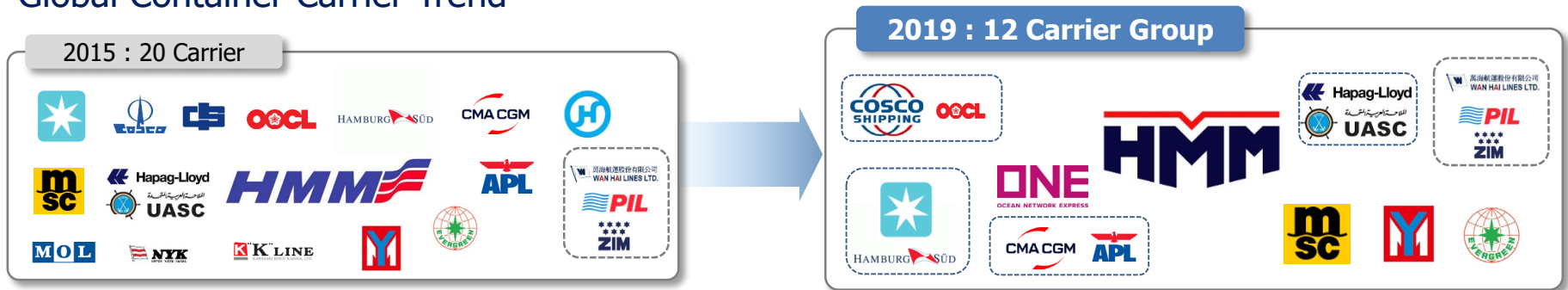


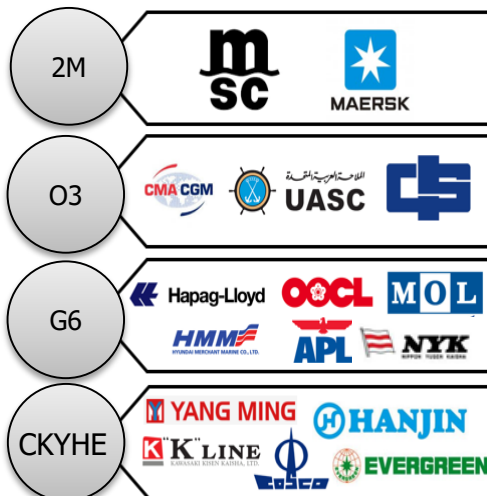


Carrier Evolution

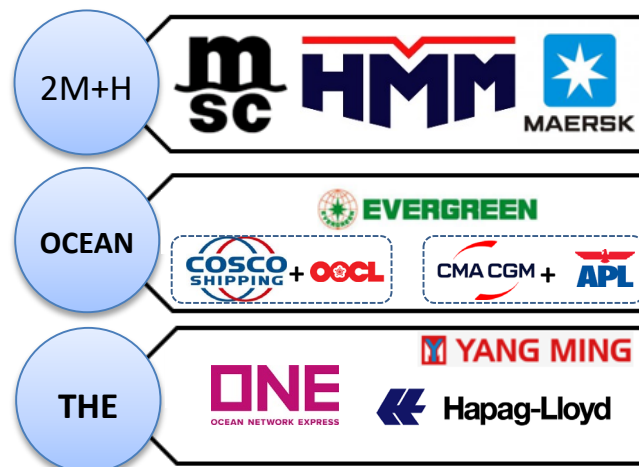
- Global Container Carrier Trend



- Past



