

**Atlanta Area Chapter Appraisal Institute
14th Annual Conference**



State of Atlanta: *Full Steam Ahead*
Remaking of North America's Supply Chain



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How can we help you shine?



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Test Your Industrial R.E. Knowledge



Answers

- What is AAR.org & RailTime Indicators?
- What is IANA?
- What is OSCAR – not the Hollywood one. Why none in GA or FL?
- What's the big deal about Elwood, IL, Greenville, SC, Kansas City, and Winterhaven FL to take note of?
Inland Ports
- Where is GA planning an "Import/Export Highway?"

- Assoc. of American Railroads & best economic data on Industrial activity.
- Intermodal Assoc. of North America. Detail on location of all Intermodal
- Ocean Shipping Container Availability Report – by USDA / 2 yrs. Old / Answers the ? : Where are my containers / only **18 OSCAR markets.**
- Inland Port Market fueling auto mfg growth; and new Intermodal link for KCS Class 1 RR thru TX to Mexico. And ... **CenterPoint's Central FL truck hostlers to warehouses coup – "A highly successful unexpected move/act"**
- Macon to LaGrange up into Atlanta



AAR.org – “Rail Time Indicators” – KC’s favorite Eco Data.

Industrial: Intermodal (moving containers by rail) is setting records.

Rail Time Indicators



SUMMARY OF MOST RECENT DATA

(see the end of the report for a brief description of the indicators below and why they are important)

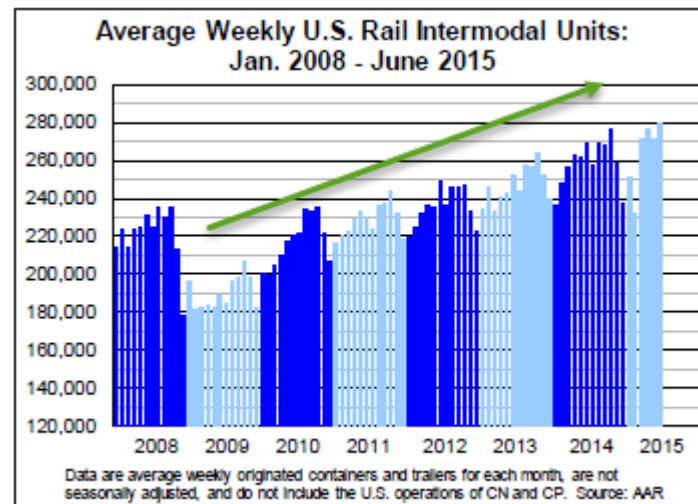
Economic Indicator

Most Recent Data

U.S. Freight Rail Traffic (p. 2)

Total carloads in August 2015 ↓ **4.6%** (56,104 carloads) from August 2014. Six of 20 carload categories up in August 2015 over August 2014. Coal ↓ **7.3%** (33,624 carloads); petroleum and **petroleum products ↓ 13.9%** (9,078 carloads); metallic ores ↓ **24.7%** (7,946 carloads). Carloads excluding coal ↓ **3.0%** (22,480 carloads). **Intermodal in August 2015 ↑ 3.6%** (38,617 containers and trailers) over August 2014; **second-highest weekly intermodal average (278,593 units) for any month in history.**

For those pursuing the ports, logistics and industrial warehouse CRE industry sectors, this new RailTime Indicators report is more affirming news. **Although total rail car traffic was down 4.6% (due mainly to declines in coal and petroleum product (Petro down 13.9%)). Intermodal container traffic (the shipping and truck containers moved to and from ports, factories and distribution centers) was up 3.6% and turned in the 2nd highest weekly average in history (June 2015 holds the record form 2 months ago).** Recall that just last month GA Ports reported a record in container traffic and Port of Charleston SC just missed an all-time new record. **East-coast port container traffic is up 11.5% YOY Vs West-coast port up <2%.**



