monthly public parking at municipal parkades and surface lots permit programs, monthly parking customer service, sign management, daily and special event staffing, and film shoot accommodations.
3. **Parking Fines, Adjudication and Collection** actions as required to better manage parking resources.
4. **Special Needs and Emergency Services Parking** (Disabled, Fire Route, etc.) on public and private properties as governed by provincial and municipal legislation.
5. **Public Parking Facilities and Services** including the planning and development of new services and facilities (public daily and monthly parking lots, parkades, public loading and service areas) in the downtown and other areas of the City.
6. **Customer Service** for all resources administered including contracting, billing and invoicing, collections, and management of service levels.
7. **Serve as a Center of Knowledge** and point of contact for the municipality in managing parking facility development and maintaining high quality urban design standards.

Secondary:

1. Serve as a center of knowledge and point of contact for the public seeking advice in general parking related matters.
2. Serve as a center of knowledge and point of contact for property owners, parking operators and service providers seeking advice in parking design, application, and enforcement related issues.
3. Serve as a center of knowledge and point of contact for municipal services and the media regarding parking policies, practices designs and services.
4. Administer internal municipal or other staff accommodation related to parking resources.
5. Provide parking enforcement services to private property owners via contract.

Policy Direction

The Winnipeg Parking Authority abides by the City's collective agreements and by-laws, and has its own Operating Charter approved by Council. The City of Winnipeg Charter, section 215, references the establishment and powers of Special Service Units.

The Agency follows applicable provincial regulations such as the Workplace Safety and Health Act and the Employment Standards Code.

Performance Measures

The Winnipeg Parking Authority (WPA) monitors a number of performance metrics to allow for comparison with other Canadian municipalities and, where appropriate, private parking operators. As a Special Operating Agency of the City of Winnipeg, the WPA is a participant in the Ontario Municipal Benchmarking Initiative (OMBI), which has expanded to include additional Canadian municipalities outside of Ontario – the City of Montreal is participating in a limited capacity in the OMBI for 2014. Where information presented in this Appendix is drawn from publicly reportable OMBI information, it is noted as such.

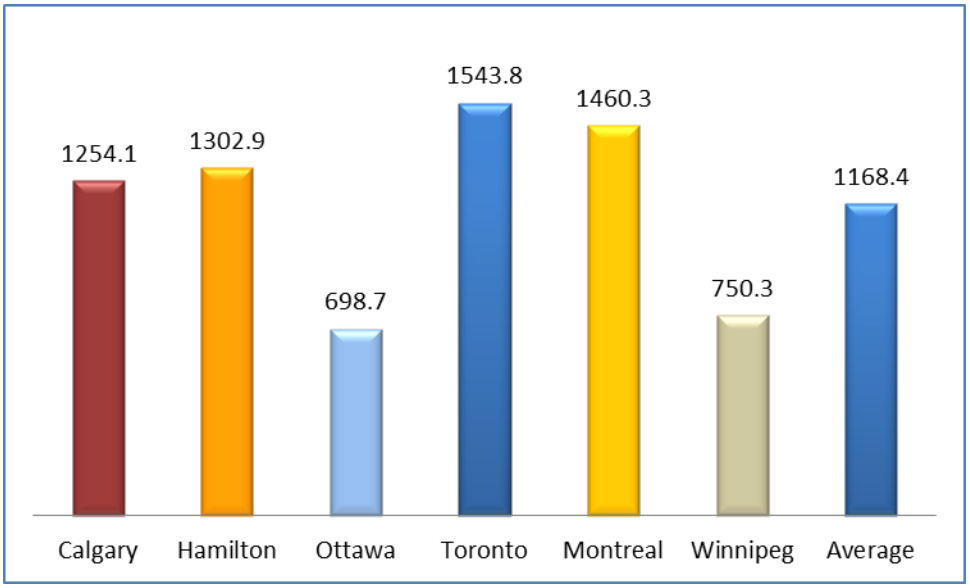
Unless otherwise noted all information is for 2014. Information presented in the City of Winnipeg Service Based Budget Document is not duplicated here.

