

MANAGEMENT RESPONSE SUMMARY AG AUDIT REPORT

June 27, 2017





Our TTC response to the AG report is as follows:

- 1) Overall, we agree with the findings outlined in the report
- 2) We have already begun to implement processes to realize some of the cost savings identified
- 3) We believe a further savings validation needs to be completed for some of the key findings



1) OVERALL FINDINGS



- 1) The TTC agrees with the 19 recommendations outlined in the report
- 2) We will start *immediately* to take the necessary steps to implement the necessary processes to realize savings
- 3) The following TTC departments will work collaboratively to implement the findings:
 - a) Rail Cars & Shops
 - b) Bus Maintenance
 - c) Materials and Procurement



2) WE HAVE STARTED TO SOLUTION



As an example, we already have changed our process to manage low dollar value purchases by:

- Mirroring other transit organizations policies and procedures to drive ordering efficiencies
- Changing our policy for purchases under \$250, by reducing the need for multiple quotations
- Changing our Purchase Order process to include the addition of more blanket orders. We agree that use of blanket orders drives a faster ordering process, and also allows the TTC to leverage our spend to drive deeper discounts with vendors



3) SAVINGS



The TTC will undertake a comprehensive analysis of the potential savings based on the following AG recommendations:

- 1) Aftermarket Parts Warranty
- 2) Tracking of Cores
- 3) Alternative Part Sourcing
- 4) Reduction of Spare Ratios

We cannot validate that the estimated savings in the report, for these specific areas, are achievable without further detailed analysis



AFTERMARKET WARRANTY



- We are unsure that millions of dollars can be saved in pursuing an aftermarket warranty on parts. Most parts' warranties cover one to three years
- We cannot substantiate that there are significant savings without further analysis of part failure rates within, and outside of, the warranty periods
- Since parts generally do not fail within their warranty period, we are unsure there are significant savings in implementing an extensive After Market Warranty program as outlined in the report
- The additional resource costs needed to manage claims were not deducted from the savings totals



ALTERNATIVE PART SOURCING



- TTC will accept the use and procurement of aftermarket parts that perform equal to or better than the OEM parts
- Estimated savings will be measured against the costs of resources needed to identify alternative parts and evaluate performance and quality of aftermarket parts
- Further due diligence on potential savings needs to be conducted.





- We agree that there are savings associated with better tracking of cores
- We are unsure that we can extrapolate from the report's small sample sets of cores, that there are millions of dollars in potential savings by better tracking
- Further analysis of potential savings needs to be conducted
- To conclude these parts are reusable, added labour costs to analyze these parts, should be considered. These labour costs were not deducted from any potential savings in the report



SPARE RATIOS



- As noted in the report, the number of buses out of service as a result of lack of parts is already at a low level of 10-12 buses, versus the 50+ buses out of service due to parts shortage in the past
- TTC's spare ratios are in line with peer agencies of similar size
- There is a correlation between adequate spare ratio and asset reliability, which ultimately translates into quality of service
- TTC's current spare ratios in place are providing an adequate balance between service requirements, maintenance requirements and quality of service



BUSES OUT OF SERVICE



- The buses out of service for parts problems has greatly improved
- Previously, it was clear that hybrid parts and on-board controllers for the stop announcement system were the major causes of this issue
- A new contract with BAE was signed, and an internal IT solution for the controllers has been found
- Please note that 34 vehicles valued at \$68 Million out of service is measured out of a fleet size of over 2,345 vehicles overall. This means that only about 1.5% of the fleet is out of service, as a result of a parts shortage





Questions





APPENDIX



SPARE RATIOS



- Numerous variables affect spare ratios:
 - Operating environment and duty cycle of equipment:
 - number of stops
 - average operating speed
 - distance between stops
 - road and traffic conditions
 - passenger loading
 - etc.
 - Expected life cycle of equipment and vehicle
 - Number of technologies on the vehicle
 - Average age of the fleet
- There is no one spare ratio that fits all agencies

