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Analysis of Economic Obsolescence

Ontario Aerospace Manufacturing Industry

2016 BASE YEAR

June 10, 2015

ANALYSIS OF ECONOMIC OBSOLESCENCE IN THE ONTARIO AEROSPACE MANUFACTURING INDUSTRY AS AT JANUARY 1, 2016

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June 10, 2015

Mr. Malcolm Stadig
Manager, Centralized Properties
Municipal Property Assessment Corporation
1340 Pickering Parkway, Suite 101
Pickering ON L1V 0C4

**Re: Analysis of Economic Obsolescence in the Ontario Aerospace Manufacturing Industry
as at January 1, 2016**

Dear Mr. Stadig:

EXECUTIVE SUMMARY

1. This report details the results of an analysis undertaken to determine the extent of economic obsolescence (“EO”) present in the Ontario Aerospace Manufacturing Industry (the “Industry”), or lack thereof, as at January 1, 2016 (the “Effective Date”).
2. This report should be read in conjunction with the attached schedules, which are integral to the analysis and report commentary.
3. It is important to note that this estimate of EO as at the Effective Date reflects analysis and assumptions based on the most recently publicly disclosed financial results of guideline public companies, current economic data, and expectations regarding future economic events and financial trends that are anticipated to impact the Industry as at the date of this report (the “Report Date”). Further, no guarantee is made or implied as to the accuracy of forecasts, projections or predictive statements referenced herein.

Summary of Conclusion on Economic Obsolescence

4. Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, **the rate of EO present in the Industry as at January 1, 2016 is estimated to be 6% (see Schedule 1).**

INTRODUCTION & PURPOSE

5. It is understood that you have requested this report in order to confirm the existence of EO within the Industry (or lack thereof), on a broad level, as at the Effective Date. It is further understood that you will be incorporating this analysis into a mass appraisal of special purpose aerospace manufacturing plants in Ontario using the Cost Approach method of valuation.

STATEMENT OF INDEPENDENCE AND IMPARTIALITY

6. The writer of this report has no stake, directly or indirectly, in the results of this analysis. The fee for this assignment is based solely on an hourly rate, and is in no way dependent upon the conclusion(s) expressed herein.

ECONOMIC OBSOLESCENCE

7. EO can be described as a form of depreciation or an incurable loss in value that occurs when influences external to an asset itself reduce the value of the asset.
8. In industry, EO exists when external influences occurring in an industry have an adverse impact on profits, thereby preventing industry participants from earning an optimal return on their asset investment. Consequently, the current value of the industry's assets is less than what it would be if the profits derived from the operation of those assets were optimal.
9. EO is most often present when external influences prompt a change in the supply and/or demand of an industry's products and/or cause a change in competition, leading to a decline in operating profits. Some examples of external influences that adversely impact operating profits, giving rise to EO, include (but are not limited to):
 - changes in industry economics, such as reduced demand or excess supply, which can put downward pressure on prices, thereby negatively impacting sales revenue and weakening profitability;
 - an increase in direct costs such as raw materials and labour without a corresponding increase in sales price due to adverse market conditions, thereby weakening profitability. Such a scenario results from declining demand for an industry's products and/or increased competition leading to excess supply and price pressure;
 - increased domestic and/or foreign competition, which puts downward pressure on prices and negatively impacts sales revenue and profits;

- government legislation and/or changes in regulations, which can negatively impact sales revenue and weaken profitability;
- economic factors over which an industry has no control, including changes in inflation, interest rates, foreign currency rates, all of which can negatively impact sales revenue and profitability; and,
- adverse global economic conditions.

SCOPE OF REVIEW

10. In preparing these comments and calculations, the following has been reviewed, considered and relied upon, inter alia:

- information contained in a report as prepared by the Aerospace Industries Association of Canada (“AIAC”) entitled “The State of the Canadian Aerospace Industry - 2014 Report”;
- information contained in a report as published by IBISWorld entitled “Aircraft, Engine and Parts Manufacturing in Canada – April 2015”;
- various information on the Ontario Aerospace industry as published by InvestinOntario (<http://www.investinontario.com/aerospace>);
- excerpts from an economic report for Ontario as published by TD Economics entitled “Provincial Economic Forecast” and dated April 10, 2015;
- excerpts from an economic report for the U.S. entitled “Quarterly Economic Forecast” as published by TD Economics and dated March 24, 2015;
- excerpts from a report as published by the Bank of Canada entitled “Monetary Policy Report - April 2015” and “Monetary Policy Report Summary - April 2015”;
- various financial and statistical data as published by Statistics Canada;
- various information as published on the Industry Canada website (http://www.ic.gc.ca/eic/site/lsg-pdsv.nsf/eng/h_hn01703.html); and,
- various financial and market data of publicly traded aerospace manufacturing companies as retrieved from the Thomson Reuters Eikon database.

CURRENT AND FUTURE OUTLOOK OF CANADIAN AND GLOBAL ECONOMY

11. Global trade and the state of the world economy are key factors influencing demand for air travel. As global trade increases, a greater amount of interaction between people, businesses and governments occurs, requiring a greater amount of international travel, thereby increasing the volume of air travel and demand for aircraft production.
12. As a result, the Industry is significantly impacted by and exposed to both domestic and global economic conditions. Consequently, in order to validate and support a conclusion on EO, this review incorporates an assessment of the domestic and global economic conditions existing around the Report Date.
13. Major economic indicators which are used to assess the overall state of the economy include changes in manufacturing activity, retail sales, gross domestic product, unemployment rates, the consumer price index and inflationary pressures, currency strength and interest rates, among others.
14. Below is commentary on the economic conditions and future outlook for the global economy extracted from a report entitled “Monetary Policy Report – April 2015” as published by the Bank of Canada.

Global Economy

Global financial conditions have eased further in recent months, as many central banks have added to monetary policy stimulus in response to persistent economic slack and below-target inflation. The effects of lower prices for oil and other commodities are working their way through the world economy, boosting overall global growth, but weakening growth prospects in some countries. All things considered, the Bank expects global economic growth to strengthen and average about 3 1/2 per cent over the 2015-17 period.

In this global context, the economic prospects of major economies continue to diverge. As the U.S. economy strengthens, the Federal Reserve is widely expected to start normalizing monetary policy later this year – in contrast to the ongoing easing in other advanced economies. The substantial strengthening of the U.S. dollar against most other currencies, notably the euro, the yen and the Canadian dollar, largely reflects such differences and, over time, will contribute to mitigating them by boosting net exports in the weaker economies.

The sharp drop in oil prices as well as lower commodity food prices have been key common factors behind weak total CPI inflation globally. Although

the disinflationary effects of lower oil and food prices are generally expected to be transitory, core inflation in many countries has been well below inflation targets for an extended period. Persistent excess global supply has been a steady source of downward pressure on underlying inflation in the advanced economies. Labour gaps also remain large. While some countries have achieved significant reductions in headline unemployment rates, in many advanced economies, high rates of long-term unemployment and modest wage growth suggest that labour market slack remains.

15. Below is commentary on the economic conditions and outlook for the US economy extracted from a report entitled "Monetary Policy Report Summary - April 2015" as published by the Bank of Canada and a report entitled "Quarterly Economic Forecast" as published by TD Economics and dated March 24, 2015.