1. Operations

Facilities under WPA management and/or administration

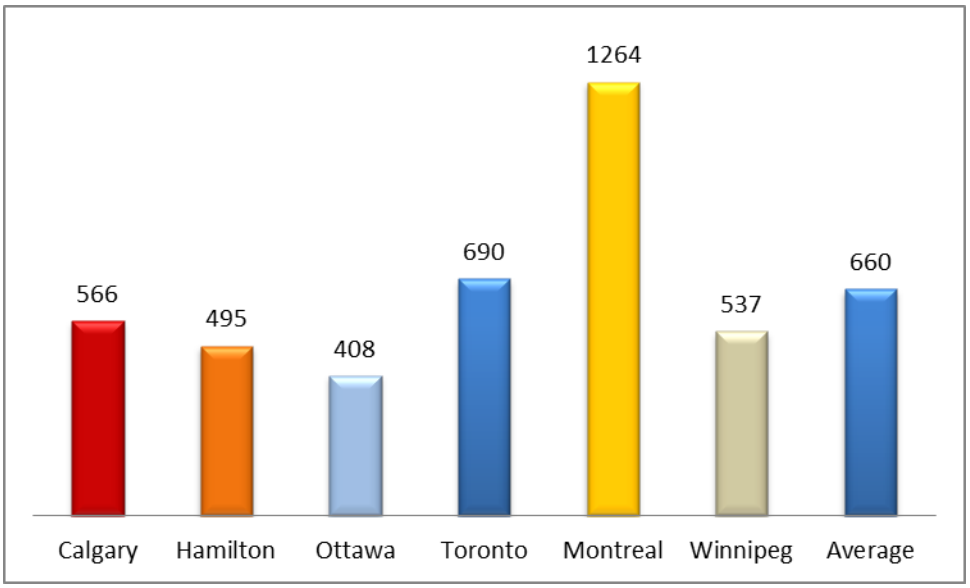
On-Street Areas	Paystations	Stalls	Remarks
Downtown	280	1694	Due to construction projects, the number of paystations in service can vary from year to year.
HSC/St. B	76	545	
Exchange	175	907	
Other	100	659	includes Selkirk Ave., West End, Exchange N of Pacific, Post Office & RCMP 'D' division locations
Parking Structures	Type	Stalls	Remarks
Millennium Library	Underground	486	
Surface Parking	Lots	Stalls	Remarks
Publicly Available	9	1033	operated at market rates, spaces available to the general public
Civic Employee Parking	39*	2409	operated on cost recovery basis, spaces available to civic employees only
Other	42*	2601	no cost recovery on operations – typically arenas, pools, etc.

Parking spaces under municipal management per 100,000 population



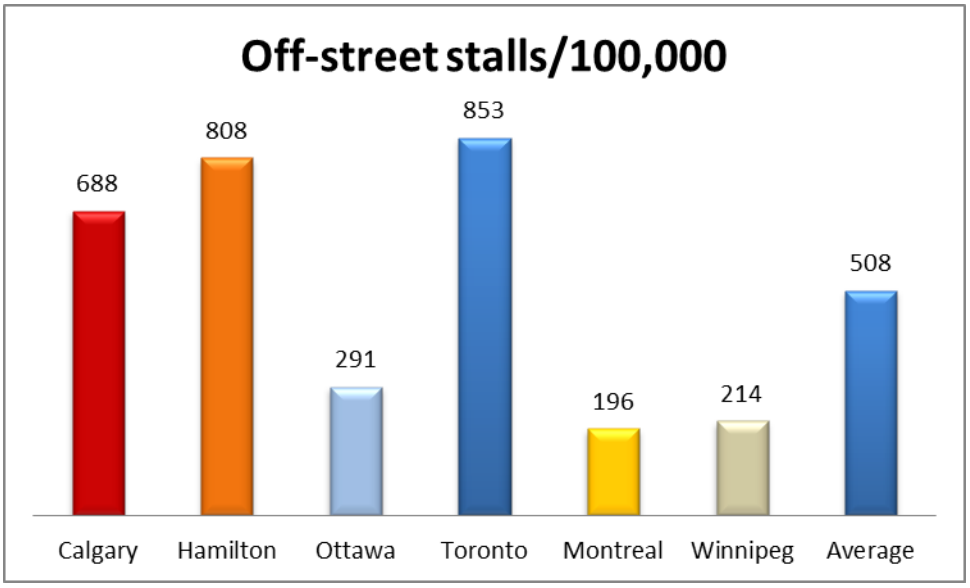
Information is drawn from 2014 OMBI data. Average is based on above noted cities rather than complete OMBI data.

Number of On-Street spaces per 100,000 population



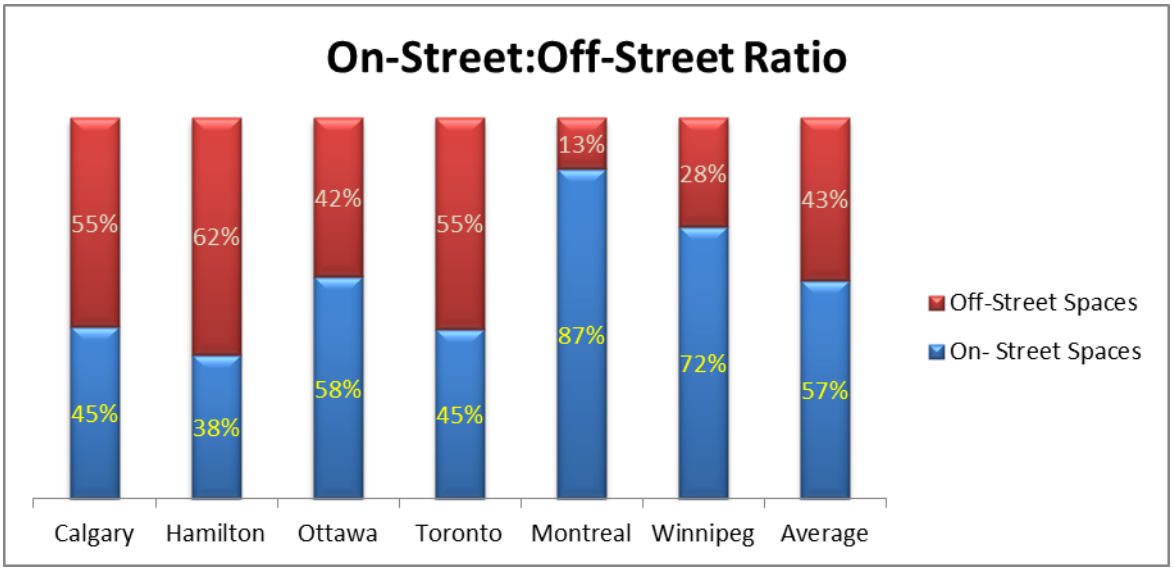
Information is drawn from 2014 OMBI data. Average is based on above noted cities rather than complete OMBI data.