- Current

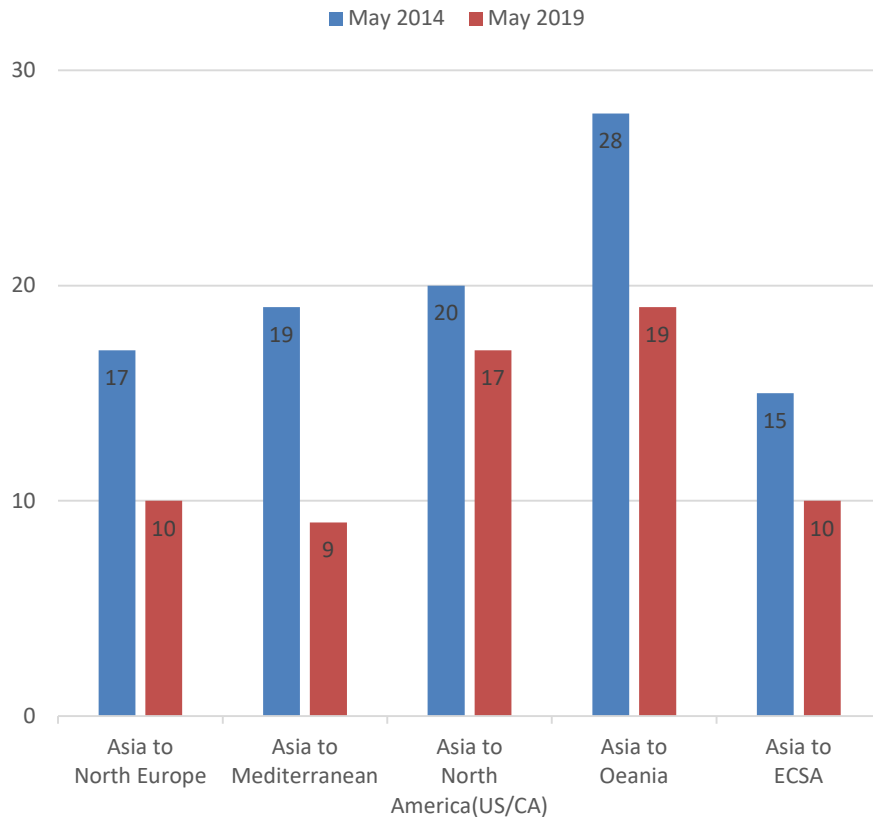


- Future

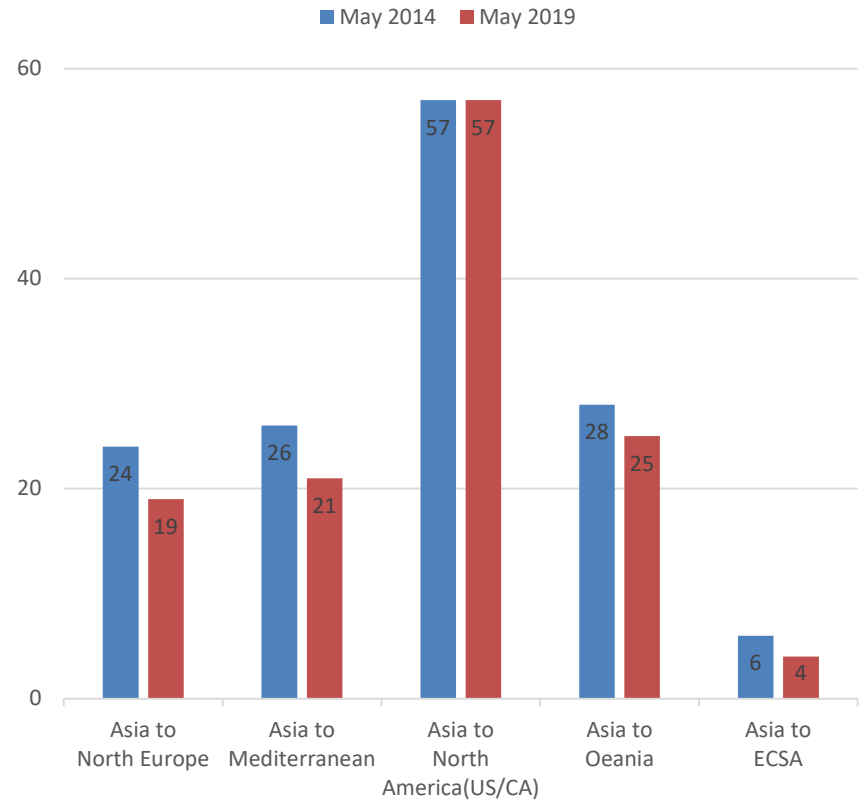


- Global Container Carrier Trend

1) Number of Containership "Operators"