US Economy

In the United States, despite a weak start to 2015, real GDP growth is expected to strengthen and to become increasingly self-sustaining, led by strong private domestic demand. Economic activity in the first quarter of 2015 was negatively affected by several transitory factors, including severe winter weather and disruptions caused by the West Coast port strike. Much of this activity is expected to be recovered over the coming months, however, as suggested by other indicators, such as employment growth and confidence. Together with low oil prices, an improving labour market should contribute to solid growth in real disposable income and household spending.

A sustained expansion in U.S. residential investment - a key market for Canada's exports - has been slow to materialize. However, with robust growth in labour income, low mortgage rates and signs that household formation is improving, new housing construction is still expected to post strong growth later this year. A pickup in household demand and ongoing improvements in confidence, combined with healthy firm balance sheets, should further stimulate business investment. The appreciation of the U.S. dollar, which reflects this relatively positive economic outlook, is nevertheless expected to be a drag on U.S. growth.

. . . we expect the economy to grow by 3.0% in 2015, up from 2.4% in 2014. With the Federal Reserve slowly beginning to normalize monetary policy and with the unemployment rate falling to 5.0% in 2016, economic growth is expected to edge down to 2.8%.

16. Below is commentary on the economic conditions and outlook for the Canadian economy extracted from a report entitled “Monetary Policy Report Summary - April 2015” as published by the Bank of Canada.

Canadian Economy

GDP

The Canadian economy is estimated to have stalled in the first quarter of 2015. The Bank’s assessment is that the impact of the oil price shock on growth will be more front-loaded – but not larger – than predicted in January. The ultimate size of this impact will need to be monitored closely. Underneath the effects of the oil price shock, the natural sequence of stronger non-energy exports, increasing investment, and improving labour markets is progressing. This sequence will be bolstered by the considerable easing in financial conditions that has occurred and by improving U.S. demand.

As the impact of the oil shock on growth dissipates, this natural sequence is expected to re-emerge as the dominant trend around mid-year. Real GDP growth is projected to rebound in the second quarter and subsequently strengthen to average about 2 1/2 per cent on a quarterly basis until the middle of 2016. The Bank expects real GDP growth of 1.9 per cent in 2015, 2.5 per cent in 2016, and 2.0 per cent in 2017.

After picking up in the middle of last year, business investment declined in the fourth quarter. The drop in oil prices is expected to lead to a rapid contraction in investment in the oil and gas sector. Steep cuts to capital expenditures in the oil industry have been announced, and rigging activity has decreased precipitously since the beginning of the year.

The Bank’s estimate of real GDP in the first quarter of 2015 has been revised down since the January Report, to essentially no growth, primarily reflecting the pulling forward of the impact of the oil price shock. Other factors at play included harsh winter weather and temporary weakness in U.S. economic activity.

On an average annual basis, real GDP is expected to grow by 1.9 per cent in 2015 and 2.5 per cent in 2016, roughly the same as anticipated in January. However, the composition of growth will be somewhat different, with stronger exports and a smaller pickup in investment. In 2017, real GDP is expected to grow by 2.0 per cent.

Oil Prices

Three main oil price benchmarks are relevant for the Canadian economy: Brent, a global benchmark; West Texas Intermediate (WTI), the benchmark for light oil in North America; and Western Canada Select (WCS), a benchmark for heavy oil in Western Canada.

Following their sharp slide in the second half of 2014, the benchmark oil prices that are relevant for the Canadian economy have been quite volatile, fluctuating at or below levels assumed in the January Report. Prices for West Texas Intermediate (WTI) and Western Canada Select (WCS) - the main pricing benchmarks for Western Canadian producers - continue to be influenced by rising U.S. oil production, even as refinery maintenance and strikes have curbed demand.

By convention, the Bank assumes that energy prices will remain near their recent levels over the projection horizon. The U.S.-dollar prices for Brent, WTI and WCS have averaged roughly \$55, \$50 and \$35 per barrel, respectively, since early March. Relative to assumptions in the January *Report*, these prices are \$5 weaker for all three benchmarks.

Inflation

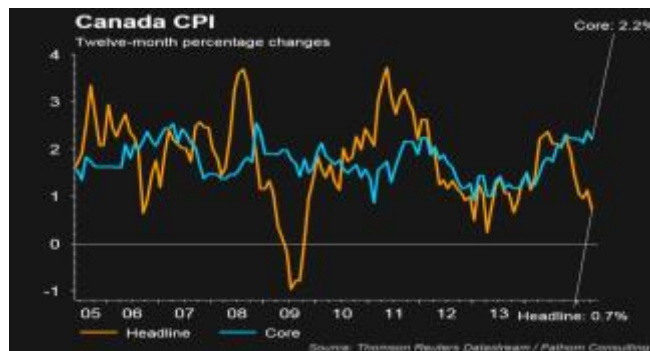
Core inflation is expected to remain near 2 per cent throughout the projection period. In the near term, the widening of the output gap is expected to exert additional downward pressure on inflation. Based on the assumption that the Canadian dollar stays around 79 cents, the pass-through effects are expected to peak in the second half of 2015 and to dissipate by the end of 2016. Meanwhile, as economic growth picks up and the output gap narrows, the disinflationary pressures from excess supply are expected to gradually diminish. The effects on core inflation of the lower dollar and the narrowing output gap roughly offset each other over the projection horizon.

As the economy reaches and remains at full capacity around the end of 2016 and with well-anchored inflation expectations, both total and core inflation are projected to be close to 2 per cent on a sustained basis.

While short-term expectations for total CPI inflation remain near the lower end of the control range, medium-term inflation expectations continue to be well anchored at 2 per cent. The March Consensus Economics forecast for total CPI inflation for 2015 is 0.9 per cent, down slightly from January, while the forecast for 2016 has remained unchanged, at 2.1 per cent. Results from the Bank's spring *Business Outlook Survey* show that the majority of

firms anticipate that, over the next two years, total CPI inflation will be in the bottom half of the Bank's 1 to 3 per cent inflation-control range. This is consistent with low total CPI inflation in 2015, reflecting the downward pressures coming from gasoline prices.

Based on the assumption that Brent will be priced at US\$55 per barrel, total CPI inflation is expected to ease to slightly below 1 per cent in the coming months before rising to the 2 per cent target early in 2016. Core inflation is anticipated to remain near 2 per cent over the projection horizon, as the upward pressure from past exchange rate depreciation offsets the ongoing downward pressure from excess supply, which will gradually diminish as the output gap closes. The Bank continues to expect that core and total CPI inflation will be at 2 per cent on a sustainable basis around the end of 2016 as the economy reaches full capacity.



Thomson Reuters

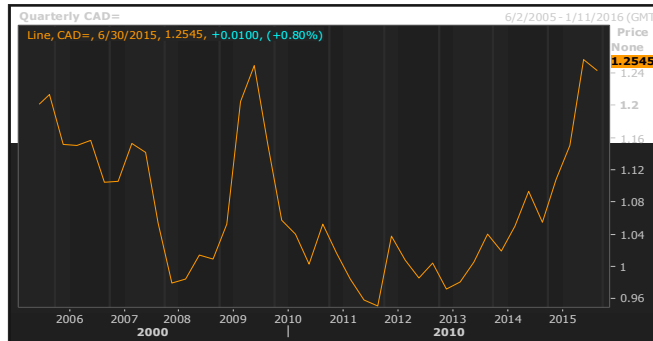
Key Interest Rate

Risks to the outlook for inflation are now roughly balanced and risks to financial stability appear to be evolving as expected. The Bank judges that the current degree of monetary policy stimulus remains appropriate and therefore is maintaining the target for the overnight rate at 3/4 per cent.