Number of Off-Street spaces per 100,000 population



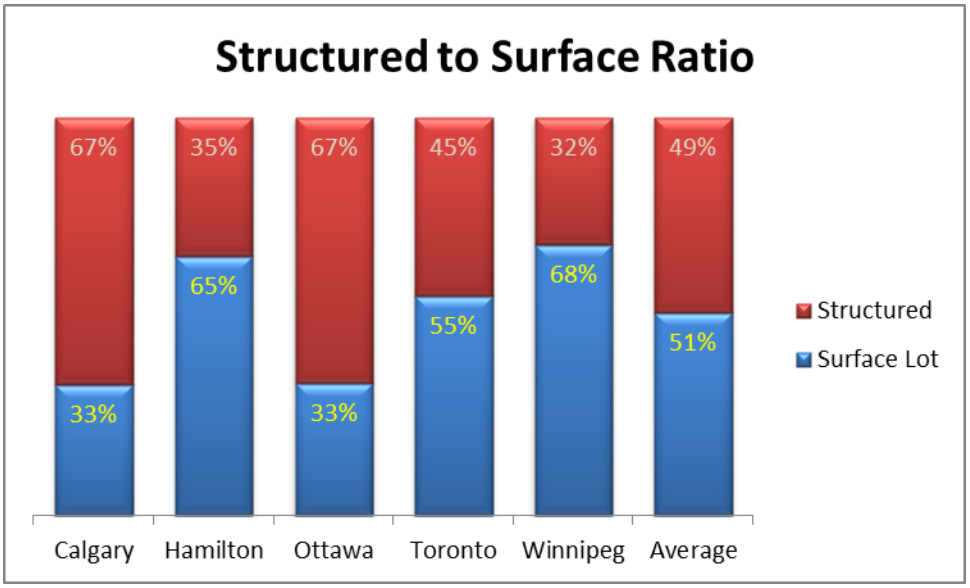
Information is drawn from 2014 OMBI data. Average is based on above noted cities rather than complete OMBI data.

Ratio of On-Street parking spaces (metered) to Off-Street parking spaces (structured & surface)



Information is drawn from 2014 OMBI data. Average is based on above noted cities rather than complete OMBI data.

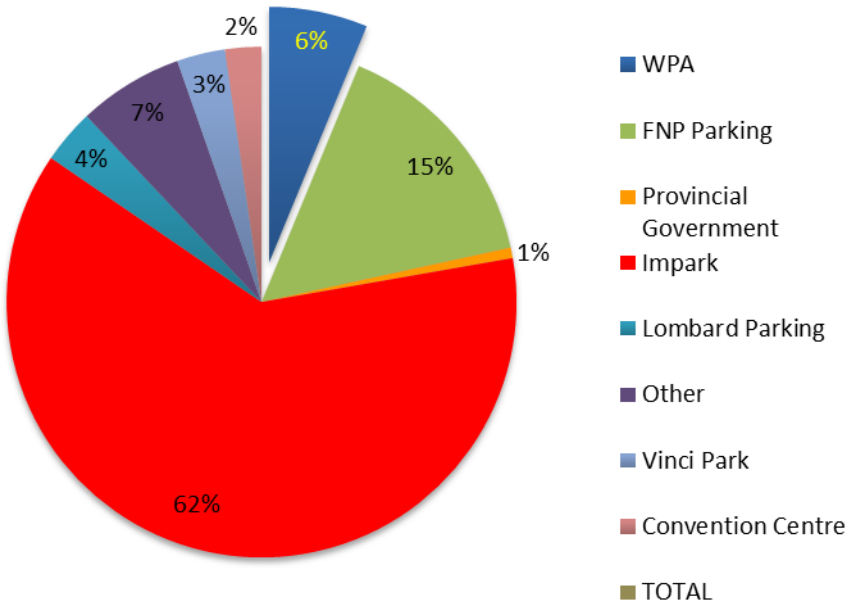
Ratio of Structured parking to surface parking lots under municipal management.