Intermodal - IANA

Intermodal Association of North America

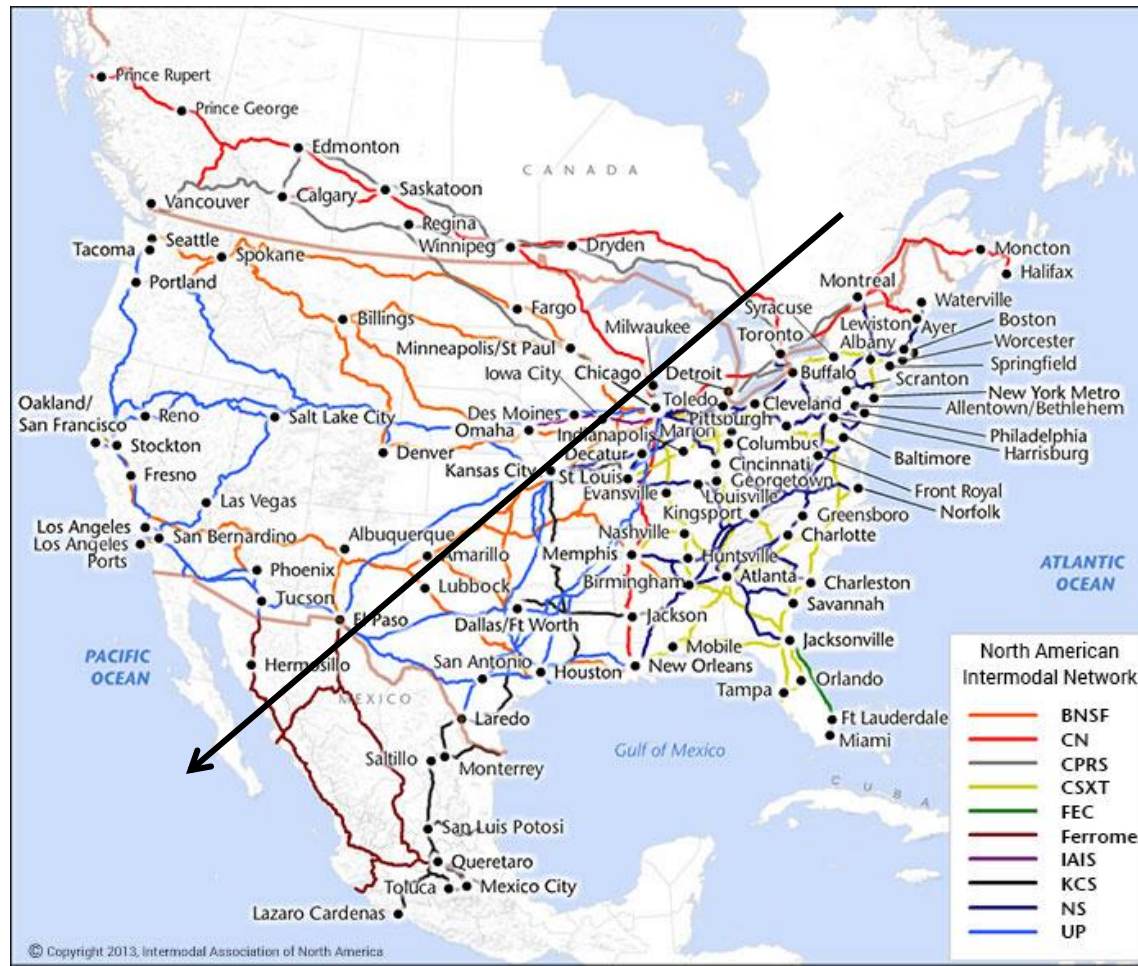


“All that happens on the ports, doesn't stay on the ports” – Rail, Intermodal!

in•ter•mo•dal – *adj.*

<http://www.intermodal.org/>

The transfer of products involving multiple modes of transportation – truck, railroad or ocean carrier.



Intermodal Trivia:

1. How many Intermodal Facilities in the US?

(>1,080)

2. What 3 states have the most Intermodal facilities today?

(CA, IL, TX)

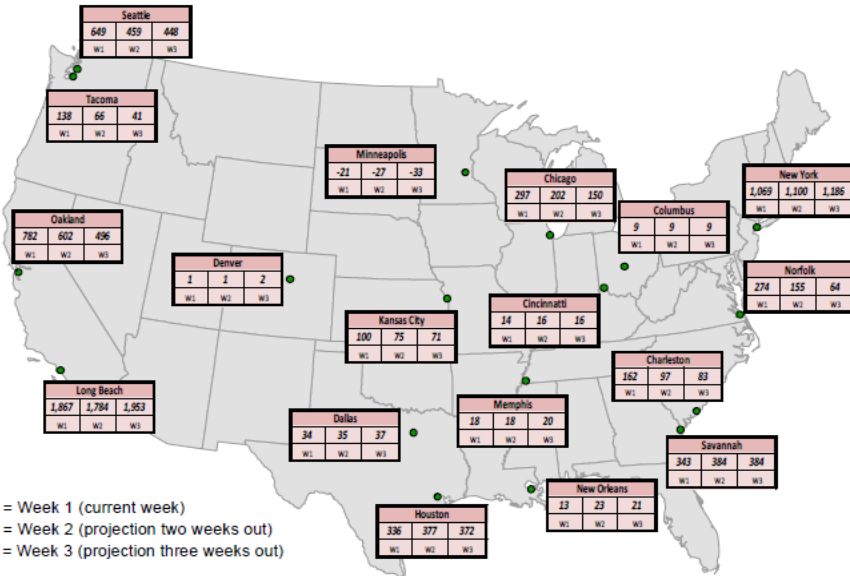
Post 2015?

OSCAR – Where are the Containers?

Ocean Shipping Container Availability Report



Average Weekly Availability for 40ft Refrigerated Containers



OSCAR: Ocean Shipping Container Availability Report

The OSCAR goes to 18 US Markets with the Logistics Data

Region	MSA	Region	MSA
West Coast:	Long Beach, CA	Inland:	Chicago, IL
	Oakland, CA		Cincinnati, OH
	Seattle, WA		Columbus, OH
	Tacoma, WA		Dallas, TX
	New York		Denver, CO
East Coast:	Norfolk, VA	Kansas City, MO	
	Charleston, SC	Memphis, TN	
	Savannah, GA	Minneapolis, MN	
	Gulf Coast:	Houston, TX	OSCAR Atlanta
New Orleans, LA		Omissions Florida/Jacksonville Indianapolis	

Why K.C. recommends use of Primary Industry Data ...

Sept Jobs report for August ... 85% average revision to the initial data

August Employment Report (000s)

<u>Year</u>	<u>Initial</u>	<u>Revised</u>	<u>Revision</u>	<u>% Change</u>
2005	169	196	27	16.0%
2006	128	185	57	44.5%
2007	-4	-17	-13	325.0%
2008	-84	-259	-175	208.3%
2009	-216	-217	-1	0.5%
2010	-54	-39	15	-27.8%
2011	0	128	128	12800.0%
2012	96	188	92	95.8%
2013	169	256	87	51.5%
2014	142	213	71	50.0%
2015	173	---	---	
				84.9%

Industrial R.E. / Supply-Chain / 3D Printing ...

- Industrial is strong because “Remaking of the Supply-Chain” to be more East-coast concentric. **Why now?** Military, Trucking challenges, E-commerce, PPMX