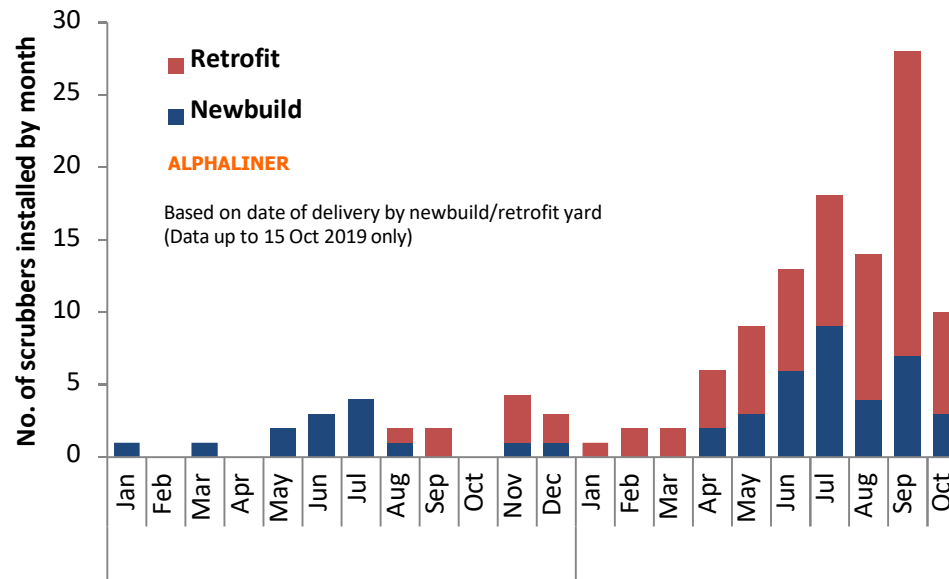
2) Number of Containership "Services"



- The number of Containership operators has been decreasing gradually during May 2014~2019.
- Mostly, the number of Containership services on North Europe & Mediterranean showed be declining.

Chart of the week

Average vessel size on main East-West routes : 2005 to 2019



Source: Alphaliner

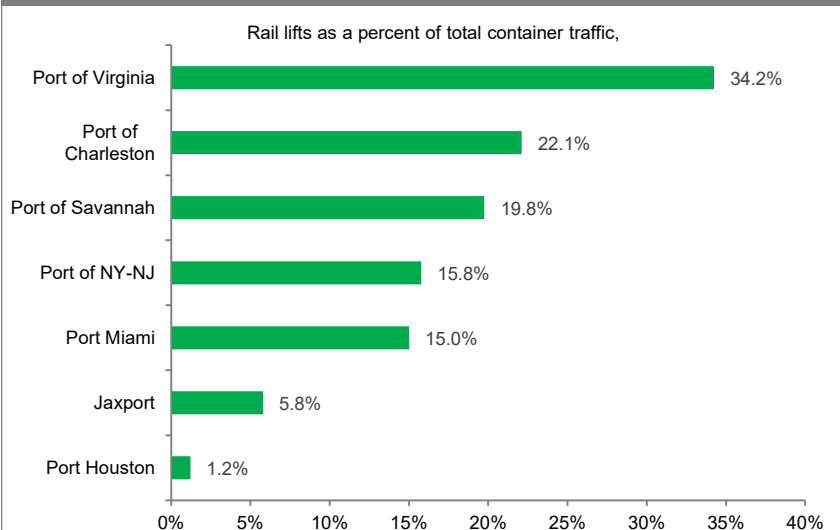
By January 2020, the headcount of scrubber-fitted containerships is expected to reach more than 260 vessels for a total capacity of over 2.30 Mteu. This represents 10% of the global container ship fleet in capacity terms. Alphaliner expects this to hit 5.00 Mteu by the end of next year.