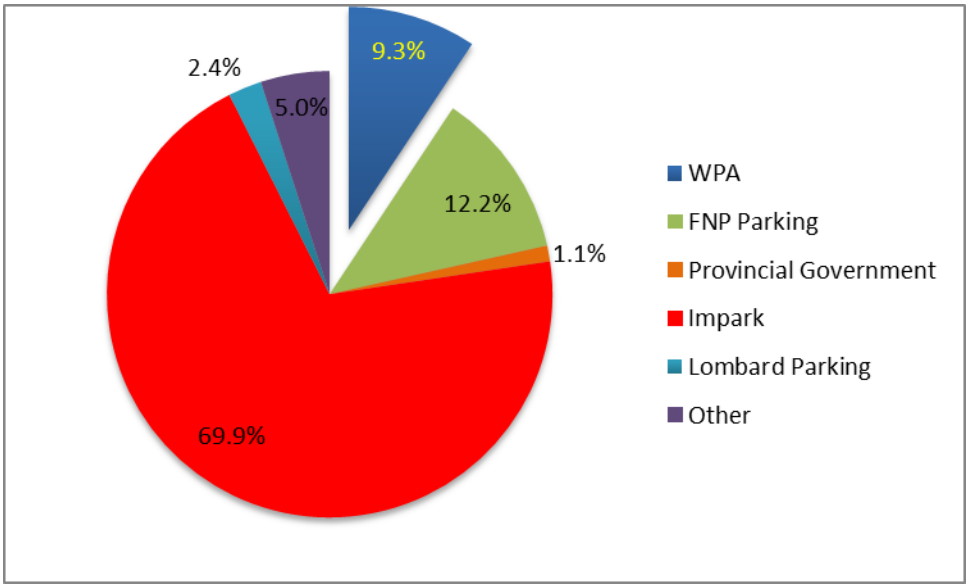
Information is drawn from OMBI data for 2014 and is based on number of stalls under municipal management. Average is based on above noted cities rather than complete OMBI data. The Toronto Parking Authority operates all Park & Ride lots for the TTC. As a partial participant in the OMBI process, the City of Montreal did not provide a breakdown of structured vs. surface off-street parking.

Management of Off-Street Parking Facilities in downtown Winnipeg Overall

(based on 2014 Survey of Downtown Winnipeg conducted by WPA staff)

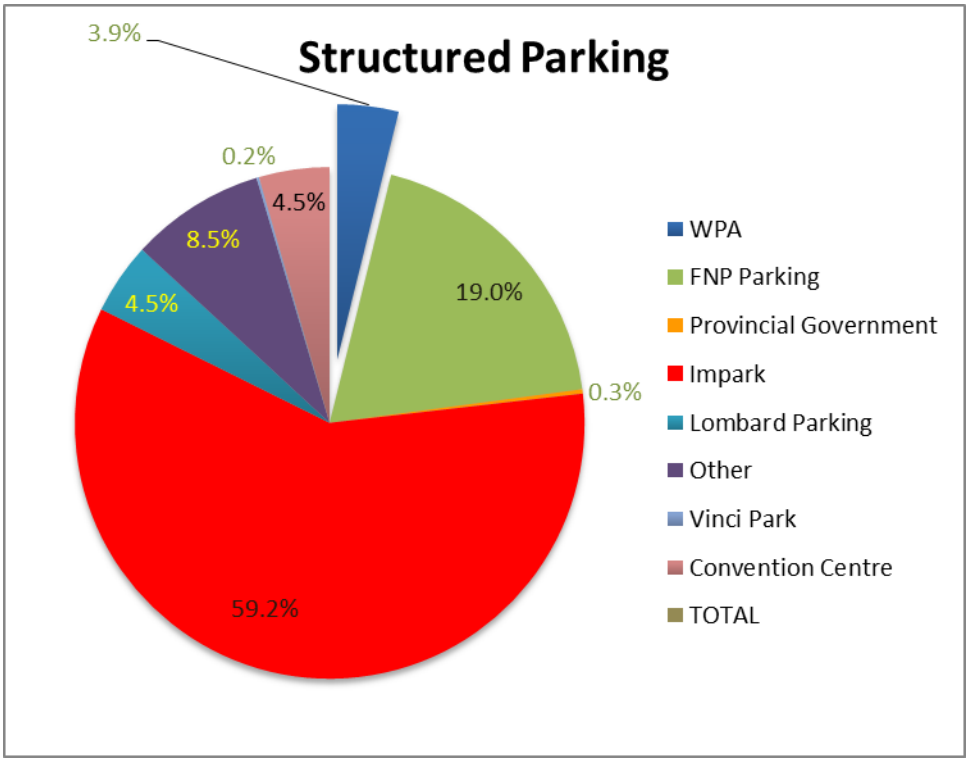


Surface Parking Lots



Transfer of Parcel 4 to FNP would reduce WPA to 2.7% and increase FNP to 14.5%.

