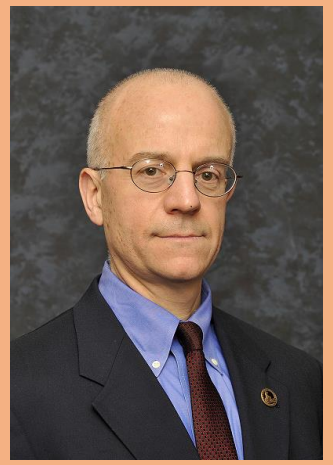
Ferrocarriles de Carga en Norteamérica:
Estructura y mercados
¿Modelo para Europa?



Robert E. Martínez

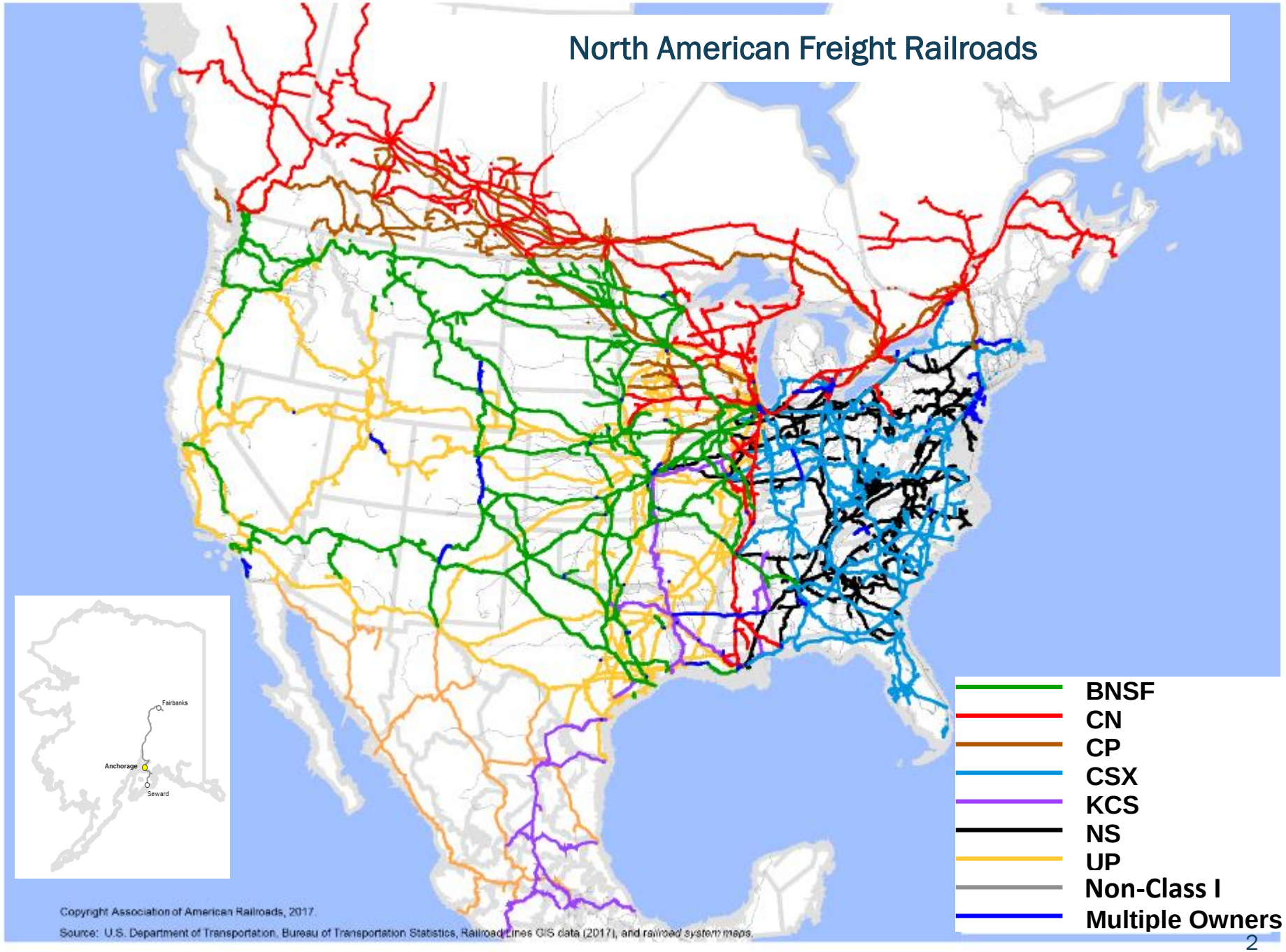
Ex Ministro de Transporte, Estado de Virginia

Ex Vice Presidente

Desarrollo de Negocios y Bienes Raíces, Norfolk Southern Corporation

Octubre, 2021

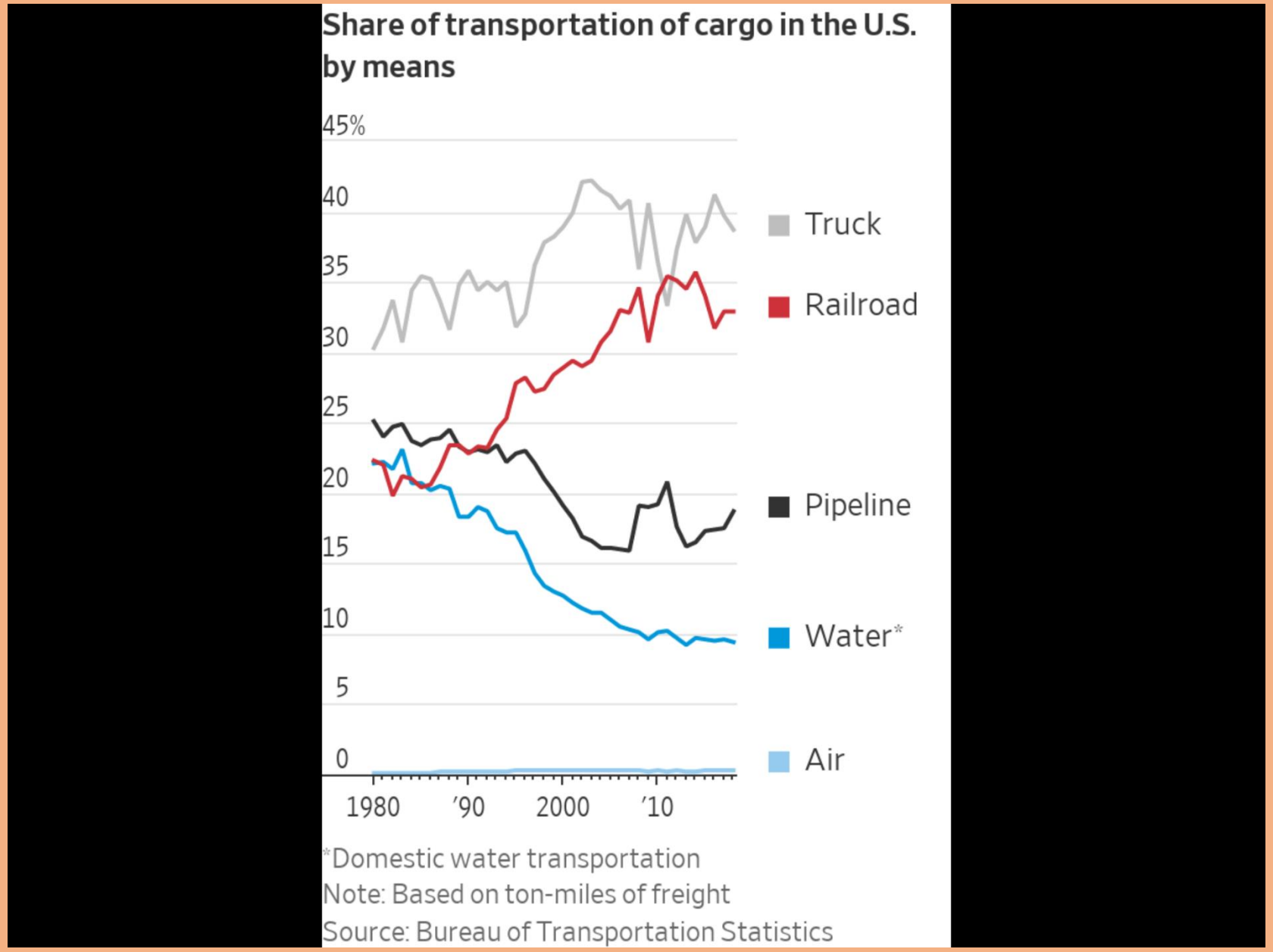
North American Freight Railroads



Ferrosur pertenece al mismo grupo de Ferromex (FXE)

Norfolk Southern System
CANADA
Montreal
Rouses Point
Ayer
Boston
Albany
Buffalo
Geneva
Binghamton
Lansing
Kalamazoo
Detroit
Chicago
Elkhart
Toledo
Cleveland
Youngstown
Bellevue
Altoona
Bethlehem
Reading
Newark
Philadelphia
Des Moines
Peoria
Ft. Wayne
Pittsburgh
Harrisburg
Columbus
Baltimore
Decatur
Front Royal
Indianapolis
Cincinnati
Washington, D.C.
Kansas City
Charleston
Louisville
Richmond
St. Louis
Georgetown
Roanoke
Lynchburg
Norfolk
Evansville
Lexington
Petersburg
Bluefield
Greensboro
Winston-Salem
Durham
Raleigh
Knoxville
Asheville
Fayetteville
Chattanooga
Morehead City
Memphis
Huntsville
Columbia
Birmingham
Atlanta
Augusta
Tuscaloosa
Charleston
Columbus
Macon
Dallas
Meridian
Savannah
Montgomery
Brunswick
Valdosta
Jacksonville
Mobile
New Orleans
To Miami
Titusville