Sourcing & Distribution Shift Accelerating



- Gulf and Southeast ports consistently see the fastest growth among US ports
- Consistent above-average results due to a number of factors, including:
 - State operated terminals/operating port model able to drive highest US productivity levels
 - Longstanding, positive longshore labor relations
 - Chronic West Coast port disruption or the specter of this, continuing into 2019

US East Coast ports aim to extend their interior reach

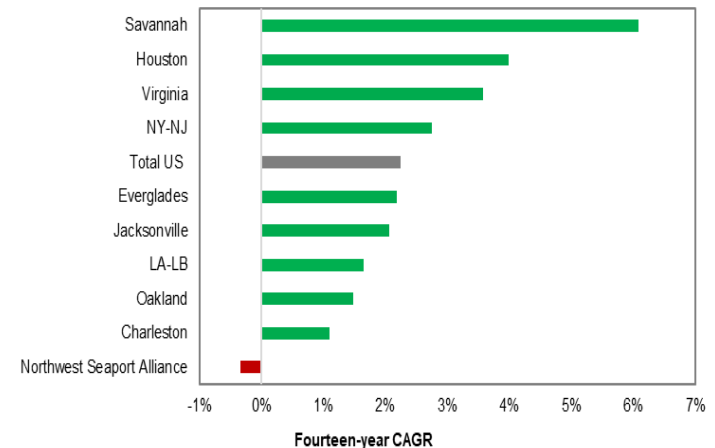


Source: Port authorities, JOC.com estimates

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The fastest growing US ports

Compound annual growth, 2005-2018, laden TEU volume among top US ports

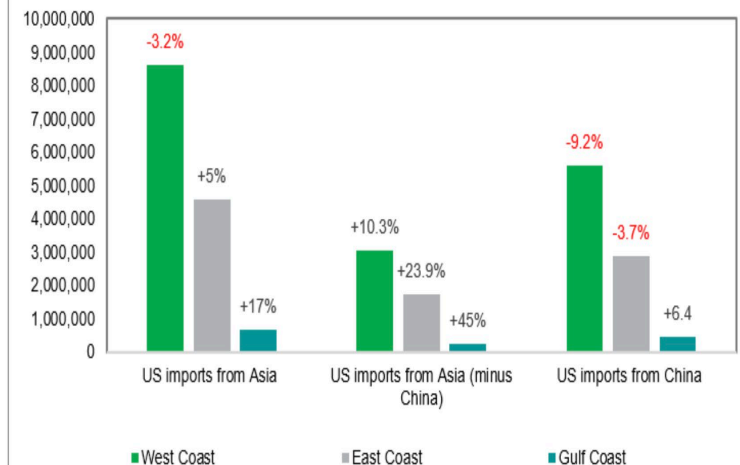


Source: IHS Markit

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US East, Gulf coasts benefit from West Coast Asia cargo bleed

Laden TEU volume of US imports from Asia from January through October 2019 with year-over-year percentage change