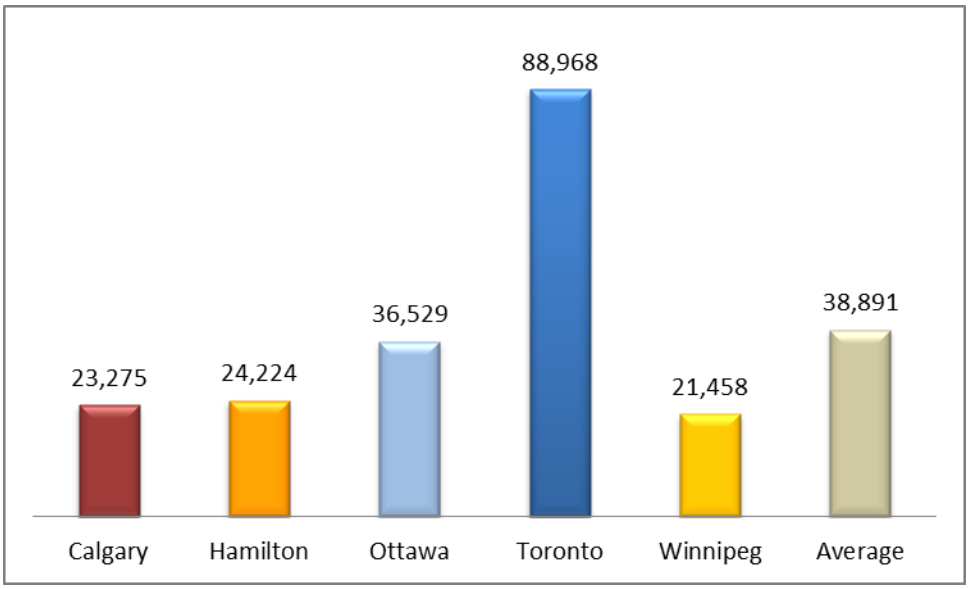
Structured Parking



Drawn from internal WPA data analysis.

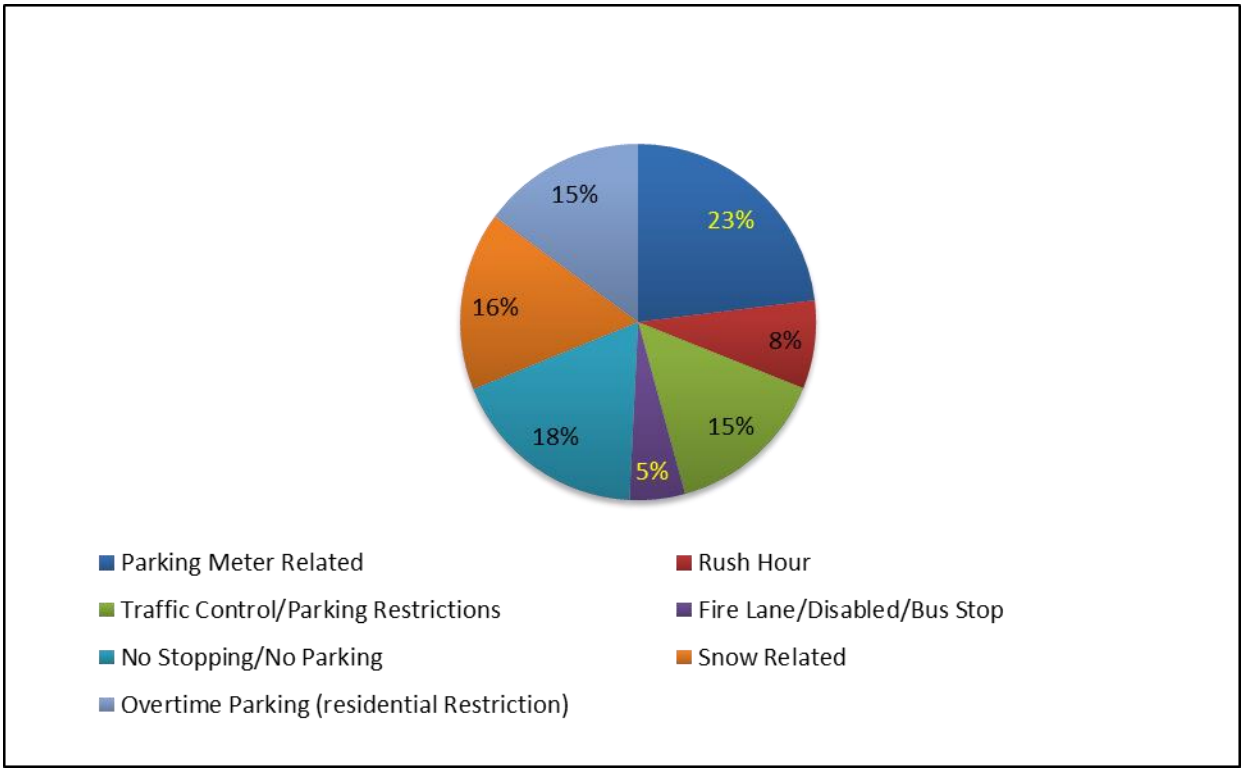
2. Compliance

Number of Citations Issued per 100,000 population



Information is drawn from 2014 OMBI data. Average is based on above noted cities rather than complete OMBI data.

