A Review of Rail Traffic Trends & Key Economic Indicators Shaping Demand for Rail Transportation

October 7, 2016
Copyright © 2016 by the Association of American Railroads.

**Rail Time Indicators** is issued monthly by the
Policy and Economics Department of the Association of American Railroads.

**Rail Time Indicators** (RTI) is free to all members of the Association of American Railroads (see here for a membership list) and to railroad members of the American Short Line and Regional Railroad Association (see here for a membership list). If this applies to you and you want RTI, send an email to Dan Keen at dkeen@aar.org and we'll put you on the distribution list.

For others, Rail Time Indicators is available by paid subscription. There are two options: $55 per year (12 issues) for a monthly pdf, or $110 per year for the pdf plus a monthly Excel file with monthly rail traffic data from January 2008 to the present. This option provides the data for most of the rail traffic charts in RTI. To subscribe to RTI, click [here](#) and scroll down to the option you want.

_{If you are a member of the AAR or a railroad member of the ASLRAA, feel free to forward RTI to others within your organization. Please don’t forward RTI to anyone outside your organization unless the person you forward it to might be interested in a subscription and wants to see what the report is like._

_{If you are not a member of the AAR or ASLRAA, forwarding RTI to anyone either inside or outside your organization is prohibited, though, again, it’s OK to forward a copy to someone who might be interested in a subscription and wants to see what RTI is like._

Reproduction or retransmittal of Rail Time Indicators for commercial use is prohibited except for short excerpts or quotations. Contact Dan Keen at dkeen@aar.org if you have questions about what’s acceptable. Uploading RTI to a website is prohibited.

Media inquiries should go to Ed Greenberg (egreenberg@aar.org, 202-639-2346) or Kris Clarkson (kclarkson@aar.org, 202-639-2347).

Information in RTI is obtained from sources believed to be reliable. However, the AAR makes no representations as to the accuracy or completeness of such information and assumes no liability for errors or omissions. We reserve the right to change the content and subscription price of RTI at any time.

Opinions expressed in RTI are not necessarily those of the AAR or its members.

For more information on anything related to Rail Time Indicators or if you have suggestions on ways to improve it, please contact:

Dan Keen (dkeen@aar.org, 202-639-2326)

or

Luisa Fernandez-Willey (lfernandez-willey@aar.org, 202-639-2323).
SUMMARY OF MOST RECENT DATA
(Note: All railroad carload figures are originations; all percentages are year-over-year.)

You’d think at some point easier comps would bring an end to year-over-year declines, but that hasn’t happened yet: total originated carloads on U.S. railroads were down 5.4% (61,455 carloads) in September 2016 from September 2015, their 20th straight decline. Nine of 20 traffic categories had higher carloads in September, led by grain (up 9,860 carloads, or 11.2%) and waste and nonferrous scrap (up 3,725 carloads, or 28.8%). And for the 20th straight month, coal had the biggest decline, with carloads down 53,896 (13.1%) from last year. Petroleum and petroleum products and primary metal products also had big declines in September. In the third quarter, total carloads were down 6.9%, or 256,326 carloads, led by coal (down 15.6%, or 211,013 carloads) and petroleum and petroleum products (down 23.1%, or 41,386 carloads). Grain was up 46,358 carloads (17.4%) in the third quarter. For the first nine months of 2016, total carloads were down 10.5%, or 1,142,905 carloads, with coal down 25.4% (1,005,635 carloads) and petroleum and petroleum products down 22.2% (123,192 carloads). Year-to-date grain carloads were up 5.6% (45,192 units) in September, down 5.2% (186,563 units) in the third quarter, and down 3.2% (333,619 units) for the year to date.

<table>
<thead>
<tr>
<th></th>
<th>April '16</th>
<th>May '16</th>
<th>June '16</th>
<th>July '16</th>
<th>Aug. '16</th>
<th>Sept. '16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total U.S. carloads*</td>
<td>236,092</td>
<td>240,643</td>
<td>249,005</td>
<td>256,342</td>
<td>269,598</td>
<td>267,161</td>
</tr>
<tr>
<td>% chg same month prior year</td>
<td>-16.1%</td>
<td>-10.3%</td>
<td>-7.0%</td>
<td>-8.8%</td>
<td>-6.6%</td>
<td>-5.4%</td>
</tr>
<tr>
<td>U.S. carloads excluding coal*</td>
<td>175,033</td>
<td>175,709</td>
<td>174,253</td>
<td>173,523</td>
<td>179,626</td>
<td>177,947</td>
</tr>
<tr>
<td>% chg same month prior year</td>
<td>-2.8%</td>
<td>-0.2%</td>
<td>-2.3%</td>
<td>-4.0%</td>
<td>-1.0%</td>
<td>-1.1%</td>
</tr>
<tr>
<td>U.S. coal carloads*</td>
<td>61,060</td>
<td>64,934</td>
<td>74,752</td>
<td>82,819</td>
<td>89,972</td>
<td>89,214</td>
</tr>
<tr>
<td>% chg same month prior year</td>
<td>-39.7%</td>
<td>-29.6%</td>
<td>-16.4%</td>
<td>-17.5%</td>
<td>-16.1%</td>
<td>-13.1%</td>
</tr>
<tr>
<td>U.S. intermodal</td>
<td>27,155</td>
<td>26,208</td>
<td>259,048</td>
<td>250,600</td>
<td>265,455</td>
<td>260,234</td>
</tr>
<tr>
<td>% chg same month prior year</td>
<td>-7.5%</td>
<td>-3.3%</td>
<td>-5.6%</td>
<td>-6.9%</td>
<td>-4.8%</td>
<td>-4.2%</td>
</tr>
<tr>
<td>U.S. carloads + intermodal</td>
<td>493,207</td>
<td>503,051</td>
<td>508,053</td>
<td>506,942</td>
<td>535,053</td>
<td>527,395</td>
</tr>
<tr>
<td>% chg same month prior year</td>
<td>-11.8%</td>
<td>-6.8%</td>
<td>-6.3%</td>
<td>-7.9%</td>
<td>-5.7%</td>
<td>-4.8%</td>
</tr>
<tr>
<td>Total Canadian carloads*</td>
<td>70,314</td>
<td>65,849</td>
<td>68,141</td>
<td>69,117</td>
<td>71,528</td>
<td>78,612</td>
</tr>
<tr>
<td>% chg same month prior year</td>
<td>-13.6%</td>
<td>-15.4%</td>
<td>-10.4%</td>
<td>-9.9%</td>
<td>-3.8%</td>
<td>5.1%</td>
</tr>
<tr>
<td>Canadian intermodal</td>
<td>59,401</td>
<td>59,016</td>
<td>57,862</td>
<td>60,366</td>
<td>62,562</td>
<td>60,694</td>
</tr>
<tr>
<td>% chg same month prior year</td>
<td>-5.0%</td>
<td>-6.0%</td>
<td>-6.4%</td>
<td>-2.8%</td>
<td>-1.2%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>YTD Through September</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total U.S. carloads*</td>
<td>11,330,543</td>
<td>11,043,334</td>
<td>10,940,995</td>
<td>11,376,513</td>
<td>10,880,121</td>
<td>9,737,216</td>
</tr>
<tr>
<td>U.S. carloads excluding coal*</td>
<td>6,306,856</td>
<td>6,499,661</td>
<td>6,580,673</td>
<td>7,016,263</td>
<td>6,920,946</td>
<td>6,783,676</td>
</tr>
<tr>
<td>U.S. coal carloads*</td>
<td>5,023,687</td>
<td>4,543,673</td>
<td>4,360,322</td>
<td>4,360,250</td>
<td>3,959,175</td>
<td>2,953,540</td>
</tr>
<tr>
<td>U.S. intermodal</td>
<td>8,881,265</td>
<td>9,211,354</td>
<td>9,547,490</td>
<td>10,167,398</td>
<td>10,417,231</td>
<td>10,083,612</td>
</tr>
<tr>
<td>U.S. carloads + intermodal</td>
<td>20,211,808</td>
<td>20,254,688</td>
<td>20,488,485</td>
<td>21,543,911</td>
<td>21,297,352</td>
<td>19,820,828</td>
</tr>
<tr>
<td>Canadian intermodal</td>
<td>1,875,742</td>
<td>2,005,713</td>
<td>2,084,449</td>
<td>2,248,268</td>
<td>2,378,129</td>
<td>2,314,979</td>
</tr>
<tr>
<td>Canadian carloads + intermodal</td>
<td>4,800,333</td>
<td>5,012,321</td>
<td>5,145,745</td>
<td>5,376,849</td>
<td>5,379,967</td>
<td>5,062,937</td>
</tr>
</tbody>
</table>

*excludes intermodal
Economic indicators this month, like in many recent months, are generally good but not great. A preliminary 156,000 net new jobs were created in September, which is a bit below average for the year but still solid. The unemployment rate ticked up to 5.0% in September from 4.9% in August because of an increase in the labor force. In part because of good labor market numbers, consumer confidence rose in September — by the Conference Board’s measure to a nine-year high. Housing starts were an annualized 1.14 million in August, down a bit from July but about average for the year. The ISM’s Purchasing Managers Index, which had dipped into the “manufacturing is contracting” range in August, was back in the “expanding” range in September, but not by much. Industrial output remains a big question mark for the economy. The biggest disappointment this month was consumer spending. It was flat in August. Consumer spending is driving the expansion right now. If it falters, it would mean we have a big problem.