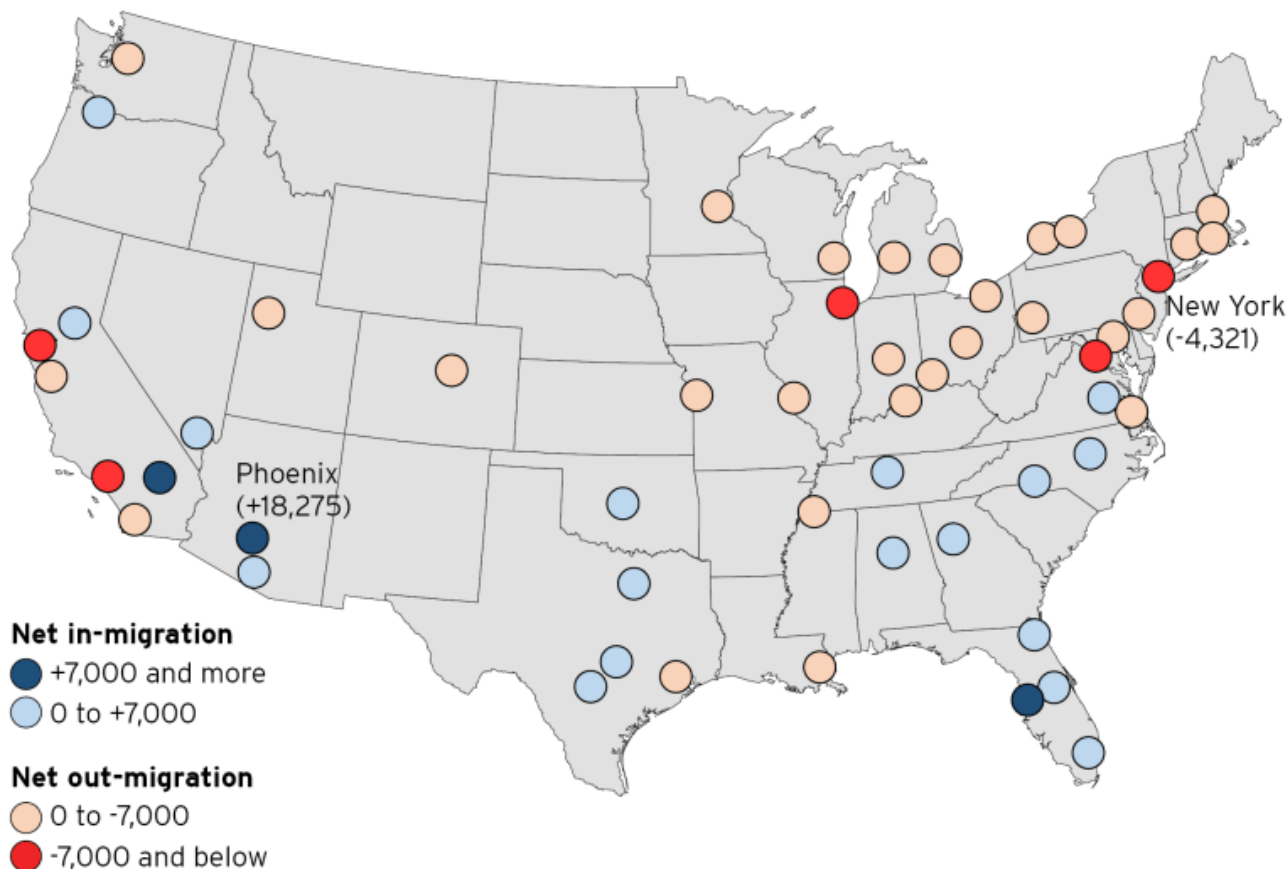
Source: IHS Markit

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MAP 2

Where seniors are moving: Annual net migration of residents ages 55+

Major metropolitan areas, 2012-2017



Source: William H Frey analysis of "residence one year ago" data from 5 year ACS, 2013-2017 (released December, 2018)

TABLE 2

Average annual net migration, ages 55+, major metro areas

53 metro areas with populations exceeding 1 million

Greatest net migration gains						
2004 - 2007		2007 - 2012		2012 - 2017		
1	Phoenix	16,783	Phoenix	16,077	Phoenix	18,275
2	Atlanta	9,449	Riverside	9,303	Tampa	8,570
3	Dallas	8,641	Tampa	6,863	Riverside	8,081
4	Tampa	7,766	Austin	3,934	Las Vegas	6,864
5	Houston	5,941	Atlanta	3,773	Jacksonville	5,060

Greatest net migration losses						
2004 - 2007		2007 - 2012		2012 - 2017		
1	New York	-46,596	New York	-34,296	New York	-45,321
2	Los Angeles	-31,918	Los Angeles	-17,229	Los Angeles	-20,538
3	New Orleans	-17,354	Chicago	-12,324	Chicago	-18,791
4	Chicago	-13,709	Washington DC	-6,985	Washington, D.C.	-12,503
5	Washington, D.C.	-12,336	San Francisco	-5,718	San Francisco	-8,693

Source: William H Frey analysis of "residence one year ago" data from 3 year ACS, 2005-2007, 5 year ACS 2008-2012, 5 year ACS 2013-2017

