
Saskatoon Transit Fleet Renewal Strategy

Recommendation

That the report of the General Manager, Transportation & Utilities Department dated June 2, 2015, be forwarded to City Council recommending:

1. that Saskatoon Transit set as its target an average fleet age of 7 years to be achieved by 2020 in order to meet the current Canadian industry average, and;
2. that funding in the amount of \$4,950,000 be made from available gas tax funds and be transferred to Capital Project 583 – TR-Replace/Refurb Buses for the purchase of 10 new low-floor buses.

Topic and Purpose

This report is to provide a snap shot picture of the current bus fleet for Saskatoon Transit, how it compares to industry standard, and how the fleet reliability and sustainability can be improved in order to maintain an acceptable level of service now, and for years to come.

Report Highlights

1. A comparison of purchasing new buses versus used buses shows that while it is more expensive to purchase new buses initially, it is more cost effective to operate new buses over their life span. Operating new buses also provides added benefits to customers by having a more reliable fleet with newer amenities.
2. The average age of buses in Saskatoon Transit's fleet is currently 11.9 years. It is recommended to reduce this average age to 7 years to meet industry standards. To accomplish this, it will be necessary to purchase 10 new buses annually into the future.
3. Funding is available to purchase 10 new buses in 2015 from available gas tax funds. A public tender will be issued to purchase these buses. Anticipated delivery date would be December 2016.

Strategic Goals

This report supports the strategy to reduce the gap in the funding required to rehabilitate and maintain our infrastructure under the Strategic Goal of Asset and Financial Sustainability.

Background

City Council, at its meeting held on December 3, 2014, resolved, in part,

“that the Administration report back on necessary steps to get transit to industry standards in terms of maintenance staff, equipment and operational consistencies”.

The Saskatoon Transit fleet is currently in a declining state of condition. Both the average fleet age and ratio of mechanics to buses are outside of industry standards.

Currently, Saskatoon Transit operates a spare ratio of 58% while the industry standard is 25-30%. This can be attributed to the fleet's average age of 11.9 years, with the oldest bus in service at 25 years of age (1990). Canadian national industry standards maintain an average fleet age of 7 years. This makes Saskatoon's fleet outdated, more prone to breakdowns, and parts are more difficult to find.

Based on current capital and operating funding levels, Saskatoon Transit's fleet will continue to increase in average age and deteriorate.

Report

Comparison of Purchasing New Versus Used Buses

In recent years, Saskatoon Transit has been able to supplement its fleet with used buses bought from other municipalities. These buses have been refurbished as needed and put into service. This method of replacement typically extends the service life of the bus another three to five years. However, this strategy increases operating costs due to frequent breakdowns, requires a higher bus spare ratio be maintained, and provides a lower level of service for customer comfort due to the age and condition of the buses.

Saskatoon Transit uses a Fleet Management System that is able to track the amount of maintenance hours, cost of parts, and fuel consumption for each bus in the fleet. This allows a comparison to be made showing the operating cost for new buses versus used buses.

Attachment 1 provides a breakdown of the initial purchasing cost, planned refurbishment cost, and routine maintenance cost for a typical new bus compared against a used bus. The average annual total cost per bus was found to be approximately \$91,300 for a new bus and \$77,900 for a used bus.

However, it is important to take into account the higher number of spare buses necessary to make service (meet all route requirements) due to used buses breaking down frequently and needing extensive repairs. Saskatoon Transit currently maintains 158 buses, while only 100 buses are required to meet daily service demands. This is a 58% spare ratio. The industry average is in the range of 25-30%. If Saskatoon Transit had a more reliable fleet, the total number of buses could be decreased from 158 to a projected level of 133 buses.

Attachment 1 shows that when an increased spare ratio is taken into account, the overall total annual fleet cost is virtually the same regardless of whether new or used buses are purchased (\$12.1 million annually for new buses versus \$12.3 million annually for used buses).