<table>
<thead>
<tr>
<th>April ’16</th>
<th>May ’16</th>
<th>June ’16</th>
<th>July ’16</th>
<th>Aug. ’16</th>
<th>Sep. ’16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purch. Mgrs. Index (&lt;50 = bad) (p. 23)</td>
<td>50.8</td>
<td>51.3</td>
<td>53.2</td>
<td>52.6</td>
<td>49.4</td>
</tr>
<tr>
<td>Non-Manuf. Index (&lt;50 = bad) (p. 23)</td>
<td>55.7</td>
<td>52.9</td>
<td>56.5</td>
<td>55.5</td>
<td>51.4</td>
</tr>
<tr>
<td>Industrial output (2012=100) (p. 24)</td>
<td>103.9</td>
<td>103.7</td>
<td>104.3</td>
<td>104.9</td>
<td>104.4</td>
</tr>
<tr>
<td></td>
<td>Manufacturing</td>
<td>103.0</td>
<td>102.8</td>
<td>103.0</td>
<td>103.4</td>
</tr>
<tr>
<td></td>
<td>Utilities</td>
<td>102.3</td>
<td>101.8</td>
<td>104.8</td>
<td>107.0</td>
</tr>
<tr>
<td></td>
<td>Mining, natural gas, oil</td>
<td>103.2</td>
<td>104.0</td>
<td>104.3</td>
<td>104.5</td>
</tr>
<tr>
<td>Capacity utilization (%) (p. 26)</td>
<td>Overall</td>
<td>75.2%</td>
<td>75.1%</td>
<td>75.5%</td>
<td>75.9%</td>
</tr>
<tr>
<td></td>
<td>Manufacturing</td>
<td>75.1%</td>
<td>74.8%</td>
<td>75.0%</td>
<td>75.2%</td>
</tr>
<tr>
<td>Employment situation (p. 27)</td>
<td>Total net new jobs created</td>
<td>144,000</td>
<td>24,000</td>
<td>271,000</td>
<td>252,000</td>
</tr>
<tr>
<td></td>
<td>Unemployment rate</td>
<td>5.0%</td>
<td>4.7%</td>
<td>4.9%</td>
<td>4.9%</td>
</tr>
<tr>
<td>Class I railroad employment (p. 29)</td>
<td>Total employed</td>
<td>153,143</td>
<td>152,726</td>
<td>152,426</td>
<td>152,718</td>
</tr>
<tr>
<td></td>
<td>Change from previous month</td>
<td>-580</td>
<td>-417</td>
<td>-300</td>
<td>292</td>
</tr>
<tr>
<td></td>
<td>Change year-over-year</td>
<td>-20,979</td>
<td>-20,217</td>
<td>-19,901</td>
<td>-18,325</td>
</tr>
<tr>
<td></td>
<td>Train and engine employment</td>
<td>58,519</td>
<td>58,114</td>
<td>58,180</td>
<td>58,934</td>
</tr>
<tr>
<td>Consumer confidence (p. 30)</td>
<td>Conference Board (1985=100)</td>
<td>94.2</td>
<td>92.4</td>
<td>97.4</td>
<td>96.7</td>
</tr>
<tr>
<td></td>
<td>Univ. of Michigan</td>
<td>89.0</td>
<td>94.7</td>
<td>93.5</td>
<td>90.0</td>
</tr>
<tr>
<td>Retail sales (p. 31)</td>
<td>% change from previous month</td>
<td>1.2%</td>
<td>0.2%</td>
<td>0.7%</td>
<td>0.1%</td>
</tr>
<tr>
<td></td>
<td>% change year-over-year</td>
<td>3.0%</td>
<td>2.2%</td>
<td>2.8%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Consumer spending (p. 31)</td>
<td>% change from previous month</td>
<td>1.1%</td>
<td>0.3%</td>
<td>0.5%</td>
<td>0.4%</td>
</tr>
<tr>
<td></td>
<td>% change year-over-year</td>
<td>3.8%</td>
<td>3.5%</td>
<td>3.8%</td>
<td>3.8%</td>
</tr>
<tr>
<td>New auto sales (SAAR, mil.) (p. 33)</td>
<td>17.3</td>
<td>17.1</td>
<td>16.8</td>
<td>17.8</td>
<td>16.9</td>
</tr>
<tr>
<td>Housing (p. 34)</td>
<td>Total starts (SAAR, 000s)</td>
<td>1,155</td>
<td>1,128</td>
<td>1,195</td>
<td>1,212</td>
</tr>
<tr>
<td></td>
<td>Single-family starts (SAAR, 000s)</td>
<td>764</td>
<td>737</td>
<td>763</td>
<td>768</td>
</tr>
<tr>
<td></td>
<td>Multi-family starts (SAAR, 000s)</td>
<td>378</td>
<td>386</td>
<td>414</td>
<td>433</td>
</tr>
<tr>
<td>Inflation (%) (p. 36)</td>
<td>Year-over-year overall CPI</td>
<td>1.1%</td>
<td>1.0%</td>
<td>1.0%</td>
<td>0.8%</td>
</tr>
<tr>
<td></td>
<td>Year-over-year &quot;core&quot; CPI</td>
<td>2.1%</td>
<td>2.2%</td>
<td>2.3%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Rail cars in storage (p. 36)</td>
<td>378,227</td>
<td>391,560</td>
<td>388,294</td>
<td>379,186</td>
<td>365,476</td>
</tr>
</tbody>
</table>
1. **U.S. AND CANADIAN FREIGHT RAILROAD TRAFFIC**

In terms of rail traffic, September 2016 is the four weeks beginning Sunday, September 4, 2016, and ending Saturday, October 1, 2016. For comparison purposes, September 2015 is the period 52 weeks earlier — that is, the four weeks beginning Sunday, September 6, 2015, and ending Saturday, October 3, 2015. Labor Day is included in both September 2015 and September 2016.

Rail traffic data below are reported as carloads or intermodal units. Carload traffic is broken down into 20 commodity categories (coal, grain, metallic ores, etc.). A unit of rail intermodal traffic is either a shipping container (89% of intermodal traffic in 2015) or a truck trailer (11%) carried on a railroad flat car. A container is counted as one unit regardless of its size. Intermodal is not included in carloads. Commodity detail for what’s inside containers and trailers is not available.

**U.S. Rail Carload Originations**

- U.S. railroads originated 1,068,644 carloads in September 2016 — down 5.4% (61,455 carloads) from September 2015, an average of 267,161 carloads per week, and their 20th consecutive year-over-year monthly decline. The 5.4% decline in September was the lowest in a year (see the bottom left chart below); at some point, you’d think it has to turn positive if only because the comps will be much easier.
- Based on weekly averages, total carloads fell in September from August (see the top left chart below), something they do most years.
- In the third quarter of 2016, total carloads were down 6.9% from the third quarter of 2015 but up 9.2% over the second quarter of 2016 (see the bottom right chart below). Average weekly carloads in Q3 2016 were 264,769, the lowest for a third quarter on record (back to 1988). Weekly averages for Q1 2016 and Q2 2016 were the lowest on record for their respective quarters as well.
- Not surprisingly, year-to-date total carloads in 2016 through September were the lowest since sometime before 1988 too. They totaled 9,737,216 carloads, down 10.5% (1,142,905 carloads) from the first nine months of 2015 and down 14.4% (1,639,297 carloads) from the first nine months of 2014.

**Average Weekly U.S. Rail Carloads: All Commodities**

Data are average weekly originations for each month, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP. Source: AAR

**Average Weekly U.S. Total Rail Carloads: Jan. 2010 - Sept. 2016**

Data are average weekly originations for each month, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP. Source: AAR

**% Change in Total U.S. Rail Carloads From Same Month Previous Year: Jan. 2010 - Sept. 2016**

Data are based on originations, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP. Source: AAR
• Nine of the 20 traffic categories the AAR tracks each month had higher carloads in September 2016 than in September 2015. The charts above and the table on page 11 have details.

• September was another good month for grain, with carloads up 11.2% (9,860 carloads) over last year. That’s the fourth straight double-digit increase. Grain averaged 24,470 carloads per week in September 2016, the most for a month since October 2015. Grain carloads are usually much higher in October than in September, so expect an increase next month. For the year to date through September, U.S. grain carloads were up 5.6% (45,594 carloads) over last year. Page 15 has charts on grain.

• According to USDA data, in recent years around 14% of the U.S. corn crop, 45% of wheat, and 47% of soybeans have been exported. It varies by year, but according to the USDA around 40% of grain exports move by rail. The USDA says that around two-thirds of rail ocean-bound grain exports (cross-border Mexico are not included) travel through the Pacific Northwest. The chart on the top left of the next page shows weekly U.S. rail carloads to Pacific Northwest ports. There’s always a big increase this time of year. Hopefully, the downturn over the most recent few weeks of 2016 will reverse itself. Most rail exports that don’t go through the Pacific Northwest ports go through Texas ports. The chart on the top right of the next page shows that rail shipments to Texas ports are up sharply in recent months.

• The table on the next page shows the top destinations for year-to-date U.S. grain exports (defined here as soybeans, wheat, and corn) for the current market year (begins in October) compared with the previous market year. Note how China dominates soybean exports. Total exports for the market year to date are up about 4% this year over last year, but exports in July and August were up 36% and 71%, respectively, over last year. Our understanding is that solid growth continued in September, which would be consistent with the Pacific Northwest and Texas ports charts.

### Change in Originated U.S. Rail Carloads: September 2016 vs. September 2015

- **Grain**: 9,860 (11.2%)
- **Waste & nonferrous scrap**: 3,725 (28.8%)
- **Nonmetallic minerals**: 1,414 (7.5%)
- **Coke**: 1,191 (7.5%)
- **Motor veh. & parts**: 1,094 (1.5%)
- **Metallc ores**: 674 (3.0%)
- **Chemicals**: 599 (0.5%)
- **Food products**: 387 (1.5%)
- **Farm products excl. grain**: 13 (0.3%)
- **Grain mill products**: -41 (-0.1%)
- **Iron & steel scrap**: -420 (-3.1%)
- **Lumber & wood products**: -609 (-4.5%)
- **Crushed stone, gravel, sand**: -1,145 (-1.2%)
- **Primary forest products**: -1,467 (-24.3%)
- **Stone, clay & glass prod.**: -1,962 (-5.8%)
- **Pulp & paper products**: -2,237 (-9.0%)
- **All other carloads**: -3,436 (-12.9%)
- **Primary metal products**: -3,459 (-9.5%)

### Change in Originated U.S. Rail Carloads: Q3 2016 vs. Q3 2015

- **Grain**: 45,594 (5.6%)
- **Waste & nonferrous scrap**: 22,322 (17.6%)
- **Coke**: 22,036 (1.7%)
- **Motor veh. & parts**: 16,225 (2.7%)
- **Food products**: 243 (0.1%)
- **Coke**: 41,645 (9.8%)
- **Chemicals**: 3,205 (8.1%)
- **Nonmetallic minerals**: 1,467 (3.7%)
- **Lumber & wood products**: 420 (4.5%)
- **Crushed stone, gravel, sand**: 489 (6.7%)
- **Primary forest products**: 2,489 (6.9%)
- **Pulp & paper products**: 3,179 (8.6%)
- **Stone, clay & glass prod.**: 7,689 (28.5%)
- **All other carloads**: -35,666 (-12.2%)
- **Primary metal products**: -12,169 (-3.9%)

### Total U.S. Rail Carloads: YTD Through September (millions)

- **Grain**: 9,860 (11.2%)
- **Waste & nonferrous scrap**: 3,725 (28.8%)
- **Nonmetallic minerals**: 1,414 (7.5%)
- **Coke**: 1,191 (7.5%)
- **Motor veh. & parts**: 1,094 (1.5%)
- **Metallc ores**: 674 (3.0%)
- **Chemicals**: 599 (0.5%)
- **Food products**: 387 (1.5%)
- **Farm products excl. grain**: 13 (0.3%)
- **Grain mill products**: -41 (-0.1%)
- **Iron & steel scrap**: -420 (-3.1%)
- **Lumber & wood products**: -609 (-4.5%)
- **Crushed stone, gravel, sand**: -1,145 (-1.2%)
- **Primary forest products**: -1,467 (-24.3%)
- **Stone, clay & glass prod.**: -1,962 (-5.8%)
- **Pulp & paper products**: -2,237 (-9.0%)
- **All other carloads**: -3,436 (-12.9%)
- **Primary metal products**: -3,459 (-9.5%)
- **Petrol. & petr. prod.**: -11,810 (-21.6%)


- **Grain**: 45,594 (5.6%)
- **Waste & nonferrous scrap**: 22,322 (17.6%)
- **Coke**: 22,036 (1.7%)
- **Motor veh. & parts**: 16,225 (2.7%)
- **Food products**: 243 (0.1%)
- **Coke**: 41,645 (9.8%)
- **Chemicals**: 3,205 (8.1%)
- **Nonmetallic minerals**: 1,467 (3.7%)
- **Lumber & wood products**: 420 (4.5%)
- **Crushed stone, gravel, sand**: 489 (6.7%)
- **Primary forest products**: 2,489 (6.9%)
- **Pulp & paper products**: 3,179 (8.6%)
- **Stone, clay & glass prod.**: 7,689 (28.5%)
- **All other carloads**: -35,666 (-12.2%)
- **Primary metal products**: -12,169 (-3.9%)

### # of AAR Traffic Categories* With Year-Over-Year Gains For U.S. Railroads

<table>
<thead>
<tr>
<th>Month</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>7</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>Feb</td>
<td>9</td>
<td>11</td>
<td>9</td>
</tr>
<tr>
<td>Mar</td>
<td>11</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Apr</td>
<td>14</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>May</td>
<td>17</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Jun</td>
<td>17</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Jul</td>
<td>15</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Aug</td>
<td>15</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Sep</td>
<td>15</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Oct</td>
<td>15</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Nov</td>
<td>11</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Dec</td>
<td>15</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

*Out of 20. Source: AAR
Carloads of waste and nonferrous scrap were up 28.8% (3,725 carloads) in September and were up 17.6% (22,322 carloads) for the year to date. In a typical year, about 75% of this category is municipal waste, around 14% is waste paper, and about 7% is ash. Our understanding is that most of the increase in this category this year is fly ash, a byproduct from burning coal in electric power plants.