Publicado en el
Wall Street Journal
9 de octubre, 2021

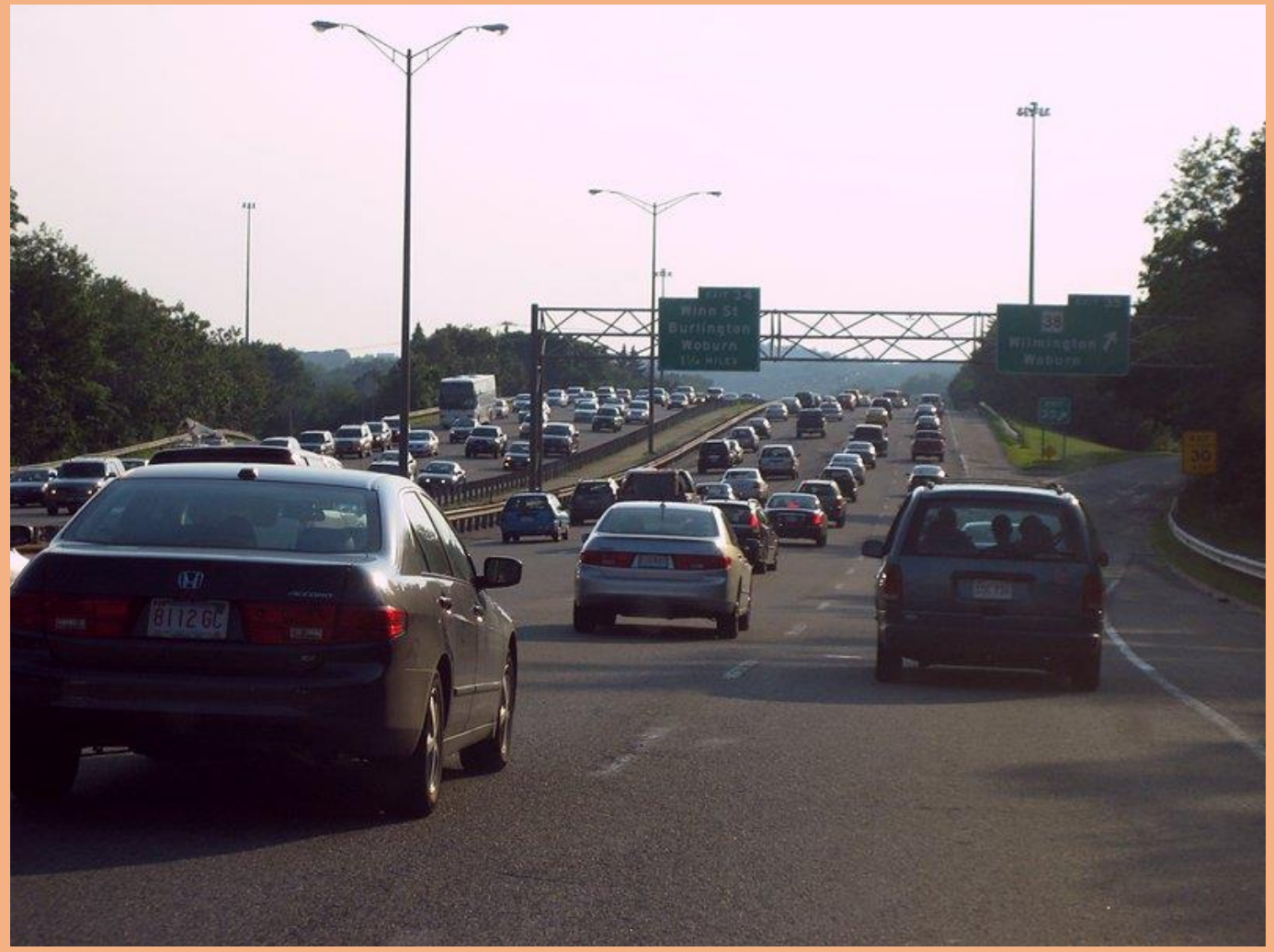


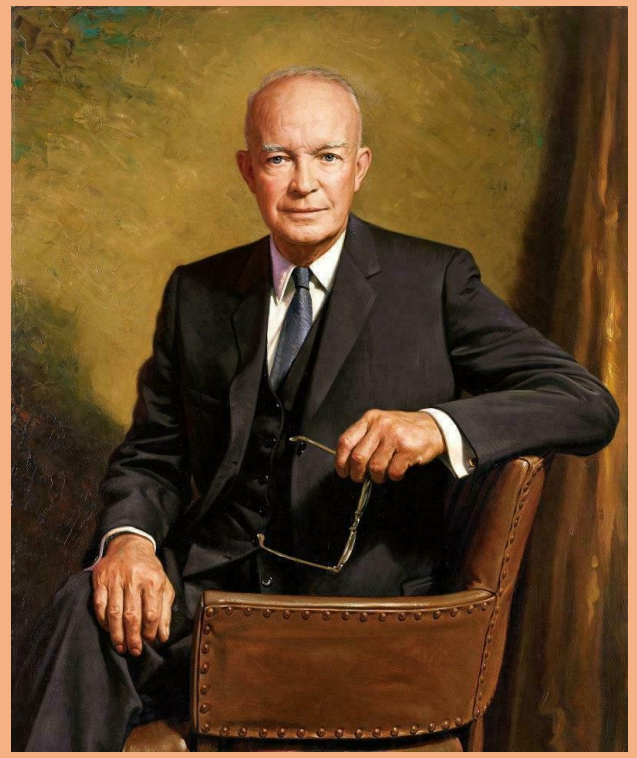
Para entender la realidad logística en Norteamérica, con referencia a su marco jurídico/regulatorio y en cuánto a su papel en el mercado, dos años son primordiales:

- 1956
- 1980

Malcolm McLean

Los *interstates* de Eisenhower



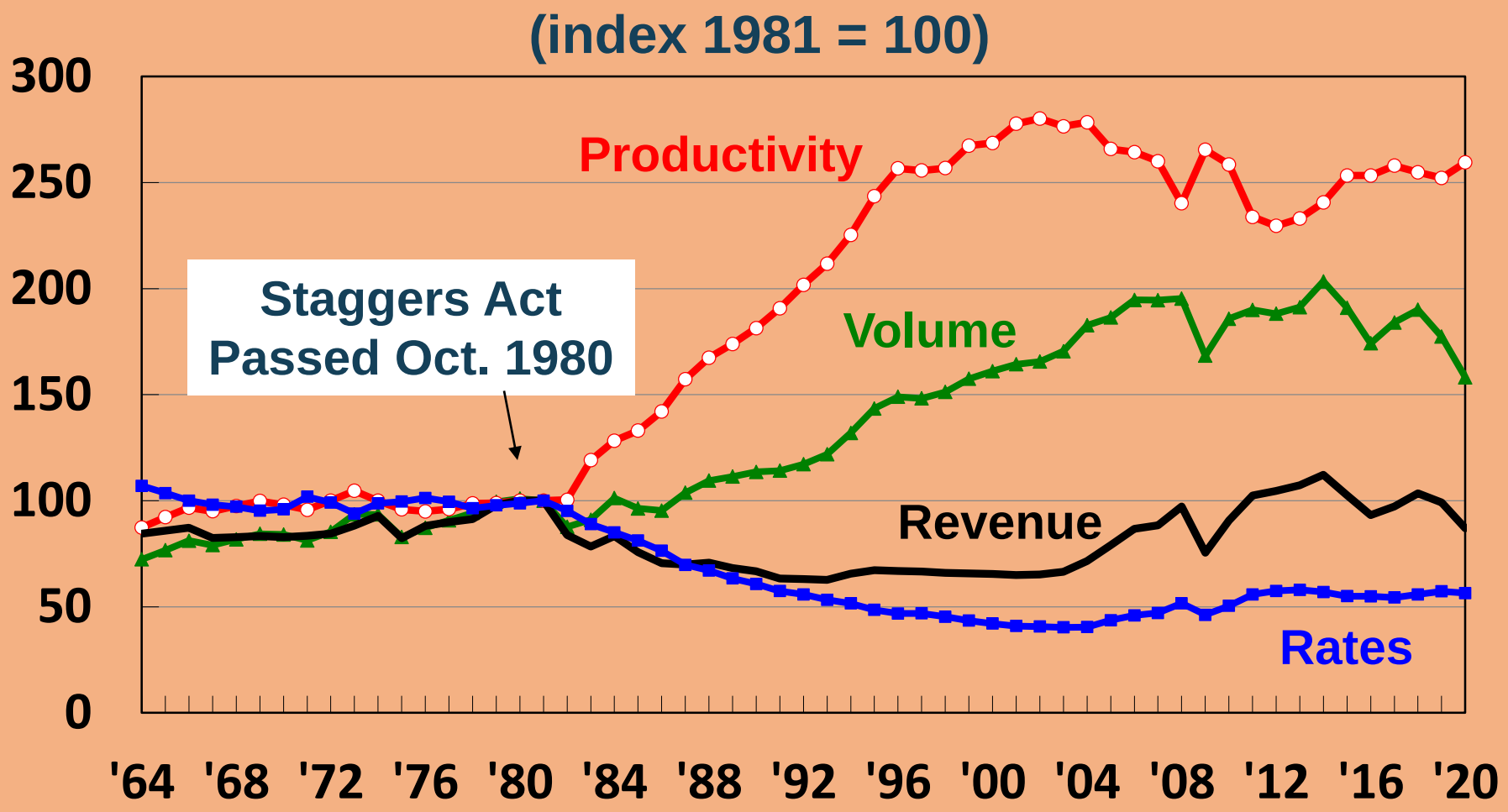


Y, en 1980, otras dos cosas ocurrieron:

- Desregulación de la industria de camión
  - The Motor Carrier Industry Act
  - Consistente con los *interstates* dio luz a lo que yo he denominado el modelo camionero Eisenhower.

- Desregulación del ferrocarril
  - The Staggers Act
  - Libró los FFCC, permitiendo desarrollo de un modelo de racionalización bestial que, a su vez, dio luz a un renacimiento ferrocarrilero.
  - Otra ley, “The Rail Passenger Service Act,” había sido promulagada en 1970.

The U.S. Freight Rail Industry in One Chart

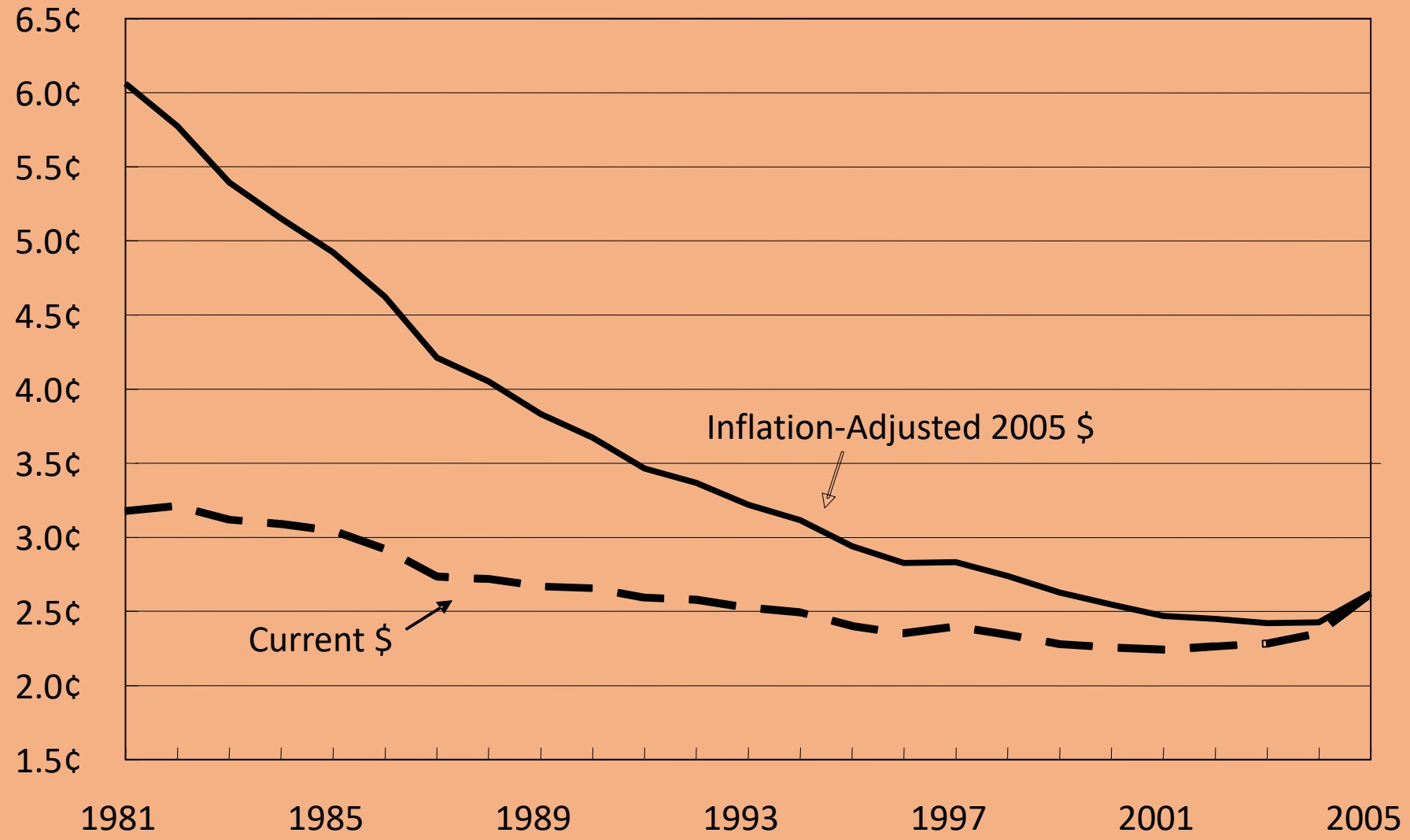


Source: AAR

Durante el período inicial de la época Staggers, del 1980 al 2000, las tarifas bajaron un 1,2 por ciento anualmente en términos reales.