Exchange Rates

Since January, the Canadian dollar has depreciated against the U.S. dollar largely reflecting the broad strength of the U.S. dollar and the expected divergence in the paths for monetary policy in the two countries. The current level of the Canadian dollar is also consistent with the dollar's historical relationship with oil prices. By convention, the Canadian dollar is assumed to be close to its recent average level of 79 cents over the projection horizon. . . .

USD/CAD Exchange Rate



Thomson Reuters

Labour Markets

. . . labour market conditions appear to have improved modestly, on balance, over the past six months. For example, the unemployment, underutilization and long-term unemployment rates have all eased, while prime-age labour force participation has begun to recover in recent months following weakness in the middle of 2014. Despite these encouraging developments, a material degree of slack persists in the labour market, as illustrated by the Bank's labour market indicator. Moreover, the full impact of the decline in oil prices has yet to show up in employment statistics. The balance of opinion on hiring intentions in the Business Outlook Survey fell to its lowest level since 2009, and firms reported that labour shortages remain low and are less intense than 12 months ago.

Capacity Utilization

Measures of the utilization of existing capital stock continue to indicate less excess capacity than do measures of labour market slack, consistent with the pattern expected following a destructive recession. Total industrial capacity utilization has risen above its historical average, to 83.6 per cent. Capacity utilization in many non-energy industries has also increased in recent quarters, a precursor to greater investment spending. The most recent Business Outlook Survey indicates that capacity pressures were more prevalent among export-oriented firms, which frequently cited physical capacity constraints as a key obstacle to meeting a sudden rise in demand.

Taking into account the various indicators of capacity pressures, the Bank judges that there is material slack in the Canadian economy. The amount of excess capacity in the first quarter is estimated to be between 1/2 and 1 1/2 per cent, suggesting more slack and disinflationary pressures than estimated in January.

17. The key Canadian financial market indicators around the date of this report are summarized below.

Government of Canada marketable bond average yield:	
1 to 3 years	0.65%
3 to 5 years	0.81%
5 to 10 years	1.33%
More than 10 years	2.15%
Canadian chartered bank prime lending rate	2.85%
Conventional mortgage lending rates:	
3 years	3.39%
5 years	4.64%
Chartered bank guaranteed investment certificate rates:	
3 years	1.03%
5 years	1.50%

18. Below is commentary on the economic conditions and outlook for the Ontario economy extracted from a report entitled “Provincial Economic Forecast” as published by TD Economics and dated April 10, 2015.

Ontario Economy

Ontario is projected to be the fastest growing economy over the 2015-16 period, with real GDP growth estimated at 2.7% on average.

U.S. real GDP growth is forecast to run at around 3% annually over the next two years which will translate into solid demand for Ontario’s manufacturing sector. A lower Canadian dollar will also benefit Ontario producers. Already there is evidence of rising momentum in factory production, with manufacturing real GDP in Ontario up almost 5% Y/Y in 2014Q3. Somewhat mitigating the positive outlook for manufacturing is an expected contraction in auto production on account of the planned 14-week shutdown for retooling at the Chrysler plant in Windsor and the gradual shutdown of GM’s Oshawa 2 plant.

A low interest rate environment has continued to fuel the housing market over the first few months of 2015 with both resales and average prices tracking higher. While our housing demand outlook has been nudged up since our January update, we still expect to see a gradual moderation in the resale market on account of an expected deterioration in affordability and elevated household debt. New construction activity is projected to

decline over the next few years after a period of overbuilding.

The Ontario government's fiscal outlook remains challenging, with a deficit elimination timetable still set for fiscal 2017-18. The upcoming spring budget should provide some additional details on how the government plans to keep program spending essentially flat through fiscal 2017-18.

Employment growth in Ontario has been slow out of the gate in 2015, up only 0.6% on a trend basis. Surprisingly, manufacturing employment is still tracking lower through February despite the uptick in activity. Our forecast pegs employment growth at 1% over the 2015-16 period. Steady gains in export-based manufacturing and tourism industries are expected to translate into increased hiring as 2015 progresses.

19. Economic conditions for the province of Ontario as at April 2015 are summarized in the chart below.

SELECTED ECONOMIC STATISTICS - ONTARIO (Annual average % change, unless otherwise noted)						
	Actual	Actual	Actual	Forecast (as at April 2015)		
	2012	2013	2014	2014E	2015F	2016F
Real GDP	1.7	1.3	-	2.4	2.8	2.5
Nominal GDP	3.2	2.4	-	4.0	3.8	4.7
Employment	0.7	1.8	0.8	-	1.0	1.0
Unemployment Rate (annual, %)	7.9	7.6	7.3	-	6.9	6.7
Retail Trade	1.6	2.3	4.8	-	3.6	4.0
Housing Starts (000's units)	77.4	60.9	58.4	-	57.4	57.3
Housing Starts	14.2	-21.4	-4.0	-	-1.8	-0.2
Existing Home Sales (000's units)	197.6	198.5	206.0	-	211.1	212.6
Existing Home Sales	-1.9	0.5	3.7	-	2.5	0.7
Average Home Price (000's C\$)	381.3	400.7	428.6	-	446.7	455.5
Average Home Price	5.0	5.1	7.0	-	4.2	2.0
Consumer Price Index	1.4	1.0	2.3	-	0.7	2.2

SOURCE: TD Economics – April 2015 (www.td.com/economics)

AEROSPACE MANUFACTURING INDUSTRY IN CANADA AND ONTARIO

Background

20. Canada and Ontario are home to some of the world's leading aerospace manufacturing companies. The Industry's primary activities include the manufacture of complete aircraft, aircraft engines, aircraft components, parts and subassemblies as well as the modification and restoration of aircraft, aircraft engines and parts.
21. Annual revenues for the Industry in Ontario are approximately \$5.3 billion and the sector employs approximately 17,000 people in the province.¹
22. Production is highly diversified including regional and business aircraft, light aircraft and special purpose aircraft, small and medium turbine engines, commercial helicopters, landing gear systems and electronic systems.
23. The Industry's participants include large, multinational corporations and smaller, privately owned companies that operate in several sub-sectors including Original Equipment Manufacturers ("OEM's"), Tier 1 integrators and Tier 2 and 3 suppliers ("OEM Suppliers").
24. The Industry is one of Canada's biggest exporters with approximately 74% of its total production exported globally. Shipments to the U.S. account for 62% of total Canadian exports.²
25. Aerospace manufacturers operating in Ontario include the following large, public companies: Bombardier Inc.; Magellan Aerospace Corporation; CMC Electronics, a subsidiary of Esterline Technologies Corporation; Pratt & Whitney Canada, a subsidiary of United Technologies Corporation; Airbus Helicopters Canada, a subsidiary of Airbus Group; and, Messier-Bugatti-Dowty, a subsidiary of Safran SA. The remaining manufacturers in Ontario are comprised of smaller, privately owned companies.
26. The Industry receives government assistance including tax credits, cost sharing and loans at both the federal and provincial levels. The federal government has a number of programs intended to help the Industry stay ahead of international competition, especially when it comes to research and development (R&D").

Key External Market Influences Impacting the Industry

27. The key external influences impacting revenue growth and profitability within the Industry are identified and discussed below.

¹ Source: "<http://www.investinontario.com/aerospace>".