Other commodities with carload gains on U.S. railroads in September 2016 over September 2015 included nonmetallic minerals (up 1,414 carloads, or 7.5%); coke (up 1,191 carloads, or 7.5%), and motor vehicles and parts (up 1,094 carloads, or 1.5% — see page 19).

Carloads of coal in September 2016 were down 13.1% (53,896 carloads) from September 2015, their 20th straight decline. It’s not much consolation, but 13.1% is the smallest year-over-year percentage decline in a year. Year-to-date coal carloads through September 2016 were 2.95 million, down 25.4%
(1.01 million carloads) from last year and down 47.0% (2.62 million carloads) from the 5.58 million carloads in 2008 through September. 2008 was the peak year for coal. In September, coal accounted for 33.4% of non-intermodal U.S. rail volume, up from a low of 25.9% in April 2016 but far below its peak of 52.0% in December 2008. For more on coal, see page 14.

- Coal continues to suffer from intense competition from natural gas and renewables for generating electricity, and from increasingly harsh political and regulatory restrictions related to the environmental impact of burning coal. The chart on the bottom of the previous page shows that ten years ago, non-coal sources accounted for a little more than half of U.S. electricity generation. In 2016 through July, non-coal sources accounted for 71% of generation.

- Carloads of petroleum and petroleum products were down 21.6% (11,810 carloads) in September this year from last year and were down 22.2% (123,192 carloads) for the first nine months of this year from last year. That's mostly due to crude oil — see last month’s RTI for a chart showing the big decline in crude by rail volumes in the first half of this year from last year. (The chart at right, with data from the Energy Information Administration, also shows a big decline in U.S. rail carloads of crude oil.) U.S. carloads of petroleum and petroleum products peaked in October 2014; they’ve fallen for 16 straight months and 18 of the past 19. Almost all have been double-digit declines. See page 18 for charts on U.S. rail carloads of petroleum and petroleum products.

- The catch-all “all other carloads” fell 3,436 carloads (12.9%) in September. For most of this year, this category was a source of large carload gains, but not for a good reason: we think the gains consisted largely of rail cars moving into storage because of weak demand. There are still huge numbers of rail cars in storage, but in the past couple of months there's been a net movement of cars out of storage (see page 36). So, it’s possible that the decrease in this category in September is actually a good thing because it could mean more cars going back into service. Data limitations prevent us from knowing this for sure. For the year to date through September, this category was up 16.1% (32,793 carloads).

- The steel industry’s woes extend to iron and steel scrap. U.S. carloads of which were down 420 units, or 3.1%, in September, and 6,564 carloads, or 4.5% in the first nine months of 2016. Weekly average carloads in September 2016 were 3,316, the lowest in six months (see the charts on the bottom of page 17).

- We’re not going to pretend we’re experts on the steel industry, but we know it has a lot of problems right now, including high levels of imports, many of which, U.S. steel producers believe, are “dumped” on the U.S. market; weakness in the energy sector which limits demand for products like steel pipe; low capacity utilization (67.8% for steelmakers in August 2016, according to the Federal Reserve — see Figure 5-3 on page 26) which mean steelmakers’ high fixed costs get distributed among fewer units of production; and lots of excess global capacity that’s keeping prices low. There’s a close correlation between steel output and rail carloads of steel, so problems in the steel industry are problems for railroads too.

- The steel industry’s woes extend to iron and steel scrap. U.S. carloads of which were down 420 units, or 3.1%, in September, and 6,564 carloads, or 4.5% in the first nine months of 2016. Weekly average carloads in September 2016 were 3,316, the lowest in six months (see the top half of page 18).

- Scrap steel is a good example that shows the relationship between commodity prices and rail volumes. For most commodities, prices rise and fall based on demand: higher demand equals higher prices, and lower demand generally means lower prices. And when demand for a commodity is high, railroads can be expected to ask to carry more of it, and vice-versa. In other words, high commodity prices should mean high rail demand, and low commodity prices should mean low rail demand, all else equal.

- That’s what we get with scrap steel. The line in the chart on the top of the next page shows the price for one of the benchmark prices for scrap steel. The bars in the chart are U.S. rail carloads of iron and steel scrap. The close correlation is no accident.
• The chart below right shows rail carloads of primary metal products (mostly steel) compared to the price of hot rolled steel, a benchmark price for steel. In this case, the correlation isn’t as strong as it is for scrap, though it is positive. We’re guessing that somewhere out there there’s a more inclusive steel benchmark price than the one we used that would should a stronger correlation.

U.S. Rail Carloads of Primary Metal Products vs. Price of Steel: Jan. 2010 - Sept. 2016*

*Price is hot rolled steel, $ per metric ton. Source: Bloomberg, AAR

• U.S. carloads of crushed stone, gravel, and sand were down 1,145 carloads, or 1.2%, in September 2016 from September 2015 (see page 16). Weekly average carloads in September 2016 were 23,824, down fractionally from August 2016 but otherwise the highest weekly average in 10 months. Year-to-date carloads through September were down 36,185 carloads, or 4.1%. See last month’s RTI for charts showing the big decline in rail movements of industrial sand, which are included in the crushed stone, gravel, and sand category. See also page 36 in this issue for a chart showing the correlation between construction spending and the combination of rail carloads of crushed stone, sand, and gravel plus lumber and wood products.

U.S. rail carloads excluding coal in September 2016 were down 7,559, or 1.1%, from last year; for the year to date, they were down 137,270 carloads, or 2.0% (see the bottom half of page 15). Carloads excluding coal and grain were down 17,419, or 2.8%, in September and were down 182,864, or 3.0%, in the first three quarters of 2016 (see the top half of page 16).

U.S. Rail Intermodal Traffic

• Intermodal weakness continued in September. U.S. railroads originated 1,040,934 containers and trailers in September 2016, down 45,192 (4.2%) from September 2015. That’s the seventh straight year-over-year monthly decline. Average weekly intermodal volume in September 2016 (260,234 units) was the lowest weekly average for September since 2013.


Data are average weekly originated containers and trailers for each month, are not seasonally adjusted, and do not include the U.S. operations of CN and CP. Source: AAR
In the third quarter of 2016, U.S. rail intermodal volume was 3,370,609 units, down 5.2% (186,563 units) from Q3 2015. Container volume was down 3.0% (95,249 containers) for the quarter; trailer volume was down 24.6% (91,314 trailers). Average weekly volume in the third quarter was 259,278 units, virtually the same as in the second quarter of 2016.

Total intermodal volume was 10,083,612 units in the first nine months of 2016, down 3.2% (333,619 units) from last year and the third highest year-to-date total in history (behind 2014 and 2015). The chart above left shows that year-to-date container volume was down just 0.7%, or 66,299 containers; the chart above right shows that year-to-date trailer volume was down 23.6%, or 267,320 trailers. Much (but not all) of the decline in trailer volume this year is associated with a reorganization of Norfolk Southern’s Triple Crown service (see here for more on Triple Crown).
U.S. Rail Carloads + Intermodal Traffic

- The charts below cover combined carload and intermodal volumes on U.S. railroads. (Yes, we know, a carload is not the same as a container or trailer in terms of volume, revenue to the railroad, etc., but the combination is still a useful gauge of total freight volume.) U.S. railroads originated 2,109,578 carloads, containers, and trailers in September 2016, down 106,647 (4.8%) from September 2015.

What are the latest numbers for Canadian railroads?

- Canadian railroads (including their U.S. operations) originated 314,448 carloads in September 2016, up 15,400 (5.1%) over September 2015. That breaks a streak of 17 consecutive months in which total Canadian carloads were down compared with the same month the previous year (see the chart on the top right of the next page). Weekly average carloads of 78,612 in September were the highest for any month since April 2015.

- Metallic ores were the main reason for the overall carload gain. Carloads of metallic ores in September 2016 were up 68.5% (19,026 carloads) over last year. That's the second straight double-digit percentage gain for metallic ores after 15 straight double-digit declines. See the bottom of page 19 for charts on combined U.S. and Canadian carloads of metallic ores.

- Other categories with carload gains on Canadian railroads in September 2016 included grain (up 4,078 carloads, or 12.3%), coke (up 2,692 carloads, or 113.7%), and motor vehicles and parts (up 1,510 carloads, or 7.0%). See page 19 for charts on combined U.S. and Canadian carloads of motor vehicles and parts.

- Categories with carload declines on Canadian railroads in September 2016 included petroleum and petroleum products (down 7,046 carloads, or 22.9%), primary metal products (down 2,563 carloads, or 30.0%), and crushed stone, gravel, and sand (down 1,421 carloads, or 9.7%).

- All told, nine commodities had carload gains on Canadian railroads in September. The chart on the middle left of the next page and the table on page 12 have more detail.

- For the first nine months of 2016, total Canadian carloads were down 8.5% (253,880 carloads) from last year, as gains for lumber and wood products, motor vehicles and parts, and food products were more than offset by losses in petroleum and petroleum products; crushed stone, gravel, and sand; and coal, among others. The chart on the middle right of the next page and the table on page 12 have more details.

- Canadian railroads also originated 242,775 intermodal containers and trailers in September 2016, down 0.2% (375 units) from September 2015. That's the seventh straight year-over-year decline, but the smallest percentage decline in those seven months. Intermodal volume in 2016 through September was down 2.7% (63,150 units) from last year. Canadian intermodal volume this year will almost certainly be the second-highest ever, behind last year.