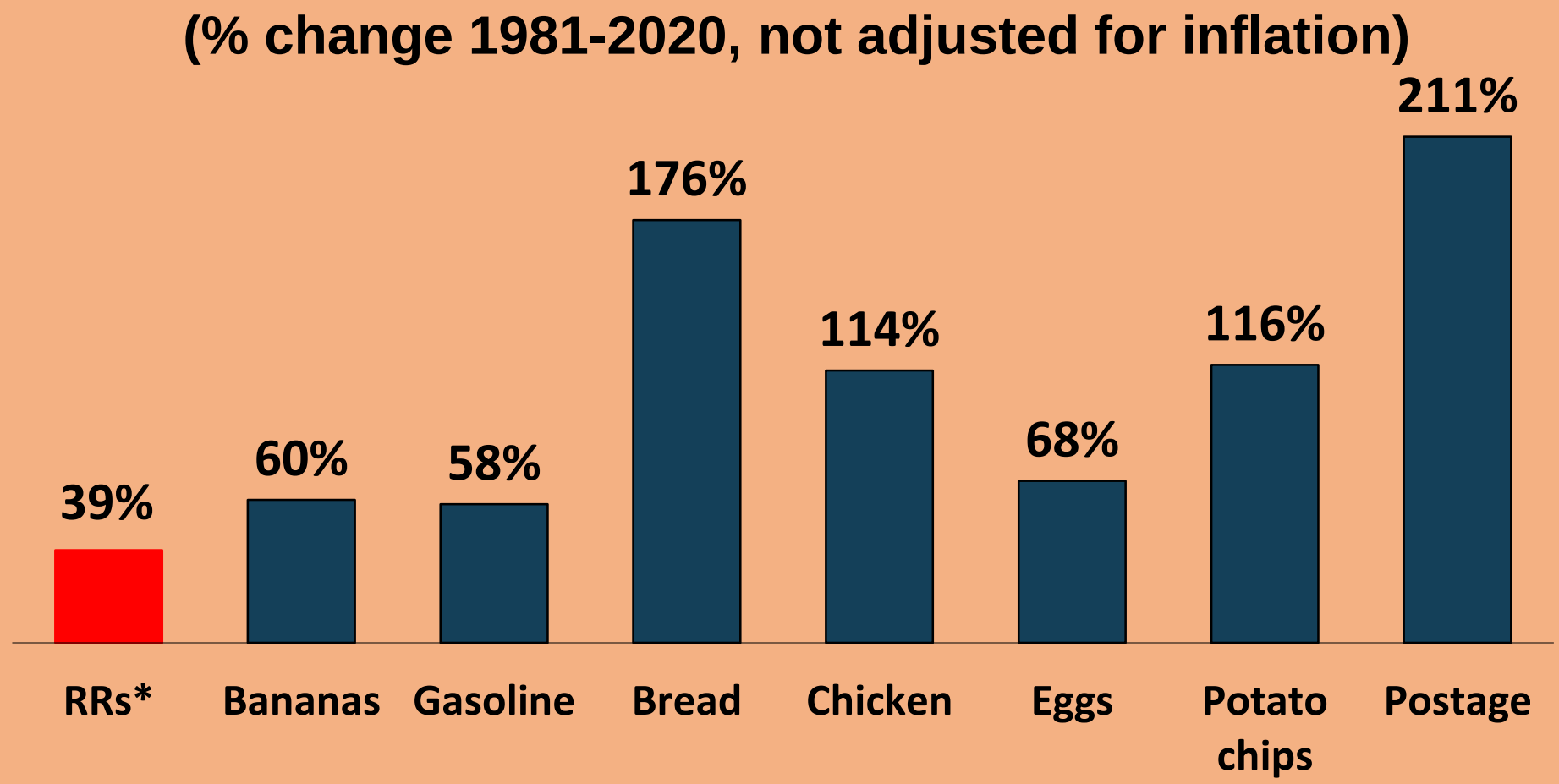
La tarifas por tonelada kilómetro (ajustada por la inflación) bajaron en un 57 por ciento.

Class I Railroad
Revenue Per Ton-Mile: 1981-2005



Source: AAR

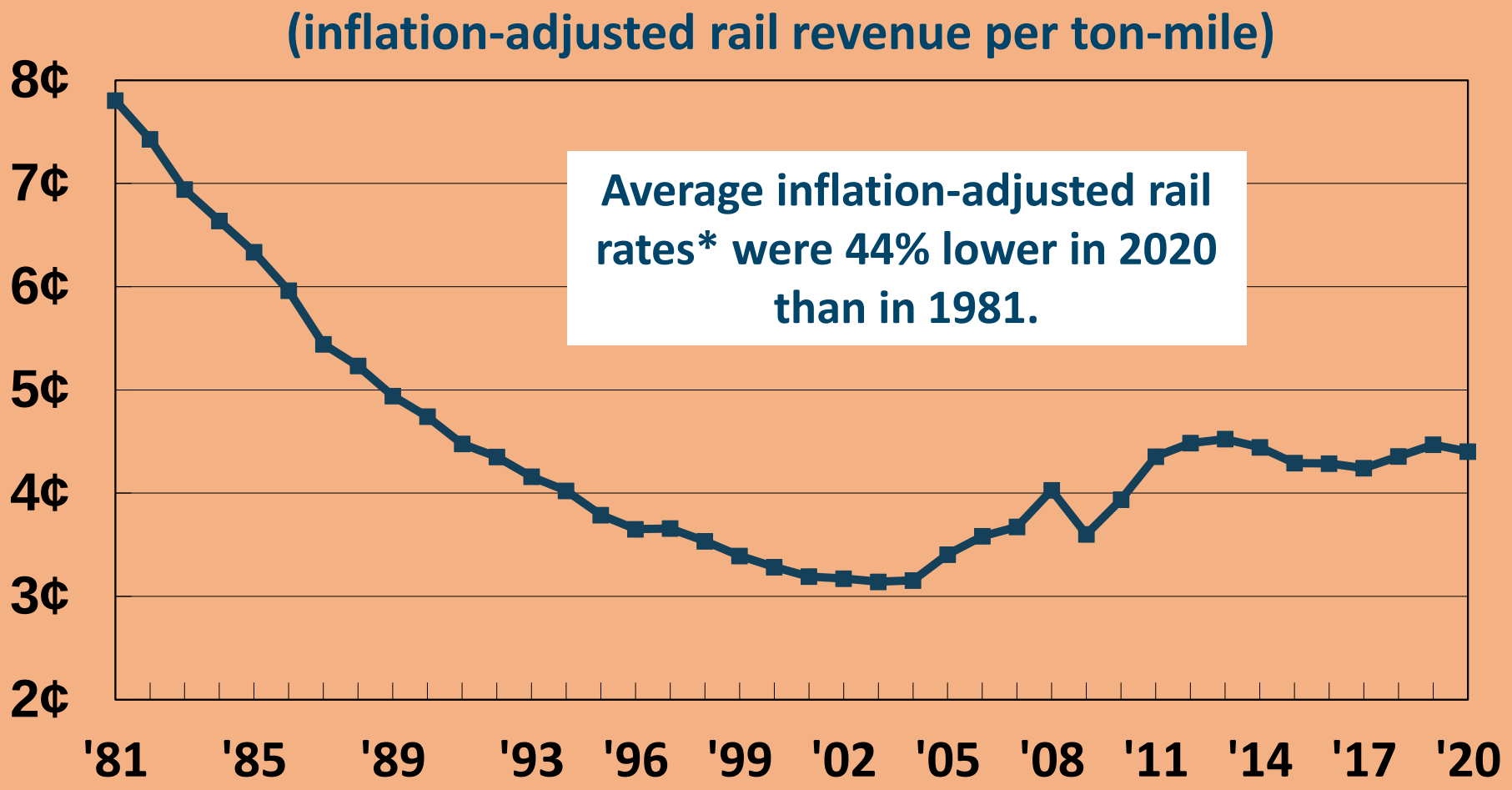
Avg. Rail Rates* vs. Prices of Common Consumer Goods



*Average revenue per ton-mile

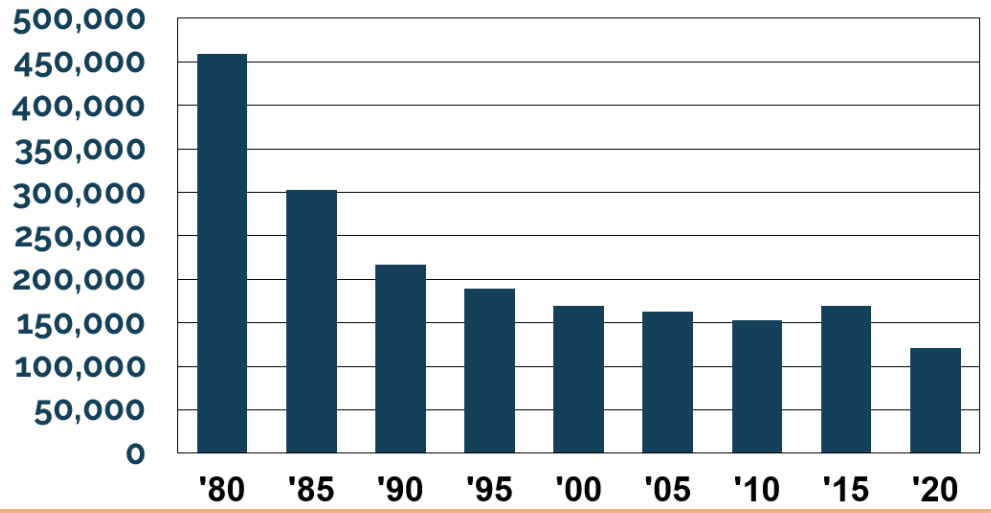
Source: AAR, Bureau of Labor Statistics

Keeping Goods Affordable for America

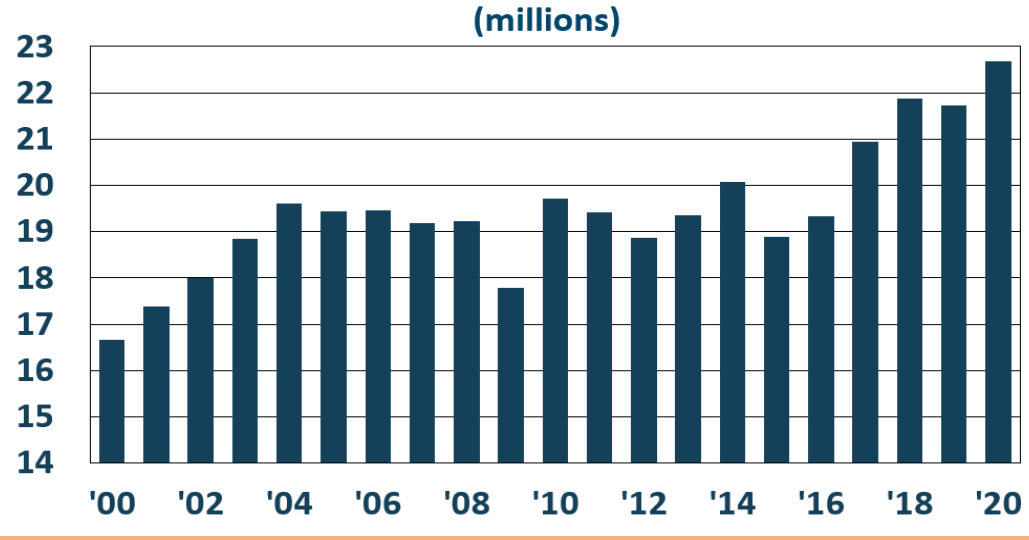


*Average revenue per ton-mile in 2020 dollars, Class I railroads. Source: AAR

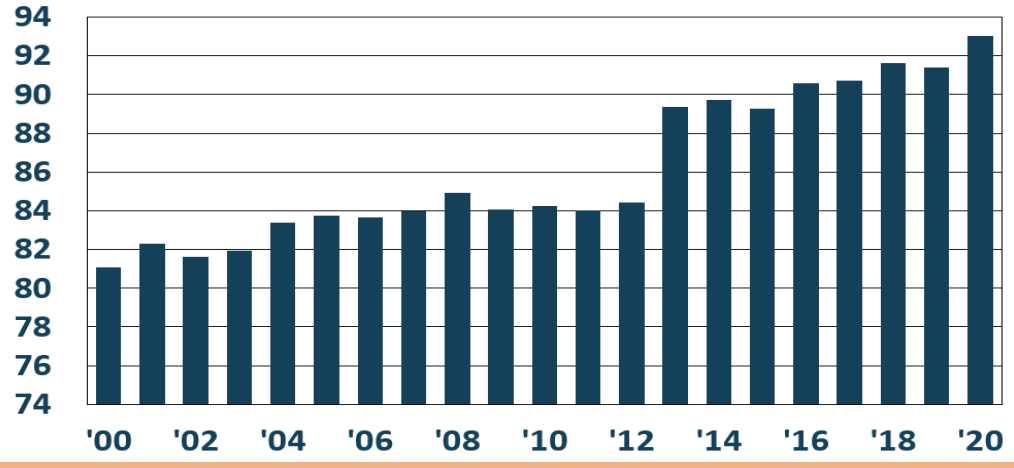
Freight Rail Employment Has Fallen Sharply Since 1980



