

# SHORT TERM MACHINERY FORECAST 2017

# NORTH AMERICA

SEPTEMBER 2017



**YENGST ASSOCIATES**

Machinery Market Research

## INTRODUCTION

This is the 36<sup>th</sup> year that we have provided our clients a Short-Term Machinery Forecast for the North American Service. We use this opportunity each year to reflect back on past years' performances, as well as to evaluate where we are after six or seven months of the current year have passed and to make adjustments to our projections for the current year and the year that follows, in this case 2017. This short-term forecast should be thought of primarily as an update to our Long-Term Machinery Forecast dated March 2016. We have made corrections and revised certain production and sales figures from previous forecasts based on more precise information that has come to our attention over the past six months. Likewise, we keep looking forward for our clients to see if we need to change projections based on the economic situation both at home and abroad.

The objective of this forecast is to address those topics that most closely affect machinery demand in North America. Macro-economic activities within the U.S. and Canada are constantly changing and our job is to address them and to provide our thinking as to how they will impact the machinery industry over the next year.

### ❖ MACHINERY MARKETS

This section serves as an update to our North American Database, with previous and forecasted unit production and sales figures by machine type for the years 2013 through 2017. We have segmented machinery to include Earthmoving, Material Handling, Forestry, Agriculture, and Other Products.

### ❖ THE U.S. ECONOMY

In this section, Yengst Associates reviews key economic indicators, such as gross domestic product (GDP), interest rates, inflation (consumer price index – CPI), unemployment, and monetary policy.

### ❖ INDUSTRY DEMAND FACTORS

We look at the most important demand factors affecting construction markets including housing starts and construction spending; farm income, farm cash receipts, and net farm income are studied relative to agricultural machinery markets; raw material uses, commodity prices, and mining activities generally are examined; and other off-highway machinery product for forestry and highway construction are addressed so that we can keep abreast of where those markets might be trending.

### ❖ THE CANADIAN ECONOMY

We also look closely at key economic indicators and industry demand factors in the Canadian economy, focusing on Canadian GDP, inflation, the country's employment situation, and construction activities.

## EXECUTIVE SUMMARY

The U.S. and Canadian economies are struggling, yet there is one major positive factor keeping the machinery industry moving in North America and keeping

business from being much worse than it otherwise would be. **Construction spending**, as moderate as it might be, is one key element that everyone needs to be thankful for. Along with it, we have a growing and strong rental environment that is holding up despite the turmoil brought on in 2015 from the declines relating to the oil and gas industry downturn. While growth in construction is subdued, it is more positive than negative. Housing starts are approaching 1.25 million units annualized for 2016, and moving towards 1.3 million new houses in 2017. This is a far cry from the 0.5 million units recorded seven years ago. For those looking for 2.0 million units someday soon like we had in the boom years, forget it! Those days are past for a long time.

However, private non-residential construction is improving and there are some hopes that public non-residential spending will finally show its face and get moving again soon. Our spending on infrastructure at all government levels has been anemic in recent years and much has fallen in disrepair and needs fixing. None of this spending is exuberant like it might be with a better economy, but the good news is that it is not falling over a cliff or even looking close to that scenario. With public sentiment in its current mood of unrest, politicians could see why negative approval ratings are so low for the work coming from Washington. The uncertainties associated with the election process we are now experiencing in the United States are holding a lot of decisions back and reducing the number of “buyers” to “sideliners” until the air is cleared.

The big negatives we are still contending with since our last Forecast are weakness in the agricultural sector and a severe slump in mining. Both of these areas are having their respective problems because of very low commodity prices, both for grain products in row crop farming and minerals in mining. We do not see much change for the better on the grain front this year, but next year could bring some improvement. We are looking for modest increases in sales of big equipment, which have been severely hurt by the weak commodity prices and reduced farm income. On the mining side, our near-term outlook is for continued weakness in mineral prices and only moderate growth moving forward 12 – 18 months from now, which means more of the same for most or all of 2017.

Global markets are having economic weakness problems in 2016, which is evident in many of the primary markets we watch. The EU overall is growing, but at a very moderate rate at best, and some countries within Europe are showing little or no growth in sales of machinery along with lackluster economic improvement. We are watching Italy, for example, closely after what has happened with the “Brexit” vote in the UK, which removed the UK from the EU earlier this summer. Italy is going through a referendum in either October or November that could spell trouble for the EU if not passed, as the Italian Prime Minister, Renzi, is putting his job on the line with this vote. A “yes vote” will lead to a streamlined Italian legislature and eventual economic reforms that are currently caught in on-going legislative gridlock. A “no” vote could eventually lead to “Italexit”, as the current prime minister will be out, and no one knows how the electorate will move when the next vote comes up.

China is making a major transition from a manufacturing and heavy industry economy to consumer spending and services. This change is still a “work in progress” and may take a few more years to gel. Meanwhile, China, in our opinion, will not require the same levels of commodities it used during the boom economic years. It’s import policies will change and we now know that some imports have had tariffs reduced to increase that aspect of its trade with the outside world. China continues to grow, but at a much lower rate of 5 – 7 percent annualized compared to levels exceeding 10 percent seen a few years ago. We expect to see the country continue in its current direction for a number of years ahead, which means a much lower level of consumption of minerals and raw materials from the outside world.

Brazil is a country heavily dependent on exporting commodities both agricultural and mineral to overseas markets. Without this revenue, Brazil is not keeping a balanced budget. Everyone knows that Brazil is in a serious recession and has been for two years; the country may need another year of depressed trade and slow economic conditions before seeing growth once again. Work to reduce inflation and high unemployment are first and those issues are not solved easily or quickly. Just how the government will move on these problems is not clear at this time, but we are convinced the country will get back on a more favorable economic track sometime in the next two years, with more positive results after that.

We could go on, but needless to say, the global economic situation is not very robust and is likely not going to be altered much in the next year or so. We are optimistic about our U.S. economy being positive over the near term and we are not overly worried about a recession or depression as some pundits have whined about. We are going to continue having a low-interest environment and virtually nothing is going to change much until we pass beyond the elections in November 2016, after which some of our uncertainties could be removed. A slow-growth economy is what we have and what we continue to expect until reform comes from the government.

## **MACHINERY SALES/PRODUCTION THROUGH 2017**

We divide the machinery market into five segments: **Earthmoving Equipment**, **Material Handling Equipment**, **Forestry Equipment**, **Agricultural Equipment** and **Other Equipment**. Equipment coverage by type of equipment is shown below. Forecasted data includes estimated unit sales and production for all North American off-highway machinery markets covered by Yengst Associates. Estimated figures are based on the most up-to-date machinery sales information available to our analysts at the time of publication, including information relative to the various factors of demand that drive the aforementioned markets.

## EQUIPMENT COVERAGE

As shown below, our product coverage is very comprehensive, accounting for a total of 35 different types of equipment. As part of our *North American Subscription Service*, more detailed analyses of these products can be found in our regularly updated *Equipment Analysis* reports.

### Earthmoving Equipment

Backhoe/Loaders	Crawler Dozers	Articulated Haulers	Skid-Steer Loaders
Compact Backhoe/Loaders	Crawler Excavators (>6mt)	Rigid Haulers	Wheel Loaders
Crawler Loaders	Wheeled Excavators	Motor Graders	
Compact Track Loaders	Mini-Excavators (0-6mt)	Scrapers	

### Material Handling Equipment

Aerial Work Platforms	Hydraulic Cranes	Cable Cranes	Rough-Terrain Lift
- Scissor Lifts	- All-Terrain	Industrial Lift Trucks	- Vertical Mast
- Boom Lifts	- Truck	- Internal Combustion	- Telescopic
	- Rough-Terrain	- Electric	
	- Industrial		

### Forestry Equipment

Wheeled Feller Bunchers
Wheeled Log Skidders
Wheeled Forwarders
Tree Harvesters (All Types)