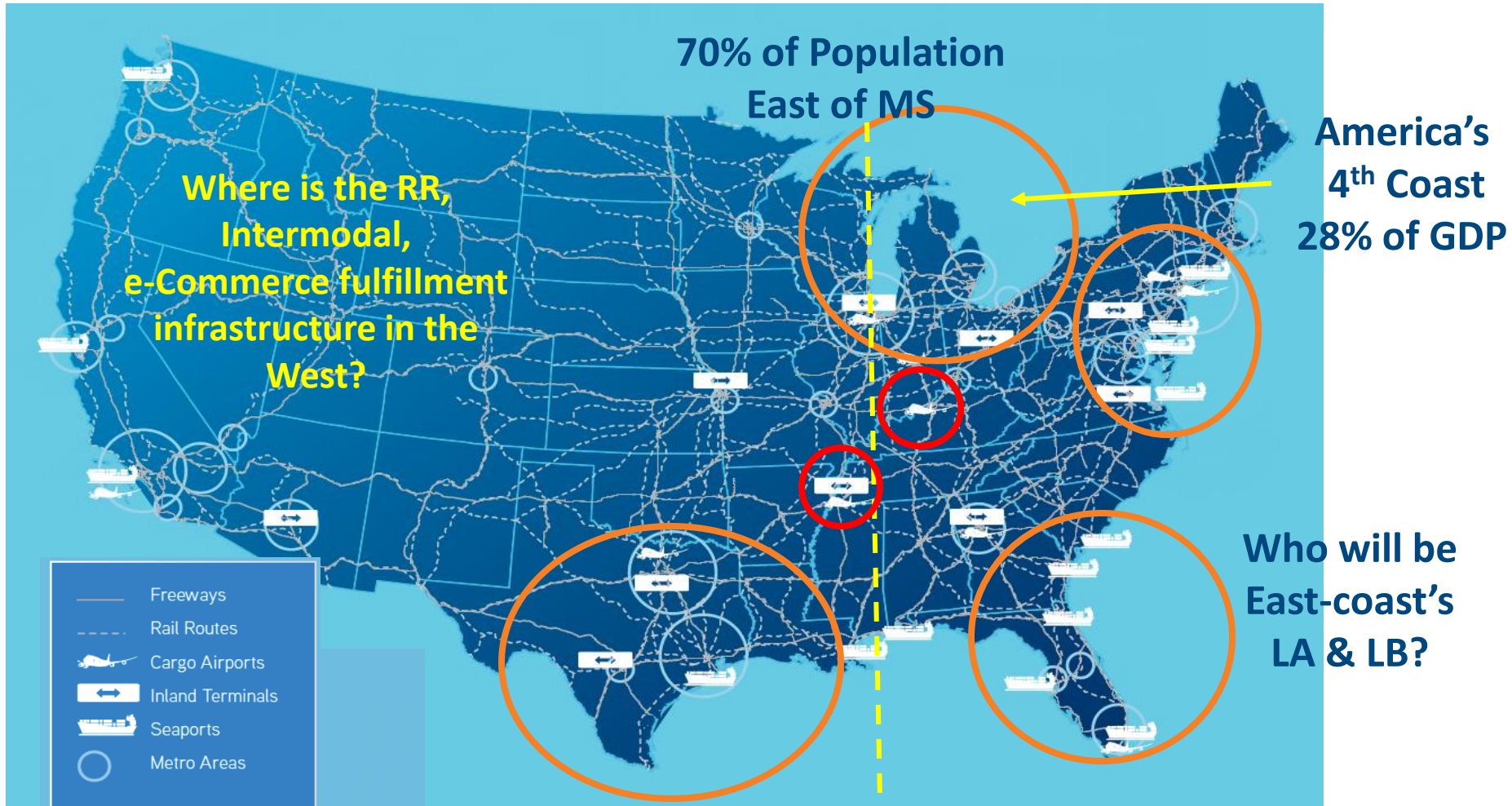
Industrial	U.S. Current
Distribution Employment Growth (Y-O-Y)	2.3%
Vacancy Rate	10.8%
Net Absorption (previous 4 quarters)	94,184,000
	U/C % of Inventory
Development Activity (SF)	0.8%

- ”Freightways” and latest Port Stats
- 3D Print Manufacturing: It will disrupt Commercial Real Estate in a big way!



“FREIGHTWAYS” Define the 2015-2020 Outlook & E-Coast Economy

Freightways are the CORRIDORS by which our economy grows - via sea-land-air.



The Gulf-coast:
Houston &
Mobile

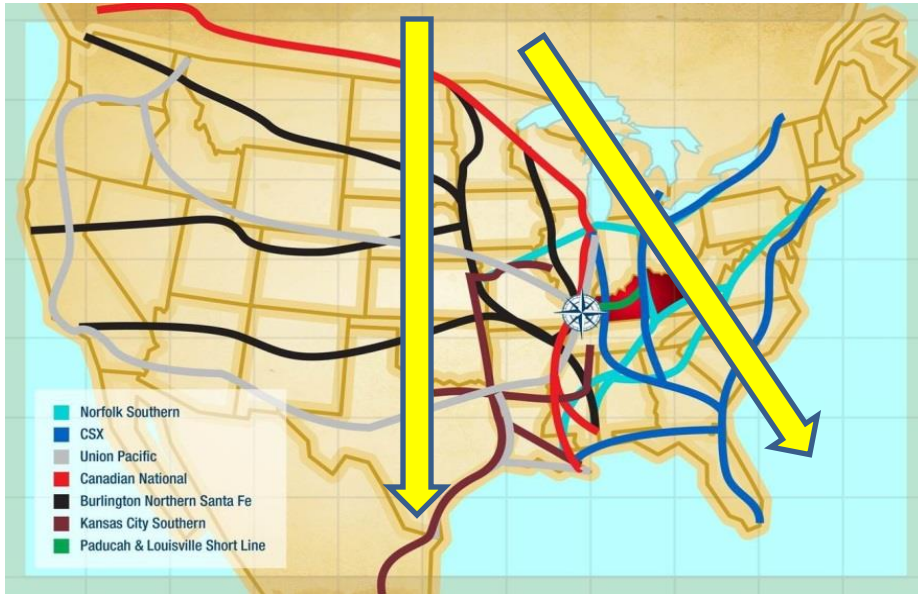
Industrial – Redefining “Core” markets:

The new CORE for Ind’l to be ... TX Vs. CA, K-City (intermodal),

Greenville SC (Inland Port) & Memphis + Louisville KY (Air-cargo) & Winterhaven FL

Rail Time Indicators AAR.org – American Assoc. of RRs

The 7- Class I RRs (Note CN (red) & KCS (brown))



Intermodal Association of North America

<http://www.intermodal.org/>

“All that happens on the ports, doesn’t stay on the ports” – Rail, Intermodal!



Port Rankings – East-Coast ports up 11.5% YoY

A huge opportunity for East & Gulf Coast ports with Rail & Intermodal!

2014 - YTD Total

2014 Rank		Port	Coast	YTD Through	Total TEUs		Loaded Inbound TEUs	
N.A.	U.S.				2014	Y-o-Y Change	2014	Y-o-Y Change
1	1	Los Angeles	W	Nov	7,681,498	6.5%	3,933,085	7.6%
2	2	Long Beach	W	Nov	6,253,571	1.7%	3,240,998	2.4%
3	3	New York/New Jersey	E	Oct	4,802,214	4.1%	2,454,474	5.5%
4	4	Savannah	E	Nov	3,068,390	9.6%	1,229,288	16.3%
5		Vancouver, Canada	W	Nov	2,671,667	2.8%	1,374,082	4.9%
6	5	Oakland	W	Nov	2,192,089	1.6%	771,454	4.0%
7	6	Norfolk (Port of Virginia)	E	Nov	2,189,763	7.2%	931,576	25.6%
8		Manzanillo, Mexico	W	Nov	2,158,836	10.9%	n/a	
9	7	Tacoma	W	Nov	1,877,306	9.3%	713,046	12.8%
10	8	Houston	G	Nov	1,794,153	-0.3%	675,176	16.5%
11	9	Charleston	E	Nov	1,650,022	11.7%	642,863	8.7%
12	10	Seattle	W	Nov	1,299,304	-12.3%	390,304	-23.9%
13		Montreal, Canada	E	Nov	1,292,973	-3.9%		
All Major Ports				Nov	38,931,786	4.3%	16,356,346	6.8%
Major West Coast Ports			W	Nov	24,134,271	3.7%	10,422,969	4.1%
Major East Coast Ports			E	Nov	13,003,362	5.9%	5,258,201	11.5%
Major Gulf Coast Port			G	Nov	1,794,153	-0.3%	675,176	16.5%

Sources: CBRE Research, port authorities for each port.