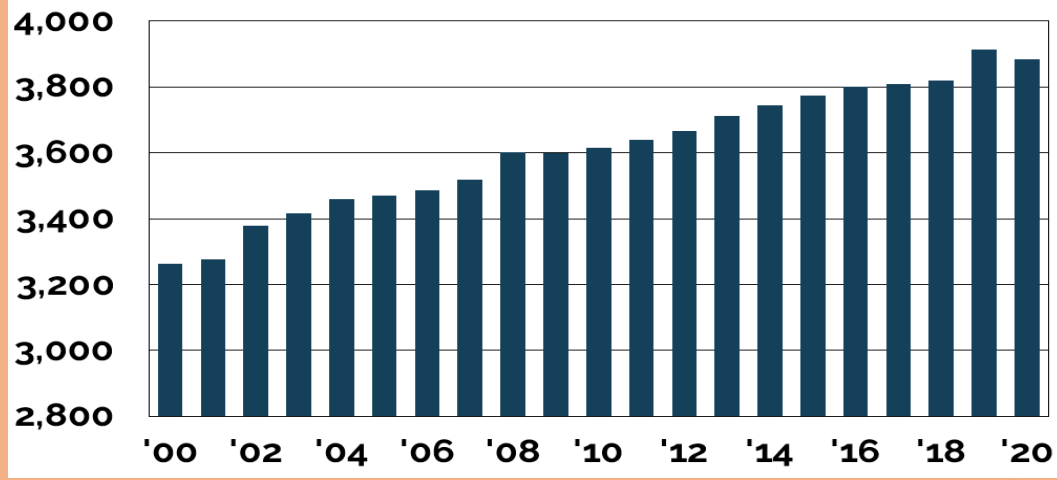
Gross Ton-Miles Per Employee



Gross Ton-Miles Per Car-Mile

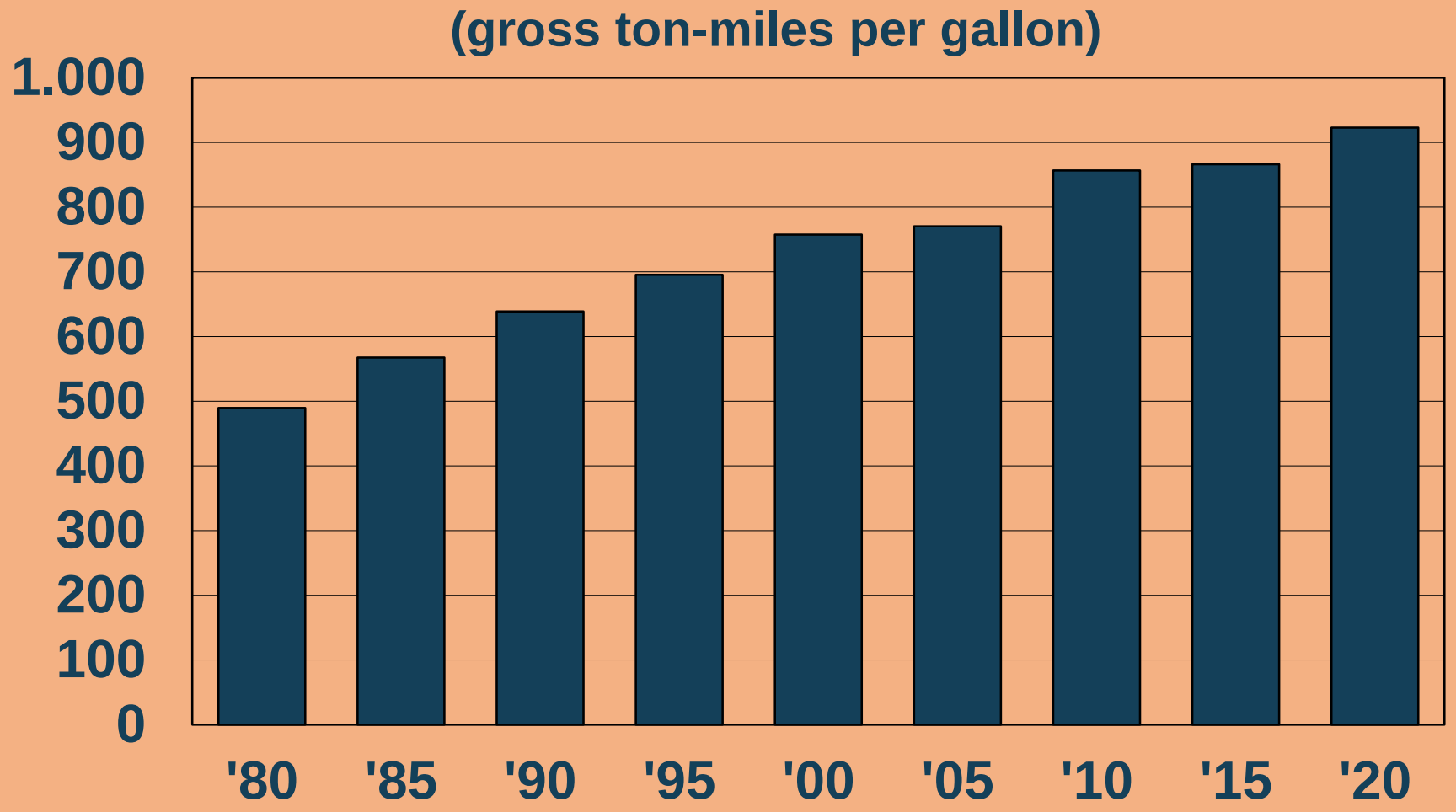


Average Horsepower Per Locomotive



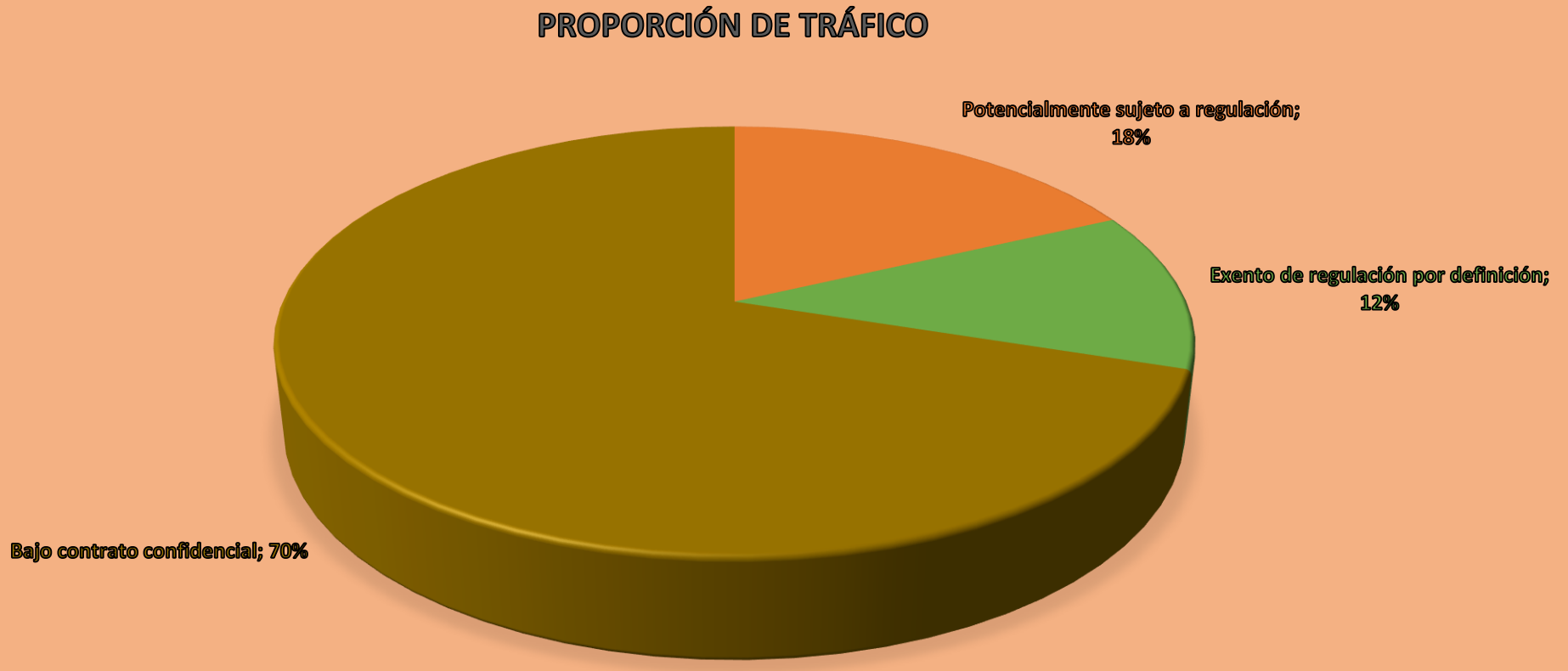
Source: AAR; data are for Class I Railroads; gross ton miles excludes locomotives

Big Gains in Freight Rail Fuel Efficiency



Source: AAR

Realidad bajo *el modelo Staggers*, a mediados de los 1990s



** Determinación de que cierto tráfico está sujeto a regulación (ese 18%) requiere varios pasos*

Tema	Cifras para	% Cambio
	2020	2020 vs 1980
Ingresos toneladas km por locomotora	88.76 millones	87%
Toneladas km bruto por locomotora	168.41 millones	71%
Consumo de fuel (millones de litros)	11,201 millones	-24%
Ingresos toneladas km por litro consumido	2,673	107%
kilometraje total FFCC	146,837 kms.	-44%
Ingresos toneladas km (en mil millones)	2,090 mil millones	76%
Peso medio por tren (sin locomotora)	6,506 toneladas	61%
Peso medio de la carga por tren	3,463 toneladas	72%
Peso de la carga, tren de carbón exportación, Norfolk	17,146 toneladas	
Porcentaje de vagón-kms bajo carga	58.60%	
Ingresos toneladas km por km de red	22.77 millones	181%
Número de empleados, FFCC Class I	120,492	-69%
Ingresos toneladas km por empleado	17.35 millones	
Locomotoras en servicio	23,544	-12%

Fuente: AAR

Ingresos por tonelada kilometro		
en 1980 (en dólares 2019)	4.3693 centavos	
en 2020 (en dólares 2019)	2.4971 centavos	-44%
Ingresos total, FFCC Class I, en mil millones		
en 1980	$28.26	
en 2020	$66.05	134%
Relación/porción operacional		
("Operating Ratio" *)		
en 1980	93.3%	
en 2020	64.8%	31%
* dólar de costo operacional,		
por dólar de ingreso		
Mejoramiento de 28.5 puntos absolutos, 31% sobre la base		