### Agricultural Equipment

Agricultural Tractors
Harvesting Combines

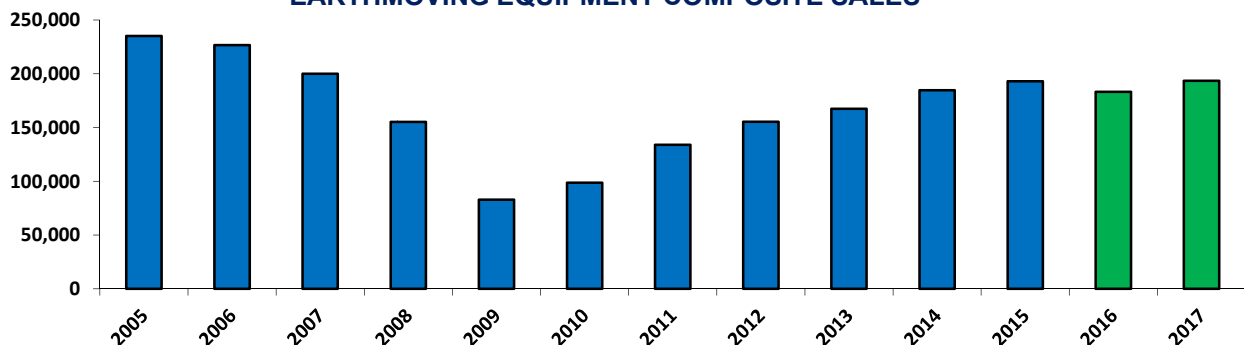
### Other Equipment

Asphalt Pavers
Ride-on Compactors
Landfill Compactors
Portable Air Compressors

## EARTHMOVING EQUIPMENT

As we stated in our Long-Term Forecast in February, we are in a “wait and see” environment. We have national elections coming in early November that will make a difference in how our nation continues to flow and grow. None of us knows absolutely what programs and plans will come out of the candidates that are up for election, but we do see vast differences in the policies and programs presented. Those differences are what will change the outlook for another four-to-eight years. In this Short-Term outlook, we are continuing to take a relatively middle of the road approach to what we see ahead foregoing changes that are likely to emanate after a new administration is established in late January 2017.

### EARTHMOVING EQUIPMENT COMPOSITE SALES



The chart provides a visual road map of what we have experienced over the past 10 years and what we are anticipating will happen with Earthmoving Machinery sales this year and next, shown in green. In many respects, we have had a decent year in 2016 relative to demand compared to what many in overseas markets are experiencing. The chart shows that we are hitting a “sales pothole” that will result in a mild 5 percent downturn in sales in North America, compared to 10 – 20 percent declines in sales being registered in markets like Brazil and generally reduced demand in a number of other overseas markets. Furthermore, the sales history for this type of equipment is, of course, cyclical having had a pretty sound drubbing in 2009 during the recession, followed by several years of recovery through 2015.

Small and compact equipment have led the way during the recovery years, with the rental equipment industry providing much of the capital investment needed to help the growth move along. Mid-sized and large equipment have experienced little or no growth or have lost ground in the market in recent years, some as a result of slowing in the mining industry and perhaps more because of the lack of large commercial, non-residential projects. There was definitely a slowing in growth of all equipment in 2015 with the exception of compact products such as mini-excavators and compact track loaders.

**Moving forward, 2016 is going to be negative for sales**, but the downturn is not too severe, again because compact equipment sales volumes are holding up better than larger equipment. The above chart is definitely somewhat deceiving with only a few products having any growth in sales and most dropping x–x percent, not just x percent. More specifically, sales declines are expected to range from minus x percent (wheel loaders), minus x percent (hydraulic crawler excavators), minus x percent (crawler dozers), and minus x percent (motor graders), which explains why the chart does not tell the full story. Again, larger and mid-sized equipment sales are soft, while smaller and compact equipment sales are flat or down, but not down as much as the bigger equipment.

As for 2017 sales, the picture is modestly improved for most products, as we believe demand will show some positive growth after the election uncertainties are out of the way and buyers of equipment return to more normal patterns of business behavior. Sales in the North American market are currently expected to grow about 4 percent during 2017, which should be a relief for OEMs that are currently reeling from slow growth in many other markets globally. We believe the turnaround, while not robust, will be welcome to most suppliers. We see no real change or improvement for sales of mid-sized and larger machinery for 2017, a larger portion of the growth coming from small and compact products and smaller sizes of most products.

**TABLE 1: EARTHMOVING EQUIPMENT SALES AND PRODUCTION THROUGH 2017**

Standard Backhoe / Loaders (Units)	2013	2014	2015	-----Forecast-----		Percent Chg (%)	
				2016	2017	16 - 15	17 - 16
Production							
Sales							

<b>Compact Backhoe Loaders</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Crawler Dozers</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Crawler Loaders</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Compact Track Loaders</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Crawler Excavators</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Wheeled Excavators</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Mini-Excavators</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Articulated Haulers</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Rigid Haulers</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Motor Graders</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Scrapers</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							
<b>Skid Steer Loaders</b>				-----Forecast-----		<b>Percent Chg (%)</b>	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production Sales							

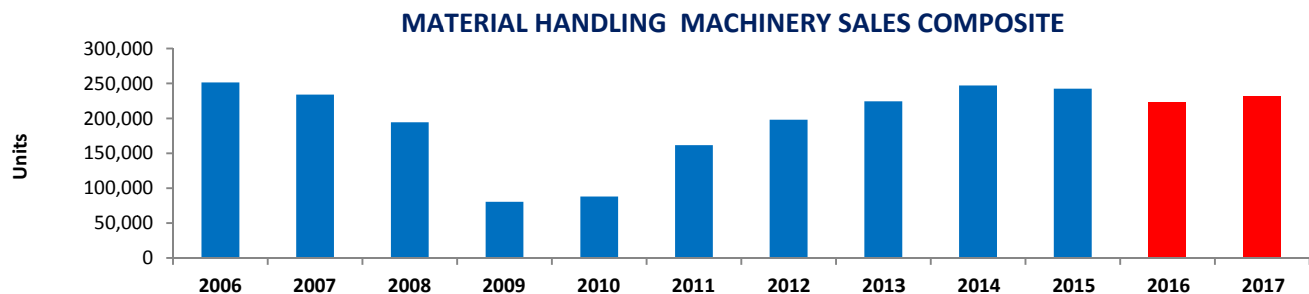
Wheel Loaders <80hp				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							
Wheel Loaders >80hp				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							
Wheel Loaders All Sizes				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							
Composite: Earthmoving Equipment				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							

Source: Yengst Associates

Production levels are expected to decline about 3 percent in 2016 from the peak levels achieved in 2014 and 2015. In 2017, we project production levels will improve 4 - 5 percent, which is in line with our sales expectations. Overseas exports will not improve in 2017, leaving any real positive move in output to be a factor of domestic demand. We look for a strong dollar gain in 2017, which will continue to hinder exporting, and we expect to see little growth in most overseas markets where exports are commonly made from North America.

## MATERIAL HANDLING EQUIPMENT

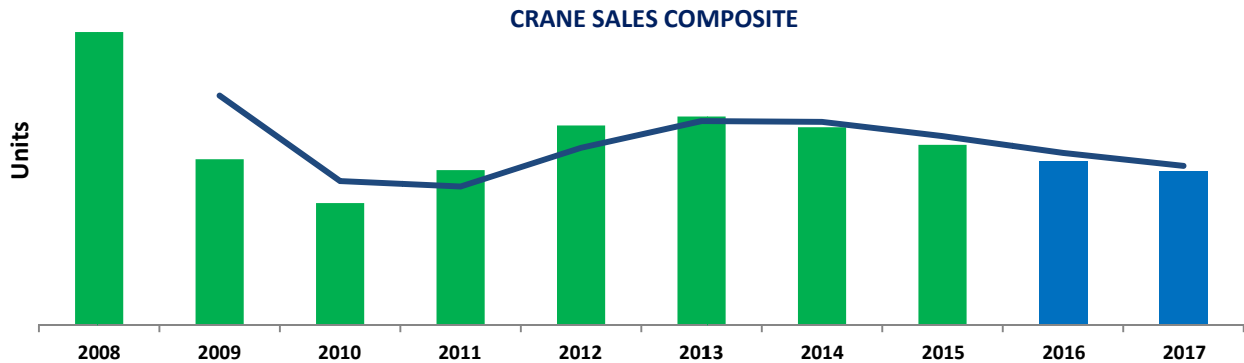
Material Handling Equipment sales are more complex to forecast, particularly in view of the downturn in the energy sector and slowing in rental equipment industry capital expenditures, which has been on-going for more than a year now. The chart on the next page illustrates what looks like a magnificent recovery after the recession in 2009, which it has been for certain machines such as work platforms and industrial lift trucks. These machines comprise a large unit volume of the machines being sold in the Material Handling segment. What is happening with cranes and rough-terrain telehandlers is another matter, which we need to address.