Citations Issued by Offence Category - 2014



Total Citations Issued by Offence Category

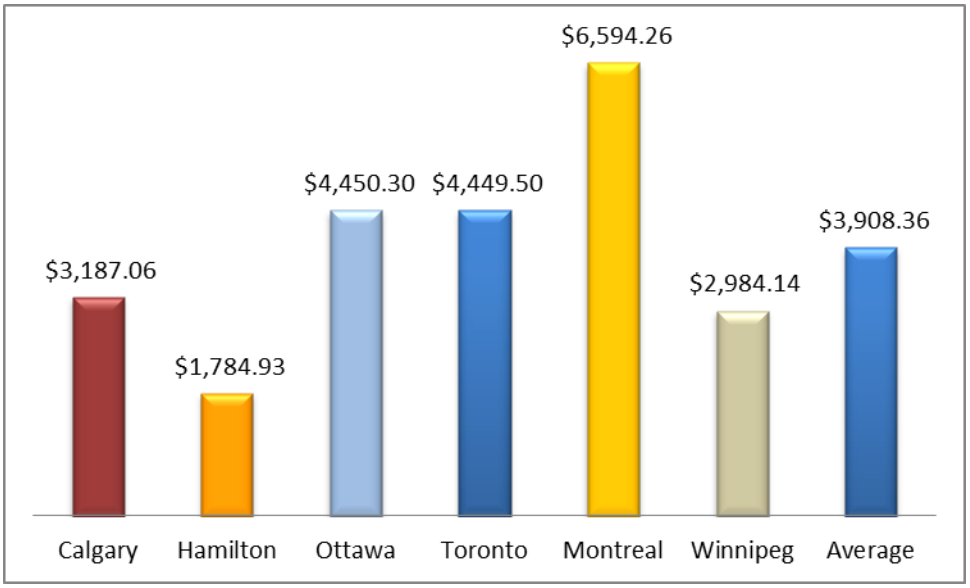
Offence Category	2014	%	2013	%
Parking Meter Related	34,016	23.0%	37,153	26.0%
Rush Hour	11,828	8.0%	11,112	7.8%
Traffic Control/Parking Restrictions	21,675	14.7%	14,978	10.5%
Fire Lane/Disabled/Bus Stop	7,429	5.0%	7,229	5.1%
No Stopping/No Parking	26,686	18.1%	25,123	17.6%
Snow Related	24,009	16.3%	27,986	19.6%
Overtime Parking (residential Restriction)	21,965	14.9%	19,116	13.4%
Total Offence Notices Issued	**147,608**		**142,697**	

Results of Citations dealt with by Provincial Court

	2014	% of issued	2013	% of issued	2012	% of issued
Total Tickets Issued	147,608		142,697		164,061	
Fine Imposed	1,737	1.18%	1,655	1.16%	1,412	0.86%
Reprimand	1,047	0.71%	1,213	0.85%	910	0.55%
Stayed by Crown Attorney	275	0.19%	249	0.17%	397	0.24%
Acquitted	22	0.01%	10	0.01%	10	0.01%
Total Tickets to Court	*3,081*	*2.09%*	*3,127*	*2.19%*	*2,729*	*1.66%*

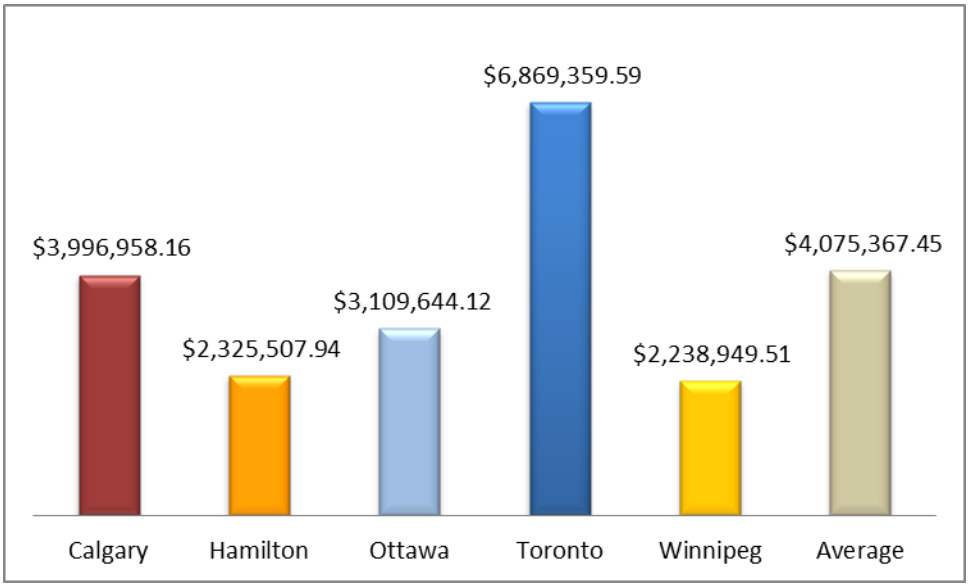
3. Financial

Revenue per parking space under municipal management



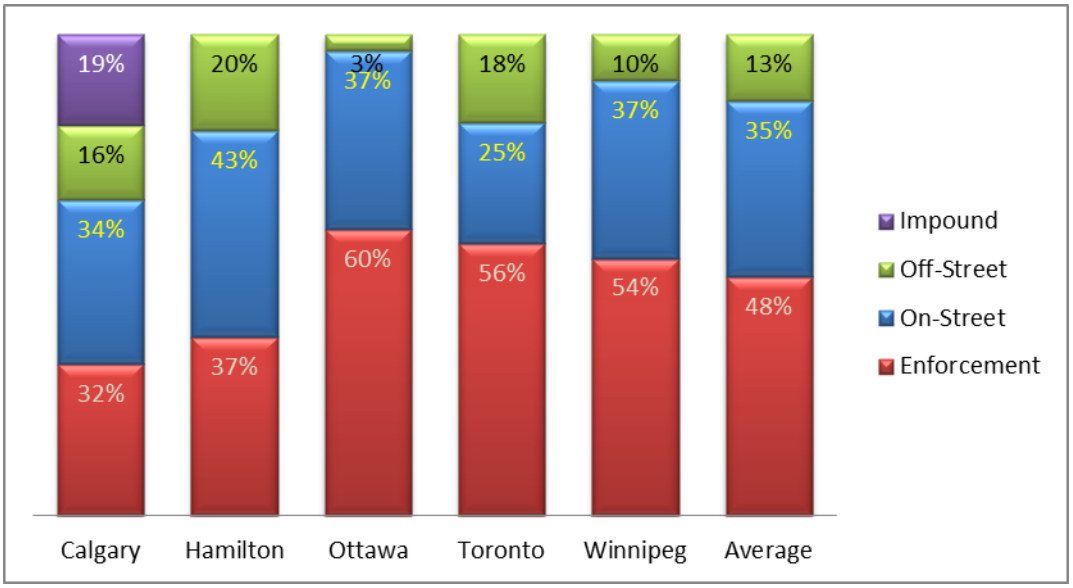
Information is drawn from 2014 OMBI data. Average is based on above noted cities rather than complete OMBI data.