Fuente: AAR

Segments of NS which have been shortlined

The Common Carriage Obligation

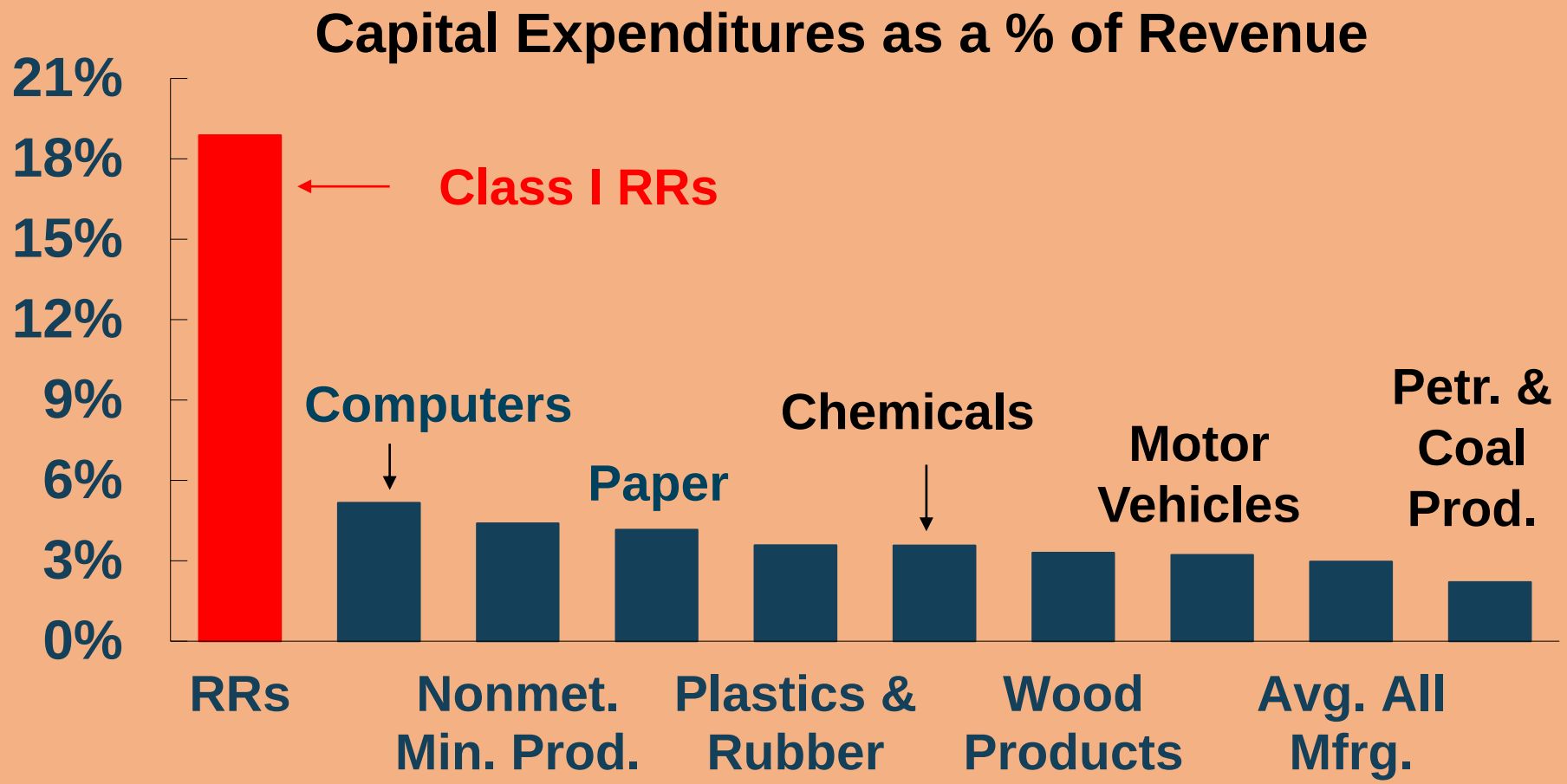
Obligación de transporte común

Principios esenciales para triunfar con el FFCC

(dentro un marco de libre mercado competitivo; a base de costos agregados)

- Hay que definir el mercado en el cual estás insertado correctamente; en nuestro caso, el mercado del transporte de mercancías.
  - Y, en el caso de España, tanto como los EEUU, dentro de un ámbito global
  - La competitividad no se realizará subiendo los costos artificialmente a los frabricantes.
- Los precios se calculan a base del mercado, *no en función de los costos.* Si no captas este principio, no llegarás.
  - Para el sector público, y un proceso político, ésto es muy difícil entender
- La industria FFCC tiene que estar integrada verticalmente. Si no lo está, jamás calcularás el grado correcto de inversion.
  - Tampoco lograrás un modelo que incentiva el desarrollo industrial
- Dos factores determinan éxito en el movimiento de producto por FFCC; distancia y volumén.
- La unidad de producción en la industria FFCC es el trén, no el carro, no el vagón.
- Pasajeros y carga no mezclan bien.

RRs Are Far More Capital Intensive Than Other Industries

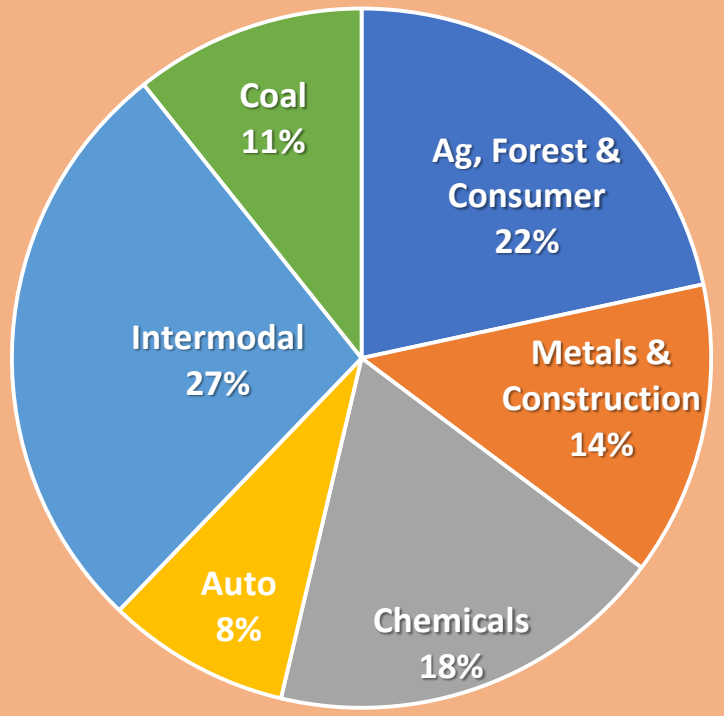


Figures are average 2010-2019 Sources: Census Bureau, AAR

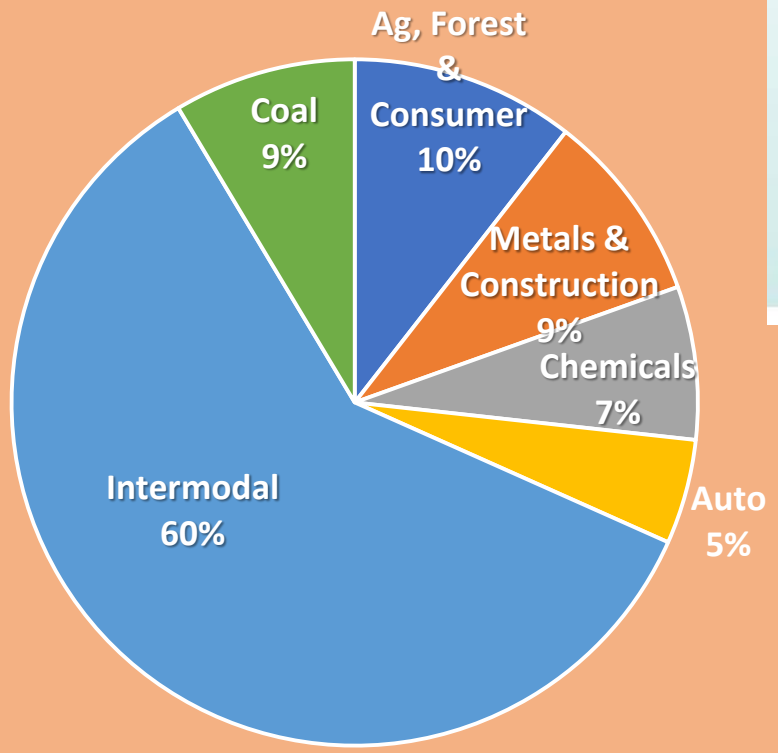
Mercados y mercancías

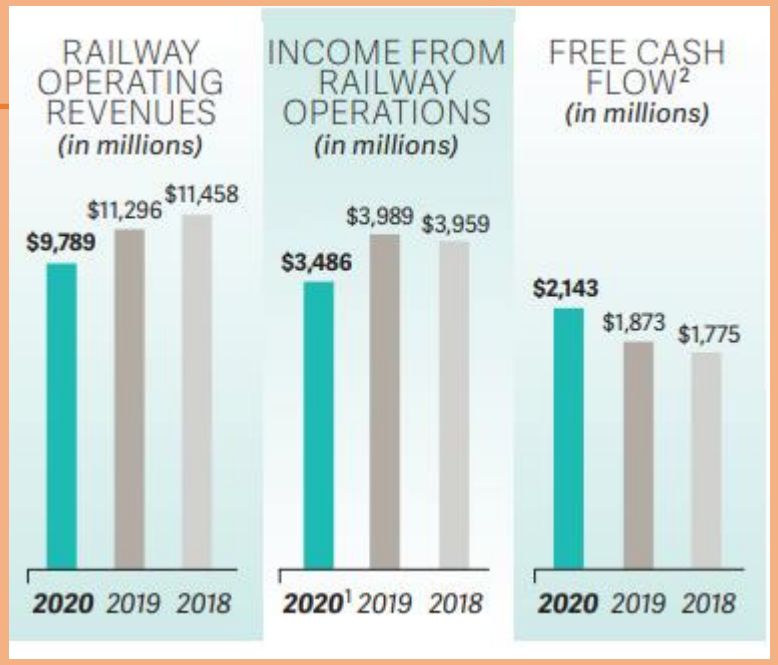
2020 NS Business

NS Revenue



NS Volume





2020 Operating Ratio: 64.4%

Market Capitalization,
October 11, 2021: $65.5 billion

Source: NS Financial Reports

Industrial Products

Agriculture, Forest & Consumer Products

Norfolk Southern serves shippers and receivers of many agricultural products, including corn, wheat, soybeans, miscellaneous grains, animal and poultry feed, sweeteners, ethanol, food oils, flour, beverages, canned goods, and consumer products.

Chemicals

Norfolk Southern's Thoroughbred Bulk Transfer facilities are clean, secure, and well-equipped for transferring bulk products from rail to truck. While NS owns these centers, they are operated by independent contractors.