K.C. on the Southeast and our Ports ...

[Port of Savannah ... If GDP is growing at just 2.5%, how is container growth up 17%](#)

Port of Savannah still booming

September 21, 2015 | [ajc-economics](#), [Business](#), [Economy](#), [employment](#), [Jobs](#), [transportation](#)

Global trade through the port of Savannah, as tallied by the number of imported and exported steel containers, **has grown 17 percent so far this year**, the Georgia Ports Authority reported Monday.

If current trends persist, not a certainty given China's slowing economy and a resurgence in West Coast traffic, Savannah is on track for another banner year.

In 2014, the state's container port moved 3.3 million containers. Through August of this year, Savannah moved 2.6 million TEUs, or twenty-foot-equivalent units, the industry's standard container measurement.

In August alone, the port handled 315,000 TEUs, up 4 percent over last year.

GA Ports set all time TEU record for CY 2015

A record year for TEU Container traffic

The Georgia Ports Authority moved 3.66 million twenty-foot equivalent container units in Fiscal Year 2015, a record. Find print quality images [here](#). (Georgia Ports Authority / Stephen B. Morton)

Savannah, Ga. - July 27, 2015 - The Georgia Ports Authority moved a record 3.66 million twenty-foot equivalent container units in Fiscal Year 2015, an increase of more than half a million TEUs.

"The deepwaterports of Savannah and Brunswick are cornerstones of Georgia's success, and major factors in creating new jobs and prosperity across the state," said Georgia Gov. Nathan Deal. "The wave of economic impact created by our logistics network supports virtually every industry, from manufacturing and agriculture to mining, distribution, technology and transportation."

Strong performances across business sectors also led to records in total tonnage and roll-on/roll-off cargo in the year ending June 30.

"Georgia's ports have seen phenomenal growth over the past fiscal year, due to a combination of West Coast cargo diversions, U.S. economic recovery and regional gateway shifts placing more demands on Georgia's terminals," said GPA Executive Director Curtis Foltz. "Our people and our infrastructure rose to meet that demand flawlessly, handling record volumes while maintaining world-class customer service."

The 3.66 million TEUs crossing Savannah's docks in FY2015 constitutes a 17 percent increase compared to the previous fiscal year. FY2014 was the first year in which GPA moved more than 3 million TEUs.

"Part of ensuring reliability is investing in port infrastructure," GPA Board Chairman James Walters said. "Our development plans will follow our current practice of maintaining capacity at least 20 percent above demand - not only in Brunswick, but in Savannah, where we are buying four new ship-to-shore cranes and 30 more gantry cranes. Investments such as these will enable GPA to handle expanding cargo volumes both now and in the future."

Total tonnage in FY2015, reached a record 31.69 million tons, up 7.8 percent or 2.29 million tons. Of that amount, containerized cargo accounted for 25.89 million tons, also up 7.8 percent or 1.86 million tons more than in FY2014.

Port Update: Port of Charleston SC

A good FY 2015 closed June 30th – near record TEU Container traffic

Port Director Jim Newsome called the 12-month fiscal period that ended June 30 “a real memorable year.”

Among the highlights:

- The Port of Charleston handled almost **1.1 million cargo containers** during the **2015 fiscal year**. That's the **most since 2006** and was **within reach of the all-time record of 1.13 million set in 1995**.
- The port **set a record for the number of vehicles shipped** through the Columbus Street Terminal — 253,338 of them — thanks largely to the Spartanburg County **BMW plant, which exports more cars than any other U.S. manufacturer**.
- **Operating earnings topped \$30 million, more than double last year's profit.**



K.C. on the Southeast and our Ports ...

Port of Charleston SC ... State of the Port September 14, 2015

[Fleet week: South Carolina maritime event highlights Panama Canal ...](http://www.postandcourier.com/article/20150912/PC05/150919794/1010)

www.postandcourier.com/article/20150912/PC05/150919794/1010

20 hours ago ... Port talk. The 42nd annual S.C. International Trade Conference runs Monday through ... to ports and then from ports to the inland," said **K.C. Conway**, senior vice president ... Reach **David Wren** at 937-5550 or on Twitter at @David_Wren_ ... 2015, The Post and Courier, an Evening Post Industries company.

Expansion of the Panama Canal might have been the driving force behind a slew of seaport expansions & harbor deepening in recent years, but there's a trend — **the remaking of America's supply chain** — that will determine the future success or failure of East Coast ports.

"Today, it's all about how do we more quickly and efficiently fulfill goods and move things from factories to ports and then from ports to the inland," said **K.C. Conway**, senior vice president for SunTrust Bank.

Conway says the West Coast-based supply chain — developed in a post-World War II era when interstates were new, diesel fuel was cheap, environmental laws were few and a less-regulated trucking industry brought most goods to American cities — is no longer efficient.

These days, ports need direct access to rail — either at the seaport, an inland port or both — that can move goods as close and as quickly as possible to customers or distribution centers.

"We're shifting the supply chain from West Coast-centric to the East Coast, and the Panama Canal expansion is just one piece of it," Conway said.

In fact, the shift has already begun, months before the expansion is completed.

East Coast ports saw an 11.5 percent year-over-year growth in cargo in 2014 compared to West Coast growth of 4 percent, federal statistics show. **What once was a 61.2 percent market share for West Coast ports in 2007 has declined to 55.2 percent.**

"The challenge for East Coast ports is everybody not trying to do the same thing and have 50-foot depths and go after Post-Panamax ships," Conway said. "They need to find their particular niche and succeed at that niche. **There's plenty to say grace over.**"

"If I'm on the West Coast and Los Angeles and Long Beach are closed, I'm pretty much out of luck," Conway said.