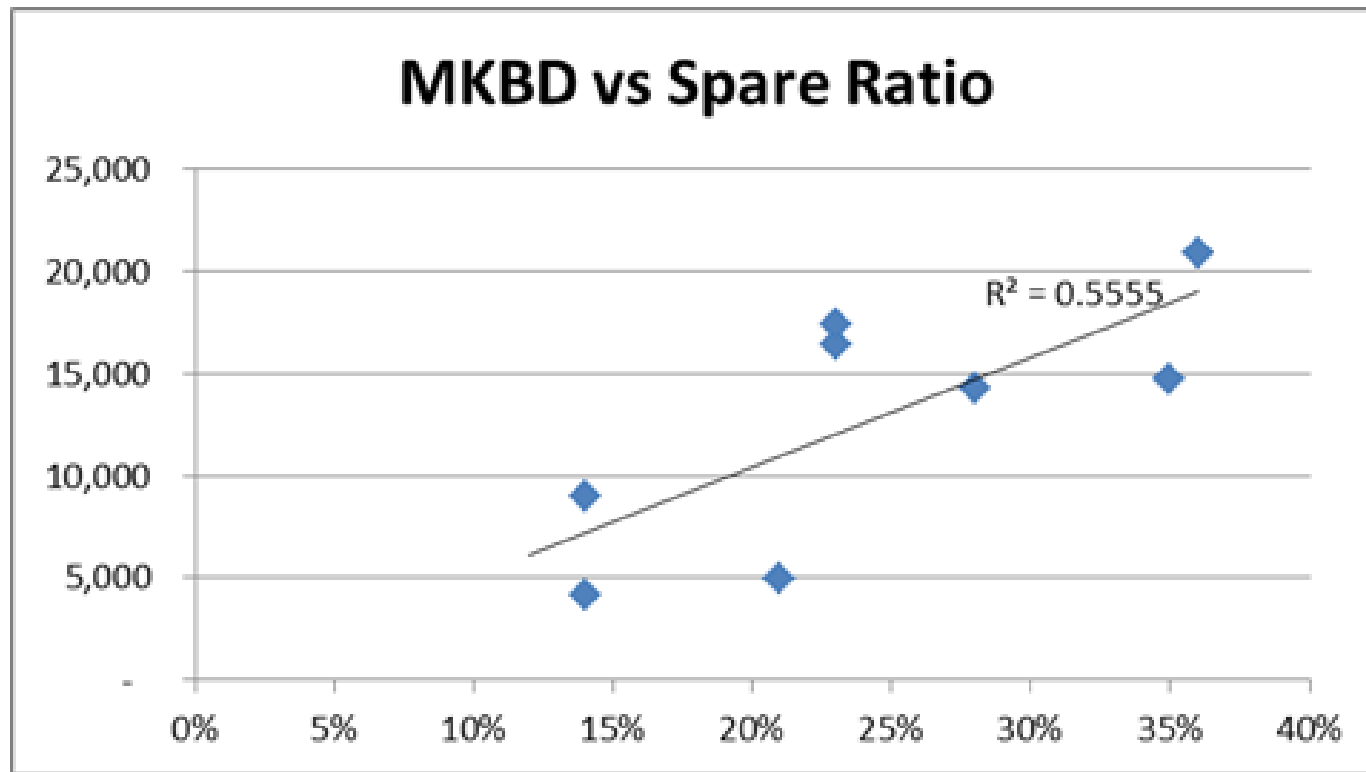
Fleet Sizes > 1000 Buses



SPARE RATIOS



- There is however a correlation between spare ratio and asset reliability



Fleet Sizes > 1000 Buses



SPARE RATIOS



- Optimum spare ratio balances service requirements, maintenance requirements and funding to provide the best quality of service possible
- Bus Maintenance's spare ratio – which is between 22-23% has allowed effective preventative maintenance programs to be put into place while meeting increased service needs (service growth, subway closures and streetcar backfill)
- Evidence of this balance has been improvement in vehicle reliability – (Refer to graph on Slide 12)
- The total spare ratio is composed of:
 - 18% Operating
 - 4%-5% Capital