² IBISWorld report entitled "Aircraft, Engine and Parts Manufacturing in Canada – April 2015".

Total Value of World Trade

28. The total value of world trade is an indicator of overall globalization. Increasing world trade shows greater economic interaction between countries, people and businesses. Consequently, demand for aircraft rises as increased interaction requires more travel.
29. The total value of world trade is expected to grow in 2015, representing a potential opportunity for the Industry.

World Price of Crude Oil

30. Fuel expenses can account for as much as 40% of an airline company's revenue, which exposes the industry to fluctuations in the price of oil. If oil prices move up, so does the price of fuel, which then eats into the profits of airline companies. Consequently, airline companies try to operate the most fuel-efficient aircraft possible, which in turn increases demand for new fuel-efficient products.
31. The world price of crude oil is expected to decrease in 2015.

Canadian-dollar effective exchange rate index

32. The Canadian-dollar effective exchange rate index (CERI) compares the Canadian dollar against the currencies of Canada's major trading partners. The six foreign currencies in the CERI include the U.S. dollar, the European Union euro, the Japanese yen, the Chinese yuan and the Mexican peso.
33. When the CERI decreases, the Canadian dollar depreciates and domestic products become relatively less expensive for foreign buyers typically increasing demand for exports of domestically produced goods. Alternatively, when the CERI rises this trend causes domestically manufactured goods to be relatively more expensive for global consumers, thereby cutting into global demand for Canadian exports.
34. Since the Industry exports the majority of its production, the value of the Canadian dollar is a significant factor in the Industry's ability to remain competitive. A stronger dollar makes exports relatively more expensive and imports relatively cheaper. As a result, the Industry may become less competitive. However, if the Canadian dollar depreciates against the currencies of its major trading partners, exports become cheaper and imports become more expensive, causing the Industry's price competitiveness to improve.
35. The Canadian-dollar effective exchange rate index is expected to decrease in 2015.

Government Expenditures and Investment

36. The federal and provincial governments provide significant financial assistance to companies operating in the Industry through investments, tax incentives and loans. They also buy industry products for defence, security and public service operations. When overall government spending increases, it means more funds can be put towards these types of expenditures and investments.
37. Government expenditure and investment is expected to slightly increase in 2015.

World Price of Aluminum

38. Aluminum is a key material used in the production of aircraft, engines and parts. When the price of aluminum increases, the Industry's manufacturing costs rise. Alternatively, if the price of aluminum decreases, production costs decrease. Consequently, the price of aluminum can significantly impact the Industry's profit margins.
39. The world price of aluminum is expected to increase in 2015, representing a potential threat to the Industry.

Per Capita Disposable Income

40. Since air travel is considered by most to be a discretionary activity, it heavily relies on consumers' disposable income. If disposable income falls, consumers reduce discretionary spending and demand for air travel decreases. The exact opposite occurs when disposable income rise.
41. Per capita disposable income is expected to climb in 2015.

Current Industry Performance and Market Trends

42. Following the economic downturn in 2008, global economic activity and world trade rapidly declined by the end of 2009.³ The increased economic volatility caused disposable incomes to drop and, in turn, global tourist arrivals fell by 3.8% to 894 million people in 2009 as consumers had less discretionary income to spend on travel.³
43. Since 2011, the global economy has been on a steady recovery with global trade growing at an annualized 5.5% to \$24.8 trillion for the five years to 2015.³ As well, strong growth in the U.S. and emerging markets has increased disposable incomes of consumers resulting in an increased demand for air travel. Global tourist arrivals increased at an estimated rate of

³ IBISWorld report entitled "Aircraft, Engine and Parts Manufacturing in Canada – April 2015".

4.8% to 1.2 billion people for the five years to 2015.⁴

44. Total production for the aerospace manufacturing industry in Canada increased from \$14.0 billion in 2004 to \$17.7 billion in 2013, or at an average compound annual rate of 1.5% per year. Between 2012 and 2013, manufacturing revenues increased by 12.7%.⁵
45. Canadian exports have recovered from double-digit declines following the economic downturn increasing at an average annual rate of 5.8% to \$13.4 billion from 2010 to 2014.⁴
46. Overall, demand for aircraft and aircraft parts has increased in recent years and manufacturers have been able to increase production and prices. As a result, total profits for Canadian aerospace manufacturers have risen from 8.9% in 2010 to an estimated 11.6% in 2015.⁴
47. Notwithstanding this, slow economic growth in Canada and other developed countries has softened the Industry's recovery. In particular, demand for small business jets has remained weak since the recession in 2008 as small enterprises and wealthy individuals were hit hardest by the downturn.

Future Outlook for the Industry

48. Over the next five years, increased global demand for commercial aircraft will boost the Industry's revenues above pre-recession highs. Strong economic growth in foreign markets such as the U.S. and emerging markets will increase world trade leading to increased commercial air travel.
49. With the continuing growth of the global economy, the total value of world trade is forecast to increase annually for the next five years to 2020. This, in combination with rising consumer incomes and spending, will strengthen demand for air travel. As a result, IBISWorld forecasts global tourist arrivals are estimated to grow at an annualized 3.4% to 1.4 billion people over the next five years.⁴ Consequently, airlines will need to expand their aircraft fleets to meet rising demand.
50. Stronger economic growth in the U.S. and global trade will also improve business profits, which will likely increase demand for business aircraft, as well.
51. Volatile fuel prices and tightening environmental regulations are also expected to drive the increased demand for newer, more fuel-efficient aircraft models and engines, given that they emit less green-house gasses and are more fuel-efficient than older models.

⁴ IBISWorld report entitled "Aircraft, Engine and Parts Manufacturing in Canada – April 2015".

⁵ Industry Canada website (http://www.ic.gc.ca/eic/site/lsg-pdsv.nsf/eng/h_hn01703.html).

Consequently, IBISWorld forecasts that the Industry's revenue will rise at an annualized 3.4% to \$21.5 billion over the next five years to 2020.⁶

52. Additionally, as a result of the increased global demand for aircraft products, IBISWorld also forecasts exports to increase at an annualized 3.4% to \$15.8 billion over the next five years to 2020.⁶

ANALYSIS OF EXISTENCE OF ECONOMIC OBSOLESCENCE

53. As discussed previously, EO exists when external influences adversely impact the economic returns an industry earns from the operation of its assets, thereby diminishing the value of those assets. The first step in determining if EO exists in an industry is to perform a qualitative analysis assessing the current economic conditions of the industry and the impact of external influences on that industry.
54. Canadian aerospace manufacturing revenues have risen from \$14.0 billion in 2004 to \$17.7 billion in 2013, or at an average compound annual rate of 1.5% per year.⁷ Canadian exports of aircraft and aircraft parts have also increased at an average annual rate of 5.8% to \$13.4 billion from 2010 to 2014.⁶ Further, total revenues for the sector in Canada are forecast to rise at an annualized rate of 3.4% over the next five years.
55. Additionally, as the world price of crude oil remains volatile and environmental regulations become more stringent, demand for the Industry's newest, cleanest and more fuel-efficient aircraft and engines will grow. These factors, as well as aging aircraft fleets, will drive demand for the Industry's products.
56. Based on the above, for the most part, production and profits for the Industry, as a whole, have returned to pre-recession highs however, stagnant demand for the business jets segment and engine parts manufactured for this segment provides some evidence of the existence of EO within the Industry as at the Report Date.