K.C. on the Southeast and our Ports ...

JAXPort ... VW and Maersk Shipping announcements

Responding to criticisms, economist says Jaxport is 'relevant'

Jun 23, 2015, 3:05pm EDT By: [Jensen Werley](#) / *Jacksonville Business Journal*

The port of Jacksonville is relevant, although it may not be for the reasons you'd think.

While the port is scrambling to deepen the shipping channel in preparation of larger ships brought by the Panama Canal expansion, [K.C. Conway](#), a port analyst and senior vice president for credit risk management at [SunTrust Bank](#), argued that there are other, equally important ingredients to port success.

Jacksonville happens to excel at many of them.

“If you ask [Volkswagen](#) and [Maersk](#) if Jacksonville is relevant, the answer is yes,” Conway said, referring to the [major investments](#) both companies made to Jacksonville this year.

Conway's claim is that the supply chain is changing drastically. Yes, Southern California is the nexus for most port and supply chain activity, but that is shifting to the East Coast, where 70 percent of the nation's population lives.

And while having a deeper port wouldn't hurt Jacksonville, Conway said, lacking a deep port is not a deal breaker: The nation's 4th busiest port, Savannah, is also one of the shallowest.

That doesn't mean to let up on the issue.

“Keep pressure on your legislature,” Conway told the Business Journal after his presentation at a NAIOP luncheon, “and keep your options open. But it's really everything else you're doing.”

http://www.bizjournals.com/jacksonville/news/2015/06/23/responding-to-criticisms-outside-economist-says.html?ana=e_du_pub&s=article_du&ed=2015-06-23&u=kDyE1MuSSozQ0rV4fR+dyJzu4w3&t=1435088589

Another NE Ohio rebound: A busy year on the docks for Port Authority

Organization has substantial increases in ships and cargo in 2014

By JAY MILLER

Originally Published: December 14, 2014 4:30 AM Modified: December 15, 2014 5:42 AM



The Great Lakes Ports The Port of Cleveland ... A Big Deal to watch!

When it arrived in the Port of Cleveland from Antwerp, Belgium, on April 19, the Dutch cargo liner *Fortunagracht* heralded the beginning of the first regularly scheduled, international cargo shipping service to a U.S. port on the Great Lakes in decades.

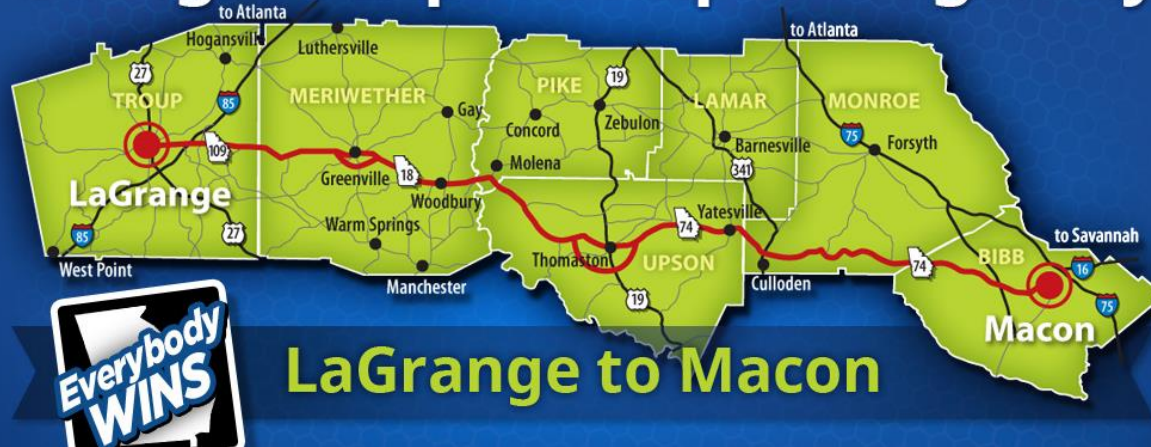
BY THE NUMBERS

It was a busy year for the Cleveland-Cuyahoga County Port Authority

	2013	2014*	CHANGE
INTERNATIONAL CARGO (IN METRIC TONS)	405,000	500,000	▲ 95,000
BULK CARGO (SALT, STONE, CEMENT; IN SHORT TONS)	3,240,000	3,300,000	▲ 60,000
IRON ORE (IN SHORT TONS)	3,142,608	3,500,000	▲ 357,392
INTERNATIONAL SHIPS CALLING ON PORT OF CLEVELAND	60	80	▲ 20
DOMESTIC SHIPS CALLING ON PORT OF CLEVELAND	365	380	▲ 15

What is Future for East-coast & GA? Import/Export corridors Intermodal, Inland-Ports, and Rail ... Export/Import Corridors!

Georgia's Export/Import Highway



Economic Analysis Case Studies Conclusions

Improved mobility from Macon to LaGrange could lead to economic benefits and support additional auto-related industry growth

Improved connectivity around Macon opens up new land areas for transportation warehouse development

Transportation infrastructure investment, coupled with other initiatives, can reinforce economic development efforts



The economic impacts in terms of job growth and Gross State Product (GSP) growth for each package of projects are shown in the table below. In addition, the return on investment (ROI) is also calculated as the ratio between total long term economic benefit and total cost. It tells us, for one unit of cost, how many units of long term benefits we can get.



"The biggest challenge with anything like that is, of course, the funding and the funding mechanisms that would need to be in place to accomplish that. I think it's a great idea. I think it is something that we surely need. We need that east-west corridor, which we don't particularly have in middle Georgia and even further south. But with the growth that is occurring at the Savannah port, and the growth that is occurring in west Georgia at the Kia plant, and in the heart of my district Thomaston-Upson, being right in the middle of it, it makes tremendous sense and it's something that we desperately need to look at and consider doing."