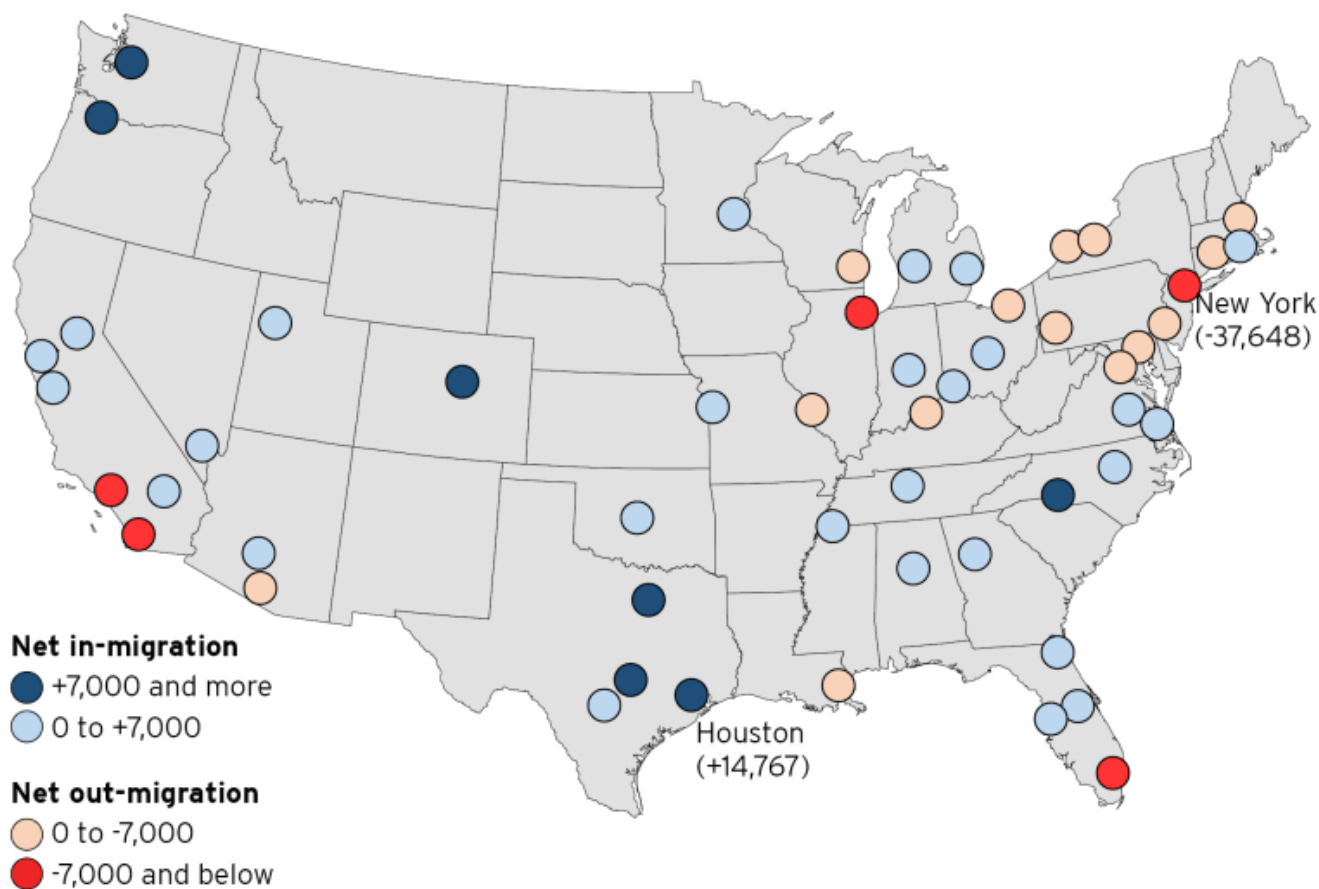


Metropolitan Policy Program
at BROOKINGS

MAP 1

Where young adults are moving: Annual net migration of residents ages 25 to 34

Major metropolitan areas, 2012-2017



Source: William H Frey analysis of "residence one year ago" data from 5 year ACS, 2013-2017 (released December, 2018)

TABLE 1

Average annual net migration, ages 25 to 34, major metro areas

53 metro areas with populations exceeding 1 million

Greatest net migration gains						
2004 - 2007			2007 - 2012		2012 - 2017	
1	Riverside	23,147	Denver	11,359	Houston	14,767
2	Phoenix	14,220	Houston	9,981	Denver	12,667
3	Atlanta	12,167	Washington, D.C.	9,814	Dallas	12,665
4	Houston	10,992	Austin	8,503	Seattle	11,244
5	Charlotte	9,273	Seattle	7,652	Austin	8,933