Revenue per 100,000 population

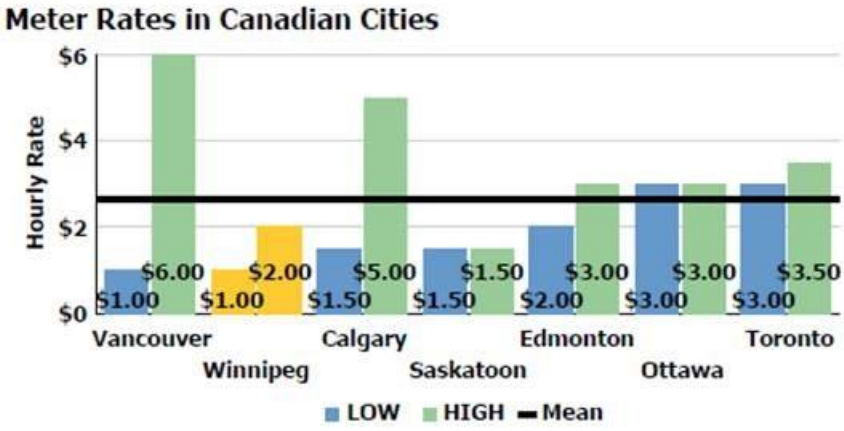


Information is drawn from OMBI and publicly reported financial data for 2014.

Sources of Revenue



Drawn from published annual reports and OMBI data for 2014. Under Alberta law, all tows in Calgary must be ordered by a peace officer and all vehicles towed in Calgary are impounded at the Calgary Parking Authority. Parking Enforcement in Toronto is carried out by the Toronto Police Service and revenue is directed to general civic revenue.



Wpg. Trend	2011	2012	2013	2014	2015
	$1.28	$1.34	$1.34	$1.34	$1.34

Information is from OMBI, and published in the City of Winnipeg's Community Trends and Performance Report Volume 1. High-rate is limited to high demand zones and hospital areas, currently comprising 34% of available on-street spaces.

Assumptions to the Projected Financial Statements and Notes

The projected financial statements include management's best estimates of future financial performance and incorporate the financial implications of the Agency's goals and strategies. The financial projections are estimates of the financial position, operations and accumulated surplus, cash flows and net financial liabilities using management's assumptions that reflect the Agency's planned course of action for the three years ending December 31, 2019.

Management's judgment has been used in the assumptions, with the most probable set of economic conditions. Some assumptions inevitably will not materialize and unanticipated events and circumstances may occur subsequent to the date of this projection. Therefore, the actual results achieved during the projected period will vary from the projections, and the variations may be material.

The financial forecast and projections are based on historical results of operations with inflationary increases derived from Consumer Price Index (CPI), except where otherwise described in the notes to projected financial statements, or as noted in these assumptions.

The 2017 to 2019 Projected Financial Statements and Notes are presented in Appendix A-1. The 2015 Auditors' Report and Financial Statements are presented in Appendix A-3.

Revenue Assumptions

Enforcement

Enforcement revenue is comprised of fines collected for current year's offence notices.

Parking Fees

Parking fee revenue includes fee increases as itemized in Appendix A-2.

Special Events

Special Events revenue includes revenue associated with parking fees in accordance with fee increases as itemized in Appendix A-2.

Meters

Meter fee revenue has been forecasted based on prior years' performance. Significant reductions to the on-street inventory as a result of major downtown construction projects affect meter revenues.

Expense Assumptions

Services

- *Parking Enforcement* – Projections for 2016-2018 include primarily estimate of costs associated with the parking enforcement and communications services contract.
- *Meters* - Meter contract (maintenance and pay/display communications) $1,891 thousand in 2017, $1,928 thousand in 2018 and $2,253 thousand in 2019 which includes $286 thousand for removal of existing paystations.
- *Parkade Management* – Includes for 2017-2019, primarily costs associated with the parkade management contract at the Millennium Library Parkade.
- *Special Events* – Includes forecast for expenses associated with staffing for special event parking.
- *Other Services*
    - Winnipeg Fleet Management expenditures for rental of vehicles owned/leased by the agency $376 thousand in 2017, $408 thousand in 2018 and $438 thousand in 2019 (does not include operating expenditures).
    - Consulting and professional services expense is based on estimated project requirements $176 thousand annually.
    - Allocated departmental costs include forecast for services provided at the Civic Centre Parkade by Municipal Accommodations $136 thousand in 2017.