-Senator Ronnie Chance
Georgia State Senator,
Thomaston-Upson

Summary of Economic Impact Analysis Results

Corridor	Projects Included	Cost (Millions)	Increase in GSP	Increase in Employment (Annual)	ROI
Savannah-to-Atlanta	I-75 between Atlanta and Macon, Interchanges: I-75@I16, I-95@I-16, I-95@SR21, last mile connectors	\$1,950	\$9,100	2,426	4.7
Atlanta-to-Chattanooga	Interchange: I-75@I-285 North	\$200	\$90	39	0.4
Atlanta-to-South Carolina	I-85 between Atlanta and SC, Interchanges: I-85@I-285 North	\$1,400	\$7,200	1,901	7.3
Macon-to-Florida	No highway improvement projects recommended	n/a	n/a	n/a	n/a
Atlanta - Alabama	I-20 between Atlanta metro and Alabama, I-85 between Atlanta and Alabama, Interchange: I-20@I-285 W	\$2,000	\$9,800	2,443	4.0
Chattanooga Bypass	Chattanooga Bypass	\$800	\$6,400	1,681	10.7
Macon LaGrange U.S. 27 4-Laning	Macon LaGrange U.S. 27 4-Laning	\$480	\$11,300	2,738	18.0
Smaller Uran	U.S. 84, SR 133, portions of U.S. 441	\$522	2,180	508	4.2

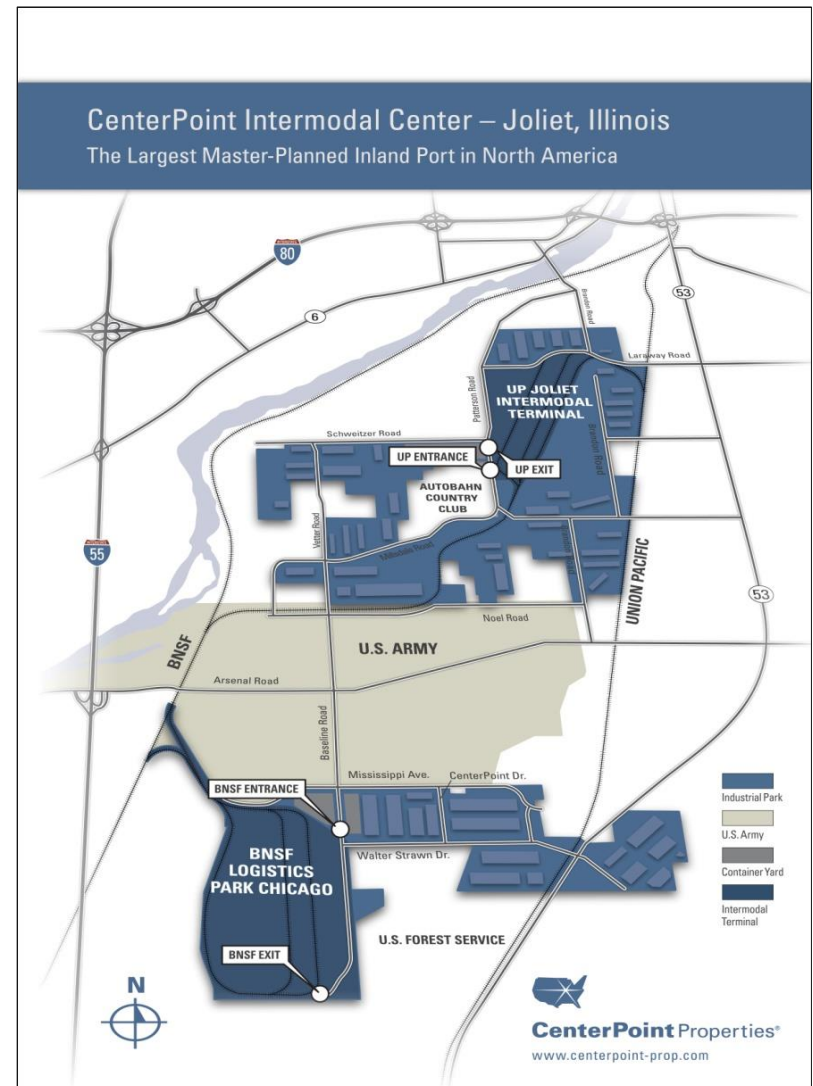
#1 Eco Impact

2nd Lowest \$

Most Jobs + ROI

CenterPoint Intermodal Center- Joliet, IL: Why not Central GA?

- ▶ Nation's Largest Inland Port
 - ▶ Connects Chicago to West and East Coast Ports
 - ▶ 6,000+ Acres
 - ▶ BNSF's 770-Acre Intermodal Terminal
 - ▶ UPRR's 850-Acre Intermodal Terminal
 - ▶ 4-6 Million TEU's Per Annum in Future
 - ▶ 30 Million SF of Industrial Facilities
 - ▶ 450 Acre Equipment Management Area
 - ▶ Over \$50 Billion of Goods Past Through Both Facilities
 - ▶ Foreign Trade Zone #22
- ▶ \$3 Billion CenterPoint Investment
- ▶ Public-Private-Partnership



CenterPoint Recent Aerial Photo



CenterPoint in Winterhaven, FL

The Plan ... more containers than GA or SC



- ▶ Up to 8.8 million square feet of new buildings
- ▶ 50 acres dedicated to container storage or fully loaded containers

What Centerpointfigured out in Winterhaven FL



- ▶ 407,000 square feet, 36' clear height, cross dock facility
- ▶ Zoning to allow yard hostlers to buildings

Overall, why is the South such a Big-Deal?

Interview to Globe Street & Note the GDP rankings by US Region



What Makes the Southeast Different?

GlobeSt.com - 08/18/15

http://www.globest.com/news/12_1177/orlando/economy/What-Makes-the-Southeast-Different-360849-1.html

While the national story about jobs and GDP may be about a slow-down, that's not what the Southeast is experiencing. What makes the Southeast different?

We asked KC Conway, credit risk manager and chief valuation officer at SunTrust Bank, for his thoughts on this topic. As Conway sees it, the Southeast has several distinct advantages at this point in time and stage of the economic recovery. **He ticks off a few of them, like labor, transportation and logistics infrastructure, and affordability.**

"While the South's right-to-work policies are certainly helpful, the region's universities and primary education systems are also important," Conway says. **"Whether engineering at Georgia Tech and Vanderbilt, medical schools like Emory and Duke, or IT and robotics at a number of Southeast universities, the region is providing highly skilled labor that is in demand at a price much more competitive than highly regarded universities in California and New England."**

Regarding transportation and logistics infrastructure, Conway says the Southeast has many advantages. There's the strong presence of class I railroads with access to ports and intermodal centers for e-commerce. There's the more efficient and modern ports without the risk of labor disruption. Then, of course, there's the more modern and branched interstate system that can reach 70% of the US population. "Affordability remains a key selling point for the Southeast as well," Conway says. As Conway sees it, this means companies like Pulte Homes, Mercedes, Boeing, Nike, BMW, Volkswagen, Volvo and more are finding the Southeast an attractive place to expand or relocate. This is why, he concludes, **Georgia placed high in CNBC's annual Top States for Business survey. Georgia ranked first and fifth in 2014 and 2015, respectively.**