% Change in Canadian Total Rail Carloads From Same Month Previous Year: Jan. 2010 - Sept. 2016

Change in Originated Canadian Rail Carloads:
Sept. 2016 vs. Sept. 2015

Note: intermodal is not included in this chart. Intermodal was down 375 units (0.2%) in Sept. 2016 from Sept. 2015.
Source: AAR Weekly Railroad Traffic database

Total Canadian Rail Carloads:
YTD Through September

Average Weekly Canadian Rail Intermodal Traffic:

% Change in Canadian Rail Intermodal Traffic From Same Month Previous Year: Jan. 2010 - Sept. 2016

Change in Originated Canadian Rail Carloads:

Note: intermodal is not included in this chart. Intermodal was down 63,150 (2.7%) YTD 2016 vs. YTD 2015.
Source: AAR Weekly Railroad Traffic database

Total Canadian Rail Intermodal Units:
YTD Through September

% Change in Canadian Rail Intermodal Traffic From Same Month Previous Year: Jan. 2010 - Sept. 2016

Sample

Rail Time Indicators – October 7, 2016

Page 10 of 37
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carloads</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural &amp; food products</td>
<td>162,515</td>
<td>152,296</td>
<td>10,219</td>
<td>6.7%</td>
<td>1,485,636</td>
<td>1,460,245</td>
<td>25,391</td>
<td>1.7%</td>
</tr>
<tr>
<td>Grain</td>
<td>97,879</td>
<td>88,019</td>
<td>9,860</td>
<td>11.2%</td>
<td>857,213</td>
<td>811,619</td>
<td>45,594</td>
<td>5.6%</td>
</tr>
<tr>
<td>Farm products excl. grain</td>
<td>3,852</td>
<td>3,839</td>
<td>13</td>
<td>0.3%</td>
<td>32,027</td>
<td>33,981</td>
<td>-1,954</td>
<td>-5.8%</td>
</tr>
<tr>
<td>Grain mill products (1)</td>
<td>35,420</td>
<td>35,461</td>
<td>-41</td>
<td>-0.1%</td>
<td>356,228</td>
<td>374,720</td>
<td>-18,492</td>
<td>-4.9%</td>
</tr>
<tr>
<td>Food products</td>
<td>25,364</td>
<td>24,977</td>
<td>387</td>
<td>1.5%</td>
<td>240,168</td>
<td>239,925</td>
<td>243</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Chemicals and petroleum</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals</td>
<td>120,263</td>
<td>119,664</td>
<td>599</td>
<td>0.5%</td>
<td>1,205,068</td>
<td>1,184,742</td>
<td>20,326</td>
<td>1.7%</td>
</tr>
<tr>
<td>Petroleum &amp; petr. products (2)</td>
<td>42,784</td>
<td>54,594</td>
<td>-11,810</td>
<td>-21.6%</td>
<td>432,601</td>
<td>555,793</td>
<td>-123,192</td>
<td>-22.2%</td>
</tr>
<tr>
<td><strong>Coal</strong></td>
<td>356,856</td>
<td>410,752</td>
<td>-53,896</td>
<td>-13.1%</td>
<td>2,953,540</td>
<td>3,959,175</td>
<td>-1,005,635</td>
<td>-25.4%</td>
</tr>
<tr>
<td><strong>Forest products</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary forest products (3)</td>
<td>4,582</td>
<td>6,049</td>
<td>-1,467</td>
<td>-24.3%</td>
<td>49,502</td>
<td>58,430</td>
<td>-8,928</td>
<td>-15.3%</td>
</tr>
<tr>
<td>Lumber &amp; wood products</td>
<td>12,805</td>
<td>13,414</td>
<td>-609</td>
<td>-4.5%</td>
<td>128,815</td>
<td>137,118</td>
<td>-8,303</td>
<td>-6.1%</td>
</tr>
<tr>
<td>Pulp &amp; paper products</td>
<td>22,590</td>
<td>24,827</td>
<td>-2,237</td>
<td>-9.0%</td>
<td>220,007</td>
<td>236,579</td>
<td>-16,572</td>
<td>-7.0%</td>
</tr>
<tr>
<td><strong>Metallic ores and metals</strong></td>
<td>86,456</td>
<td>88,470</td>
<td>-2,014</td>
<td>-2.3%</td>
<td>848,804</td>
<td>900,959</td>
<td>-52,155</td>
<td>-5.8%</td>
</tr>
<tr>
<td>Metallic ores (4)</td>
<td>23,285</td>
<td>25,461</td>
<td>-2,106</td>
<td>-8.3%</td>
<td>2,169,588</td>
<td>2,426,924</td>
<td>-257,336</td>
<td>-10.6%</td>
</tr>
<tr>
<td>Coke</td>
<td>17,043</td>
<td>15,852</td>
<td>1,191</td>
<td>7.5%</td>
<td>209,089</td>
<td>196,135</td>
<td>14,954</td>
<td>7.6%</td>
</tr>
<tr>
<td>Primary metal products (5)</td>
<td>32,863</td>
<td>36,322</td>
<td>-3,459</td>
<td>-9.5%</td>
<td>337,338</td>
<td>364,986</td>
<td>-27,648</td>
<td>-7.5%</td>
</tr>
<tr>
<td><strong>Motor vehicles &amp; parts</strong></td>
<td>73,478</td>
<td>72,384</td>
<td>1,094</td>
<td>1.5%</td>
<td>700,061</td>
<td>681,835</td>
<td>18,226</td>
<td>2.7%</td>
</tr>
<tr>
<td><strong>Nonmetallic minerals</strong></td>
<td>146,519</td>
<td>148,142</td>
<td>-6,633</td>
<td>-4.4%</td>
<td>1,327,263</td>
<td>1,374,441</td>
<td>-47,178</td>
<td>-3.4%</td>
</tr>
<tr>
<td>Crushed stone, sand &amp; gravel</td>
<td>95,294</td>
<td>96,439</td>
<td>-1,145</td>
<td>-1.2%</td>
<td>855,188</td>
<td>891,373</td>
<td>-36,185</td>
<td>-4.1%</td>
</tr>
<tr>
<td>Nonmetallic minerals (6)</td>
<td>51,265</td>
<td>51,703</td>
<td>-438</td>
<td>-0.9%</td>
<td>472,075</td>
<td>483,068</td>
<td>-11,093</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Stone, clay &amp; glass prod. (7)</td>
<td>90,857</td>
<td>96,253</td>
<td>-5,396</td>
<td>-5.6%</td>
<td>338,664</td>
<td>353,912</td>
<td>-15,248</td>
<td>-4.3%</td>
</tr>
<tr>
<td>Other</td>
<td>39,796</td>
<td>39,507</td>
<td>289</td>
<td>0.7%</td>
<td>385,919</td>
<td>383,904</td>
<td>2,015</td>
<td>0.5%</td>
</tr>
<tr>
<td>Waste &amp; nonferrous scrap (8)</td>
<td>16,641</td>
<td>12,916</td>
<td>3,725</td>
<td>28.8%</td>
<td>149,102</td>
<td>126,780</td>
<td>22,322</td>
<td>17.6%</td>
</tr>
<tr>
<td>All other carloads</td>
<td>23,155</td>
<td>26,591</td>
<td>-3,436</td>
<td>-12.9%</td>
<td>236,817</td>
<td>204,024</td>
<td>32,793</td>
<td>16.1%</td>
</tr>
<tr>
<td><strong>TOTAL CARLOADS</strong></td>
<td>1,068,644</td>
<td>1,130,099</td>
<td>-61,455</td>
<td>-5.4%</td>
<td>9,218,978</td>
<td>9,285,277</td>
<td>-66,299</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Total carloads excl. coal</td>
<td>711,788</td>
<td>719,347</td>
<td>-7,559</td>
<td>-1.1%</td>
<td>6,783,676</td>
<td>6,920,946</td>
<td>-137,270</td>
<td>-2.0%</td>
</tr>
<tr>
<td>Total carloads excl. coal &amp; grain</td>
<td>613,909</td>
<td>631,328</td>
<td>-17,419</td>
<td>-2.8%</td>
<td>5,926,463</td>
<td>6,109,327</td>
<td>-182,864</td>
<td>-3.0%</td>
</tr>
<tr>
<td><strong>Industrial products</strong></td>
<td>398,738</td>
<td>405,104</td>
<td>-6,366</td>
<td>-1.6%</td>
<td>3,822,758</td>
<td>3,905,027</td>
<td>-82,269</td>
<td>-2.1%</td>
</tr>
<tr>
<td><strong>Intermodal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containers</td>
<td>951,720</td>
<td>972,769</td>
<td>-21,049</td>
<td>-2.2%</td>
<td>9,218,978</td>
<td>9,285,277</td>
<td>-66,299</td>
<td>-0.7%</td>
</tr>
<tr>
<td>Trailers</td>
<td>89,214</td>
<td>113,357</td>
<td>-24,143</td>
<td>-21.3%</td>
<td>864,634</td>
<td>1,131,954</td>
<td>-267,320</td>
<td>-23.6%</td>
</tr>
<tr>
<td><strong>TOTAL INTERMODAL</strong></td>
<td>1,040,934</td>
<td>1,086,126</td>
<td>-45,192</td>
<td>-4.2%</td>
<td>10,083,612</td>
<td>10,417,231</td>
<td>-333,619</td>
<td>-3.2%</td>
</tr>
<tr>
<td><strong>TOTAL CARS + INTERMODAL</strong></td>
<td>2,109,578</td>
<td>2,216,225</td>
<td>-106,647</td>
<td>-4.8%</td>
<td>20,302,590</td>
<td>21,402,452</td>
<td>-1,099,862</td>
<td>-5.1%</td>
</tr>
</tbody>
</table>

(1) - Flour, animal feed, corn syrup, corn starch, soybean meal, DDGs, etc.
(2) - Crude petroleum and all products of petroleum refining
(3) - Wood raw materials such as pulpwood and wood chips
(4) - Overwhelmingly iron ore, but some aluminum ore, copper ore, etc.
(5) - Primarily iron & steel; some aluminum, copper, etc.
(6) - Phosphate rock, rock salt, crude sulphur, clay, etc.
(7) - Cement, ground earths or minerals, gypsum, etc.
(8) - Scrap paper, construction debris, ashes, etc.

*Data are originations not seasonally adjusted and do not include the U.S. operations of CN and CP. Source: AAR

**Data include chemicals; paper; metal products; autos & parts; crushed stone, sand & gravel; metallic ores, and stone & glass products.
### Canadian Rail Traffic: September 2016*