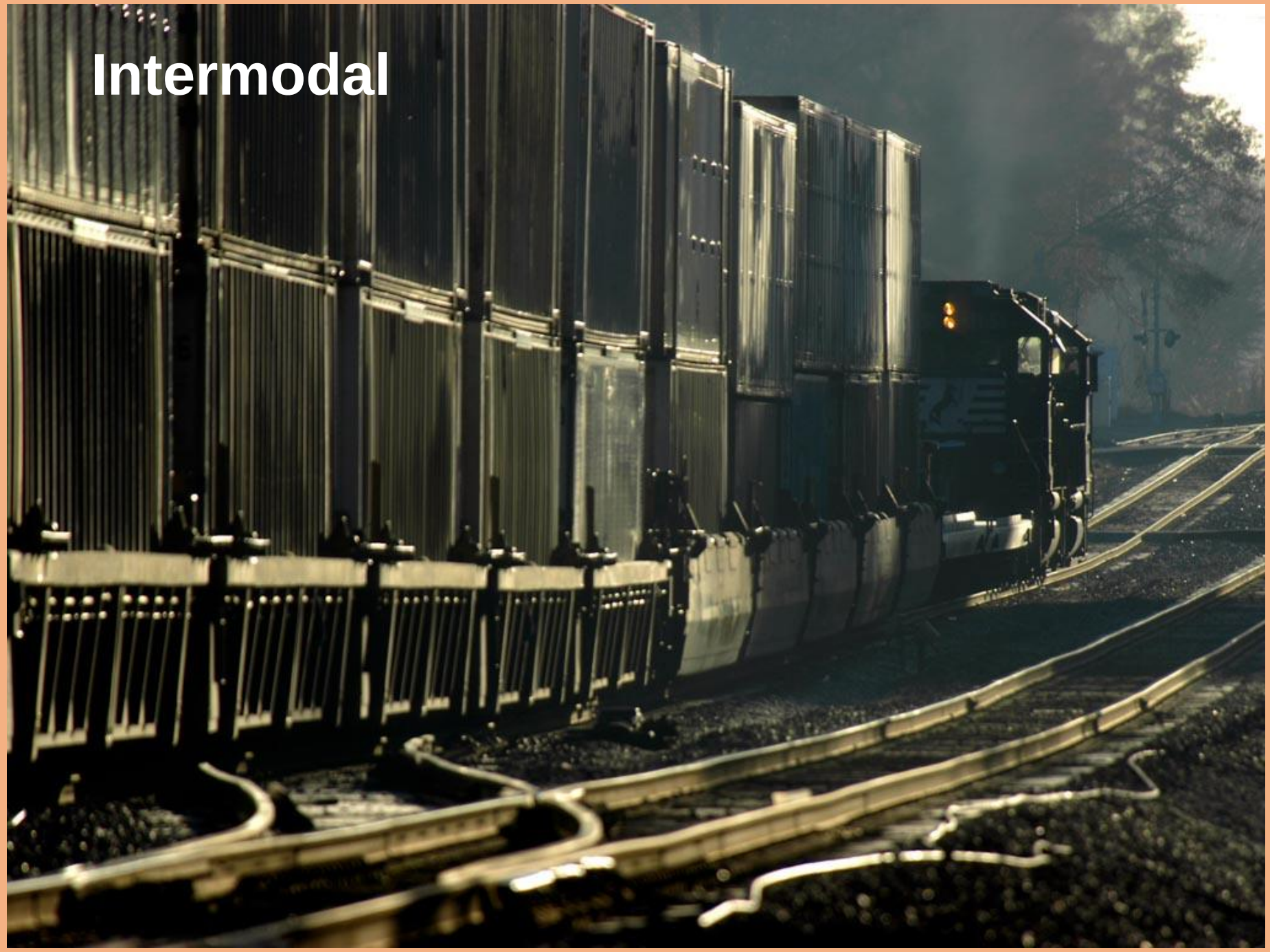
Metals & Construction

- 37 integrated and mini mills
- 70 transload facilities
- Over 50 steel processors
- 150 scrap metal locations
- 67 quarries served
- 30 aggregate distribution yards
- 15 cement facilities

Coal

Norfolk Southern is an expert in sourcing, blending, and moving the highest quality steam and metallurgical coal in the world. In fact, our Lamberts Point Pier 6 in Norfolk, Va., is the largest and fastest coal loading pier in the Northern Hemisphere.

Intermodal



INTERMODAL NETWORK

NORFOLK SOUTHERN

www.nscorp.com

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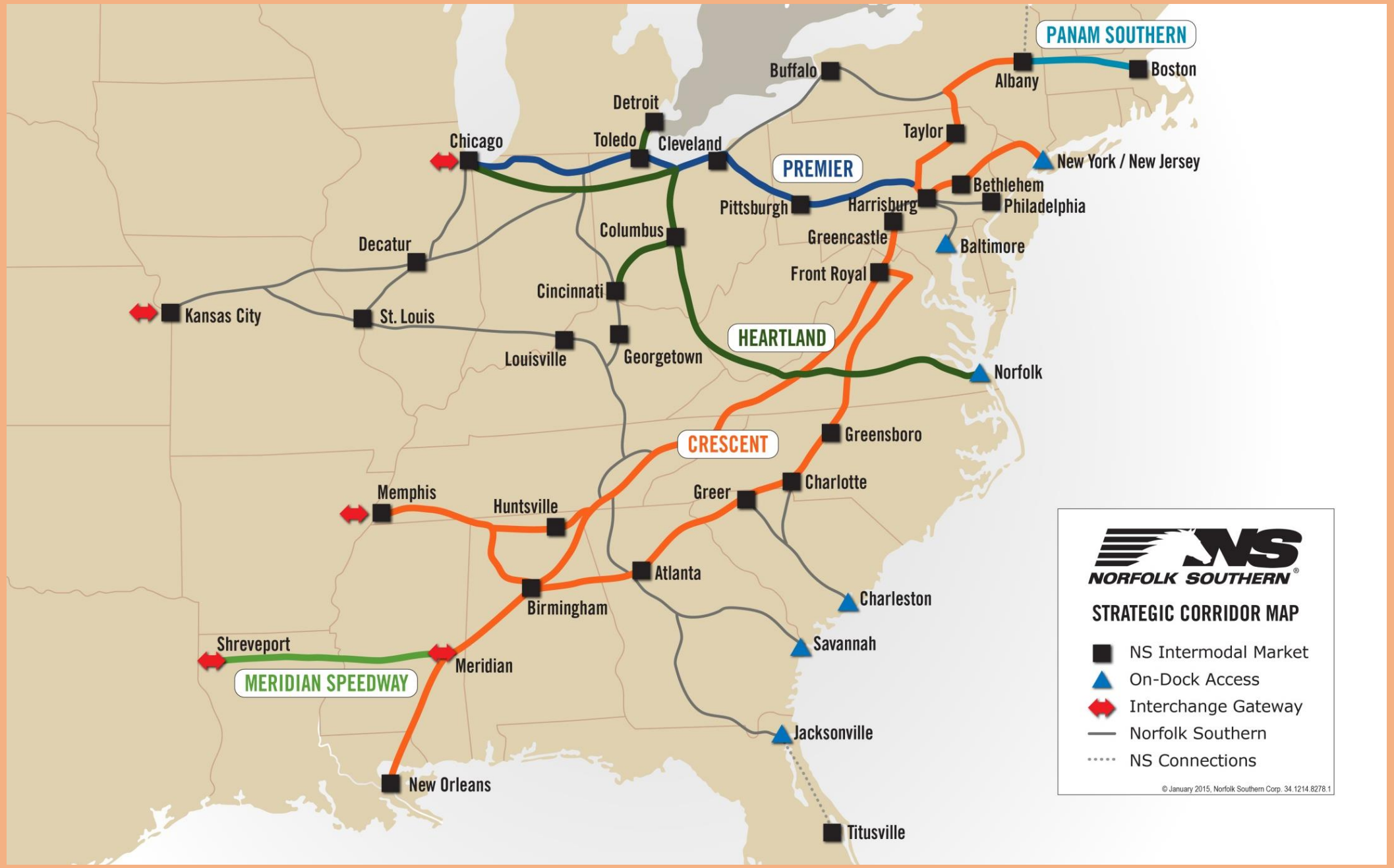
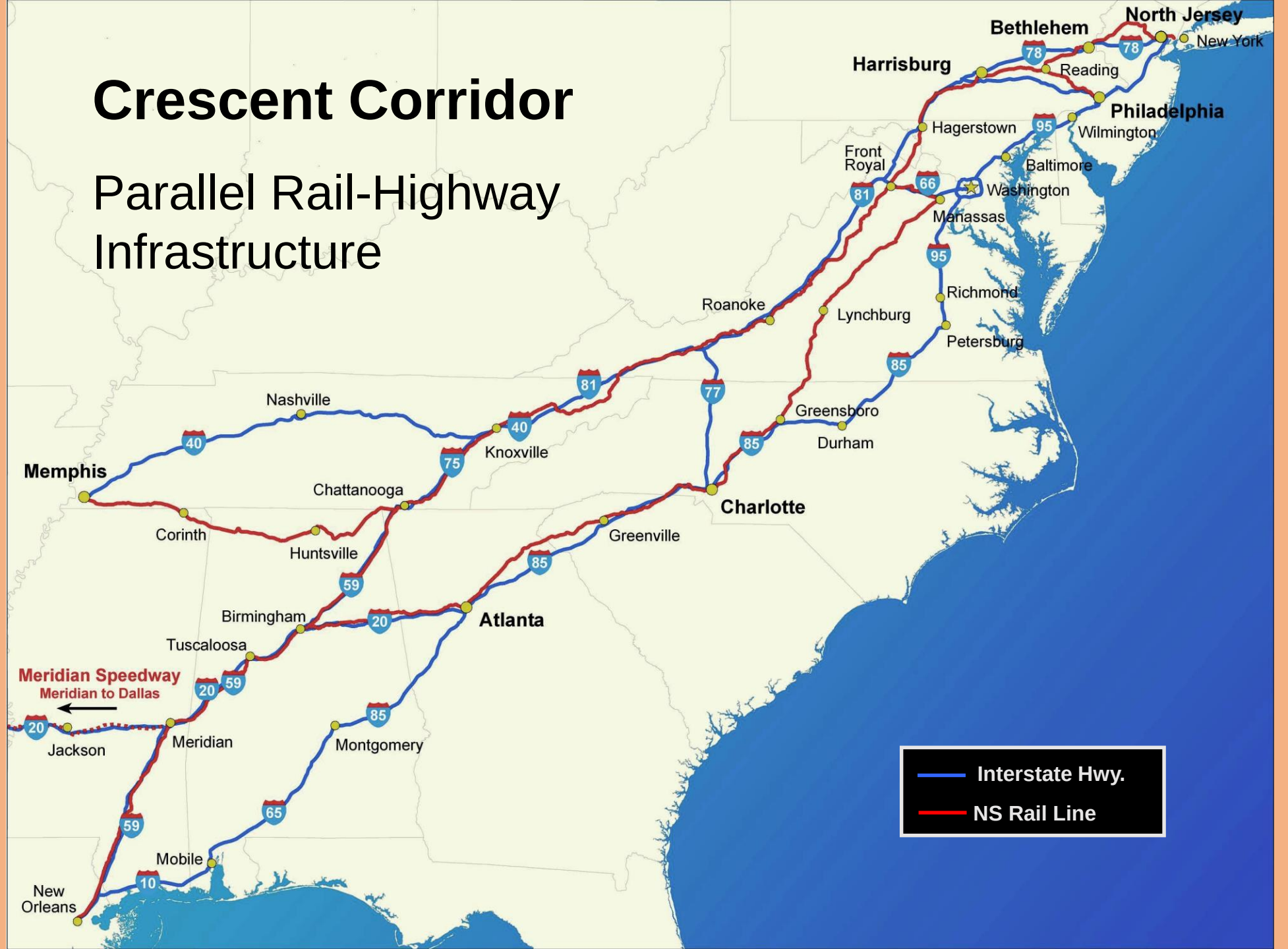
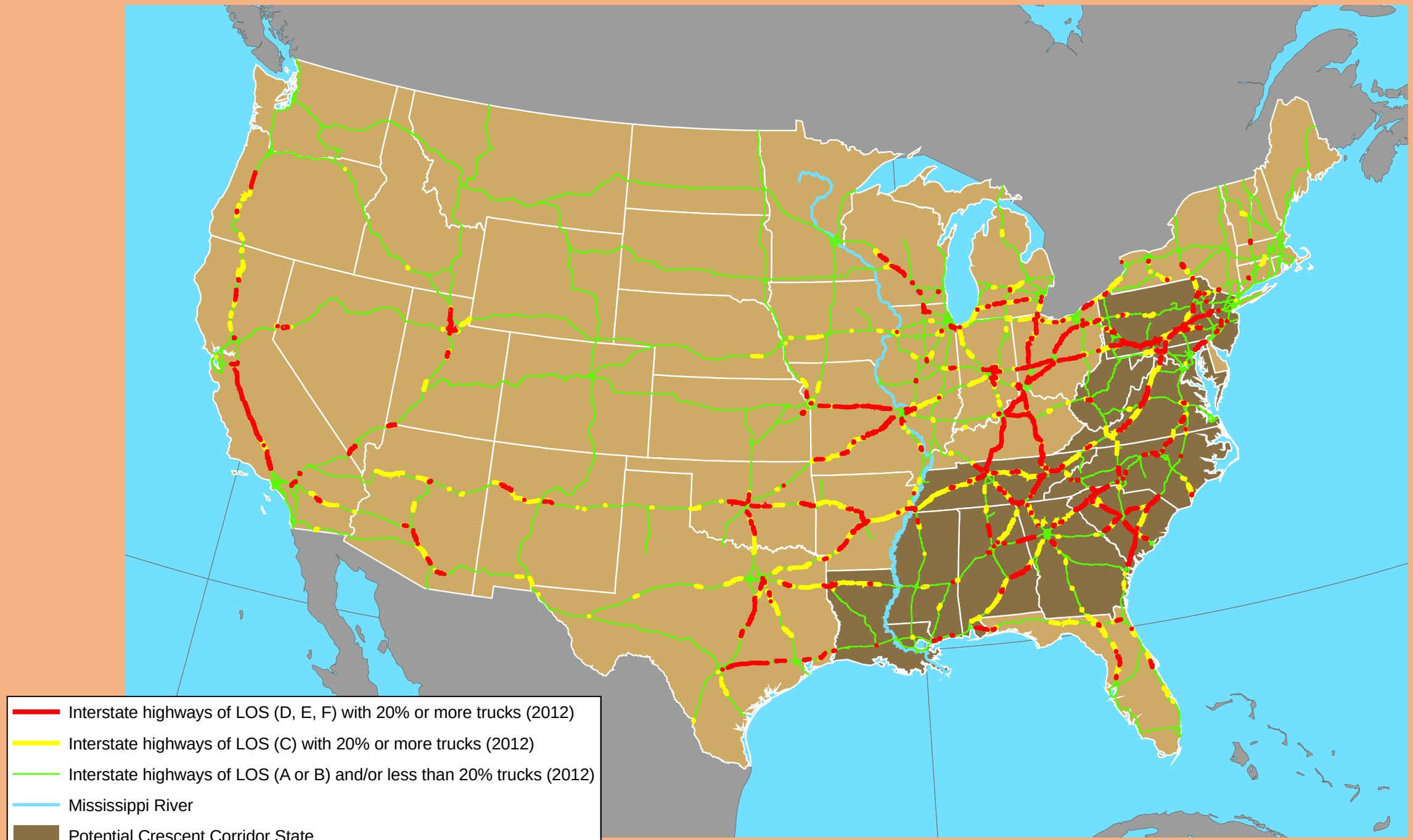
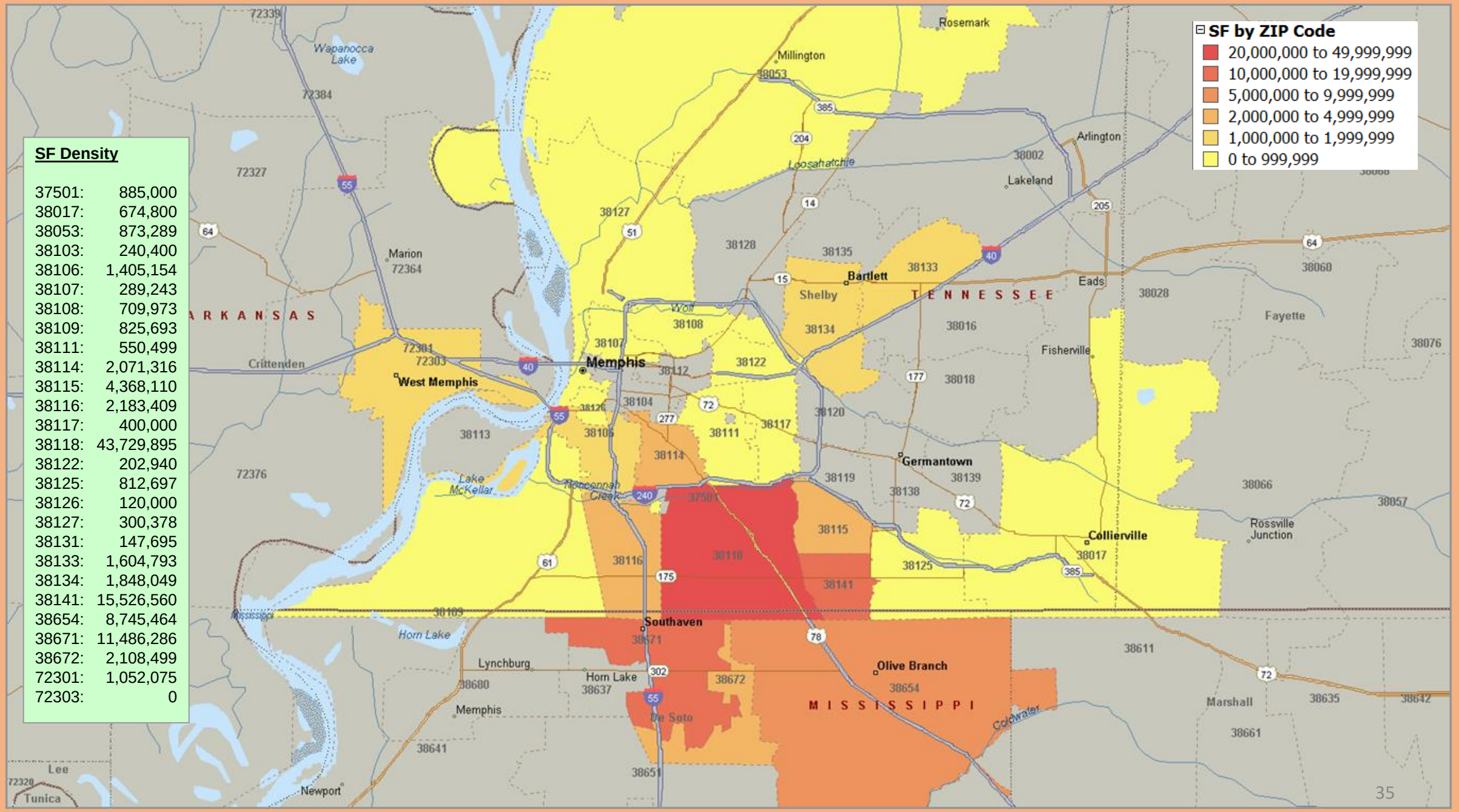