GDP – National, Regional, State & MSA perspectives

SE produces 21% of U.S. \$17.3 Trillion / CA, NY, TX are 1,2,3 at state Level

At the State level within STI FP, it was FL #1, VA #2, NC #3, GA #4, TN #5

Table 4. Current-Dollar GDP by State, 2011-2014

	Millions of dollars				Percent of U.S. total				
	2011	2012	2013	2014*	2011	2012	2013	2014*	
United States¹	15,416,873	16,060,678	16,665,215	17,316,314	100	100	100	100	
New England	840,420	867,593	893,812	924,937	5.5	5.4	5.4	5.3	
Mideast	2,826,317	2,944,778	3,031,201	3,143,366	18.3	18.3	18.2	18.2	#2 @ \$3.1 Tr
District of Columbia	108,217	109,937	111,695	115,473	0.7	0.7	0.7	0.7	
Maryland	323,148	330,518	339,409	348,631	2.1	2.1	2	2	
New Jersey	498,918	523,275	537,396	549,099	3.2	3.3	3.2	3.2	
New York	1,234,073	1,302,527	1,341,591	1,404,518	8	8.1	8.1	8.1	NY is #3 State
Pennsylvania	602,686	619,417	640,294	662,890	3.9	3.9	3.8	3.8	
Great Lakes	2,154,863	2,240,986	2,318,229	2,391,384	14	14	13.9	13.8	#3 @ \$2.4 Tr
Illinois	680,395	710,348	724,795	745,875	4.4	4.4	4.3	4.3	
Indiana	291,357	300,304	311,188	317,840	1.9	1.9	1.9	1.8	
Michigan	398,912	415,145	434,674	451,516	2.6	2.6	2.6	2.6	
Ohio	520,398	542,097	562,845	583,261	3.4	3.4	3.4	3.4	
Plains	1,012,181	1,057,797	1,098,306	1,131,518	6.6	6.6	6.6	6.5	
Southeast	3,338,113	3,454,443	3,569,920	3,695,095	21.7	21.5	21.4	21.3	#1 @ \$3.7 tr
Florida	736,890	766,259	800,697	839,944	4.8	4.8	4.8	4.9	
Georgia	424,494	438,801	456,483	476,483	2.8	2.7	2.7	2.8	
North Carolina	433,311	445,720	467,075	483,126	2.8	2.8	2.8	2.8	
South Carolina	171,550	176,320	182,400	190,304	1.1	1.1	1.1	1.1	
Tennessee	264,052	280,169	290,125	300,604	1.7	1.7	1.7	1.7	
Virginia	432,206	444,617	454,984	463,613	2.8	2.8	2.7	2.7	
Southwest	1,856,600	1,974,382	2,099,152	2,208,652	12	12.3	12.6	12.8	SW is only #4
Arizona	256,972	267,493	274,734	284,156	1.7	1.7	1.6	1.6	
Texas	1,350,773	1,449,330	1,557,193	1,648,036	8.8	9	9.3	9.5	TX is #2 State
Rocky Mountain	531,674	546,037	569,217	600,485	3.4	3.4	3.4	3.5	
Colorado	266,627	276,816	288,338	306,663	1.7	1.7	1.7	1.8	
California	2,033,990	2,125,135	2,212,991	2,311,616	13.2	13.2	13.3	13.3	CA is #1 State
Washington	372,444	390,643	407,160	427,052	2.4	2.4	2.4	2.5	

3D Print Manufacturing

**It will change or
economy and
usage of Real
Estate more so
than the Internet!**

THE OTHER BIG TREND 3-D PRINTING

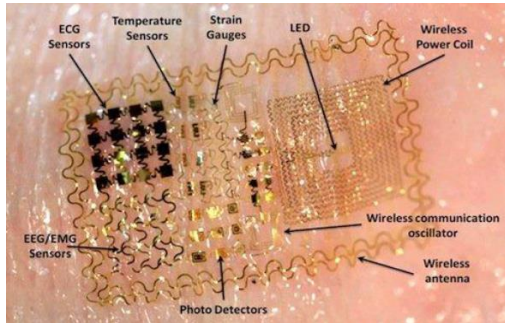


Global Influencers

“3D printing will be bigger than the internet.” - Chris Anderson, Former Managing Editor, WIRED Magazine

3D Printing is not Science-Fiction.

It has evolved from trinkets to cosmetics – and more...



Skin & Micro-Skin Sensors



Lipstick & Cosmetics too!



For those of you that have heard me speak in 1H2014, you know my thoughts and prognostications on 3-D printing. **It is not a fad and it will revolutionize how we manufacture, warehouse and shop in ways that we could never have imagined.** When we start to absorb all the ways 3-D printing technology is being applied today by real-world businesses, we start to realize this technology is very real and applicable to every industry sector and far beyond plastic trinkets sold in a Dollar-Discount store.

Fetz – a company in southern California – is making custom orthotics using 3-D printing technology. Another California company is manufacturing AK-47 automatic weapons using graphite. Leading medical research university after university is developing the technology further to synthetically manufacture medicines and pharmacy items and human tissue ranging from skin grafts to even organs. **But this may be the “disbeliever’s” breakthrough – MINK.**

MINK is the genius of a Harvard Business School graduate that has figure out how to 3-D print any shade of lipstick a woman could desire from home at a cost of \$300. Imagine a 3-D Lipstick printer as a bathroom accessory for about the cost of the 3-D color printer in your office. It is reality by the end of this year!

3-D printing is going to turn upside down how we manufacture, warehouse and retail. It is another accelerant to the e-commerce revolution already underway in retail. How does a drug-store look without a cosmetics section because it all can be 3-D printed from home?

Innovation of the week



THE WEEK May 23, 2014

3D Printers: Now on sale at SAMS Club



<http://www.samsclub.com/sams/3d-printers-cartridges/7580127.cp>

Which 3D printer is right for you?

Fuel your creativity with 3D printing!

Imagine it. Make it. It's (almost) as simple as that, and we have everything you need to get started.

How does it work? **Instead of ink, these 3D printers use liquefied plastic filament to create real objects from digital designs.**

[Shop 3D Printers](#)



Entry-level

Basic, easy-to-use 3D printers that are perfect for creating simple replacement parts, one-of-a-kind gifts & more.