(4 weeks ending October 1, 2016, and Year-To-Date)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Carloads</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural &amp; food products</td>
<td>75,145</td>
<td>68,852</td>
<td>6,293</td>
<td>9.1%</td>
<td>584,494</td>
<td>598,552</td>
<td>-14,058</td>
<td>-2.3%</td>
</tr>
<tr>
<td>Grain</td>
<td>37,105</td>
<td>33,027</td>
<td>4,078</td>
<td>12.3%</td>
<td>302,586</td>
<td>328,600</td>
<td>-26,014</td>
<td>-7.9%</td>
</tr>
<tr>
<td>Farm products excl. grain</td>
<td>21,840</td>
<td>21,190</td>
<td>650</td>
<td>3.1%</td>
<td>133,832</td>
<td>130,028</td>
<td>3,804</td>
<td>2.9%</td>
</tr>
<tr>
<td>Grain mill products (1)</td>
<td>6,274</td>
<td>5,652</td>
<td>622</td>
<td>11.0%</td>
<td>59,726</td>
<td>58,807</td>
<td>919</td>
<td>1.6%</td>
</tr>
<tr>
<td>Food products</td>
<td>9,926</td>
<td>8,893</td>
<td>934</td>
<td>10.5%</td>
<td>88,350</td>
<td>81,117</td>
<td>7,233</td>
<td>8.9%</td>
</tr>
<tr>
<td><strong>Chemicals and petroleum</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemicals</td>
<td>43,699</td>
<td>44,483</td>
<td>-784</td>
<td>-1.8%</td>
<td>431,544</td>
<td>451,791</td>
<td>-20,247</td>
<td>-4.5%</td>
</tr>
<tr>
<td>Petroleum &amp; petr. products (2)</td>
<td>23,691</td>
<td>30,737</td>
<td>-7,046</td>
<td>-22.9%</td>
<td>239,956</td>
<td>293,379</td>
<td>-53,423</td>
<td>-18.2%</td>
</tr>
<tr>
<td>Coal</td>
<td>27,907</td>
<td>29,204</td>
<td>-1,297</td>
<td>-4.4%</td>
<td>274,246</td>
<td>310,402</td>
<td>-36,156</td>
<td>-11.6%</td>
</tr>
<tr>
<td><strong>Forest products</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary forest products (3)</td>
<td>6,078</td>
<td>6,299</td>
<td>-221</td>
<td>-3.5%</td>
<td>61,849</td>
<td>61,305</td>
<td>544</td>
<td>0.9%</td>
</tr>
<tr>
<td>Lumber &amp; wood products</td>
<td>13,659</td>
<td>12,954</td>
<td>705</td>
<td>5.4%</td>
<td>134,523</td>
<td>122,927</td>
<td>11,596</td>
<td>9.4%</td>
</tr>
<tr>
<td>Pulp &amp; paper products</td>
<td>10,947</td>
<td>11,127</td>
<td>-180</td>
<td>-1.6%</td>
<td>109,028</td>
<td>115,536</td>
<td>-6,508</td>
<td>-5.6%</td>
</tr>
<tr>
<td><strong>Metallic ores and metals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metallic ores (4)</td>
<td>46,795</td>
<td>27,769</td>
<td>19,026</td>
<td>68.5%</td>
<td>431,544</td>
<td>451,791</td>
<td>-20,247</td>
<td>-4.5%</td>
</tr>
<tr>
<td>Coke</td>
<td>5,060</td>
<td>2,638</td>
<td>2,422</td>
<td>91.3%</td>
<td>20,647</td>
<td>25,922</td>
<td>-5,275</td>
<td>-20.4%</td>
</tr>
<tr>
<td>Primary metal products (5)</td>
<td>5,987</td>
<td>8,550</td>
<td>-2,563</td>
<td>-30.0%</td>
<td>69,109</td>
<td>85,097</td>
<td>-15,988</td>
<td>-18.8%</td>
</tr>
<tr>
<td>Iron &amp; steel scrap</td>
<td>2,760</td>
<td>3,137</td>
<td>-377</td>
<td>-12.0%</td>
<td>30,064</td>
<td>31,063</td>
<td>-999</td>
<td>-3.2%</td>
</tr>
<tr>
<td><strong>Motor vehicles &amp; parts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total cars excl Coal</td>
<td>23,233</td>
<td>21,723</td>
<td>1,510</td>
<td>7.0%</td>
<td>218,048</td>
<td>206,507</td>
<td>11,541</td>
<td>5.6%</td>
</tr>
<tr>
<td><strong>Nonmetallic minerals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crushed stone, sand &amp; gravel</td>
<td>12,626</td>
<td>14,683</td>
<td>-2,057</td>
<td>-14.0%</td>
<td>107,966</td>
<td>115,922</td>
<td>-7,956</td>
<td>-6.7%</td>
</tr>
<tr>
<td>Nonmetallic minerals (6)</td>
<td>1708</td>
<td>3,533</td>
<td>-1,825</td>
<td>-51.7%</td>
<td>46,280</td>
<td>50,777</td>
<td>-4,497</td>
<td>-8.8%</td>
</tr>
<tr>
<td>Stone, clay &amp; glass products</td>
<td>5,211</td>
<td>5,292</td>
<td>-81</td>
<td>-1.6%</td>
<td>48,489</td>
<td>46,562</td>
<td>2,927</td>
<td>6.3%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste &amp; nonferrous scrap (8)</td>
<td>1,049</td>
<td>1,143</td>
<td>-94</td>
<td>-8.2%</td>
<td>19,247</td>
<td>18,967</td>
<td>280</td>
<td>1.5%</td>
</tr>
<tr>
<td>All other carloads</td>
<td>5,235</td>
<td>5,079</td>
<td>156</td>
<td>3.1%</td>
<td>38,126</td>
<td>46,376</td>
<td>-8,250</td>
<td>-17.8%</td>
</tr>
<tr>
<td><strong>TOTAL CARLOADS</strong></td>
<td>314,448</td>
<td>299,048</td>
<td>15,400</td>
<td>5.1%</td>
<td>2,747,958</td>
<td>3,001,838</td>
<td>-253,880</td>
<td>-8.5%</td>
</tr>
<tr>
<td><strong>Total Carloads excl Coal</strong></td>
<td>286,541</td>
<td>269,844</td>
<td>16,697</td>
<td>6.2%</td>
<td>2,473,712</td>
<td>2,691,436</td>
<td>-217,724</td>
<td>-8.1%</td>
</tr>
<tr>
<td><strong>Total Cars excl Coal &amp; Grain</strong></td>
<td>249,436</td>
<td>236,817</td>
<td>12,619</td>
<td>5.3%</td>
<td>2,171,126</td>
<td>2,362,836</td>
<td>-191,710</td>
<td>-8.1%</td>
</tr>
<tr>
<td><strong>Intermodal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Containers</td>
<td>238,611</td>
<td>237,391</td>
<td>1,220</td>
<td>0.5%</td>
<td>2,279,245</td>
<td>2,319,328</td>
<td>-40,083</td>
<td>-1.7%</td>
</tr>
<tr>
<td>Trailers</td>
<td>4,164</td>
<td>5,759</td>
<td>-1,595</td>
<td>-27.7%</td>
<td>35,734</td>
<td>58,801</td>
<td>-23,067</td>
<td>-39.2%</td>
</tr>
<tr>
<td><strong>TOTAL INTERMODAL</strong></td>
<td>242,775</td>
<td>243,150</td>
<td>-375</td>
<td>-0.2%</td>
<td>2,314,979</td>
<td>2,378,129</td>
<td>-63,150</td>
<td>-2.7%</td>
</tr>
<tr>
<td><strong>TOTAL CARS + INTERMODAL</strong></td>
<td>557,223</td>
<td>542,198</td>
<td>15,025</td>
<td>2.8%</td>
<td>5,062,937</td>
<td>5,379,967</td>
<td>-317,030</td>
<td>-5.9%</td>
</tr>
</tbody>
</table>

(1) - flour, animal feed, corn syrup, corn starch, soybean meal, DDGs, etc.
(2) - crude petroleum and all products of petroleum refining
(3) - wood raw materials such as pulpwood and wood chips
(4) - overwhelmingly iron ore, but some aluminum ore, copper ore, etc.
(5) - primarily iron & steel; some aluminum, copper, etc.
(6) - phosphate rock, rock salt, crude sulphur, clay, etc.
(7) - cement, ground earths or minerals, gypsum, etc.
(8) - scrap paper, construction debris, ashes, etc.

*CN and CP, including their U.S. operations. Data are originations not seasonally adjusted. Source: AAR
### COMBINED U.S. AND CANADIAN RAIL TRAFFIC: SEPTEMBER 2016*

(4 weeks ending October 1, 2016, and Year-To-Date)

<table>
<thead>
<tr>
<th>Commodity</th>
<th>SEPTEMBER 2016</th>
<th>YEAR-TO-DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carloads</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural &amp; food products</td>
<td>237,660</td>
<td>221,148</td>
</tr>
<tr>
<td>Grain</td>
<td>134,984</td>
<td>121,046</td>
</tr>
<tr>
<td>Farm products excl. grain</td>
<td>25,692</td>
<td>25,029</td>
</tr>
<tr>
<td>Grain mill products (1)</td>
<td>41,694</td>
<td>41,113</td>
</tr>
<tr>
<td>Food products</td>
<td>35,290</td>
<td>33,960</td>
</tr>
<tr>
<td>Chemicals and petroleum</td>
<td>134,984</td>
<td>121,046</td>
</tr>
<tr>
<td>Chemicals</td>
<td>163,962</td>
<td>164,147</td>
</tr>
<tr>
<td>Petroleum &amp; petr. products (2)</td>
<td>66,475</td>
<td>85,331</td>
</tr>
<tr>
<td>Coal</td>
<td>384,763</td>
<td>439,956</td>
</tr>
<tr>
<td>Forest products</td>
<td>70,661</td>
<td>74,670</td>
</tr>
<tr>
<td>Primary forest products (3)</td>
<td>63,442</td>
<td>62,385</td>
</tr>
<tr>
<td>Lumber &amp; wood products</td>
<td>26,464</td>
<td>26,368</td>
</tr>
<tr>
<td>Pulp &amp; paper products</td>
<td>33,537</td>
<td>35,954</td>
</tr>
<tr>
<td>Metallic ores and metals</td>
<td>147,058</td>
<td>130,294</td>
</tr>
<tr>
<td>Metallic ores (4)</td>
<td>70,080</td>
<td>50,380</td>
</tr>
<tr>
<td>Coke</td>
<td>22,103</td>
<td>18,220</td>
</tr>
<tr>
<td>Primary metal products (5)</td>
<td>38,580</td>
<td>44,872</td>
</tr>
<tr>
<td>Iron &amp; steel scrap</td>
<td>16,025</td>
<td>16,822</td>
</tr>
<tr>
<td>Motor vehicles &amp; parts</td>
<td>96,711</td>
<td>94,107</td>
</tr>
<tr>
<td>Nonmetallic minerals</td>
<td>80,710</td>
<td>133,440</td>
</tr>
<tr>
<td>Crushed stone, sand &amp; gravel</td>
<td>7,880</td>
<td>8,122</td>
</tr>
<tr>
<td>Nonmetallic minerals (6)</td>
<td>24,586</td>
<td>31,122</td>
</tr>
<tr>
<td>Stone, clay &amp; glass prod. (7)</td>
<td>3,986</td>
<td>3,839</td>
</tr>
<tr>
<td>Other</td>
<td>46,052</td>
<td>46,052</td>
</tr>
<tr>
<td>Waste &amp; nonferrous scrap (8)</td>
<td>17,702</td>
<td>14,384</td>
</tr>
<tr>
<td>All other carloads</td>
<td>28,390</td>
<td>31,670</td>
</tr>
<tr>
<td>TOTAL CARLOADS</td>
<td>1,383,092</td>
<td>1,429,147</td>
</tr>
<tr>
<td>Total Carloads excl Coal</td>
<td>998,329</td>
<td>989,191</td>
</tr>
<tr>
<td>Total Cars excl Coal &amp; Grain</td>
<td>863,345</td>
<td>868,145</td>
</tr>
</tbody>
</table>

### Intermodal

| Containers                              | 1,190,331 | 1,210,160 | -19,829 | -1.6% | 11,498,223 | 11,604,065 | -106,842 | -0.9% |
| Trailers                                | 93,378 | 119,116 | -25,738 | -21.6% | 900,368 | 1,190,755 | -290,387 | -24.4% |
| TOTAL INTERMODAL                        | 1,283,709 | 1,329,276 | -45,567 | -3.4% | 12,398,591 | 12,795,363 | -396,772 | -3.1% |
| TOTAL CARS + INTERMODAL                 | 2,666,801 | 2,758,423 | -91,622 | -3.3% | 24,883,765 | 26,677,319 | -1,793,554 | -6.7% |

(1) flour, animal feed, corn syrup, corn starch, soybean meal, DDGs, etc.
(2) crude petroleum and all products of petroleum refining
(3) Wood raw materials such as pulpwood and wood chips
(4) overwhelmingly iron ore, but some aluminum ore, copper ore, etc.
(5) primarily iron & steel; some aluminum, copper, etc.
(6) phosphate rock, rock salt, crude sulphur, clay, etc.
(7) cement, ground earths or minerals, gypsum, etc.
(8) scrap paper, construction debris, ashes, etc.