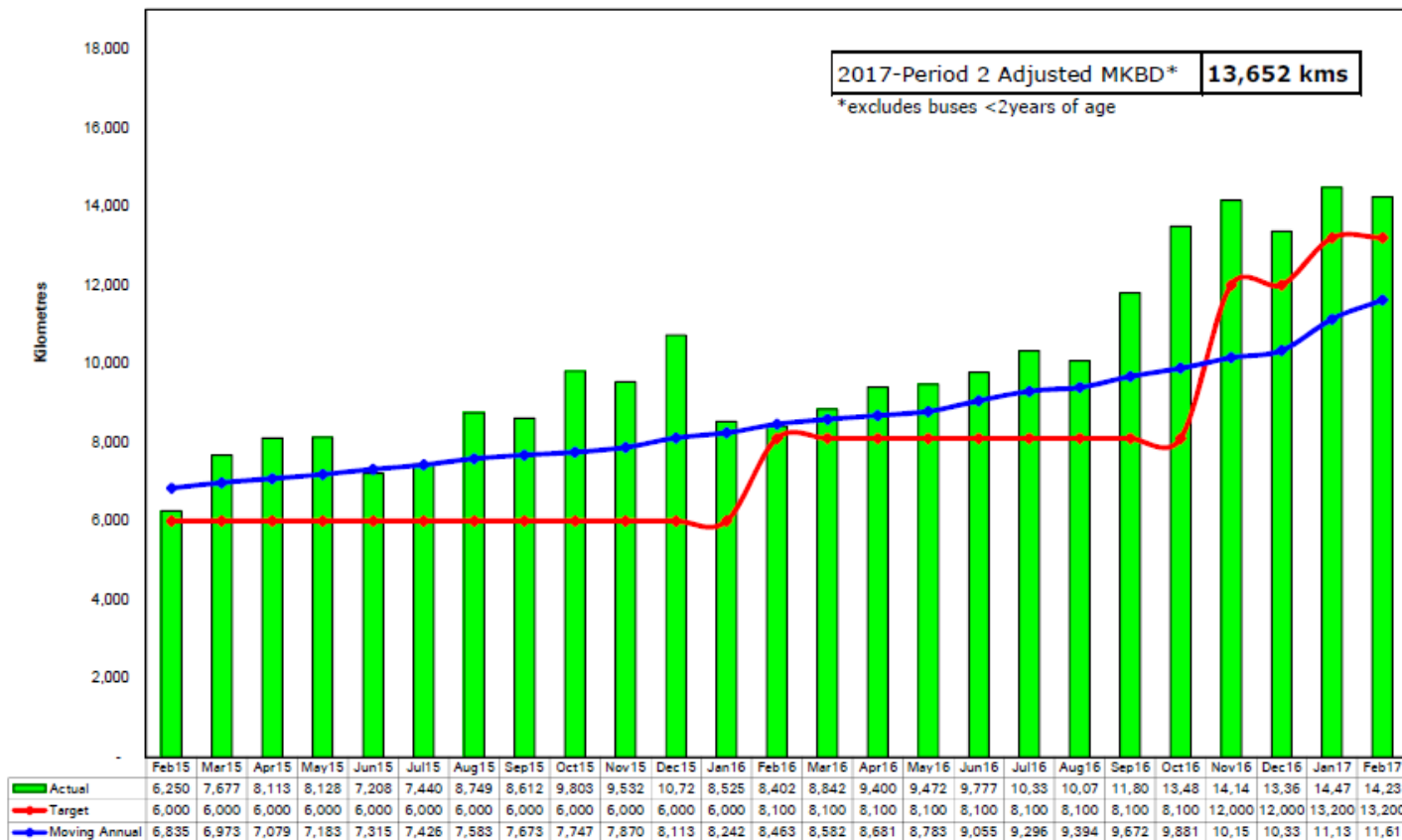
SPARE RATIOS



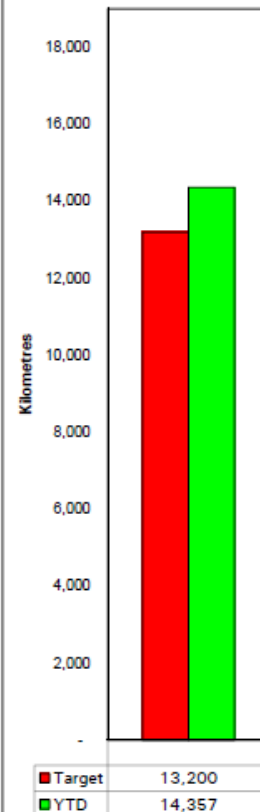
RELIABILITY (Mean Kilometres Between Delays) All City Bus Fleets

2017-Period 2 Adjusted MKBD* **13,652 kms**

*excludes buses <2years of age



2017 YTD PROGRESS



SPARE RATIOS



- TTC's spare ratio is in line with peer agencies of similar size
- Recall:
 - 12-Year bus life (US)
 - 18-Year bus life (TTC) combined with more aggressive operating environment

2015 Data	Fleet Size	Spare Ratio	MKBD (kms)
MTA New York City Transit	3,827	15%	13,484
New Jersey Transit Corporation	2,220	19%	23,592
Los Angeles County Metropolitan Transportation Authority dba: Metro	2,151	22%	19,667
Chicago Transit Authority	1,891	19%	16,045
Washington Metropolitan Area Transit Authority	1,500	15%	14,887
Southeastern Pennsylvania Transportation Authority	1,404	20%	11,470
MTA Bus Company	1,272	17%	12,967
Toronto Transit Commission (2017 Period 2 Data)	1,961	18% Operating 5% Capital	14,230