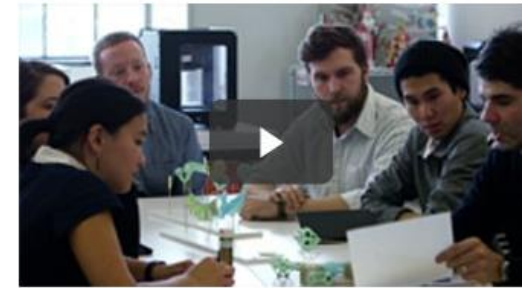
[Shop Now](#)



Intermediate

Great for businesses or fun, these 3D printers easily make high-resolution prototypes, realistic models & more.

[Shop Now](#)



Professional

Larger, extremely precise 3D printers that are ideal for advanced technical projects, complex models & more.

Will Dominos & PaPa Johns even exist in 10 years when we can 3D-Print a pizza at home?



NASA Completes the First Successful 3-D Print in Space

Nov 25, 2014 [Travis Hessman](#) / *IndustryWeek*

[HTTP://WWW.INDUSTRYWEEK.COM/TECHNOLOGY/NASA-COMPLETES-FIRST-SUCCESSFUL-3-D-PRINT-SPACE?NL=IW-07&SFVC4NEWS=42&CL=ARTICLE_2_B&YM_RID=CPG03000001440206&YM_MID=2143](http://www.industryweek.com/technology/nasa-completes-first-successful-3-d-print-space?NL=IW-07&SFVC4NEWS=42&CL=ARTICLE_2_B&YM_RID=CPG03000001440206&YM_MID=2143)

THE FIRST 3D PRINT OFF-WORLD 11/24/2014



Just two months after [SpaceX](#) delivered [Made In Space's](#) zero-gravity 3-D printer to the International Space Station, astronauts aboard report they have completed the first 3-D build in space.

According to [Made In Space](#), which developed the unique [printer](#) for NASA, the part will serve as a faceplate for the printer's extruder.

While that might not seem as exciting as, say, a 3-D printed pizza or a piece of hardware to keep the vessel running, it marks an historic moment for the technology nonetheless and also serves as demonstration of the capabilities it will eventually offer space travelers.

NASA, [Made In Space](#) and additive manufacturing engineers see this as the first step toward a future of on demand tool-making that will help free explorers to travel longer and further into space.

It's the beginning, they say, of a new space age.

"When the first human fashioned a tool from a rock, it couldn't have been conceived that one day we'd be replicating the same fundamental idea in space," [Made In Space CEO Aaron Kemmer](#), in a [release](#). "We look at the operation of the 3-D printer as a transformative moment, not just for space development, but for the capability of our species to live away from Earth."

Looking ahead, this could mean big things for both space travel and the 3-D printing industry.

To date, all projects and work conducted in space have been limited to the supplies brought along from Earth. That means, with sustained missions like the ISS, new work, repairs and basic requirements of life all depend on constant restocking from costly (and risky) space deliveries.



3D Printing & the Automobile Industry

The Oakridge National Lab in TN

3D-Printed Shelby Cobra Debuts At 2015 Detroit Auto Show: From Concept To Reality In Just Six Weeks



The Department of Energy's Oak Ridge National Laboratory (ORNL) debuted a fully functional 3D-printed Shelby Cobra at the 2015 North American International Auto Show in Detroit Monday. The car, honoring the 50th anniversary of the Shelby Cobra 289 FIA, weighs 1,400 pounds; 500 pounds of parts used on the vehicle were printed in just 24 hours. From concept to completion, it took six weeks to build.

The laboratory team did have the advantage of using the Big Area Additive Manufacturing (BAAM) machine, which can print parts 500 to 1,000 times faster than other industrial 3D printers. The BAAM machine received an upgrade after it was used to create the world's first 3D-printed car in 2014. The "Strati" was designed by Local Motors and developed by ORNL, Motor Trend reported. It contained just 40 parts and took 44 hours to print.

<http://www.ibtimes.com/pulse/3d-printed-shelby-cobra-debuts-2015-detroit-auto-show-concept-reality-just-six-weeks-1781086>

3D Printing will DISRUPT commercial Real Estate!

Think about 3D and new Home Construction.



**Affordable
housing &
rebuilding post
natural disasters?**



4 Ways 3D Printing Will Disrupt Commercial Real Estate

Mar 25, 2015

The impact of this technology on real estate was brought home in January with the **world's first 3D-printed apartment building** in China. Over the next 10 years, experts say it'll completely disrupt commercial real estate. Here's how.

KC says projects that once needed big equipment brought into **dense or remote locations** now may just need a **3D printer and the material** it'll spit out. Since that's a lot **easier to transport** than huge steel I-beams, **construction costs are likely to plummet**. Building **emergency housing** after natural disasters will be a big use of the technology, and he says that's already happening in the **Philippines** as that country **rebuilds from Typhoon Haiyan**.

4. Big-time Disruptions in Retail



Everything from **medication to pizza** can already be 3D printed. **So will Walgreen's or Papa John's still need to exist in 10 years?** KC says probably, but it'll be different. For businesses that can print their product, **KC says we can expect zoning changes that will require permits to manufacture on site**. Now's the time for lease signers to start defining their right to print in-house **before regulations catch up**, he says. Folks can already **print stuff at home** instead of buying it in a store. KC recently bought his teenage daughter a printer so she can make cosmetics at home. He expects 3D printing to create some **highly skilled jobs** but ultimately **take away more jobs than it'll create**, further dividing skilled and unskilled labor. **KC thinks the disruption will be on par with the Internet**, and instead of 20 years, it'll only take about 10 to really catch on.

3D Printing – From trinkets to Aviation ...

Who will get these 3D Mfg Plants?

GE Aviation plans \$50 million 3-D printing facility in Auburn to make jet engine parts

http://www.al.com/business/index.ssf/2014/07/ge_aviation_plans_50_million_a.html

By [Dawn Kent Azok | dazok@al.com](#)

July 15, 2014



GE Aviation's Auburn facility will be the site of a new 3-D printing initiative

AUBURN, Alabama -- GE Aviation said today that it will spend \$50 million on a new 3-D printing initiative at its existing operations in Auburn, a first-of-its-kind project that will mass produce fuel nozzles for jet engines and help raise employment here to more than 300 people later this decade.



Q&A

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That was a lot to absorb.
I need to think on it 😊