Based on this economic analysis, it is recommended that Saskatoon Transit discontinue the practice of regularly buying and operating used buses and adopt a strategy based

on purchasing new buses. This would provide significant customer benefits. Newer buses would be more reliable, have newer amenities, and would have proper climate control such as air conditioning. Our current fleet of buses older than 2006 do not have air conditioning (45% of the current fleet).

There is also no guarantee that used buses will be available for purchase when required, or that they will meet our requirement for accessibility (low floor).

Fleet Renewal Strategy

The average age of buses within Saskatoon Transit's fleet is currently 11.9 years, with an age range varying from 1990 to 2015. Administration is recommending that in order to maintain a safe and reliable fleet, with an average fleet age meeting the industry average of 7 years, 10 new buses will be required annually into the future.

With this strategy, and a more reliable fleet, it will be possible to decrease the overall number of buses by 5 annually for each of the next 5 years reducing the total number of buses from 158 to 133, which brings the bus spare ratio in-line with national standards. This will also reduce total licencing costs, improve the mechanic to bus ratio to national standards, and reduce the overall operating costs for the fleet.

Attachment 2 shows the fleet renewal strategy over the next 10 years (2016-2025). Highlights of this strategy include:

- The fleet will meet accessibility standards (low floor) by 2018;
- The fleet will have air conditioning on all buses by 2019;
- Average fleet age will drop from 11.9 years to 7.3 years by 2020;
- The target bus spare ratio of 33% will be achieved by 2020; and
- The number of articulating buses (higher capacity) will increase from 11 to 35 by 2025.

Attachment 3 provides four charts based on the information contained in Attachment 2. These charts show the age distribution of the current fleet and the projected age distribution in 2025 based on this renewal strategy. Charts are also provided to show the change in average fleet age and bus spare ratio over time.

The average cost of a new conventional bus is approximately \$450,000 and the cost of articulating buses is approximately \$750,000, excluding taxes. It is Administration's intent to achieve a ratio of one-third articulating buses to conventional buses. This will allow Saskatoon Transit to use higher capacity buses on high-demand routes. The current fleet includes 11 articulating buses.

This report recommends a one-time purchase of 10 conventional buses at an estimated cost of \$4,950,000 (including taxes). Beginning in the 2016 budget, Administration will bring forward budget requests that include the purchase of 7 conventional buses and 3 articulating buses annually at an estimated cost of \$5.4 million (based on 2015 dollars,

and not including taxes). After 10 years (in 2025), the fleet will consist of 35 articulating buses and 98 conventional buses (total of 133 buses).

It is important to note that this level of investment does not include a growth rate to keep up with the city's population growth, potential changes as part of the Growing Forward initiative currently being studied, or any significant increases in ridership or service levels.

2015 Purchase of 10 Buses

In order to start the process of reducing the average age of the fleet, it is recommended that 10 new low-floor buses be purchased in 2015. Funding is available to support this purchase from the available gas tax funds. It is recommended that this amount be transferred into Saskatoon Transit's Capital Project #583 – TR-Replace/Refurb Buses.

A public tender will be issued for the purchase of these buses. The current wait time for new bus manufacturing is approximately 14 months. Based on the tender being issued in July and awarded by the end of August, it would be reasonable to anticipate the delivery of the buses by December 2016.

Options to the Recommendation

An option would be to maintain the existing fleet age at 11.9 years. This option is not recommended due to reduced fleet reliability and the negative impact on customer satisfaction by operating older buses.

Public and/or Stakeholder Involvement

There is no public and/or stakeholder involvement required.

Communication Plan

Communications to support the procurement of new buses will include updated web content on the newly launched Transit website, including photos and features of the new units. Consideration will also be given to hosting a public relations event for media, Transit riders and members of the public to view a new bus and showcase its features prior to its being put into service.

A news release will be issued highlighting these new additions to the fleet. Social media will also be utilized to share the news further.

Financial Implications

Currently, Saskatoon Transit budgets on average \$0.99 million annually to purchase new replacement buses and refurbish the existing fleet. However, the need for refurbishing the existing fleet has grown to the point where the budget is no longer adequate to purchase new buses.