Crane demand in North America is stagnant as this forecast is being prepared. Sales of lattice boom cranes, all-terrain cranes, and rough-terrain cranes, for



example, are not growing, and, in fact, are declining. In the chart below, we have included crane sales as a composite showing the downturn in sales that has occurred since 2013 and continued into this year. While demand has been slowing in the marketplace, we project even further decline in 2017, as shown. Beyond 2017, we believe crane sales will start to recover moderately through 2020, the improvement largely dependent on how non-residential construction spending for commercial buildings and other projects requiring cranes develops in the next year or so along with the economy, which is also a major factor affecting sales.



Aerial work platform sales have been weaker during the past 18 months. We see that product area declining about x-x percent in 2016, yet improving modestly in 2017 by about x-x percent overall, as shown in the table below. We look for rental companies to once again pick up their capital spending in 2017 as housing and other aspects of construction gain strength to higher levels.

**TABLE 2: MATERIAL HANDLING EQUIPMENT SALES AND PRODUCTION THROUGH 2017**

<b>Aerial Work Platforms – Scissor Lifts</b>				<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
<b>(Units)</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>16 - 15</b>	<b>17 - 16</b>
<b>Production</b>							+2.1
<b>Sales</b>							+4.4
<b>Aerial Work Platforms – Boom Lifts</b>				<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>16 - 15</b>	<b>17 - 16</b>
<b>Production</b>							
<b>Sales</b>							
<b>Lattice Boom Cranes</b>				<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>16 - 15</b>	<b>17 - 16</b>
<b>Production</b>							
<b>Sales</b>							
<b>All-Terrain Hydraulic Cranes</b>				<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>16 - 15</b>	<b>17 - 16</b>
<b>Production</b>							
<b>Sales</b>							
<b>Rough-Terrain Hydraulic Cranes</b>				<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>16 - 15</b>	<b>17 - 16</b>
<b>Production</b>							
<b>Sales</b>							

<b>Hydraulic Truck Cranes</b>				-----Forecast-----		Percent Chg (%)	
2013	2014	2015	2016	2017	16 - 15	17 - 16	
<b>Production</b>							
<b>Sales</b>							
<b>Hydraulic Industrial Cranes</b>				-----Forecast-----		Percent Chg (%)	
2013	2014	2015	2016	2017	16 - 15	17 - 16	
<b>Production</b>							
<b>Sales</b>							
<b>Industrial Lift Trucks (IC- Sit Down)</b>				-----Forecast-----		Percent Chg (%)	
2013	2014	2015	2016	2017	16 - 15	17 - 16	
<b>Production</b>							
<b>Sales</b>							
<b>Industrial Lift Trucks (Electric – Sit Down)</b>				-----Forecast-----		Percent Chg (%)	
2013	2014	2015	2016	2017	16 - 15	17 - 16	
<b>Production</b>							
<b>Sales</b>							
<b>RT Lift Trucks (Vertical Mast)</b>				-----Forecast-----		Percent Chg (%)	
2013	2014	2015	2016	2017	16 - 15	17 - 16	
<b>Production</b>							
<b>Sales</b>							
<b>RT Lift Trucks (Telescopic)</b>				-----Forecast-----		Percent Chg (%)	
2013	2014	2015	2016	2017	16 - 15	17 - 16	
<b>Production</b>							
<b>Sales</b>							
<b>Composite: Material Handling Equipment</b>				-----Forecast-----		Percent Chg (%)	
2013	2014	2015	2016	2017	16 - 15	17 - 16	
<b>Production</b>							
<b>Sales</b>							

Source: Yengst Associates

Sales of industrial lift trucks have done well in recent years and we look for sales to drop very slightly in 2016, and then recover in 2017. Demand for lift trucks is largely dependent on the strength and changes in the economy, which in 2016 has been slowing to a x percent growth rate (stagnant), but which we look to show improvement in 2017 to approximately x percent. Production levels for all machines will closely follow demand. Exports will continue to be very low relative to the past for the same reasons we have already discussed earlier.

## FORESTRY EQUIPMENT

The forestry equipment segment is shown in Table 3, which summarizes our projections through 2017 for various products. Forestry equipment sales have grown since the recession and peaked in 2014 and 2015. See the composite sales for the segment below. We see very little change in sales of this equipment in 2016 versus 2015 and higher sales once again in 2017. We are not expecting sales of this machinery to regain the levels of demand seen 10 years ago, and exports will remain very weak in our opinion until overseas markets show economic strength. Production of forestry equipment will closely follow demand, as exports are very small.

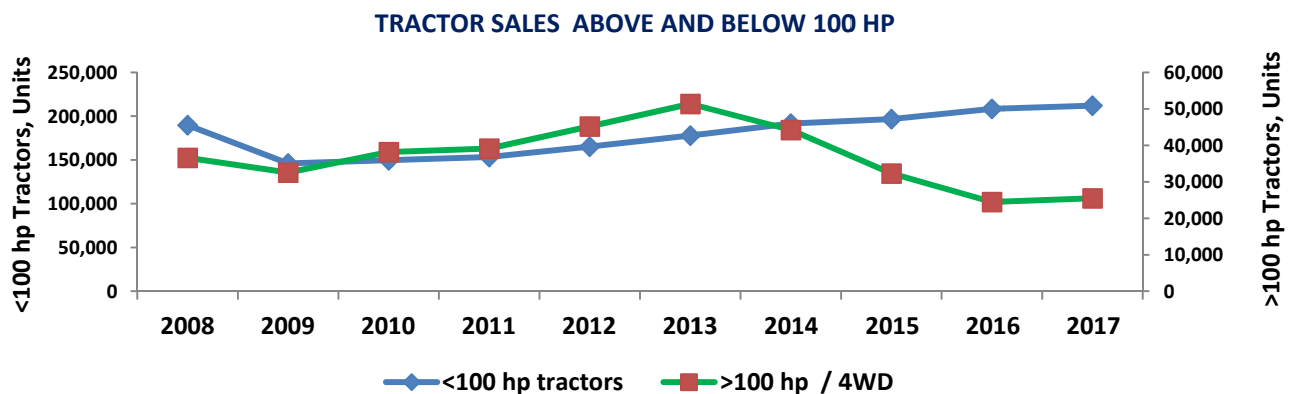
TABLE 3: FORESTRY EQUIPMENT SALES AND PRODUCTION LEVELS THROUGH 2017

Wheeled Feller Bunchers (4-Wheel)				-----Forecast-----		Percent Chg (%)	
(Units)	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							
Wheeled Log Skidders				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							
Wheeled Forwarders				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							
Tree Harvesters (All Types)				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							
Composite: Forestry Equipment				-----Forecast-----		Percent Chg (%)	
	2013	2014	2015	2016	2017	16 - 15	17 - 16
Production							
Sales							

Source: Yengst Associates

## AGRICULTURAL EQUIPMENT

Demand for tractors is mixed, particularly since small tractor sales are growing at a nice positive rate, while sales of the larger tractors rated over 100 hp are falling much like they did in 2015. The chart illustrates our point. Smaller tractor sales (blue) have been growing every year since 2009, while large tractors had a peak in sales in 2013 and have declined at more than x0 percent annually for several years. In 2016 we expect small tractor sales to increase about 6 percent; **large tractor demand is off about x percent**. A small turnaround in sales is anticipated for large tractors in 2017 although it will be no more than a stabilizing of the decline seen over the past three years.



Harvesting combine sales have not gone well for the past three years very much like sales of large tractors. Total sales in 2015 were 7,330 units, down 28

percent for the year versus 2014 sales. We expect sales in 2016 to drop another x percent and then stabilize at about x,000 units in 2017.

**TABLE 4: AGRICULTURAL EQUIPMENT SALES AND PRODUCTION THROUGH 2017**

<b>Agricultural and Industrial Tractors</b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						
<b>Harvesting Combines</b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						
<b>Composite: Agricultural Equipment</b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						

Source: Yengst Associates

## OTHER EQUIPMENT

Other Equipment is comprised of road building products and other construction machinery that is difficult to categorize any other way including asphalt pavers, compactors, and portable air compressors. We look for some downturn in sales for this product category in 2016 along with production cuts in most of the machinery, as shown. A modest upturn in sales is projected for 2017, which is self-explanatory. Production levels in 2017 will also return moderately as well, assuming some improvement in highway spending for the year.