*Data are originations not seasonally adjusted. Source: AAR
Through September, YTD 2016 was down 25.4% (1,005,635 carloads) from YTD 2015.

September 2016 was down 13.1% from September 2015.
U.S. Rail Carloads Excl. Coal: YTD Through September

Through September, YTD 2016 was up 5.6% (45,594 carloads) over YTD 2015.

% Change in U.S. Rail Carloads Excluding Coal From Same Month Previous Year: Jan. 2010 - Sept. 2016

September 2016 was down 1.1% from September 2015.

% Change in U.S. Rail Carloads of Grain From Same Month Previous Year: Jan. 2010 - Sept. 2016

Through September, YTD 2016 was up 5.6% (45,594 carloads) over YTD 2015.


Average Weekly U.S. Rail Carloads of Grain

Average Weekly U.S. Rail Carloads: All Commodities Excluding Coal


U.S. Rail Carloads Excl. Coal: YTD Through September (millions)

Through September, YTD 2016 was down 2.0% (137,270 carloads) from YTD 2015.

Average Weekly U.S. Rail Carloads: YTD Through September

Data are average weekly originations for each month, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are average weekly originations for each month, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are average weekly originations for each month, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are based on originations, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are based on originations, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are based on originations, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are based on originations, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are based on originations, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are based on originations, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR

Data are based on originations, do not include intermodal, and do not include the U.S. operations of CN and CP.  Source: AAR
INDUSTRIAL PRODUCTS

% Change in U.S. Rail Carloads of Industrial Products From Same Month Prev. Year: Jan. 2010 - Sept. 2016*

Average Weekly U.S. Rail Carloads: Industrial Products*


U.S. Rail Carloads of Industrial Products: YTD Through September (millions)

% Change in U.S. Rail Carloads of Steel and Other Primary Metal Products From Same Month Prev. Year: Jan. 2010 - Sept. 2016

U.S. Rail Carloads of Steel and Other Primary Metal Products: YTD Through September

*Data include chemicals, paper, metal products, autos and parts, crushed stone and sand, metallic ores, and stone and glass products. Data are weekly average originations for each month, do not include intermodal, and do not include the U.S. operations of CN and CP. Source: AAR
Average Weekly U.S. Rail Carloads of Iron and Steel Scrap


Average Weekly U.S. Rail Carloads of Petroleum and Petroleum Products


% Change in U.S. Rail Carloads of Iron and Steel Scrap From Same Month Previous Year: Jan. 2010 - Sept. 2016

% Change in U.S. Rail Carloads of Petroleum and Petroleum Products From Same Month Previous Year: Jan. 2010 - Sept. 2016

U.S. Rail Carloads of Iron and Steel Scrap: YTD Through September

U.S. Rail Carloads of Petroleum and Petroleum Products: YTD Through September

*Our data begin in 2008. Data are average weekly originations for each month, are not seasonally adjusted, do not include intermodal, and do not include the U.S. operations of CN and CP. Source: AAR

Through September, YTD 2015 was up 21.6% (6,564 carloads) from YTD 2014.

Through September, YTD 2016 was up 4.5% (6,564 carloads) from YTD 2015.

Through September, YTD 2016 was down 22.2% (123,192 carloads) from YTD 2015.
**MOTOR VEHICLES AND PARTS**

### Average Weekly Rail Carloads of Motor Vehicles

- **Combined U.S. + Canadian**
  - **Average Weekly Rail Carloads of Motor Vehicles**
  - **Graph**
    - **Units:** Carloads
    - **X-axis:** Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
    - **Y-axis:** 0, 12,000, 24,000, 36,000, 48,000
  - *Includes parts, does not include intermodal. Data are average weekly originations for each month, are not seasonally adjusted, and do not include intermodal. Source: AAR*

### % Change in Combined U.S. + Canadian Rail Carloads of Motor Vehicles From Same Month Previous Year:

- **Graph**
  - **Legend:** 2016 was up 2.8% over September 2015.
  - **Y-axis:** -100%, -80%, -40%, 0%, 40%, 80%, 120%
- *Includes parts, does not include intermodal. Data are based on originations, are not seasonally adjusted, and do not include intermodal. Source: AAR*


- **Graph**
  - **Legend:** Through September, YTD 2016 was up 3.4% (29,767 carloads) over YTD 2015.
  - **Y-axis:** 0, 10,000, 20,000, 30,000, 40,000, 50,000, 60,000
  - **Units:** Carloads
- *Includes parts, does not include intermodal. Data are average weekly originations for each month, are not seasonally adjusted, and do not include intermodal. Source: AAR*

### Combined U.S. + Canadian Rail Carloads of Metallic Ores

- **Graph**
  - **Legend:** Through September, YTD 2016 was up 39.1% over September 2015.
  - **Y-axis:** 0, 4,000, 8,000, 12,000, 16,000, 20,000, 24,000, 28,000, 32,000, 36,000, 40,000
- *Includes parts, does not include intermodal. Data are based on originations, are not seasonally adjusted, and do not include intermodal. Source: AAR*

### % Change in Combined U.S. + Canadian Rail Carloads of Metallic Ores From Same Month Previous Year:

- **Graph**
  - **Legend:** September 2016 was up 2.8% over September 2015.
  - **Y-axis:** -80%, -40%, 0%, 40%, 80%, 120%
- *Includes parts, does not include intermodal. Data are based on originations, are not seasonally adjusted, and do not include intermodal. Source: AAR*


- **Graph**
  - **Legend:** Through September, YTD 2016 was up 39.1% over September 2015.
  - **Y-axis:** 0, 20,000, 40,000, 60,000, 80,000, 100,000
  - **Units:** Carloads
- *Includes parts, does not include intermodal. Data are average weekly originations for each month, are not seasonally adjusted, and do not include intermodal. Source: AAR*

### Combined U.S. + Canadian Rail Carloads of Motor Vehicles: YTD Through September

- **Graph**
  - **Legend:** Through September, YTD 2016 was up 2.8% over September 2015.
  - **Y-axis:** 0, 10,000, 20,000, 30,000, 40,000, 50,000, 60,000
  - **Units:** Carloads
- *Includes parts, does not include intermodal. Data are average weekly originations for each month, are not seasonally adjusted, and do not include intermodal. Source: AAR*

### Combined U.S. + Canadian Rail Carloads of Metallic Ores: YTD Through September

- **Graph**
  - **Legend:** Through September, YTD 2016 was up 39.1% over September 2015.
  - **Y-axis:** 0, 20,000, 40,000, 60,000, 80,000, 100,000
  - **Units:** Carloads
- *Includes parts, does not include intermodal. Data are average weekly originations for each month, are not seasonally adjusted, and do not include intermodal. Source: AAR*
LUMBER AND WOOD PRODUCTS

Combined U.S. + Canadian Average Weekly Rail Carloads of Lumber and Wood Products

% Change in Combined U.S. + Canadian Rail Carloads of Lumber and Wood Products From Same Month Previous Year: Jan. 2010 - Sept. 2016


% Change in Combined U.S. + Canadian Rail Carloads of Pulp and Paper Products From Same Month Previous Year: Jan. 2010 - Sept. 2016

Combined U.S. + Canadian Rail Carloads of Pulp and Paper Products: YTD Through September

PULP AND PAPER PRODUCTS

Through September, YTD 2016 was up 1.3% (3,293 carloads) over YTD 2015.

September 2016 was up 0.4% over September 2015.

September 2016 was down 6.7% from September 2015.
2. GROSS DOMESTIC PRODUCT (GDP)

- On September 29, the Bureau of Economic Analysis released its third estimate of Q2 2016 U.S. GDP growth: 1.4%. That's up from the first two estimates of 1.2% and 1.1%, respectively. The upward revision was mainly because the BEA decided that business investment actually grew slightly in Q2, rather than fall slightly, and because inventories apparently didn't fall as much as first thought.

- Still, 1.4% is lousy, no question about that, and it continues a string of mostly lousy quarters extending back seven quarters. In fact, as we've said many times in RTI, the entire recovery since June 2009 has been lousy. Figure 2-2 shows that the recession and weak recovery since then has knocked somewhere on the order of $1.5 trillion off U.S. GDP.

- The second quarter is yesterday's news at this point. What about the future? We have no idea (something economists would say more often if they were honest!), but maybe the Conference Board's Index of Leading Economic Indicators (LEI) offers a clue. A leading indicator is one that portends changes in something else. The LEI is meant to identify business cycle turning points before they happen.¹

- We last showed Figure 2-3 back in March. It shows the LEI back to 1990. It turned down prior to each of the three recessions since then but doesn’t seem to be pointing down right now. The Conference Board released its latest LEI on September 22. The Conference Board’s Director of Business Cycles and Growth Research said this about it: “While the U.S. LEI declined in August, its trend still points to moderate economic growth in the months ahead. Although strengths and weaknesses among the leading indicators are roughly balanced, positive contributions from the financial indicators were more than offset by weakening of nonfinancial indicators, such as leading indicators of labor markets, suggesting some risks to growth persist.” In other words, the Conference Board doesn’t know either, but that’s normal today.

¹ The 10 components of the Conference Board’s LEI are average manufacturing weekly hours; average weekly initial claims for unemployment insurance; manufacturers’ new orders for consumer goods and materials; the PMI index of new orders; manufacturers’ new orders for nondefense capital goods excluding aircraft; building permits for new private housing; the S&P 500 index; the Leading Credit Index, which is a measure of financial markets; the interest rate spread between 10-year Treasury bonds and the federal funds rate; and average consumer expectations for business conditions.
Back in March, for comparison, we included a chart showing year-over-year changes in U.S. rail carloads excluding coal and grain since 1990. Figure 2-4 is an updated version of that chart. Rail carloads excluding coal and grain have also declined prior to the official start of the most recent three recessions. They’re down now too, as discussed in the rail traffic section.

Back in March we also included earlier versions of Figure 2-5. Before each of the past seven U.S. recessions, long-term interest rates fell below short-term rates, producing a “yield-curve inversion.” Historically, the slope of the yield curve has been a reliable enough predictor of economic conditions that economists at the New York Federal Reserve and elsewhere use it to calculate the probability of a recession.

The charts that comprise Figure 2-5 come from the New York Fed (see here). Normally, the yield curve slopes up because long-term interest rates are higher than short-term rates to compensate investors for higher risk. When the yield curve steepens, it usually reflects expectations of higher short-term rates in the future, signaling economic growth. But a flattening curve indicates expectations that rates will fall, something that typically happens because the market anticipates the Fed will ease monetary policy to stimulate a slowing economy. An inverted yield curve implies the market thinks short-term rates will fall sharply and stay low, signaling an economic contraction.