APPROACH TO QUANTIFYING ECONOMIC OBSOLESCENCE

57. In addition to a review of the qualitative factors associated with EO as discussed above, a quantitative analysis of key profitability and efficiency ratios of guideline public companies operating in the Industry was completed as a method of quantifying the level of EO present in the Industry, or lack thereof, on a broad level.
58. The guideline public companies considered most appropriate for this analysis were

⁶ IBISWorld report entitled "Aircraft, Engine and Parts Manufacturing in Canada – April 2015".

⁷ Industry Canada website (http://www.ic.gc.ca/eic/site/lsg-pdsv.nsf/eng/h_hn01703.html).

selected based on the larger aerospace manufacturing companies that currently operate in Canada, or have divisions that operate in Canada; generate at least 50% of their revenue from the production of aircraft and/or aircraft engines and parts; and, have publicly available financial results.

59. The companies selected were as follows: Bombardier Inc.; Magellan Aerospace Corp.; United Technologies Corp.; Safran SA; Esterline Technologies Inc.; Airbus Group; Heroux-Devtek Inc. and, Textron Inc. The selected guideline public companies are collectively referred to hereafter as the “Guideline Companies”.
60. The specific profitability and efficiency ratios analyzed (and explained in greater detail further below) are as follows:
 - return on invested capital;
 - gross margin percentage;
 - inventory turnover ratio;
 - fixed asset turnover ratio;
 - price to book ratio; and,
 - industrial capacity utilization rates.
61. The key profitability and efficiency ratios reviewed were analyzed over a ten year period from 2004 to 2013 in order to derive historical industry performance benchmarks. The current profitability and efficiency ratios of the Guideline Companies based on 2014 were then compared against the historical benchmarks.
62. If the current performance ratios of the Guideline Companies are trending below their historical performance benchmarks by a material amount, on a collective basis, this can signal that EO is present in the Industry.
63. The percentage decline in the current ratios from their historical performance benchmarks, as measured on a collective basis based on the results of the Guideline Companies, can be used as an overall benchmark for the rate of EO present in an industry, on a broad level.

QUANTIFYING ECONOMIC OBSOLESCENCE

64. A description of the key profitability and efficiency ratios reviewed as well as a discussion of the analysis undertaken to quantify EO follows below.

Return on Invested Capital Analysis

65. Return on invested capital (“ROIC”) is a profitability ratio that measures how efficiently a company generates income from capital invested by comparing net operating profit to capital invested. The ROIC is a better measurement than return on equity as it measures how well a company is using both its equity and debt to generate profits. A low ROIC indicates that a company is making poor use of its capital resources.

66. The return on invested capital is calculated as follows:

$$\text{Return} = (\text{Net Operating Profit after Taxes})$$

divided by

$$\text{Invested Capital} = (\text{Interest-bearing Debt} + \text{Equity})$$

67. The ROIC is informative when tracked on a trend line annually as it will indicate long-term changes in the operating performance of a company. A decline in operating profits while invested capital remains constant or increases will cause the ROIC to decline.

68. A decline in the ROIC can signal that external influences occurring in the marketplace are negatively impacting profitability, giving rise to EO.

69. Any or all of the following external influences can negatively impact operating profits and the ROIC, giving rise to EO: a declining demand for an industry’s products; increased competition creating excess supply and price pressure; and, government regulations requiring increased investment and/or price caps. All of these factors can impede the ability of an industry to earn an economic rate of return on its assets.

70. The historical rates of ROIC of the Guideline Companies from 2004 to 2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median ROIC realized over this period under the assumption that this benchmark is the best measure of an economic rate of return for the Industry.

71. The historical benchmarks were then compared against the current rates of ROIC based on 2014 to gauge if current rates of ROIC are consistent with historical benchmarks.

72. Approximately half of the Guideline Companies realized a significant decline in their rate of ROIC in 2014 when compared to their historical benchmark. However, the remainder of the Guideline Companies realized either an increase in their rate of ROIC or only a nominal decline. Consequently, there was a wide divergence in the rates of indicated EO based on the ROIC analysis of the Guideline Companies.

73. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ROIC analysis is presented on **Schedule 2**.

Gross Profit Margin (%) Analysis

74. Gross profit margin percentage is a profitability ratio that measures the percentage by which sales revenue exceeds the expenses required to manufacture a product, known as the cost of goods sold (the “COGS”).
75. The COGS includes the cost of the raw materials, direct labour and production overheads that go into producing the goods sold and is included on a company’s income statement where it is deducted from revenue in order to calculate the company’s gross margin dollars. The gross margin dollars reflect the amount of dollars earned from the sale of products and services before consideration of non-production costs such as selling and administrative costs.
76. Gross profit margin percentage is calculated as follows:

$$\text{Gross Profit Margin (\%)} = (\text{Sales Revenue} - \text{COGS} / \text{Sales Revenue}) \times 100$$

77. The gross profit margin percentage when tracked on a trend line indicates if any significant changes in sales and/or the COGS have occurred over a period of time. The gross profit margin percentage declines when sales revenue decreases however, the COGS remains constant or increases, as less gross margin dollars are being generated per unit sold.
78. A decline in the gross profit margin percentage can be an indication that external influences occurring in the marketplace are negatively impacting sales and/or the COGS, thereby giving rise to EO.
79. Similar to the ROIC, external influences that cause declining demand for an industry’s products and/or increased competition leading to excess supply put downward pressure on prices and can negatively impact an industry’s gross profit, thereby impeding the ability of an industry to earn an economic return on its assets.
80. In addition, when the COGS increases however, the increase cannot be passed on to the consumer through a price increase due to adverse market conditions such as government price caps and/or price pressure due to increased competition, the additional costs must be absorbed by the manufacturer and gross profits decline, negatively impacting industry returns.
81. The historical gross profit margin percentages of the Guideline Companies from 2004 to

2013 were analyzed to derive historical benchmarks. The historical benchmarks were based on the median gross profit margin percentage realized over this period under the assumption that this benchmark is the best measurement of an economic rate for the Industry.

82. The historical benchmarks were then compared against current gross profit margin percentages based on 2014 to gauge if the current gross margin percentages are consistent with historical benchmarks.
83. Only two of the Guideline Companies realized a decline in their gross profit margin percentage in 2014 when compared to their historical benchmark. Consequently, there is no indication that, on an industry wide level, aerospace manufacturers have experienced any substantial decline in their gross profit margin percentage based on the analysis of the gross profit margin percentages of the Guideline Companies.
84. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the gross profit margin percentage analysis is presented on **Schedule 3**.

Inventory Turnover Ratio Analysis

85. The inventory turnover ratio (“ITR”) is an efficiency ratio that reflects how frequently a company flushes inventory from its system by comparing cost of goods sold with average inventory for a period. In other words, it measures how many times a company sells its total average inventory dollar amount during the year.
86. The ITR is calculated as follows:

$$\text{Inventory Turnover Ratio} = \text{COGS} / \text{Average Dollar Value of Inventory On-Hand}$$

87. Generally, a higher ITR implies a stronger demand for an industry’s products given a certain amount of inventory. In contrast, a low ITR is generally indicative of excess production capacity and/or excess supply and can signal that external influences occurring in the marketplace are causing a decline in demand for an industry’s products.
88. The historical ITR’s of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median ITR over this period under the assumption that this benchmark is the best measurement of an economic rate for the Industry.
89. The historical benchmarks were then compared against the current ITR’s based on 2014 to gauge if the current ITR’s are consistent with historical benchmarks.