**TABLE 5: OTHER EQUIPMENT SALES AND PRODUCTION THROUGH 2017**

<b>Asphalt Pavers</b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						
<b>Construction Compactors</b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						
<b>Landfill / Embankment Compactors<sup>1</sup></b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						
<b>Portable Air Compressors</b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						
<b>Composite: Other Equipment</b>			<b>-----Forecast-----</b>		<b>Percent Chg (%)</b>	
2013	2014	2015	2016	2017	16 - 15	17 - 16
<b>Production Sales</b>						

Source: Yengst Associates

Uncertainties continue to prevail with highway and road construction funding. Where and how much funding will come is still a question a year after the administration finally passed a new long-term highway spending bill in late 2015, which we expected to ease the funding problem for highway and bridge repairs by now. As of June 2016, federal spending was down about 5 percent from a year ago, and the trend in spending had generally been declining for the past year. Just how long it will take before highway spending gets back on track is hard to say.

## OVERVIEW

This report reflects the demands of the North American construction machinery markets going through 2017. As we have discussed in prior reports, developed countries have financed much of the economic expansion of the last 30+ years with debt. Record low interest rates for the better part of the last five or more years have made this even more attractive. However, growth based on debt is not true growth; it merely pushes demand forward rather than create organic, longstanding demand. In time, the debts have to be paid off and at that will impede growth perhaps causing the global economy to slow down further. The repayment of debt could impede the global economy for many years depending on what type of debt is used to finance earlier purchases.

In our 2016 Long-Term Forecast, we listed certain variables that play into the health of the U.S. and global economies and drive demand for off-highway machinery. Some of these variables are covered below:

- ✘ **Low oil prices** are still a major problem for all industries, markets and locales associated with oil extraction and production. Oil is plentiful in certain geographical regions and while those regions were growing rapidly for many years, they have taken a major hit since 2014. Oil stocks are plentiful and production has not abated much except for in North America where there are other resources that contribute to the economy.
- ✘ **Energy** and its cost are often not included in discussions about the economy and its lack of growth. In fact, energy is excluded from inflation calculations.
- ✘ **Debt** has replaced OPEC oil as the most important global commodity. A lot of money has been injected into the global economy since the recession and this, combined with low inflation rates, has resulted in long-term low interest rates and ever increasing debt loads for individuals and corporations. **High debt levels** are here to stay and will negatively impact the global economy for the unforeseeable future. As discussed above, growth has been a direct result of debt rather than investment. This has occurred at all levels of the economy from individuals to corporations to government bodies.
- ✘ The **strong U.S. dollar** has made it difficult for U.S. manufacturers to sell their goods abroad and has negatively affected economic growth. U.S. made goods are even more expensive now and buyers have other more economically desirable options when making machine purchases. This is one of the consequences of companies expanding manufacturing facilities globally; it helps the corporate bottom line as currency values fluctuate while it negatively impacts regional economies.

- ✧ **Employment** levels continue to look good on paper but anecdotally the job market is a difficult one. In the U.S., the unemployment rate on July 31, 2016 was 4.9 percent and 255,000 jobs were added for the month. Many of the added jobs, however, were in the service sector which traditionally pays lower wages with fewer benefits than non-service economy jobs.
- ✧ **Political, social and economic turmoil are rife** in certain global regions such as China, much of Latin America and part of the EU. China and Latin America have a lot of natural resources and their economies are suffering because of low commodity prices. This will continue until prices increase which likely won't happen until there is increased demand for the minerals.
- ✧ **The mining industry** is global and many countries' economies are resource driven. Brazil, Chile, and Australia are suffering from the collapse of mineral prices and the losses are filtering through their respective economies.
- ✧ **Immigration** is a major problem in the EU. The EU is struggling to absorb over 1.3 million refugees, which started flooding Western and Eastern Europe in 2015 with the flow continuing to date. Local populations are unhappy with these new migrants as they are seen as taking jobs away from citizens and lowering everyone's standard of living.
- ✧ **"Brexit"** – The people in the U.K. solidly voted to exit the Eurozone. It will take time to see how it all plays out however we don't expect any dramatic implications as to trade as the U.K. is the third largest economy in the EU, and recently the best performing economy.
- ✧ The **European banking system** and central banks globally are severely stressed as high debt levels and lagging economies make it difficult, if not impossible, for these debts to be paid off. The EU is using much the same monetary policies seen in the U.S. in recent years.

Questions this forecast strives to answer are: Is it possible for the U.S. economy to enjoy modest economic growth while much of the world is experiencing: slow growth; low/stagnating wages; strong U.S. currency? Historically the U.S. economy has not done well when both the Eurozone and Japanese economies have been weak. Currently India is the only large country seemingly growing. China continues to exhibit slower growth, which means lower use of commodities and continued problems for countries exporting to China. The variables outlined above have to be considered, as well as others that were not included.

We are cautiously optimistic about the U.S. economy. It is currently limping along at a one percent rate dating back one year to mid-2015. For the past 7 – 8 years, GDP has averaged roughly 1.3 percent growth annually, which is far below normal growth trends in the past. The administration likes to paint a more positive picture of how all is working, but the numbers do not bear out any of the rhetoric. As for the effect on demand for off highway equipment in 2016, we have already shown earlier that we look at markets as being in a modest slump in general terms, with a few products holding up with 2015 levels in sales and a number of products getting hit harder with lower sales caused by slower demand.

As for 2017, we are taking a slightly more optimistic outlook based on the fact that the national election will be past us, which we believe today is causing a lot

of uncertainty in the marketplace for various reasons. Second, construction spending continues to grow moderately along with housing construction and certain aspects of non-residential construction, which are fueling the rental equipment industry, the largest buyer of machinery, bar none. We will more likely make revisions to our outlook after we see how the national elections turn out in November.

## THE U.S. ECONOMY

The health of the U.S. economy hinges on wages, actual employment levels and capital investment particularly infrastructure spending. We include highway, roads, bridges, rail and air transportation and power transmission in our reading of infrastructure. To date none of the above has improved sufficiently to move the economy forward, while politics are adding another dimension this year that typically help the economy but are not in 2016.

The first step in producing this forecast is to compile published economic metrics produced by the U.S. government, its agencies and certain other trade associations as outlined below. It is important to note that certain government and other data gathering associations have changed their methods of calculating their numbers for certain metrics, such as unemployment and existing home sales data, over the last several years. We think that they do this to make the results appear better than they actually are. As a result, we simply look to these metrics as guidance as to where the economy is headed both short- and long-term.

**TABLE 6: SELECT U.S. ECONOMIC INDICATORS**

	Real GDP	Core CPI – U 1982-84=100		Prime Rate	Unemployment Rate in December
	% Change Y/Y	Non-Seasonally Adj. Annual	% Change Y/Y	End of Year	% at Year-End (Seasonally Adj.)
<b>Actual</b>					
2004	+3.8	188.9	-2.2	5.50	5.4
2005	+3.3	195.3	+3.4	7.50	4.9
2006	+2.7	201.6	+3.2	8.25	4.4
2007	+1.8	207.3	+2.8	7.25	5.0
2008	(0.3)	215.3	+3.9	3.25	7.3
2009	(2.8)	214.5	-0.4	3.25	9.9
2010	+2.5	218.1	+1.7	3.25	9.3
2011	+1.6	224.9	+3.1	3.25	8.5
2012	+2.2	229.6	+2.1	3.25	7.9
2013	+1.7	235.0	+2.4	3.25	6.7
2014	+2.4	238.8	+1.6	3.25	5.6
2015	+2.6	244.5	+2.4	3.50	5.0
<b>Forecast</b>					
2016	<b>+1.1</b>	<b>247</b>	<b>+2.0</b>	<b>3.50</b>	<b>4.5</b>
2017	<b>+2.0</b>	<b>252</b>	<b>+2.0</b>	<b>3.50</b>	<b>4.5</b>

Source: U.S. Dept. of Commerce/BEA; Bureau of Labor Statistics; mortgage-x.com; Yengst Associates, Inc. \*Actual data is based on latest available at time of publication.

Government “fundamentals”, indicate that the U.S. economy is growing, albeit at a slow rate. When we look around, however, we don’t see much change over the last several years. We are holding our breath that the U.S. economy keeps

moving forward at a minimum of the lackluster rate it has been for the last 18 months. As indicated above, our forecast of GDP allows for 1.1 percent growth in 2016 and a small growth of 2.0 percent in 2017. Inflation is very low at about 2 percent or less most of the time and unemployment is under 5 percent. These factors are likely not going to digress much during the next 18 months.