PANAM SOUTHERN
Buffalo
Albany
Boston
Detroit
Taylor
Chicago
Toledo
Cleveland
PREMIER
New York / New Jersey
Bethlehem
Pittsburgh
Harrisburg
Philadelphia
Columbus
Greencastle
Baltimore
Decatur
Front Royal
Cincinnati
Kansas City
St. Louis
HEARTLAND
Louisville
Georgetown
Norfolk
CRESCENT
Greensboro
Charlotte
Memphis
Greer
Huntsville
Atlanta
Charleston
Birmingham
Savannah
Shreveport
Meridian
MERIDIAN SPEEDWAY
Jacksonville
New Orleans
Titusville
NORFOLK SOUTHERN
STRATEGIC CORRIDOR MAP
NS Intermodal Market
On-Dock Access
Interchange Gateway
Norfolk Southern
NS Connections
© January 2015, Norfolk Southern Corp. 34.1214.8278.1

Crescent Corridor

Parallel Rail-Highway Infrastructure

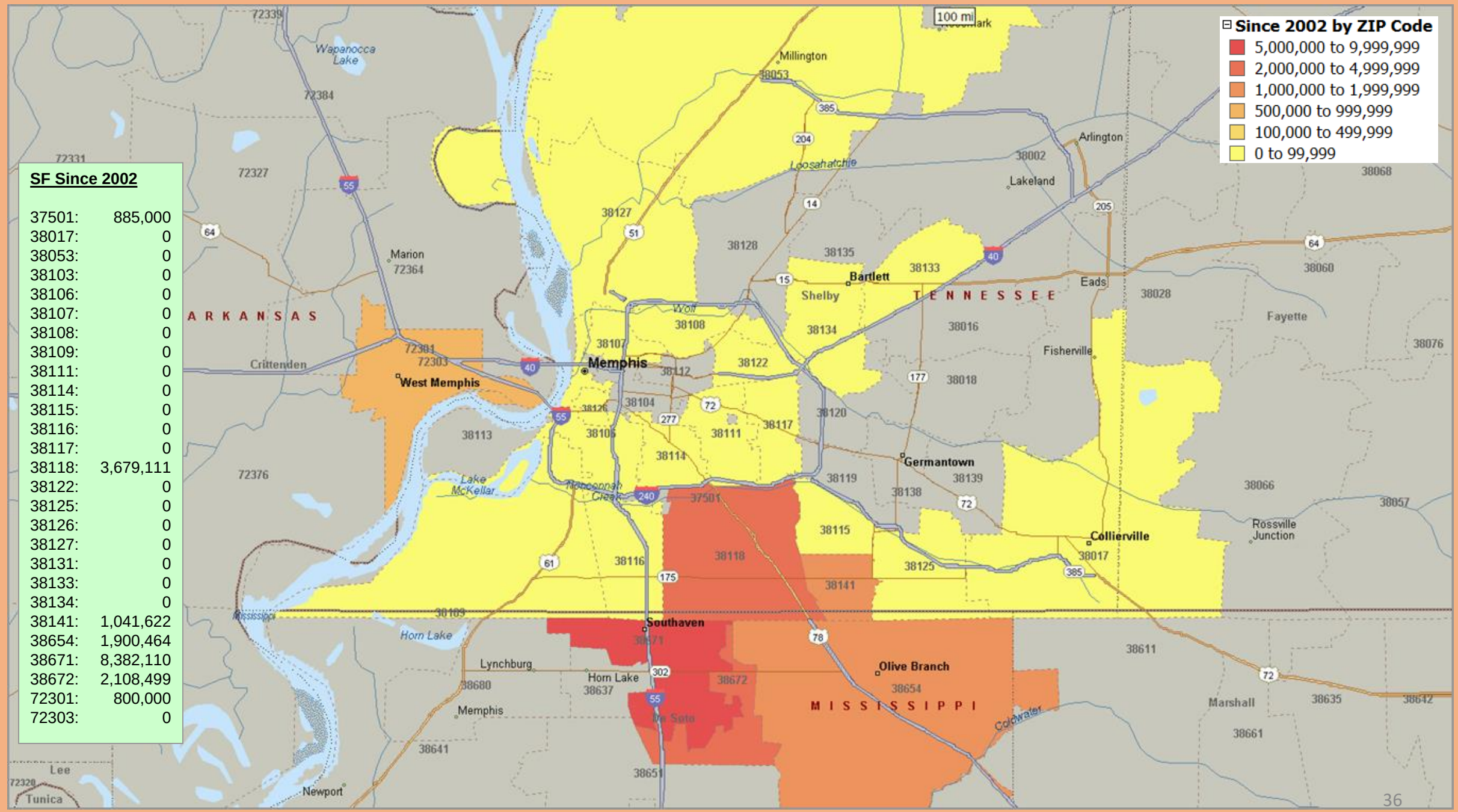



Interstate highways of LOS (D, E, F) with 20% or more trucks (2012)
Interstate highways of LOS (C) with 20% or more trucks (2012)
Interstate highways of LOS (A or B) and/or less than 20% trucks (2012)
Mississippi River
Potential Crescent Corridor State