The recommendation requires an increase to the Transit Vehicle Replacement Reserve to provide additional funding to Capital Project No. 583 in the amount of \$4.95 million in

2015. This will allow the Administration to immediately begin the procurement process for 10 new buses, which could be delivered by December of 2016.

While the purchase identified in this report is being funded from available gas tax funds, a longer term funding strategy will be developed and reported back to City Council in the near future.

Environmental Implications

Emission control systems have improved over the past several years. Replacing buses that are up to 25 years old with a modern fleet will reduce greenhouse gas emissions.

Other Considerations/Implications

There are no policy, privacy, or CPTED implications or consideration.

Due Date for Follow-up and/or Project Completion

It is intended that a report will be submitted to City Council to purchase 10 new buses annually through a longer-term funding strategy.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. Comparison of Purchasing New Buses versus Used Buses
2. Ten Year Plan (2016-2025)
3. Charts Showing Fleet Ages and Bus Spare Ratios

Report Approval

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Tim Bushman, Acting Assistant Transit Director
Paul Bracken, Maintenance Manager, Saskatoon Transit

Approved by: Jeff Jorgenson, General Manager, Transportation & Utilities
Department

TRANS PB - Saskatoon Transit Fleet Renewal Strategy

Comparison of Purchasing New Buses versus Used Buses

| | New Buses | | Used Buses | |
|---|-----------|-------------------|------------|-------------------|
| Purchase Price | \$ | 450,000 | \$ | 20,000 |
| Residual Value (End of Life) | \$ | 20,000 | \$ | 1,000 |
| Intended Life Span (Years) | | 14 | | 5 |
| Capital Cost Per Year | \$ | 30,714 | \$ | 3,800 |
| Refurbishment Cost | \$ | 40,000 | \$ | 70,000 |
| Refurbishment Cost Per Year | \$ | 2,857 | \$ | 14,000 |
| Routine Maintenance Cost Per Year | \$ | 57,700 | \$ | 60,100 |
| Average Annual Total Cost Per Bus | \$ | 91,271 | \$ | 77,900 |
| Number of Buses to Meet Service | | 100 | | 100 |
| Required Spare Ratio | | 33% | | 58% |
| Number of Buses Required in Fleet | | 133 | | 158 |
| Total Annual Fleet Cost (Including Spares) | \$ | 12,139,100 | \$ | 12,308,200 |

Note: Routine Maintenance only includes mechanic labour, parts and fuel.
 Calculations do not include time-value of money.

Ten Year Plan (2016-2025)