**Household spending** accounts for approximately 70 percent of U.S. economic growth. Second quarter 2016 **GDP** was an anemic 1.0 percent annualized growth following an even more anemic 0.8 percent growth in the first quarter. The FED had forecast 2016 GDP growth of 2 percent, which looks more unlikely each month that passes. It reflects the stall of construction activity through reduced residential investment growth and lower levels of public sector investment. Investment spending comprised of residential, equipment, software, nonresidential structure investment, and changes to private inventories is one of the main contributors to GDP.

Given the rate of growth in the first half of the year, second half growth is more likely to range between 1 – 2 percent at best, which will put GDP growth for the year close to one percent, which is not only stagnant, but weak by all standards for the United States.

**Core CPI** numbers are virtually meaningless for our purposes. It does not include food and energy costs, two factors that have fluctuated dramatically over the last several years. Increased costs in food limits the amount of discretionary spending consumers have available despite lower energy costs. We expect core CPI to stay below the government target of 2 percent in 2016 and 2017. The government is able to reach its two percent target by not including those items that are most susceptible to inflation and price increases in that figure. If only consumers with stagnant wages were able to avoid them like the government.

July 2016 total nonfarm payroll employment increased 255,000 and the **unemployment rate** stayed at 4.9 percent. Private payrolls increased 217,000 and public payrolls increased 38,000. Job gains were primarily in professional and business services, healthcare and financial activities. Mining employment continued its downward trend. The U.S. Department of Labor reported that the four week moving average for seasonally adjusted **unemployment** claims was 260,250 claims in the week ending July 30, 2016. This marks the 74<sup>th</sup> consecutive week of claims below 300,000 claims, the longest streak since 1973. The **work force participation rate**, the percentage of working age population in the labor force, was 62.8 percent. Traditionally the labor force participation rate has been between 67 and 68 percent. It hasn't been over 65 percent since April 2010.

**Business investment** in the second quarter of 2016 fell at the sharpest rate in four quarters. Much of this was due to continued slowdowns in the oil and mining sectors. Mining production, including oil extraction, declined 21 percent year-over-year. Non-residential structural investment has declined six of the last eight



quarters partly due to capacity utilization. Residential investment also declined month-over-month for the first time since the first quarter 2014.

**Foreign direct investors** spent a record amount, \$420.7 billion, to acquire, establish or expand U.S. businesses in 2015. This represented a 68 percent increase over 2014 spending. A U.S. business is considered “acquired” if a foreign entity acquires 10 percent or more of a voting interest either directly or through an existing U.S. affiliate. Approximately 97 percent of 2015 investment was in acquiring existing businesses. This, in our view, does not contribute to growth it is merely moving pieces around the same game board. Expenditures to establish new businesses, a more important number as it relates to the health of the U.S. economy were \$11.2 billion. The remainder, \$1.4 billion, was spent on expanding existing foreign owned businesses.

Outstanding student and motor vehicle loans reached record highs in the second quarter 2016, \$1.4 trillion and \$1.1 trillion respectively. We see no indication that these debt levels will taper off. Furthermore, every payment that is made on this debt is money taken away from investment in other areas of the economy, for example, housing. Motor vehicle debt is shorter term than student load debt, which now can be refinanced to 30 year terms. In other words, for many, student loans have replaced mortgages, which cause our younger generations to be less able to purchase housing as in the past. This is a problem as residential construction has traditionally been a large driver of the American economy.

## **INDUSTRY DEMAND FACTORS**

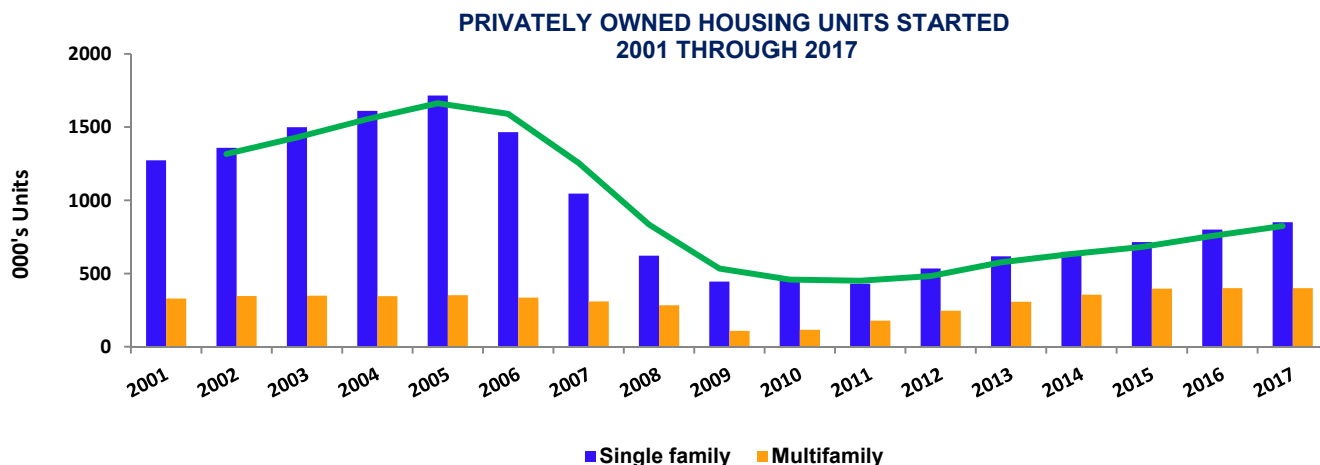
We outlined an extensive list of variables that affect the off highway equipment industry in the Overview at the beginning of this discussion. In this section, we will highlight some important factors in the U.S. economy that affect demand for off highway machinery.

A great deal of off highway machinery is sold into mining applications, including the oil and gas extraction and production industries. Prices for most mineral commodities have plummeted since 2014 and as a result, levels of exploration, extraction and production have fallen accordingly. The IAEA warned, in its July Oil Market Report, about shockingly high levels of refined products, including gas, diesel and heating oil, in storage globally. Refinery production in the first quarter of 2016 was 60 percent higher than refined product demand which contributed to higher inventories. The mining industry business model is changing because of depressed prices and demand for resource products. Mining companies have been downsizing personnel, shutting mines and closing mining equipment operations in response to depressed demand. An estimated one third of US oil companies are in default. We expect it will be several years before the mining sector will again be a growth sector.

Demand for off highway equipment correlates closely with construction spending. Construction spending is reported in two segments: private vs public and residential vs non-residential spending. We are particularly interested in non-residential spending as that is where much of the larger off high machinery is

found. Overall, construction spending has been increasing for the last several years with much of the increase taking place because of increased private spending. Both residential and non-residential spending have also increased although in terms of residential spending there has been a shift, starting in 2015, to greater spending on single family construction compared to a declining rate for multi-family dwellings. Prior to 2015 the opposite was true and investors built multi-family properties to house either people who had listed their homes or didn't have the money or wanted the flexibility rental units allowed.

The **American Institute of Architects (AIA)** Architecture billings index is a leading indicator of new Commercial Real Estate investment. There is a nine to 12 month lag between architectural billings and construction spending. The index declined in June but reflects positive growth in commercial construction spending for the next year or so. The increase is largely related to demand for residential projects. Its newest release on July 27 of the Outlook for construction in 2016 and 2017 expects overall building construction spending to grow six percent in 2016 and 2017 following a strong 2015. Office and hotel construction are expected to increase 18 and 15 percent respectively in 2016.



The face and terms of homeownership are changing although whether it is for the long-term or just a trend remains to be seen. Mortgage interest rates aren't as much of an influencing factor as they used to be. One reason for this is that the loans today carry significantly reduced interest rates compared to loans offered 10 – 15 years ago. As home prices have climbed toward pre-recession levels the last couple of years, the down payment, affordability and available houses are more important variables. One of the biggest hurdles to home ownership is the ability to accumulate enough cash for a down payment. Student and auto loans have become very important factors that figure into one's ability to purchase real property. Increasing debt, as we mentioned earlier, is forcing more people, primarily younger generations, to postpone or drop the idea of buying a house, which ultimately becomes a key negative issue working against increased housing and new housing construction.

**HOUSING STARTS** June 2016 housing starts were above consensus however both of the previous two months were revised downward. The most recent report shows that, year-over-year, multi-family starts are slowing while single family starts continue to grow. Single family starts rose 4.4 percent to an annual rate of 778,000 units, while **multi-family starts** (structures with 5 units or more) rose 1.6 percent to an annual rate of 392,000 units. Overall, June 2016 **privately owned SAAR housing starts** were 1,189,000 units down two percent year-over-year with single family starts up about 13 percent and multi-family starts down 24 percent.