Greatest net migration losses						
2004 - 2007			2007 - 2012		2012 - 2017	
1	Los Angeles	-53,795	New York	-20,608	New York	-37,648
2	New York	-44,673	Los Angeles	-19,694	Los Angeles	-18,722
3	New Orleans	-18,626	San Diego	-7,419	Chicago	-13,757
4	Miami	-15,208	Chicago	-6,568	San Diego	-7,080
5	Chicago	-13,859	Detroit	-6,153	Miami	-7,000

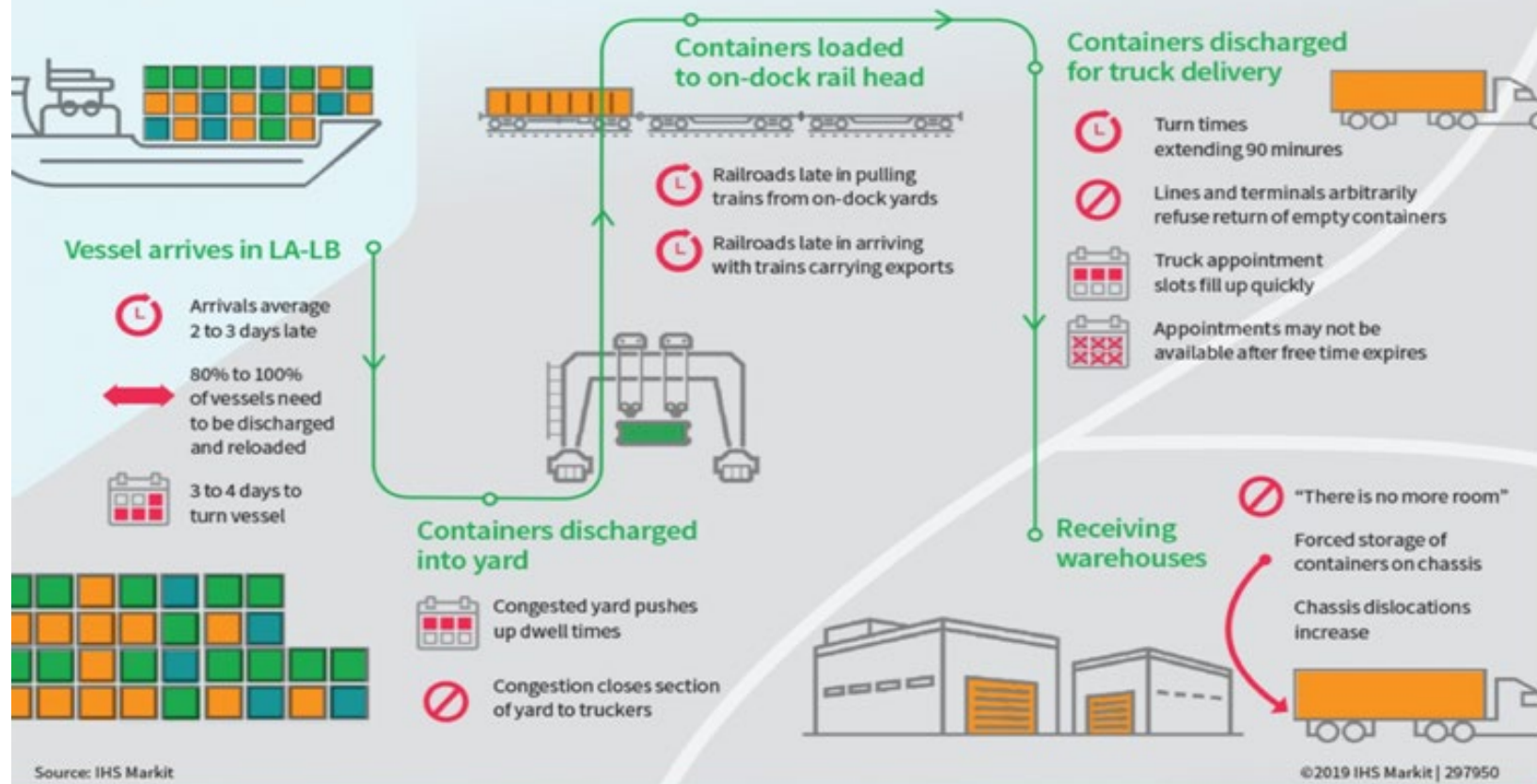
Source: William H Frey analysis of "residence one year ago" data from 3 year ACS, 2005-2007, 5 year ACS 2008-2012, 5 year ACS 2013-2017



Metropolitan Policy Program
at BROOKINGS

Navigating LA-Long Beach port pain points

With 12 container terminals handling more than 16 million TEU a year carried by three vessel-sharing alliances and generating more than 30,000 gate moves per day, Los Angeles-Long Beach is the nation's most complex port environment.