90. Approximately half of the Guideline Companies realized a material decline in their ITR in 2014 when compared to their historical benchmark. However, the remainder of the Guideline Companies realized either an increase in their ITR or a nominal decrease. Consequently, there was a wide divergence in the rates of indicated EO based on the ITR analysis of the Guideline Companies.
91. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the ITR analysis is presented on **Schedule 4**.

Fixed Asset Turnover Ratio Analysis

92. The fixed asset turnover ratio (“FATR”) measures a company's ability to generate net sales from fixed-asset investments; specifically property, plant and equipment, net of depreciation. This ratio is often used as a measure in manufacturing industries, where major purchases are made for property, plant and equipment to help increase output.
93. The FATR is calculated as follows:

$$\text{Fixed Asset Turnover Ratio} = \text{Sales Revenue} / \text{Net Property, Plant and Equipment}$$

94. Generally, a high FATR indicates that a company has been more effective in using its investment in fixed assets to generate revenues and/or a stronger demand for an industry's products given a certain amount of fixed-asset investment.
95. In contrast, a low FATR is generally indicative of over-investment in fixed assets and can signal that external factors occurring in the marketplace are causing a decline in demand for an industry's products and negatively impacting an industry's economic return on its fixed-asset investment, giving rise to EO.
96. The historical FATR's of the Guideline Companies were analyzed from 2004 to 2013 to derive historical benchmarks. The historical benchmarks were based on the median FATR over this period under the assumption that this benchmark is the best measurement of an economic rate for the Industry.
97. The historical benchmarks were then compared against the current FATR's based on 2014 to gauge if the current FATR's are consistent with historical benchmarks.
98. Only one of the Guideline Companies realized a decline in its FATR in 2014 when compared to its historical benchmark. Consequently, there is no indication that, on an industry wide level, aerospace manufacturers have experienced any substantial decline in their FATR based on the analysis of the FATR's of the Guideline Companies.

99. The overall rate of indicated EO chosen was based on the median of the range of indicated EO values of the Guideline Companies. The calculation of the rate of indicated EO based on the FATR analysis is presented on **Schedule 5**.

Price to Book Ratio Analysis

100. The price-to-book ratio ("PBR") measures the market price of a company's net assets in relation to their book value. The ratio denotes how much equity investors are paying for each dollar in net assets.
101. A company's market price is the market value of a company's outstanding shares, also known as its market capitalization. Book value is the value of a company's net assets according to its balance sheet. Traditionally, a company's book value is its total assets based on original cost less any depreciation, amortization or impairment costs minus liabilities.
102. A company's PBR is impacted by external factors related to investor sentiment regarding the current economic state of the industry that the company operates in; i.e., demand for industry products, competitive landscape, etc. If the market price of the company declines significantly or drops below its book value, this may be an indication that investors are becoming wary of the company and/or the industry that the company operates in and can signal that EO may be present.
103. The PBR of the S&P/TSX Industrials Sector Index can be used as a benchmark to gauge investor-perception of the value of the net assets of a particular industry in comparison to the weighted average value of the net assets of all other industries included in the index.
104. The PBR of the S&P/TSX Industrials Sector Index around the Report Date was compared against the median PBR of the Guideline Companies approximate to the Report Date. The median PBR of the Guideline Companies of 3.2 falls slightly below the PBR of the S&P TSX Industrials Sector Index of 3.7. Consequently, the market values the net assets of the Guideline Companies to be worth slightly less than the weighted average value of the net assets of all industries combined based on the composition of companies listed on the S&P TSX Industrials Sector Index.
105. It is important to note that the PBR measure is not considered a reliable indicator of EO given that the PBR can be impacted by other variables not related to EO such as a company's capital structure, the extent of analyst coverage and dividend policy, among other things. Notwithstanding this, the results of the analysis are presented on **Schedule 6** for information purposes.

Industrial Capacity Utilization Rate Analysis

106. The capacity utilization rate indicates the rate of production capacity which is actually being utilized in comparison to the maximum production capacity available.
107. A decline in the utilization rate when compared to historical industry norms indicates that current production is below the supply capacity available and may be a signal that external factors occurring in the marketplace are causing a decline in demand for an industry's products, which can negatively impact an industry's economic return, giving rise to EO.
108. The capacity utilization rate can be calculated as follows:

Capacity Utilization Rate =

$$[(Actual\ Output - Potential\ Output) / Potential\ Output]^{\text{scale factor}}$$

109. Data on the industrial capacity utilization rates of aerospace manufacturing plants operating in Ontario and/or Canada was not available. As a substitute, the industrial capacity utilization rates of the Canadian Transportation Equipment Manufacturing sector (which includes aerospace, rail, motor vehicle, ship and boat manufacturing) were analyzed from 2004 to 2014 to gauge whether current production levels are consistent with historical levels.
110. The current capacity utilization rate for the Canadian Transportation Equipment Manufacturing sector (NAICS 336) based on the average capacity utilization rate for 2014 falls well above the median rate for the past ten years.
111. Accordingly, it appears that the current productivity rate of the Canadian Transportation Equipment Manufacturing sector is well above its historical levels.
112. It is important to note that EO can exist even when an asset's capacity utilization rate is at maximum and/or at the industry norm because, although the asset may be operating at its normal/maximum capacity utilization rate, the return being generated by the asset(s) may still be below an economic level.
113. The results of the analysis of industrial capacity utilization rates for the Canadian Transportation Equipment Manufacturing sector have not been factored into the conclusion on the rate of EO present in the Industry given that sector specific data was not available and because of the limitations regarding the analysis as detailed above however, the calculations are presented on **Schedule 7** for information purposes.

CONCLUSION ON RATE OF ECONOMIC OBSOLESCENCE

114. Based on the scope of review, research, and analysis carried out, and subject to the restrictions as set out herein, the rate of EO present in the Industry as at January 1, 2016 is estimated to be as follows (see Schedule 1):

AEROSPACE MANUFACTURING INDUSTRY			
Guideline Company Ratio Analysis	Indicated EO	Assigned Weight	Weighted Average
Return on Invested Capital	11.6%	2	23.2%
Gross Profit Margin (%)	0.0%	2	0.0%
Inventory Turnover Ratio	13.4%	1	13.4%
Fixed Asset Turnover Ratio	0.0%	1	0.0%
Price to Book Ratio	13.5%	0	0.0%
Industrial Capacity Utilization	0.0%	0	0.0%
		6	36.6%
		divide by total assigned weight	6
Estimated Rate of EO as at January 1, 2016			6.0%

115. In concluding on the rate of EO, the greatest weight was assigned to the EO indicated by the ROIC and gross profit margin (%) analyses given that these analyses best reflect financial/economic performance as they directly measure changes in profitability and overall return on total assets.
116. The EO indicated by the ITR and FATR analyses were assigned a lower weight given that although these analyses reflect changes in the magnitude of sales revenue generated in relation to inventory and fixed asset investments, they do not directly measure changes in profitability and/or overall return on investment.
117. A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment. Accordingly, this analysis is presented for information purposes only.
118. A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates for the aerospace manufacturing industry were not available and because of the limitations regarding the analysis as described previously. Accordingly, this analysis is presented for information purposes only.