| Type | Unit # | 2015 Year Age | 2016 Year Age | 2017 Year Age | 2018 Year Age | 2019 Year Age | 2020 Year Age | 2021 Year Age | 2022 Year Age | 2023 Year Age | 2024 Year Age | 2025 Year Age | Unit Price Per Bus | Annual Investment |
|---------------------------|--------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------------|----------------------|
| Mid-Size Buses | | | | | | | | | | | | | | |
| Midsize Bus (Low Floor) | 1008 | 2010 | 5 | 2010 | 6 | 2010 | 7 | 2010 | 8 | 2010 | 9 | 2010 | 10 | |
| Midsize Bus (Low Floor) | 1009 | 2010 | 5 | 2010 | 6 | 2010 | 7 | 2010 | 8 | 2010 | 9 | 2010 | 10 | |
| Midsize Bus (Low Floor) | 1010 | 2010 | 5 | 2010 | 6 | 2010 | 7 | 2010 | 8 | 2010 | 9 | 2010 | 10 | |
| Midsize Bus (Low Floor) | 1011 | 2010 | 5 | 2010 | 6 | 2010 | 7 | 2010 | 8 | 2010 | 9 | 2010 | 10 | |
| Midsize Bus (Low Floor) | 1201 | 2012 | 3 | 2012 | 4 | 2012 | 5 | 2012 | 6 | 2012 | 7 | 2012 | 8 | |
| Midsize Bus (Low Floor) | 1202 | 2012 | 3 | 2012 | 4 | 2012 | 5 | 2012 | 6 | 2012 | 7 | 2012 | 8 | |
| Midsize Bus (Low Floor) | | | | | | | | | | | | | | |
| Conventional Buses | | | | | | | | | | | | | | |
| Standard Bus | 573 | 1980 | 25 | | | | | | | | | | | |
| Standard Bus | 576 | 1990 | 25 | | | | | | | | | | | |
| Standard Bus | 103 | 1991 | 24 | | | | | | | | | | | |
| Standard Bus | 105 | 1991 | 24 | | | | | | | | | | | |
| Standard Bus | 117 | 1991 | 24 | | | | | | | | | | | |
| Standard Bus | 120 | 1991 | 24 | | | | | | | | | | | |
| Standard Bus | 104 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 106 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 107 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 108 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 109 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 110 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 111 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 580 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 583 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 433 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 434 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 436 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 437 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 439 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 440 | 1992 | 23 | | | | | | | | | | | |
| Standard Bus | 441 | 1993 | 22 | | | | | | | | | | | |
| Standard Bus | 442 | 1993 | 22 | | | | | | | | | | | |
| Standard Bus | 443 | 1993 | 22 | | | | | | | | | | | |
| Standard Bus | 445 | 1993 | 22 | | | | | | | | | | | |
| Standard Bus | 446 | 1993 | 22 | | | | | | | | | | | |
| Standard Bus | 447 | 1993 | 22 | | | | | | | | | | | |
| Standard Bus | 448 | 1993 | 22 | | | | | | | | | | | |
| Standard Bus | 449 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus | 450 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus | 451 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus | 452 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus | 453 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus | 454 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9501 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9502 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9503 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9504 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9505 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9506 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9507 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9508 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9509 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9510 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9511 | 1995 | 20 | | | | | | | | | | | |
| Standard Bus (Low Floor) | 9512 | 1995 | 20 | | | | | | | | | | | |