Inland ports emerge as alternatives to long-haul drayage

Port authorities in the US Southeast have opened up inland ports in recent years to eliminate multi-hour drays and free up truck capacity and raise driver productivity.

① Appalachian Regional Port

Chatsworth, GA
[CSX] 388 miles



④ Inland Port Dillon

Dillon, SC
[CSX] 160 miles



② Gainesville Inland Port

Gainesville, GA (opens 2021)
[NS] 300 miles



⑤ Richmond Marine Terminal

Richmond, VA
90 mile barge service



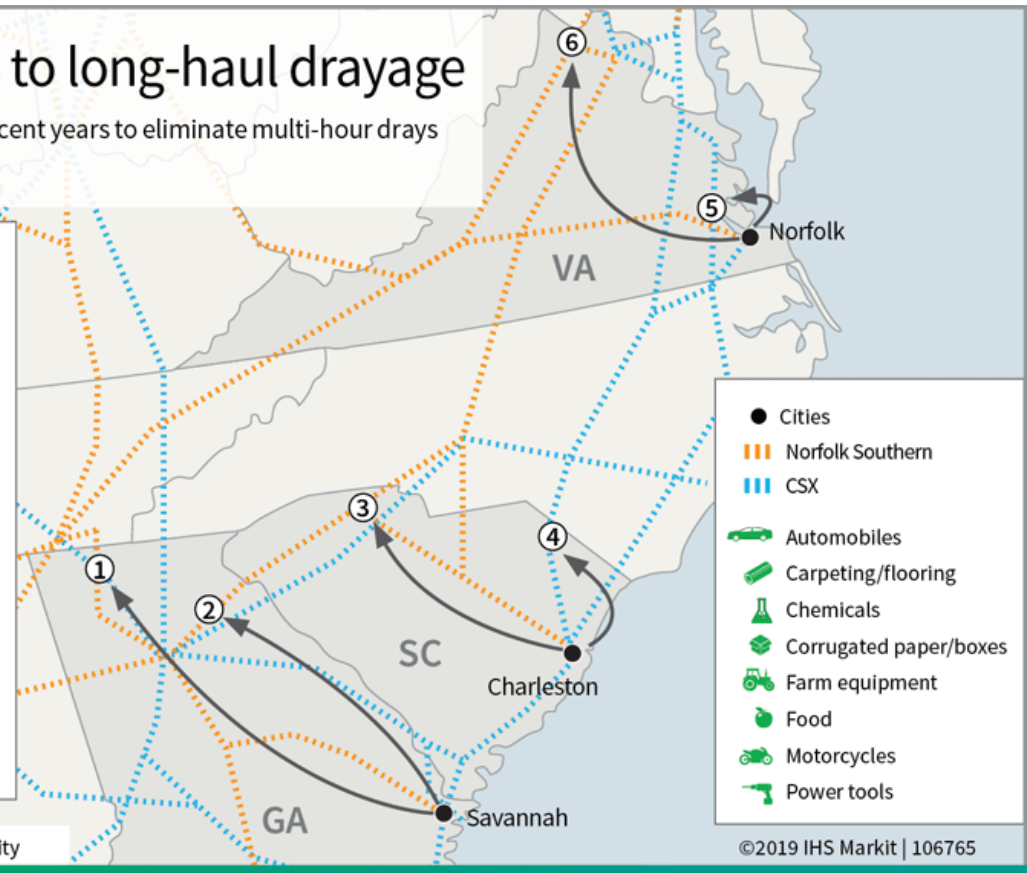
③ Inland Port Greer

Greer, SC
[NS] 212 miles



⑥ Virginia Inland Port

Front Royal, VA
[NS] ~220 miles



Source: Georgia Ports Authority, South Carolina Ports Authority, Virginia Ports Authority

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