Salaries

Salaries and benefits expense for 2017 is based on collective agreements for 46 FTE positions, and 7.41 temporary positions as follows:

- 27 CUPE FTE
- 18 WAPSO FTE

- 2 WAPSO exempt FTE
- 1 CUPE exempt FTE
- 5.41 CUPE temporary

Note 5 FTE's, as approved in the 2015 Business Plan, related to the implementation of the Municipal By-Law Enforcement Act (MBEA) are included in the WPA's 2017-2019 Business Plan.

Materials, parts and supplies

- Snow clearing costs $520 thousand annually.
- Grounds maintenance costs $308 thousand annually.
- Paper for meters $265 thousand annually.
- Computer software expense is based on estimated project requirements $195 thousand in 2017, $211 thousand in 2018 and $211 thousand in 2019.

Amortization

Tangible capital assets are amortized on a straight-line basis over the estimated useful life of the asset as follows:

• Leasehold improvements	15 years
• Parking surfaces	5%
• Parkades	4%
• Vehicles	20%
• Meters and pay stations	10%
• Equipment	10-20%
• Computer equipment	33%
• Office furniture and equipment	20%
• Parkade betterments	5%

Provision for Bad Debts

Provision for bad debt expense is based on Citations receivables considered to be uncollectible.

Debt and Finance charges

Debt and Finance charges include bank service charges and credit card commission in 2017 and 2018, $182 thousand annually.

In addition, 2019 includes the first year interest repayment of $712 thousand on $14,243 thousand loan repaid over 10 years at 5%, required to finance replacement of all paystations in 2019.

Other

- $1,834 thousand in 2017 represents the estimated demolition cost of Civic Centre Parkade. Consultation with Planning, Property & Development, who is managing the Public Safety Building redevelopment site project, has indicated that demolition may now be pursued in 2017 or 2018, pending Council approval of the same.
- Transfer to Municipal Accommodations Fund includes $254 thousand annually for office space at 495 Portage Avenue
- Transfer to General Revenue – Corporate Support Services include:
    - 311 services of $133 thousand annually.
    - Business technology services of $241 thousand annually.
    - Campus HR of $106 thousand in 2017, $108 thousand in 2018 and $110 thousand in 2019.
- Transfer to Assessment and Taxation for payments-in-lieu of municipal taxes of $200 *(Civic Centre - $110, Millennium Library - $86 and Surface lots - $4)* thousand in 2017, $93 thousand in 2018 and $95 thousand in 2019.
- Grants to Business Improvement Zones
    - The following grants are provided to the noted BIZ groups for services rendered with respect to services beneficial to the Agency including, but not limited to:
        - Snow removal around paystations;
        - Graffiti removal from paystations;
        - Extended hours for Downtown Watch patrols of Millennium Library Parkade and parkade stairwells; and
        - Provision of safewalk and safety patrols in City owned and administered parking lots as required.
    - Downtown Biz - $115 thousand annually
    - Exchange Biz - $60 thousand annually
    - West End Biz - $32.5 thousand annually

Asset Assumptions

Accounts Receivable

- In 2010, Winnipeg Square Parkade was sold and the proceeds of disposition were deposited to The City of Winnipeg – Land Operating Reserve. An amount of $10 M remains on deposit in the Land Operating Reserve and Payable to The Winnipeg Parking Authority. As approved by the then-Alternate Service Delivery Committee on March 15, 2011, $5 million remains available for the James Avenue parkade. No specific repayment terms have been determined. In addition, $2.0 M set aside for Council's direction regarding the Civic Parkade site.
- The remaining accounts receivable balance is comprised of citations, net of applicable adjustments.

Tangible Capital Asset Additions - (in thousands of dollars)

		2016	2017	2018	2019
Millenium Library Parkade Improvements					
	Overhead door upgrade	$ 28	$ 58	$ -	$ -
	Digital signs	-	52	-	-
	Exit exterior ramps	-	974	-	-
MBEA					
	Office renovations	492	-	-	-
New ALPR units		229	78	-	-
New Handhelds and Accessories		-	145	26	26
New Paystations					14,243
Surface Lot Renewal			32	3	
		$ 749	**$ 1,339**	**$ 29**	**$ 14,269**

Liability Assumptions

Due to The City of Winnipeg- General Revenue Fund

The City of Winnipeg operates a centralized treasury function with a single operating bank account in the General Revenue Fund. Bank transactions are credited or charged to the "Due to" account when they are processed through the bank. Interest is charged based on The City of Winnipeg's average short-term cost of funds, which is a function of the Bank of Canada rate.

Debt

	2016	2017	2018	2019
The City of Winnipeg General Revenue Fund - Start-up loan with no specific terms of repayment	$ 3,918	$ 3,918	$ 3,918	$ 3,918
2019 Loan to finance paystation replacement - $14.243M over 10 years @ 5% less $1.133M first year principal	-	-	-	13,110
	$ 3,918	**$ 3,918**	**$ 3,918**	**$ 17,028**

Appendix A1:



Appendix A1.pdf

Appendix A2:



Appendix A2.pdf

Appendix A3:



Appendix A3.pdf