2015 Current Fleet Breakdown

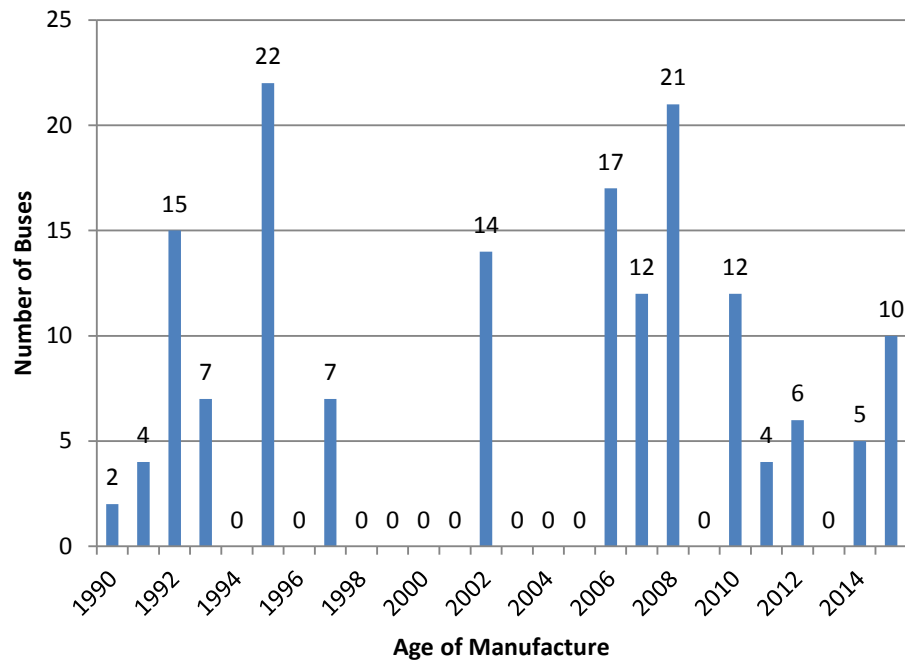


Chart 1 – Distribution of the Current Number of Buses by Year of Manufacture

2025 Projected Fleet Breakdown

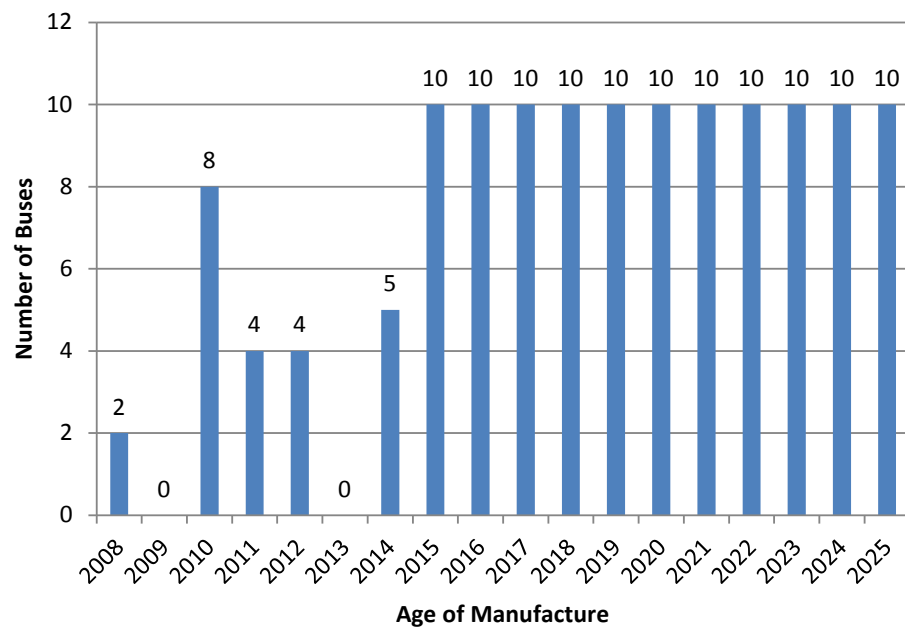


Chart 2 – Distribution of the Projected Number of Buses by Year of Manufacture

Change in Average Fleet Age Over Time

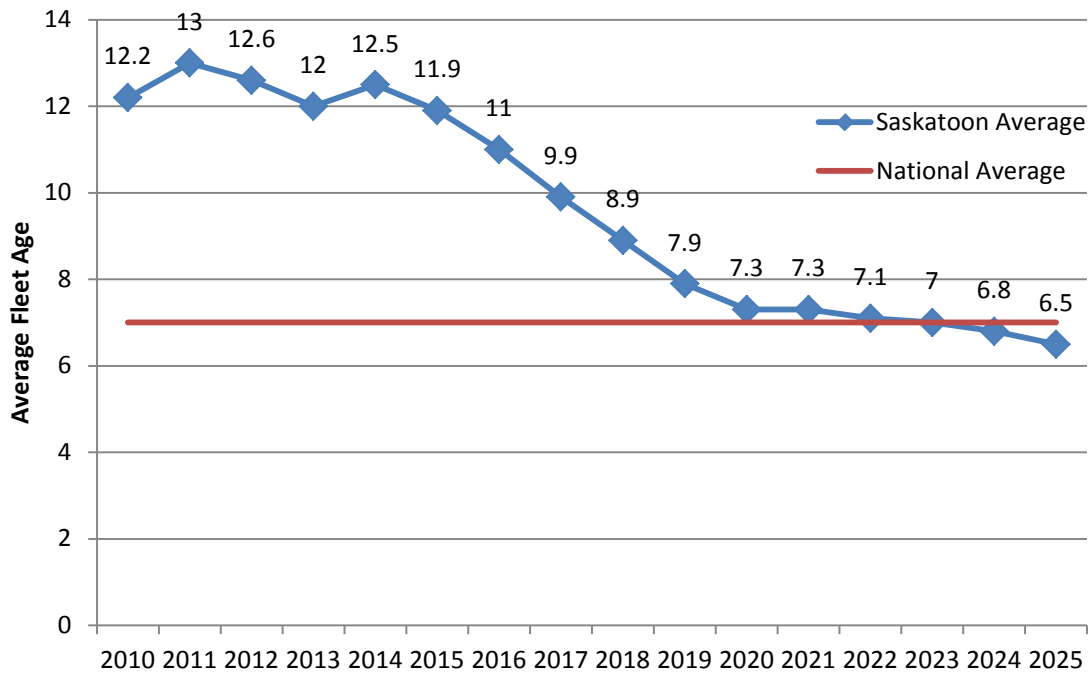


Chart 3 – Change in Average Fleet Age Over Time

Change in Bus Spare Ratio Over Time

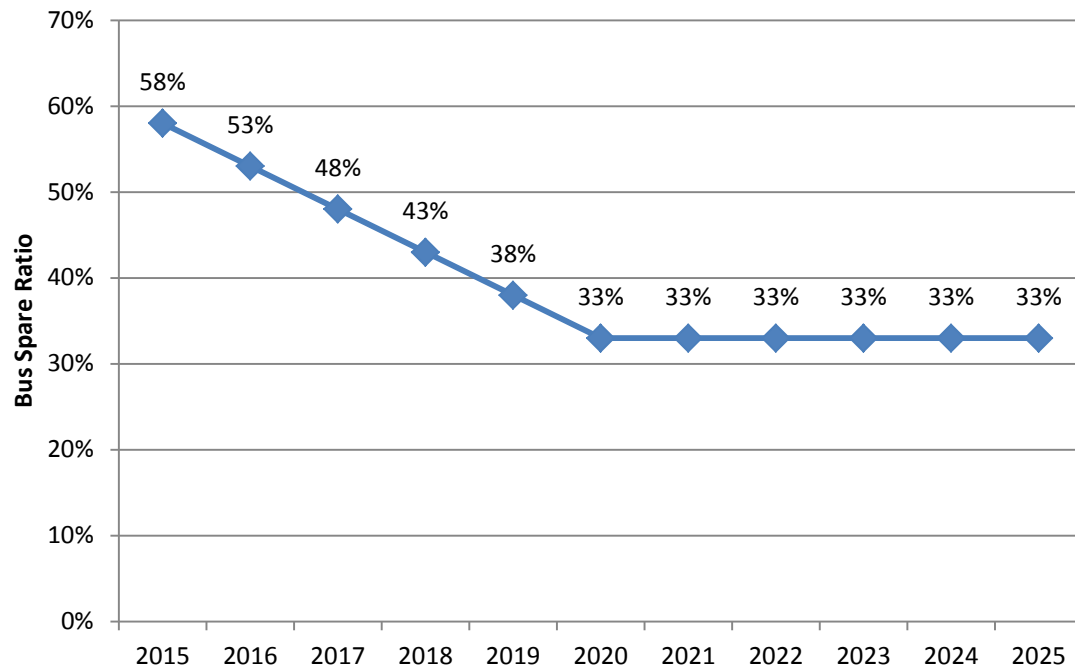
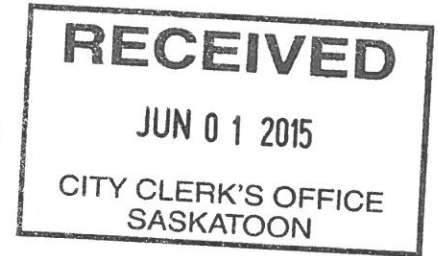


Chart 4 – Change in Bus Spare Ratio Over Time

1402-1

From: Robert Clipperton <robert.clipperton@gmail.com>
Sent: June 01, 2015 1:30 PM
To: Web E-mail - City Clerks
Cc: Clark, Charlie (City Councillor); Sarina Gersher
Subject: Request to Speak - Standing Committee on Transportation



Greetings:

I would like to address the Committee at their meeting on June 2, 2015 regarding agenda item 7.2.6 Saskatoon Transit Fleet Renewal Strategy.

Thank you.

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