The New York Fed’s top chart above right shows that the average spread today is more than 1%. By the New York Fed’s calculation (see the bottom chart in Figure 2-5), there’s a 9% chance of a recession in the next year. On the other hand, as we said in March, some economists argue that, with short-term rates already so low, long-term rates would have to go close to zero for the yield curve to invert, and since that’s highly unlikely, they argue the inversion indicator might have been useful in the past but isn’t anymore. But are negative rates truly unlikely? Several central banks have already done that in an attempt to counter low inflation, deflation, or rising currency values. Whether that will happen here is a matter of lots of debate. See here and here for a couple of randomly chosen articles on negative interest rates.

Starting a few months ago, each month we’ve been reporting near-term U.S. GDP forecasts from two of the Federal Reserve banks. The October 7 edition of the Federal Reserve Bank of New York’s Nowcasting Report — a weekly report that tries to track U.S. GDP growth in real time using a sophisticated model (see here) — says GDP grew 2.2% in Q3 2016 and will grow 1.3% in Q4 2016. No gold star for the economy there. The Federal Reserve Bank of Atlanta has a similar report, which it calls GDPNow (see here). The October 7 edition of it says GDP grew 2.1% in Q3 2016. The projections change often as new data are incorporated into the models.
3. PURCHASING MANAGERS INDEX (PMI) and NON-MANUFACT. INDEX (NMI)

- The Institute for Supply Management’s Purchasing Managers Index rebounded in September to 51.5, putting it back in the “manufacturing is expanding” level after dipping below it in August (see the bars in Figure 3-1). Even better, the new orders component of the PMI was 55.1 in September, up sharply from August’s 49.1 (see the line in Figure 3-1).

- It looks like August may have been an aberration. At least, that’s the hope. Ian Shepherdson, chief economist of Pantheon Macroeconomics, told The Wall Street Journal, “We need to see another decent month before we can be completely sure, but for now these data appear to support our view that the August drop was a fluke and that the combination of rebounding energy capex, stronger non-energy capex, and decent demand from both domestic consumer and overseas is supporting U.S. manufacturing. No boom, but no bust, either.”

- Of the 18 manufacturing line items, the ISM tracks, just 7 reported growth in September. And it’s not like there’s a huge difference between a PMI of 49.4 (August 2016) and a PMI of 51.5 (September). So, the PMI is still a yellow caution light, it’s just not flashing quite as brightly as it was last month.

- The PMI averaged 50.9 in 2016 through September. According to the ISM, that corresponds to 2.4% GDP growth. Figure 3-2 shows the fairly decent correlation between GDP and the PMI.

- It seems August may have been an aberration for the ISM’s Non-Manufacturing Index (NMI) too. It rose to 57.1 in September from 51.4 in August, reaching its highest point in nearly a year (see the bars in Figure 3-3). The new orders component rose to 60.0 in September from 51.4 in August (see the line in Figure 3-3). September is the 80th straight month in which the NMI was in the > 50 “service sector is expanding” range.

- An article in The Wall Street Journal on October 5 pointed out that the NMI (like the PMI) can be volatile, and that the trend for service-sector growth might be somewhere between the low August and relatively high September figures. Anthony Nieves, the head of the NMI survey, told the WSJ, “We see some nice growth here, we’ll just have to wait and see how it trends out over the next couple of months.”

- The ISM said that past relationships suggest that an NMI of 57.1 (September’s level) corresponds to 3.2% GDP growth. No one thinks GDP is growing that fast right now, another reason to think the NMI might be headed for a bit of a correction in the next couple of months.
4. INDUSTRIAL OUTPUT

- Everyone knows that industrial output tanked during the Great Recession, but the extent of that tanks may have receded from memory. To help jog it, we offer Figure 4-1. Industrial output peaked in November 2007, then bottomed out in June 2009 at a point 17% lower than its peak. Thanks to oil and gas, total output surpassed its pre-recession peak in November 2014, but it soon fell back below the peak, where it still is (see the bars in Figure 4-1). For manufacturing, the peak was December 2007, and it still hasn’t gotten back to it (see the line in Figure 4-1).

- If August 2016 is any guide, we won’t be getting back to the peaks any time soon. In August, both manufacturing output and total industrial output (which includes utilities and mining in addition to manufacturing) fell 0.4% (see Figures 4-2 and 4-3).

- We saw in the earlier section that the PMI fell in August but then rebounded in September. We’ll see if the same thing happens here.

- Utility output is more about the weather than the economy; it fell 1.4% in August from July (see Figure 4-4). Mining, oil, and gas output rose 1.0% in August, its fourth straight increase, but it is still more than 9% lower than at the same point in 2015 (see Figure 4-5).
5. CAPACITY UTILIZATION

- Nothing in the most recent capacity utilization numbers will make anyone’s heart go pitter patter. **Total capacity utilization was a preliminary 75.5% in August 2016, down from 75.9% in July 2016 and well below its peak in late 2014**. For manufacturing, it was 74.8% in August, down from 75.2% in July, continuing a slow downward trend over the past year (see Figure 5-1).

---

**Figure 4-10**

**Figure 4-11**

**Figure 5-1**

**Figure 5-2**

**Figure 5-3**

---

**Figure 5-1**

**Figure 5-2**

**Figure 5-3**

---

**Figure 4-10**

**Figure 4-11**

**Figure 5-1**

**Figure 5-2**

**Figure 5-3**

---

**Figure 5-1**

**Figure 5-2**

**Figure 5-3**

---

**Figure 5-1**

**Figure 5-2**

---

**Figure 5-1**

**Figure 5-2**

---

**Figure 5-1**

**Figure 5-2**

---

**Figure 5-1**

**Figure 5-2**

---

**Figure 5-1**

**Figure 5-2**

---

**Figure 5-1**

**Figure 5-2**

---

**Figure 5-1**

**Figure 5-2**

---

**Figure 5-1**

**Figure 5-2**
6. **EMPLOYMENT SITUATION**

- It was a steady-as-she-goes month for job creation in September, with a preliminary 156,000 net new jobs created (see Figure 6-1). That's down slightly from 167,000 in August (revised upward by 16,000). For the year to date through September, job gains were 1.60 million — an average of 178,000 per week — compared with 1.90 million at this time in 2015 and 2.19 million at this time in 2014 (see Figure 6-2).

![Figure 6-1](image1)

**U.S. Net New Jobs Created: YTD Through September**

*Change from previous month. Figures are seasonally adjusted. Most recent three months are preliminary. Source: Bureau of Labor Statistics*

![Figure 6-2](image2)

**U.S. Unemployment Rate: Jan. 2008 - Sept. 2016**

*Civilian labor force, seasonally adjusted. Source: Bureau of Labor Statistics*

- **The unemployment rate in September ticked up to 5.0% from 4.9% in August** (see Figure 6-3), thanks mainly to a 444,000 increase (to 159.9 million) in the measured size of the labor force in September. To be in the labor force, you have to be employed (full or part-time) or be actively seeking work. It's not easy to determine the size of the labor force and there clearly some imprecision — it's volatile from month to month, even on a three-month moving average basis (see Figure 6-5). A rising unemployment rate caused by a growing labor force is a good thing if it means people who had been sitting on the sidelines decided to get in the game because they thought they had a better chance to score than before. (Which reminds us: Go Packers!) The labor force participation rate ticked up to 62.9% in September from 62.8% in August. The number of people not in the labor force was 94.2 million in September.

![Figure 6-3](image3)

**U.S. Employment Situation**

<table>
<thead>
<tr>
<th>Month</th>
<th>Unemployment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr. 2016</td>
<td>5.0%</td>
</tr>
<tr>
<td>May 2016</td>
<td>4.7%</td>
</tr>
<tr>
<td>June 2016</td>
<td>4.9%</td>
</tr>
<tr>
<td>July 2016</td>
<td>4.9%</td>
</tr>
<tr>
<td>Aug. 2016</td>
<td>4.9%</td>
</tr>
<tr>
<td>Sept. 2016</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

![Figure 6-4](image4)


*Civilian labor force, seasonally adjusted. Source: Bureau of Labor Statistics*

![Figure 6-5](image5)

**Change in Size of the Labor Force (000s)**

*The number of people either employed or actively seeking work. Source: BLS*
• We show Figure 6-6 — the employment-population ratio — every few months. It ticked up in September but hasn’t moved much in 2016. It’s also far below where it was before the recession. We also show Figure 6-7 every few months. It shows the long-term unemployed (defined as unemployed more than 27 weeks) in absolute terms and as a percentage of total unemployed. They seem to have flattened out so far this year and are also higher than where they were before the recession.

• The Wall Street Journal on September 26 had an article entitled, “Labor Recovery Reaches a Plateau.” It starts, “After a half-decade of steady gains, the U.S. labor market appears to be leveling off. What that plateau means for the economy’s trajectory is one of the biggest questions hanging over policy makers and investors.” The article cites, among other things, a flat unemployment rate (see Figure 6-3), job growth that’s consistent by sector (see Figure 6-1), a labor force participation rate that’s stuck near a 40-year low, and the share of Americans aged 25-54 with a job that’s below 78% in September (see Figure 6-8) that’s near a post-recession high but hasn’t changed much this year. The article notes that, “Some economists worry that a leveling-off of the labor market might mean hiring is sinking to match weak growth.” The article notes that the economy is already weighed down by weak business spending and global headwinds, and quotes California State University economist Sung Won Sohn, who says, “Sooner or later that will get to employment.” Other economists take a different view. For example, Mark Hamrick, an economic analyst at Bankrate.com, told The Washington Post, “The broader [employment] trend is slow and steady, which is fine for the purpose of wishing for a sustainable recovery.” Who’s right? Who knows?

• Figure 6-9 is a popular chart for those who are most confident about the labor market and, by extension, the economy. The chart shows that the number of job openings today is at an all-time high — 5.9 million as of the last business day of July. This figure is part of BLS’s Job Openings and Labor Turnover Summary, or JOLTS. This metric is supposedly one of those Janet Yellen pays close attention to. To the extent it’s an accurate representation of the labor market, it’s clearly telling a good story right now.
7. CLASS I FREIGHT RAILROAD EMPLOYMENT

- Class I railroads had 152,753 employees in August 2016, up 35 from the month before. It’s not much, but it’s the second straight gain after 14 straight declines (see Figure 7-1). Total net employment gain over those two months was 327. Five of the seven Class I railroads gained employees in August; three had gains in July and August combined, led by BNSF (up 796 employees over the two months).

- Train and engine employment rose by 695 in August after rising 754 in July. The 1,449-employee gain over two months is nice, but still leaves train and engine employment down 14,096 from its April 2015 peak of 73,725 (see Figure 7-3). In August 2016, combined employment in categories other than train and engine fell, the 14th straight month that’s happened (see Figure 7-2). The decline in employment (660) in August for those other than train and engine was the largest in seven months.

- Figure 7-4 shows weekly rail traffic (combined carloads and intermodal units) per employee for BNSF, CSX, KCS, NS, and UP combined. (CN and CP are excluded due to data compatibility issues.) As of August 2016, the ratio is about where it’s been at the same time the previous few years. Put another way, it appears railroads are continuing to manage their resources (in this case, employees) to match the business at hand, something firms in every sector of the economy do every day.
8. CONSUMER CONFIDENCE

- The Conference Board’s index of consumer confidence rose to 104.1 in September 2016, up from 101.8 in August and the highest it’s been since August 2007 (see Figure 8-1). It was 92.4 in May 2016, so the increase over the past five months has been impressive. And why not? Inflation is low (see page 36), the job market is good (see page 27), and, one way or another, the election will be over in a few weeks and people can start talking about something else.