ASSUMPTIONS AND RESTRICTIONS

119. The financial and operating results of the Guideline Companies, as sourced from the Thompson Reuters Eikon database (“Reuters”), are fairly stated and free of material errors. If the financial and operating results of the Guideline Companies, as sourced from Reuters, are not free of material errors, such errors could have a material impact on the conclusion(s) stated herein.
120. The information contained in the IBISWorld report, including aggregate financial results, statistics and prospects of the aerospace manufacturing industry in Canada, is accurate, reasonable and reflects best estimates based on the information available at the Report Date.
121. There will be no significant change in the operating and financial results of the Guideline Companies from fiscal 2014 to the Effective Date. If a significant change in the operating and financial results of the Guideline Companies does occur during this period, such changes may cause the conclusion(s) stated herein to be materially different at the Effective Date.
122. There will be no significant changes in market conditions and/or Canadian/global economic conditions from the Report Date to the Effective Date. If any significant changes in market conditions and/or Canadian/global economic conditions do occur from the Report Date to the Effective Date, such changes may cause the conclusion(s) stated herein to be materially different at the Effective Date.
123. This report is not intended for general circulation or publication, nor is it to be reproduced or used for any purpose other than that outlined above without prior written consent in each specific instance. No responsibility or liability is assumed for losses resulting from the circulation, publication, reproduction or use of this report contrary to the provisions of this paragraph.

* * * * *

Yours very truly,

Deborah Sprenger

Deborah Sprenger, CPA, CGA, CBV

Schedule 1

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
AEROSPACE MANUFACTURING INDUSTRY
SUMMARY OF GUIDELINE COMPANIES RATIO ANALYSIS**

<u>Guideline Company Ratio Analysis</u>		<u>Indicated EO</u>	<u>Assigned Weight</u> (Note 1)	<u>Weighted Average</u>
Return on Invested Capital	Schedule 2	11.6%	2	23.2%
Gross Profit Margin (%)	Schedule 3	0.0%	2	0.0%
Inventory Turnover Ratio	Schedule 4	13.4%	1	13.4%
Fixed Asset Turnover Ratio	Schedule 5	0.0%	1	0.0%
Price to Book Ratio	Schedule 6	13.5%	0	0.0%
Industrial Capacity Utilization	Schedule 7	<u>0.0%</u>	<u>0</u>	<u>0.0%</u>
			6	36.6%
Range of EO Indicators - 0% to 13%			<i>divide by total assigned weight</i>	<u>6</u>
Estimated Rate of EO as at January 1, 2016 (rounded) (Note 1)				<u>6.0%</u>

Note:

(1) In concluding on the rate of EO, the greatest weight was assigned to the EO indicated by the ROIC and gross profit margin (%) analyses given that these analyses best reflect financial/economic performance as they directly measure changes in profitability and overall return on total assets.

The EO indicated by the ITR and FATR analyses were assigned a lower weight given that although these analyses reflect changes in the magnitude of sales revenue generated in relation to inventory and fixed asset investments, they do not directly measure changes in profitability and/or overall return on investment.

A weighting of zero was assigned to the PBR analysis given that it is not a reliable measure of EO as it can be impacted by other variables unrelated to a change in the economic return on an investment.

A weighting of zero was also assigned to the industrial capacity utilization analysis as sector specific rates for the aerospace manufacturing industry were not available and because of the limitations regarding the analysis as described in the narrative portion of this report.

Schedule 2

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
AEROSPACE MANUFACTURING INDUSTRY
RETURN ON INVESTED CAPITAL ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
1 Bombardier Inc.	-1.5%	-1.2%	1.4%	2.9%	3.6%	11.7%	7.8%	7.2%	3.7%	4.0%	11.7%	-1.5%	4.0%	3.7%	-8.4%	327.0%
2 Magellan Aerospace Corp.	-1.6%	-1.3%	-1.9%	-2.9%	3.7%	7.2%	9.5%	8.7%	10.0%	8.2%	10.0%	-2.9%	4.0%	5.5%	9.7%	0.0%
3 United Technologies Corp.	11.6%	12.2%	13.1%	13.5%	14.0%	11.5%	21.0%	12.9%	9.8%	9.3%	21.0%	9.3%	12.9%	12.6%	9.9%	21.4%
4 Safran SA	-7.0%	-6.9%	0.3%	1.9%	0.5%	8.6%	2.6%	5.4%	12.2%	10.8%	12.2%	-7.0%	2.8%	2.3%	-0.7%	130.4%
5 Esterline Technologies Corp.	4.0%	6.2%	5.6%	6.3%	6.7%	5.9%	6.1%	5.1%	4.0%	6.1%	6.7%	4.0%	5.6%	6.0%	5.9%	1.7%
6 Airbus Group NV	3.2%	4.3%	0.3%	-1.1%	4.0%	-1.9%	1.5%	2.6%	2.8%	3.4%	4.3%	-1.9%	1.9%	2.7%	5.1%	0.0%
7 Heroux-Devtek Inc.	-2.0%	-2.1%	-0.2%	3.9%	7.4%	7.4%	5.1%	5.5%	4.1%	3.8%	7.4%	-2.1%	3.3%	4.0%	2.5%	37.5%
8 Textron Inc.	2.9%	4.0%	5.0%	5.7%	2.1%	-0.5%	0.6%	2.1%	5.8%	5.1%	5.8%	-0.5%	3.3%	3.5%	5.8%	0.0%

Mean	9.9%	-0.3%	4.7%	5.0%	3.7%	64.8%
Median	8.7%	-1.7%	3.7%	3.9%	5.5%	11.6%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical return on invested capital ("ROIC") benchmark (based on the median rate from 2004 to 2013) and the current ROIC based on 2014 as follows: ((Median ROIC - Current ROIC) / Median ROIC). If the current ROIC was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 3

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
AEROSPACE MANUFACTURING INDUSTRY
GROSS PROFIT MARGIN ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
1 Bombardier Inc.	14.2%	11.5%	13.6%	14.9%	16.6%	18.6%	16.3%	15.8%	14.4%	13.7%	18.6%	11.5%	15.0%	14.7%	12.8%	12.9%
2 Magellan Aerospace Corp.	10.3%	9.9%	8.9%	9.9%	11.3%	12.0%	13.1%	13.8%	14.0%	14.8%	14.8%	8.9%	11.8%	11.7%	15.9%	0.0%
3 United Technologies Corp.	27.2%	27.6%	27.4%	26.6%	26.2%	25.9%	27.4%	27.6%	27.0%	27.6%	27.6%	25.9%	27.1%	27.3%	27.4%	0.0%
4 Safran SA	26.6%	34.7%	39.2%	43.7%	43.4%	44.2%	46.3%	46.6%	47.3%	46.4%	47.3%	26.6%	41.8%	44.0%	48.2%	0.0%
5 Esterline Technologies Corp.	31.8%	31.4%	31.2%	30.9%	32.8%	32.2%	33.8%	34.3%	36.1%	37.3%	37.3%	30.9%	33.2%	32.5%	35.1%	0.0%
6 Airbus Group NV	19.6%	19.5%	11.9%	11.0%	17.0%	10.4%	13.6%	13.9%	14.0%	13.8%	19.6%	10.4%	14.5%	13.9%	14.7%	0.0%
7 Heroux-Devtek Inc.	7.5%	5.8%	7.5%	11.3%	15.2%	16.9%	15.7%	16.3%	16.8%	15.5%	16.9%	5.8%	12.9%	15.4%	15.6%	0.0%
8 Textron Inc.	25.4%	25.7%	25.8%	26.6%	24.5%	19.4%	18.2%	17.4%	18.1%	16.3%	26.6%	16.3%	21.7%	22.0%	17.7%	19.5%