**June building permits rose 1.5 percent to an annual rate of 1.15 million units, a third straight monthly gain driven by gains in both sectors.** Single-family permits rose 1 percent to 738,000 units; multi-family permits (2-to-4-unit structures) increased 11 percent to 31,000 and structures with 5 or more units increased 2 percent to 384,000 units.

The following table summarizes privately-owned housing starts in the U.S. historically from 2006 to 2015. Our estimates of where housing starts are moving are also provided through 2017. At this time, we are looking for starts to reach a level of 1.2 million units in 2016, up nearly 8 percent for the year over 2015. Some are hesitant to project housing making any further improvement in 2016, but we believe there will be modest additional growth during the remainder of the year, short of any major weather interruptions that might curtail building activity.

**TABLE 7: ACTUAL NEW PRIVATELY-OWNED HOUSING UNITS STARTED**

(000's of units)	Single-Unit		Multi-Unit		Total	
	Units	% Change	Units	% Change	Units	% Change
<b>Actual</b>						
<b>2006</b>	1,465	(15)	336	(5)	1,801	(13)
<b>2007</b>	1,046	(29)	309	(8)	1,355	(25)
<b>2008</b>	622	(40)	283	(8)	905	(33)
<b>2009</b>	445	(28)	109	(61)	554	(39)
<b>2010</b>	471	6	116	6	587	6
<b>2011</b>	431	(8)	178	53	609	4
<b>2012</b>	535	24	246	38	781	28
<b>2013</b>	618	16	307	25	925	18
<b>2014</b>	648	5	355	16	1,003	8
<b>2015</b>	715	10	397	12	1,112	11
<b>Forecast</b>						
<b>2016</b>	<b>800</b>	<b>12</b>	<b>400</b>	<b>1</b>	<b>1,200</b>	<b>8</b>
<b>2017</b>	<b>850</b>	<b>6</b>	<b>400</b>	<b>--</b>	<b>1,250</b>	<b>4</b>

Source: Census Bureau / Yengst Associates

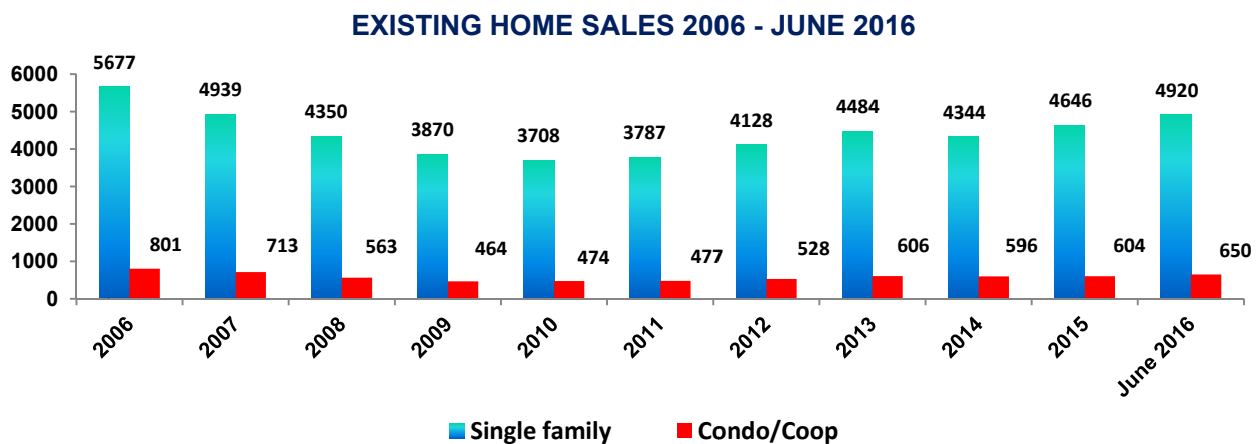
Permits, which are a bellwether for future construction, did not improve much in June, but continued low interest rates and improvement in payrolls are expected to keep rolling along and act as a positive factor moving forward. Looking to 2017, our housing starts estimate is 1.25 million units, up another 4 percent. We are taking into account that interest rates will likely increase slightly going into 2017 along with higher rates imposed by the Federal Reserve Board late in 2016,

but feel that continued shortage in housing exists that will tip the scales towards more units being started.

## HOUSE SALES

In the second quarter of 2016, the rate of homeownership fell below 63 percent (62.9) tied for the lowest rate going back to 1965. This indicates that stagnant pay, rising property taxes and high rents are precluding many people from purchasing a home. The trend is most evident in 18 to 34 year olds many of whom are also struggling to pay student loan debts on their stagnant wages. A good percentage of this market segment are finally moving into their own residence, however, the preponderance are renting rather than owning their dwelling.

Housing supply and affordability constraints are holding back sales despite near record low mortgage rates. In addition, *tax incentives from home ownership rates are negligible these days. The combination of near record low mortgage rates and increased standard deduction levels nearly wipes out any tax advantage. This doesn't help the housing market or those entering it.* Pending home sales increased marginally in June. The Pending Home Sales Index projects future home sales based on signed contracts. Contract signing usually leads sales by 45 to 60 days. The average sales price for existing homes sold in 2015 was \$266,400. In June 2016, the preliminary average was \$292,100, an almost 10 percent increase. Wages have not increased at the rate where most people can afford that 10 percent increase in price.



Preliminary June 2016 **SAAR** existing home sales were 5.57 million units representing the fourth consecutive month of year-over-year increases, on a SAAR basis. The **median existing** home price for all housing types in June 2016 was \$247,700 which marked the 52nd consecutive month of year-to-year price increases. The average existing home price between new construction and existing homes almost reached parity in 2009 and 2011. At that time buyer's preferred new construction as prices of existing homes approached levels of new construction. The **average existing** single family home sales price was \$293,600

in June 2016. That means there is a 22 percent premium today for new construction compared to existing construction.

**Existing home sales** figures include short-sale and foreclosed property sales and are counted when a transaction has closed. Preliminary June 2016 figures show that 583,000 units sold (**actual**) approximately 11 percent more than May 2016 revised sales and two percent lower than June 2015 sales. Year-to-date, 2,615,000 units have sold compared to 2,477,000 units in 2015, a six percent increase. Approximately 22 percent of June 2016 sales were all cash sales. First time home buyers purchased 33 percent of sold homes the highest level since July 2012. The slight increase in first time buyers is partly due to lower mortgage rates than in 2015. Individual investors' purchased 13 percent of homes in July 2015 and 64 percent purchased them with cash.

Residential sales to **international clients** totaled \$103 billion in the 12 months ending March 31, 2016. Nearly 215,000 residential properties were purchased by foreign buyers with a median price of with a median price of \$277,380. Resident buyer purchases increased enough to offset the decline in non-resident purchases. Non-resident buyers have played a large role in the existing home sales market over the last couple of years as buyers are essentially laundering cash and investing it in the U.S. in the form of real estate. These buyers have been negatively affected by the strength of the dollar for the last six plus months, higher house prices and the sluggish global economy.

Total international spending represented approximately two percent of total existing-home sales in the 12 months ending March 31, 2016 in dollar volume. Chinese investors, for the fourth consecutive year, spent more on U.S. real estate than other foreign investors in terms of dollar volume, spending \$27.3 billion in the 12 months ending March 31, 2016. They purchased 29,195 properties, approximately 14 percent of total properties sold, with a median price of \$542,084. Half of all purchases were in cash, down slightly from the year before, but almost twice as many as overall existing homes. Approximately 73 percent of all cash purchases were to non-resident foreign buyers.

**Existing total housing inventory** declined to 2.12 million units in June 2016 and represented a 4.6 month supply at the current rate of sales. Properties took 34 days to sell in June 2016. Short sales were on the market for a median of 156 days, foreclosures sold in 49 days and non-distressed homes took 30 days.

## **CONSTRUCTION SPENDING**

Construction spending is one of the major drivers of U.S. economic growth. It is growing at a modest rate but is not as large a part of the economy as many would like. It is examined in terms of private vs public spending and/or residential vs non-residential spending. The amount of money spent on construction projects in any given year is directly related to the activity levels of off highway equipment. Non-residential construction spending is largely private spending, and generally employs a great deal of heavy machinery.

The second quarter 2016 decline in GDP reflects the slow growth in construction activity through reduced residential investment growth and lower levels of public sector investment. Multi-family dwelling construction has tapered off as lagging incomes in a period of rising rents makes many of these new buildings unaffordable for many people. Builders and landlords in certain locations are starting to introduce incentives to get tenants to rent their properties. It has been years since landlords have had to compete with each other to fill their rental units. It is by no means widespread at this point but it is a growing trend.