- Lynn Franco, the Director of Economic Indicators at The Conference Board, said: “Consumers’ assessment of present-day conditions improved, primarily the result of a more positive view of the labor market. Looking ahead, consumers are more upbeat about the short-term employment outlook, but somewhat neutral about business conditions and income prospects. Overall, consumers continue to rate current conditions favorably and foresee moderate economic expansion in the months ahead.”

- The Reuters/University of Michigan index of consumer sentiment rose too, to 91.2 in September from 89.8 in August (see Figure 8-2). It’s still well off its most recent high of 98.1 in January 2015. Richard Curtin, the economist behind the index, said this about the September number, “Consumer sentiment has remained at high levels throughout the past year, with only small month-to-month variations…To keep confidence at high levels, future gains in real incomes and jobs must be sufficient to offset the anticipated impact of higher interest rates on consumer spending.”

- Each month Gallup releases its U.S. Economic Confidence Index, which is the average of two components: how Americans rate current economic conditions and whether they feel the economy is improving or getting worse. The index has a theoretical maximum of +100 if all Americans say the economy is doing well and improving, and a theoretical minimum of -100 if all Americans say the economy is doing poorly and getting worse. The index was -10 in September 2016, matching its best result in more than a year (see Figure 8-3). The index is still well below its post-recession high of +3 in January 2015.
There’s a strong correlation between consumer confidence and many other economic indicators, including the unemployment rate (see Figure 8-4), housing starts, new auto sales (Figure 8-5), and even, at least in recent years, the stock market (Figure 8-6).

9. RETAIL SALES AND CONSUMER SPENDING

- Retail sales in August 2016 were down 0.3% from July 2016, following a 0.06% gain in July over June. August was the first decline in five months (see Figure 9-1). Stephen Stanley, the chief economist at Amherst Pierpoint, told the Associated Press, “The underlying fundamentals for the consumer remain quite strong. That makes August’s clunker of a report a little hard to explain.”

The figures for personal consumer expenditures, a broader measure of consumer spending that includes services and other purchases not included in retail sales, weren’t much better in August: they were flat on a current-dollar basis (Figure 9-3) and were down 0.1% adjusted for inflation (Figure 9-4).

As the consumer goes so goes the economy. That’s the message of Figure 9-6, which shows that changes in consumer spending generally mirror changes in overall GDP. That hasn’t been the case for the past few quarters, when GDP growth has underperformed relative to consumer spending. Put another way, consumer spending has been driving recent GDP growth. It contributed 1.5 percentage points to growth in Q4 2015 (overall GDP growth was 0.9%), 1.1 percentage points in Q1 2016 (overall was 0.8%), and 2.9 percentage points in Q2 2016 (overall was 1.4%) (see Figure 9-5). Over the past eight quarters, consumer spending has risen an average of 3.1% on an annualized basis, which isn’t bad at all.

One reason why consumer spending isn’t higher is households’ higher propensity to save. Figure 9-7 shows personal saving as a percentage of disposable personal income for the past few years. From 2005...
to 2007, it averaged 3.0%, but from 2014 through August 2016 it’s averaged 5.7%. The 2.7 percentage points difference is equal to around $380 billion that’s been saved instead of spent. That’s a lot of foregone consumption. On the other hand, it’s one reason why household balance sheets are much healthier today, on average, than they were leading into the recession.
10. NEW LIGHT VEHICLE SALES

- In September 2016, 1.43 million new vehicles were sold in the U.S., down 0.7% from September 2015 and the second straight year-over-year decline (see Figure 10-1). Still, on an annualized and seasonally adjusted basis, **sales in September 2016 were 17.7 million, a 4.4% increase over August 2016** and higher than the average of 17.2 million for the other eight months so far in 2016 (see Figure 10-2).

- Year-to-date sales in 2016 through September were 13.04 million units, fractionally higher than in 2015, (see the bars in Figure 10-3). You’ll recall that 2015 was the all-time record year for sales. Light trucks account for a much higher percentage of sales this year than last year — see the lines in Figure 10-3.

Some caution is in order, though. Figure 10-4 shows the inventory-sales ratio for autos through August 2016. The ratio has been rising since May, which might be one reason why automakers are increasing their use of sales incentives. According to a report in The Wall Street Journal, J.D. Power calculates that automakers spent an average of nearly $400 more on incentives per vehicle in September 2016 than in September 2015. Incentives averaged $3,888 per sale in September 2016, according to J.D. Power, breaking the record set in December 2008. Automakers are reportedly also relying more heavily on fleet customers, including rental-car companies and government agencies, to spur sales.
11. HOUSING

Housing Starts

- Total housing starts were an annualized and seasonally adjusted (and preliminary) 1.14 million in August 2016, down from 1.21 million in July and about equal to the average for the year (see Figure 11-1). Both single-family and multi-family starts were down in August (see Figure 11-2). For the year-to-date, housing starts in 2016 through August were up 6% over 2015 and up 18% over 2014 (see the bars in Figure 11-3). Through August, single-family starts were up 9% over last year and multi-family starts were flat.

- The bars in Figure 11-4 show three-month moving average housing starts, useful to counter the inherent month-to-month “noise” in housing starts. The bars show that there has been little if any growth in housing starts since the middle of 2015. In other words, most of the year-to-date growth this year over last year is from the early part of the year.

- The top line in Figure 11-3 shows year-to-date combined Canadian and U.S. originated carloads of lumber and wood products. (We combine them because Canadian railroads, including their U.S. operations, are key carriers of lumber for the U.S. market.) Figure 11-4 shows carloads vs. total housing starts by month. Both charts clearly show a very close correlation, and Figure 11-4 shows that rail lumber carloads have, on average, leveled off just like housing starts have.

- Since housing starts are a useful gauge of overall economic sentiment, it means that rail lumber carloads are a useful indicator too. In last month’s RTI, we showed that, among all individual rail commodities, lumber and wood products have the strongest correlation with GDP growth. (Some traffic aggregates were better. The best was carloads excluding coal and grain, plus intermodal. See pages 21-22 of last month’s RTI for more.)
Existing and New Home Sales

- **Existing home sales fell in August 2016 for the second straight month, down 0.9% from July to an annualized 5.33 million** (see Figure 11-5). For the year-to-date through August, sales were up 3.3% over last year. According to the National Association of Realtors NAR), which releases the numbers, low inventory kept would-be buyers at bay. The NAR says that the inventory of houses for sale at the end of August fell 3.3% from July to 2.04 million, is now 10.1% lower than a year ago (2.27 million), and has fallen year-over-year for 15 straight months. In August, unsold inventory was at a 4.6-month supply at the current sales pace, much lower than the 6 months that's considered healthy.

- The NAR’s chief economist said, “While recent data from the U.S. Census Bureau shows that household incomes rose strongly last year, home prices are still outpacing incomes in many metro areas because of the persistent shortage of new and existing homes for sale. Without more supply, the U.S. homeownership rate will remain near 50-year lows.”

- Meanwhile, new home sales fell sharply in August 2016 from July, but the July number was implausibly high (see Figure 11-6). If you exclude July, the August figure was the highest since January 2008. There’s obviously a very close relationship between housing starts and new home sales; both show steady but not spectacular growth over the past several years.

**Figure 11-5**

 existing Home Sales: Jan. 2010 - Aug. 2016 (seasonally-adjusted annualized rate, millions)

**Figure 11-6**

 U.S. New Home Sales: Jan. 2010 - Aug. 2016 (seasonally adj. annual rate, 000s)

**Construction Spending**

- Total U.S. construction spending — which includes everything from houses and shopping malls to highways, schools, and wastewater plants — was a seasonally adjusted and annualized $1.14 trillion in August 2016, about where it’s been for the past year (see the bars in Figure 11-8). Over the past six months, declining government construction spending has been the biggest impediment to growth.

- Railroads carry a lot of construction materials, including lumber and wood products and crushed stone. Figure 11-8 compares construction spending with rail carloads of these commodities. At least over the past few years, the correlation is very strong. In other words, build it and railroads will come.²

² “If you build it, he will come” was, of course, a famous line in the 1989 movie “Field of Dreams” starring Kevin Costner. Costner played an Iowa farmer who hears a mysterious voice saying that one night in his cornfield. In response, he builds a baseball diamond on his land. His neighbors think he’s nuts, of course, but after he builds it the ghosts of great players start emerging from the crops to play ball, led by Shoeless Joe Jackson. In real life, Costner owned a casino in Deadwood, South Dakota, and had plans to build a luxury casino-resort complex there complete with its own steam-powered railroad. It was to be called the Dunbar Casino, named after Costner’s character Lt. John J. Dunbar in the movie “Dances With Wolves.” Alas, the plans fell through. The Minneapolis Star Tribune reported this past March that Costner had sold the 103 acres of land in Deadwood that was to be the site of the project. The movie web site IMDb.com reports that there’s a scene in Dances With Wolves in which a kerosene can is seen in close-up for a few seconds as Lt. Dunbar prepares to burn some trash at his outpost. A rail buff noticed that the can was labelled “NPRY” for Northern Pacific Railway. Problem is, the NPRY laid its first track about five years after Dunbar is supposed to have arrived at the post, and in a different state. Of course, we all know that historical accuracy in the movies isn’t perfect.
12. INFLATION

- For the 12 months ending in August, the overall consumer price index (CPI) was up 1.1%, close to where it’s been for most of 2016 (see the bars in Figure 12-1). The “core” CPI, which excludes food and energy, was 2.3% for the 12 months ending in August, also about where it’s been in 2016 (see the line in Figure 12-1).

- Inflation as measured by the price index for personal consumption expenditures, which is the Federal Reserve’s preferred measure of inflation, rose just 1.0% in the 12 months ending in August (see the bars in Figure 12-2). Excluding food and energy, the index rose 1.7% over the past 12 months (see the line in Figure 12-2).

13. RAIL CARS IN STORAGE

- We define a rail car as “in storage” if it has had a loaded revenue move since 2009, but not in the prior 60 days. Changes in the number of cars “in storage” largely reflect the fact that, generally speaking, rail cars are stored when not needed due to lack of demand and are taken out of storage when demand improves.

- However, some cars that have not been moved in more than 60 days are loaded cars that are being used as warehouses. These cars are still in use even if they aren’t moving anywhere. For that reason, we break down cars that have not moved loaded in more than 60 days — the “stored” cars — into two groups: those that have subsequently moved empty, and those that have not. In most cases, the cars that have not had a subsequent empty move (since their last loaded move) are being used for product storage; they are not being stored because of a lack of freight to move.
• The nearby charts show that, as of October 1, 2016, 385,548 freight cars — 23.8% of the 1.6 million unit North American rail freight car fleet — had not moved while loaded in the previous 60 days and thus count as “in storage.”

• Of that 385,548, 351,576 were cars that have been moved empty since the last loaded move, and 33,972 were cars believed to be still loaded (and thus not really in storage in the sense of not being used in a meaningful way).

• Figure 4-4 summarizes freight cars in storage as of October 1, 2016, by major car type.

For more information on anything related to Rail Time Indicators or if you have suggestions on ways to improve it, please contact Dan Keen (dkeen@aar.org, 202-639-2326) or Luisa Fernandez-Willey (lfernandez-willey@aar.org, 202-639-2323).