Mean	26.1%	17.0%	22.3%	22.7%	23.4%	4.1%
Median	23.1%	13.9%	18.4%	18.7%	16.8%	

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical gross margin (%) benchmark (based on the median rate from 2004 to 2013) and the current gross margin (%) based on 2014 as follows: ((Median GM% - Current GM%) / Median GM%). If the current GM(%) was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 4

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
AEROSPACE MANUFACTURING INDUSTRY
INVENTORY TURNOVER RATIO ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO
											Max	Min	Mean	Median		
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)
													(A)	(B)	(A-B/A)	
1 Bombardier Inc.	3.4	3.3	3.3	3.3	3.2	3.0	3.0	2.1	1.9	2.0	3.4	1.9	2.9	3.1	2.2	29.0%
2 Magellan Aerospace Corp.	1.9	1.9	1.9	2.0	2.7	3.7	4.3	4.3	4.4	4.2	4.4	1.9	3.1	3.2	4.2	0.0%
3 United Technologies Corp.	5.7	5.8	5.6	5.5	5.3	4.9	5.0	5.2	4.9	4.6	5.8	4.6	5.3	5.3	4.7	11.3%
4 Safran SA	4.4	3.3	2.2	1.7	1.7	1.7	1.7	1.7	1.8	1.9	4.4	1.7	2.2	1.8	1.9	0.0%
5 Esterline Technologies Corp.	4.3	4.6	4.0	3.8	3.8	3.6	3.8	3.4	3.0	2.8	4.6	2.8	3.7	3.8	3.0	21.1%
6 Airbus Group NV	3.3	2.0	2.1	1.9	1.9	1.9	1.9	1.9	2.1	2.1	3.3	1.9	2.1	2.0	2.1	0.0%
7 Heroux-Devtek Inc.	3.2	3.5	3.3	3.0	2.8	3.1	3.0	2.7	1.6	1.8	3.5	1.6	2.8	3.0	2.0	33.3%
8 Textron Inc.	4.1	4.6	4.3	3.9	3.7	3.2	3.8	4.0	3.9	3.6	4.6	3.2	3.9	3.9	3.3	15.4%

Mean	4.3	2.5	3.3	3.3	2.9	13.8%
Median	4.4	1.9	3.0	3.2	2.6	13.4%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical inventory turnover rate ("ITR") benchmark (based on the median rate from 2004 to 2013) and the current ITR based on 2014 as follows: $((\text{Median ITR} - \text{Current ITR}) / \text{Median ITR})$. If the current ITR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 5

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
AEROSPACE MANUFACTURING INDUSTRY
FIXED ASSET TURNOVER RATIO ANALYSIS**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004 to 2013				2014	Indicated EO	
											Max	Min	Mean	Median			
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 2)	(Note 2)	(Note 2)	(Note 2)	(Note 1)	(Note 3,4)	
														(A)	(B)	(A-B/A)	
1	Bombardier Inc.	4.4	4.5	4.5	4.9	7.5	12.0	12.1	9.8	8.7	9.1	12.1	4.4	7.7	8.1	9.7	0.0%
2	Magellan Aerospace Corp.	2.0	2.1	2.2	2.3	2.6	2.6	2.9	2.6	2.3	2.3	2.9	2.0	2.4	2.3	2.5	0.0%
3	United Technologies Corp.	7.3	7.9	8.4	9.3	9.4	8.3	8.3	8.9	7.8	7.2	9.4	7.2	8.3	8.3	7.2	13.5%
4	Safran SA	13.4	8.4	6.0	5.3	5.3	5.0	5.0	5.0	5.4	5.6	13.4	5.0	6.4	5.3	5.6	0.0%
5	Esterline Technologies Corp.	4.7	5.9	6.0	6.2	6.9	6.0	5.7	5.4	5.2	5.2	6.9	4.7	5.7	5.8	5.9	0.0%
6	Airbus Group NV	2.6	2.6	2.8	2.8	3.4	3.5	3.5	3.6	3.8	3.7	3.8	2.6	3.2	3.4	3.8	0.0%
7	Heroux-Devtek Inc.	2.3	2.5	2.5	2.7	2.6	2.4	2.2	2.5	1.7	2.2	2.7	1.7	2.4	2.4	3.2	0.0%
8	Textron Inc.	4.9	6.5	6.6	6.7	7.0	5.2	5.4	5.7	5.9	5.6	7.0	4.9	5.9	5.8	5.9	0.0%

Mean	7.3	4.1	5.3	5.2	5.5	1.7%
Median	7.0	4.6	5.8	5.6	5.7	0.0%

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) The Max, Min, Mean and Median values are based on the historical rates of the Guideline Companies from 2004 to 2013.

(3) Indicated EO for each of the Guideline Companies was measured by calculating the differential in the historical fixed asset turnover rate ("FATR") benchmark (based on the median rate from 2004 to 2013) and the current FATR based on 2014 as follows: ((Median FATR - Current FATR) / Median FATR). If the current FATR was higher than the benchmark, a differential of 0.0% was calculated as the indicated EO.

(4) The overall rate of EO chosen was based on the median of the range of indicated EO values of the Guideline Companies.

Schedule 6

MUNICIPAL PROPERTY ASSESSMENT CORPORATION ANALYSIS OF ECONOMIC OBSOLESCENCE AEROSPACE MANUFACTURING INDUSTRY PRICE TO BOOK RATIO ANALYSIS

<u>Price to Book Value Ratio at May 25, 2015</u>	<u>(Note 1)</u>
1 Bombardier Inc.	108
2 Magellan Aerospace Corp.	2.2
3 United Technologies Corp.	3.4
4 Safran SA	4.4
5 Esterline Technologies Corp.	1.9
6 Airbus Group NV	7.1
7 Heroux-Devtek Inc.	1.5
8 Textron Inc.	3.0

Maximum	108.0
Minimum	1.5
Mean	16.4
Median	3.2
S&P / TSX Industrials Sector Index at May 25, 2015 (Note 1)	3.7
Indicated EO (Note 2)	<u>13.5%</u>

Notes:

(1) Source: Thomson Reuters Eikon database.

(2) Indicated EO was measured by calculating the differential in the median of the range of price to book value ratios of the Guideline Companies and the weighted average price to book value ratio of the S&P/TSX Industrials Sector Index.

Schedule 7

**MUNICIPAL PROPERTY ASSESSMENT CORPORATION
ANALYSIS OF ECONOMIC OBSOLESCENCE
AEROSPACE MANUFACTURING INDUSTRY
INDUSTRIAL CAPACITY UTILIZATION RATES - TRANSPORTATION EQUIPMENT MANUFACTURING (NAICS 336)**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)	(Note 1)
Transport Equipment Manufacturing	85.0	87.3	86.2	86.8	66.8	66.7	80.6	83.5	90.8	87.0	92.0

Maximum - 2004 to 2013	90.8
Minimum - 2004 to 2013	66.7
Median - 2004 to 2013	85.6
Five Year Average - 2009 to 2013	81.7
Ten Year Average - 2004 to 2013	82.1
2014	92.0
Indicated EO (Note 2)	<u>0.0%</u>

Notes:

(1) Source: Statistics Canada - CANSIM Table 028-0002

(2) Indicated EO was measured by calculating the differential in the median capacity utilization rate from 2004 to 2013 and the current rate based on the average capacity utilization rate for 2014.