**TABLE 8: ACTUAL AND FORECAST CONSTRUCTION SPENDING THROUGH 2017**

(\$-Billions)	Private Construction*		Public Construction		Total	
	Annual Value	% Change	Annual Value	% Change	Annual Value.	% Change
<b>Actual</b>						
2005	899	17	245	11	1,144	15
2006	937	4	255	4	1,192	4
2007	850	(9)	287	13	1,137	(5)
2008	766	(10)	306	7	1,072	(6)
2009	592	(23)	315	3	907	(15)
2010	501	(15)	303	(4)	804	(11)
2011	495	(1)	283	(7)	778	(3)
2012	578	17	279	(1)	857	10
2013	641	11	270	(3)	911	6
2014	718	12	276	2	994	9
2015	806	12	291	5	1,097	10
<b>Forecast</b>						
2016	865	7	285	(2)	1,150	5
2017	925	7	300	5	1,225	7

Source: Yengst Associates / U.S. Commerce Department's Census Bureau \* Includes highway, street, conservation and development in private construction figure.

June 2016 construction spending declined (month over month) for the third consecutive month. On a seasonally adjusted basis, June 2016 total construction spending increased less than one percent year-over-year and declined approximately one percent compared to revised May 2016 figures. State and local spending decreased six percent year-over-year.

Table 8 highlights annual spending figures, both private and public, for the years 2005 through 2015 and our forecast for 2016 and 2017. **Total construction spending** increased 10 percent in 2015 and we forecast it will increase in the range of five percent in 2016. Thus far in 2016, six months ended June 30, 2016 actual **private spending** has increased approximately eight percent, while **public spending** has improved approximately one and one half percent year-over-year. We anticipate growth of about 7 percent on the private side in 2016 and a small decline on the public spending side. As discussed above, state and local governments have turned to increasing local gas taxes and enacting other taxes whose revenue flows to infrastructure spending. We expect this to continue for the foreseeable future as states and local communities continue to struggle to

maintain their infrastructure. For 2017, overall growth is expected to improve about seven percent.

## RENTAL EQUIPMENT

Rental equipment industry rents machinery primarily for non-residential and industrial construction projects, although, residential construction is a major factor each year and becoming more so as time passes. Rental equipment has been one of the primary market drivers of machinery sales for many years and is expected to continue as one of the leading drivers for years to come. Rental operations throughout all of North America have invested large sums of money maximizing and refreshing their fleet inventories. Capital investment in rental fleets moderated modestly in 2015 as companies adjusted rental rates based on utilization rates. Rental revenues for rental companies and dealers having rental fleets were higher for the fifth year in a row. Overall industry rental revenues totaled about \$38 billion in 2015 and most companies were profitable.

As mentioned, capital expenditures were down in 2015 marginally, but until 2015 we have had a number of years with expanding investment and growth in fleet inventories. In 2016 capital expenditures are expected to decline about 15 percent from the 2015 level as fleet sizes remain slightly higher than needed based on current demand. So far through July, we sense that rental companies are holding back on spending money for new machines more so than in 2015. The degree of slowing cannot be measured, but we still feel comfortable in our earlier statements.

## AGRICULTURAL ECONOMY

The agricultural economy has evolved into a global market and many regions look to places outside of the U.S. to source their food needs. The health of the U.S. agriculture sector continues to be negatively impacted by low commodity prices. U.S. farmers have been hit hard by the decline in crop and livestock production values for three consecutive years. **Net farm and net cash income** are forecast to fall for the third consecutive year in 2016. As such, we expect sales and production of tractors, combines and other farm equipment related to row crops to remain depressed for the remainder of 2016. The outlook for 2017 is cloudy, but we are expecting some modest signs of improvement in sales of machines as the year progresses as the marketplace will have hit bottom, in our opinion, and some stability in sales and prices will ensue.

**TABLE 9: U.S. FARM ECONOMY OVERVIEW – CALENDAR YEAR**

(\$ Billions)	2011	2012	2013	2014	2015	2016	% Change
Farm Cash Receipts	\$365.8	\$401.4	\$403.0	\$421.5	\$377.0	\$367.5	-2.5
Net Cash Income	123.4	135.3	135.1	128.1	93.2	90.9	-9.3
Net Farm Income	113.9	96.5	123.3	90.5	56.4	54.8	-2.8
Debt to Assets (%)	12.7	11.3	11.3	11.7	12.7	13.2	+3.9
Total Prod. Expenses	306.5	353.3	360.0	390.3	380.3	376.5	-1.0
Government Payments	10.4	10.6	11.0	9.8	10.6	13.9	+31.1
Ag. Exports	\$136.4	\$141.4	\$144.4	\$150.0	\$133.0	n/a	n/a
Ag. Imports	\$99.0	\$102.9	\$104.2	\$111.7	\$113.5	n/a	n/a

Source: US Department of Agriculture

**U.S. agricultural equipment exports** declined 11 percent year-over-year in

**2015.** Exports to Canada declined 5 percent, China 17 percent and Mexico fell nine percent. **First quarter 2016** exports fell eight percent year-over-year. Exports to Europe and Central America increased 21 and 11 percent respectively, exports to Canada, Asia, South America, Oceania and Africa all declines approximately 20, 21, 30, 27 and 32 percent respectively. This is hitting agricultural machinery OEMs hard as the OEMs are looking for alternative markets outside the U.S. to sell their machinery. The strong dollar and the weakened global economy will continue to hamper sales from our viewpoint and exports will again be down for 2016 as much as 10 - 15 percent from the 2015 level. We see no improvement from any foreign markets coming in 2017, therefore, export sales will continue to languish or at best hold to the levels seen in 2016.

## THE CANADIAN ECONOMY

Canada's economy is heavily dependent on natural resource development and, of course, the flow of the U.S. economy. It has been hurt hard by the collapse of mineral commodity prices for the last few years. What growth there is has to come from areas outside of natural resource provinces in western Canada.

Canada's

Prime Minister is looking to expand the economy by pursuing new markets and industries, but this is not something that happens quickly. We think Canada will have slow growth until natural resource markets improve, which may take 12 –

24 months or the country gets a boost from a growing U.S. economy after 2017

**TABLE 10: CANADIAN ECONOMIC INDICATORS**

	<b>GDP</b> (Chain wtd) % Change	<b>Core CPI</b> 2002=100 <sup>1</sup> % Change	<b>Unemployment</b> <b>Rate (%)</b>
<b>Actual</b>			
<b>2010</b>	3.4	+1.3	8.0
<b>2011</b>	2.5	+ 1.6	7.5
<b>2012</b>	1.7	+1.3	7.3
<b>2013</b>	2.0	+0.8	7.1
<b>2014</b>	2.5	+1.6	6.9
<b>2015</b>	1.1	+1.8	6.9
<b>Forecast</b>			
<b>2016</b>	<b>1.2</b>	<b>+2.0</b>	<b>7.0</b>
<b>2017</b>	<b>2.0</b>	<b>+2.1</b>	<b>6.9</b>

Source: Statistics Canada; Bank of Montreal ; <sup>1</sup> Not adjusted for seasonality; Standardized

In May 2016 **GDP** was (0.6) percent at an annualized rate largely due to the widespread shut down of oil sand production facilities due to the Alberta wildfires. The mining component of GDP contracted 6.4 percent while the non –

conventional oil extraction component contracted 22 percent. In addition, manufacturing production unexpectedly dropped 2.4 percent.

The Canadian dollar is trading at record lows because of the collapse of crude oil prices. The Canadian dollar traded at \$1.31 per U.S. dollar on August 10, 2016.

**Exports** play a large role in the Canadian economy. In 2014, they represented 27 percent of Canada's nominal GDP. The **Trade deficit** increased to a record \$3 billion In May 2016. Excluding the impact of prices, the volume of exports, on



a chained \$C 2007 basis, declined 1.2 percent and decline for the fifth consecutive month. This trend continues.

The U.S. is Canada's largest trade partner accounting for 72 percent of its 2014 exports. Canada had a US\$34 billion trade deficit with the U.S. in 2014. Its principle exports to the U.S. included oil (34 percent) and vehicles (16 percent). In terms of **imports**, 66 percent of its imports in 2014 were from the U.S. These imports included vehicle parts, tourism, oil, and machinery products.

**Canadian inflation (core CPI)** has flirted with a 2 percent annualized rate for the last couple of years. We expect it to be in that range in 2016 and 2017 as well. Note that like U.S. core CPI, these figures do not reflect changes to food and energy prices. Higher prices for shelter and lodging were the major contributors to the increase in 2015.

Unemployment dropped by 31,200 in July 2016; 12,800 left the labor force. Full time jobs declined across most industries in July; the public sector however took the biggest hit. Canada's labor force participation rate was 65.4 percent a significantly better level than U.S. participation rate of 62.8 percent. The **unemployment rate** held at 6.9 percent in July 2016.

The seasonally adjusted annual rate of **housing starts** jumped to 218,000 units in June 2016. The increase was largely due to a 27 percent increase in multi-family units. Both Ontario and British Columbia housing starts increased significantly, 27 and 38 percent respectively, with much of the increase in multi-family units. The decline in oil prices lowered demand in markets with resource dependent economies, such as Alberta.

The Canadian Real Estate Association (CREA) looks for the housing market to improve through 2015 in terms of the number of units being sold and average sales prices. It expects 2016 unit sales and average prices to be flat or up slightly from 2015 levels. The market is expected to show some improvement going into 2017.

## REST OF THE WORLD

In short, the world outside the U.S. is facing many struggles. This in turn will hamper U.S. growth as it counts on exports to fuel its growth. The global economy continues to struggle with overspending from the past decade and weak economies tied to the downturn in commodity prices and various other factors we have already covered to a degree. The huge amount of cash infused into the system in an effort to exit the global recession is now hindering the economies from growing.

The Euro zone is being taxed by immigration; nationals fleeing wars and corruption in their countries to temporarily live in developed countries for safe harbor. Many of the countries they are going to are already stressed from overspending and the austerity measures put in place. It's hard to know where it all will end.

**Italy's banking system is on the verge of a collapse.** The banks currently have €360 billion of bad loans with €200 billion deemed insolvent. Italy has been the second hardest hit, following Greece, economically. Its GDP has shrunk 10 percent compared to 10 years ago and approximately 20 percent of its industrial capacity has been lost during this time. Italy's economy is heavily dependent on domestic consumption but after several years of austerity policies, private consumption has dropped further and imports have declined as well. None of this is good news except that there is a national referendum coming in October, which might give the Italians a chance to change their country's direction and get their economy and legislative process under control and back on a positive track. If this vote by the people does not go through in a positive direction, Italy could take a turn for the worse economically, which would eventually impact the EU in a very negative way.

Italian banks aren't the only ones in the euro zone struggling. For example, Deutsche Bank and Credit Suisse have both been hit hard. Are we back to where we were 10 years ago when the banking sector needed to be bailed out with public monies to keep the economies afloat? Do governments and central banks have the ability to bail the banks out once again with public monies? Will the populace stand for it? We are not in a position to answer these questions, but we see a bumpy road ahead for the EU on a monetary basis and continued slow growth economically for the remainder of 2016 and all of 2017.

China's prolonged slump construction spending continues. It is still struggling to keep its real estate bubble from bursting. The overall Chinese economy may be growing 5 – 6 percent annually as suggested by a number of sources, but the slowing from 10 – 11 percent growth seen several years ago is hitting businesses and the people in many ways that is curtailing the machinery industry severely from its previous levels of demand. Sales of major pieces of equipment are down more than 75 percent through 2015 from 2012 and 2013 levels. Sales in 2016 are not going to show improvement to any degree or could be lower again, which we are not in a position to know at this time. In general, not much positive news can be generated about China's current situation, which we conclude means that the domestic market is continuing to suffer from weak demand and exports are not expanding because of the same reasons facing all countries at this time.

South America is suffering from no money and too much corruption. Brazil is in recession for its second year, and demand for machinery has collapsed. We do not see any immediate change on the positive side for Brazil's economy until commodity prices show some improvement. Furthermore, President Rousseff is in the process of being impeached for corruption and that is not helping matters. Perhaps when the Brazilian government completes its process of impeachment, leadership will come forth and start getting the country back on track. The rest of Latin America is struggling because it is a resource rich region and largely dependent on commodities like Brazil. Many countries count on exports of their resources for their growth, which has been curtailed. We do not see much change on the positive side until after 2017.

The Middle East is still in turmoil counting Syria, Libya, Iraq, and Afghanistan in the mix. The U.S. and five other nations have negotiated a nuclear containment treaty with Iran that is highly questioned by many in the U.S. as being ineffective and weak. Whether or not this agreement will stand for any period of time remains to be seen in view of the Iranian government's aggressive position on foreign affairs and its place in the global community. War is still on-going in Afghanistan with American military forces involved along with troops from a number of other countries fighting the Taliban. Terrorist groups, ISIS and ISIL, for example, have become a serious threat in the region and are now taking their battles outside the Middle East to other countries. These facts are not going to change much for the next 6 – 12 months from what we see and the current administration's lackluster approach to Middle East problems.

India is holding its own economically in 2016, which is apparently helping machinery industry sales, but the country does not import products without huge tariffs to protect domestic manufacturers. Therefore, the Indian market is not one that offers any possibilities for exports at this time. Likewise, Indian suppliers are not gaining from exporting their own products because of global weakness in demand for most products outside of compact tractors.

**Australia's** economy is struggling as the mining industry is one of its lynchpins and that market has collapsed globally. Employment levels have dropped as mining activities have been greatly reduced. Ongoing sharp reductions in mining and construction spending have resulted in several quarters' drop in engineering construction levels; private and public construction declined in 2015 and business is not growing in 2016. The sharp decline in mining has been the biggest problem for the country and that is not going to get turned around until commodity prices show growth.

The tables on the following page provide a summary of current economic factors in major countries around the world and emerging market indicators as compiled by The Economist Magazine dated August 13, 2016.

## GLOBAL INDICATORS SNAPSHOT

### Output & Prices - % change at annual rate

Country	----GDP----		GDP Forecasts†		Consumer Prices		Consumer Prices† Forecasts
	latest	qtr*	2016	2017	latest	year ago	2016
Australia	+3.1 Q1	+4.3	+2.7	+2.8	+1.3 Q1	+1.3	+1.4
Britain	+2.2 Q2	+2.4	+1.6	+0.5	+0.5 Jun	nil	+0.7
Canada	+1.1 Q1	+2.4	+1.4	+1.9	+1.5 May	+1.0	+1.7
France	+1.4 Q2	-0.2	+1.4	+1.1	+0.2 Jul	+0.2	+0.3
Germany	+1.6 Q1	+2.7	+1.5	+1.3	+0.4 Jul	+0.2	+0.4
Italy	+1.0 Q1	+1.0	+0.9	+0.9	-0.1 Jul	+0.2	nil
Japan	+0.1 Q1	+1.9	+0.5	+0.9	-0.5 Jun	+0.4	-0.1
Sweden	+3.1 Q2	+1.2	+3.5	+2.5	+1.0 Jun	-0.4	+1.0
United States	+1.2 Q2	+1.2	+1.7	+2.0	+1.0 Jun	+0.1	+1.4

Source: The Economist, August 13<sup>th</sup>, 2016. \*% chg. on previous quarter, annual rate. †The Economist poll or Economist Intelligence Unit estimate/forecast.

### Emerging-Market Indicators

Country	-----% Change on year earlier-----		
	GDP	Industrial Production	Consumer Prices
China	+6.7 Q1	+6.2 Jun	+1.8 Jul
India	+7.9 Q1	+1.2 May	+5.8 Jun
Indonesia	+5.2 Q2	+9.1 Jun	+3.2 Jul
Malaysia	+4.2 Q1	+2.7 May	+1.6 Jun
South Korea	+3.1 Q2	+0.8 Jun	+0.7 Jul
Argentina	+0.5 Q1	-2.5 Oct	--- **
Brazil	-5.4 Q1	-5.9 Jun	+8.7 Jul
Chile	+2.0 Q1	-3.8 Jun	+4.0 Jul
Columbia	+2.5 Q1	+4.5 May	+9.0 Jul
Mexico	+2.6 Q1	+0.4 May	+2.7 Jul
Venezuela	-8.8 Q4	na	na
South Africa	-0.2 Q1	+3.8 May	+6.3 Jun
Russia	-1.2 Q1	+1.8 Jun	+7.2 Jul

Source: The Economist, August 13<sup>th</sup>, 2016. \*\*Official number not yet proved to be reliable; The State Street PriceStats Inflation Index, June 36.96%; year ago 26.70%.

# SHORT TERM MACHINERY FORECAST 2017

# NORTH AMERICA

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