SF Density

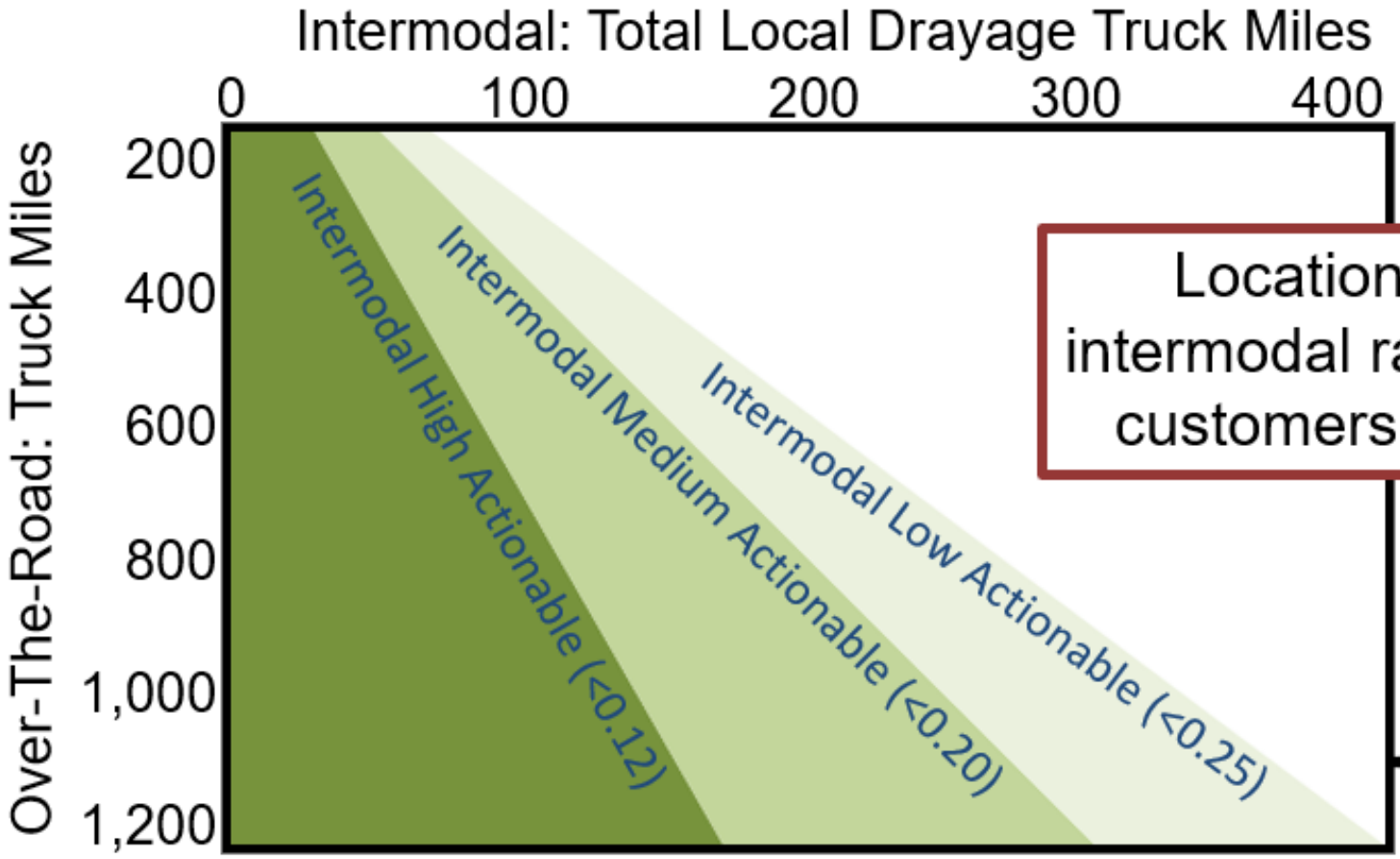
37501:	885,000
38017:	674,800
38053:	873,289
38103:	240,400
38106:	1,405,154
38107:	289,243
38108:	709,973
38109:	825,693
38111:	550,499
38114:	2,071,316
38115:	4,368,110
38116:	2,183,409
38117:	400,000
38118:	43,729,895
38122:	202,940
38125:	812,697
38126:	120,000
38127:	300,378
38131:	147,695
38133:	1,604,793
38134:	1,848,049
38141:	15,526,560
38654:	8,745,464
38671:	11,486,286
38672:	2,108,499
72301:	1,052,075
72303:	0



SF Since 2002

37501:	885,000
38017:	0
38053:	0
38103:	0
38106:	0
38107:	0
38108:	0
38109:	0
38111:	0
38114:	0
38115:	0
38116:	0
38117:	0
38118:	3,679,111
38122:	0
38125:	0
38126:	0
38127:	0
38131:	0
38133:	0
38134:	0
38141:	1,041,622
38654:	1,900,464
38671:	8,382,110
38672:	2,108,499
72301:	800,000
72303:	0

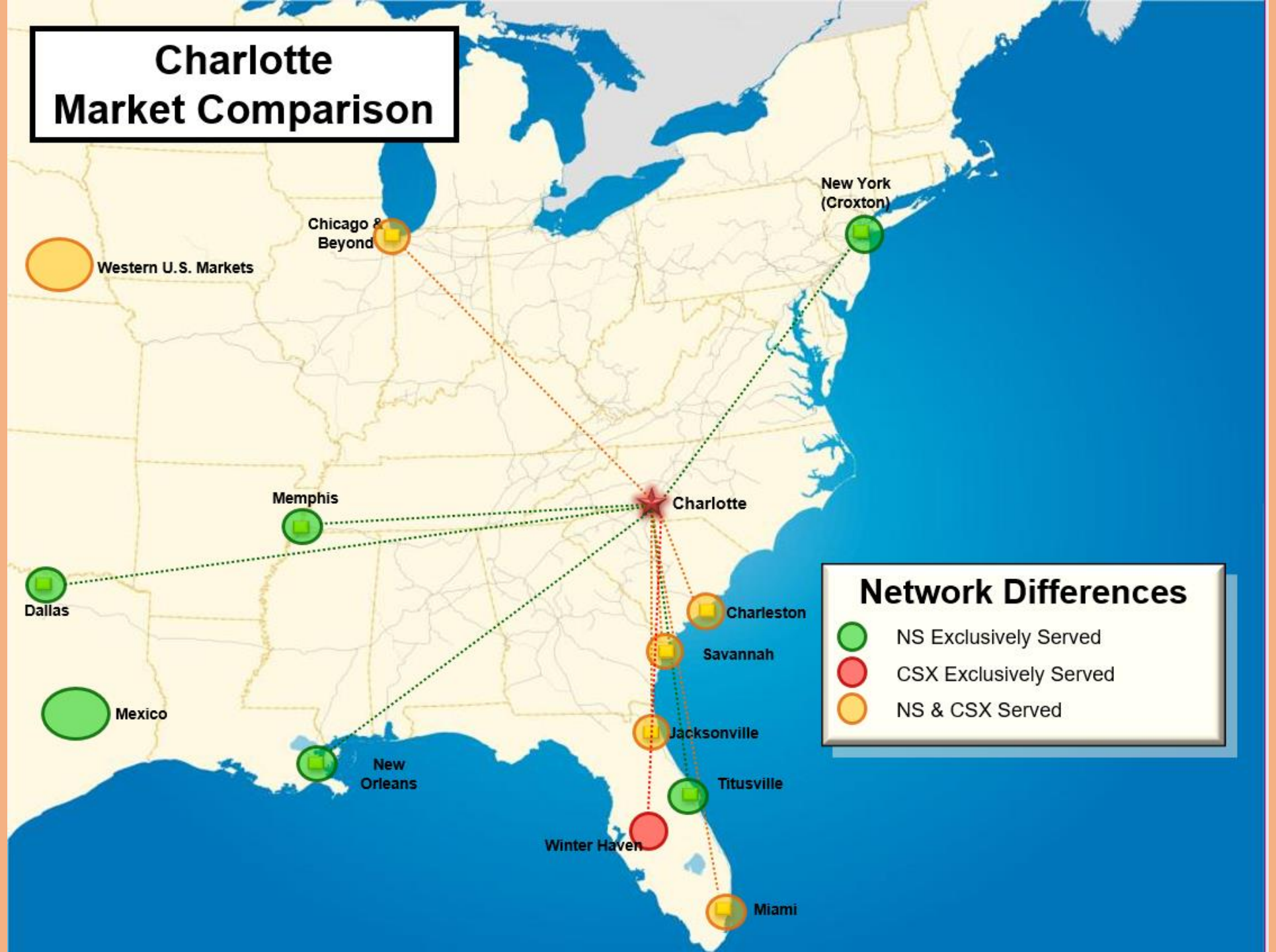
Actionability is a rule-of-thumb ratio measuring a customer's choice to divert over-the-road lane pairs onto the intermodal transportation network.

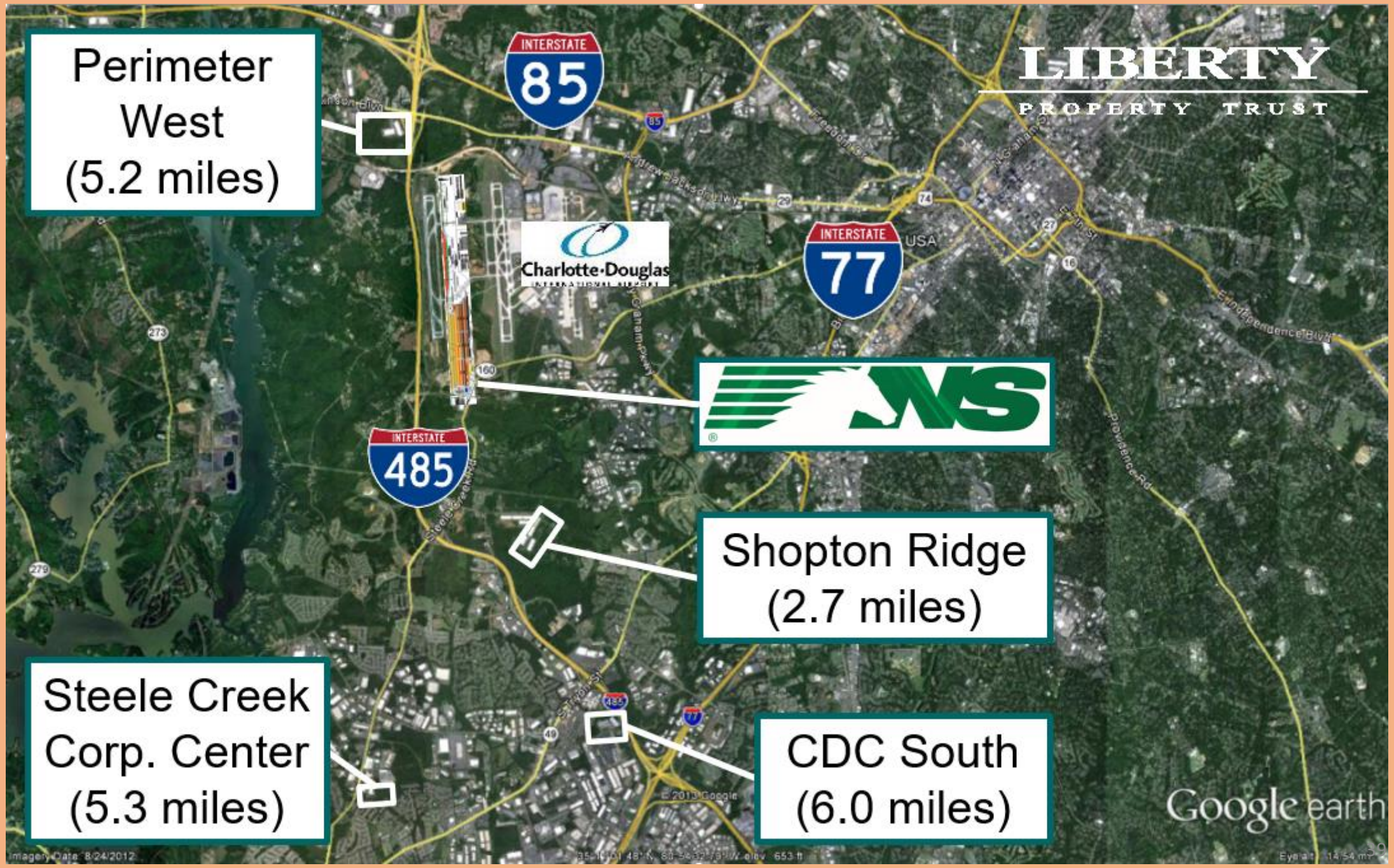


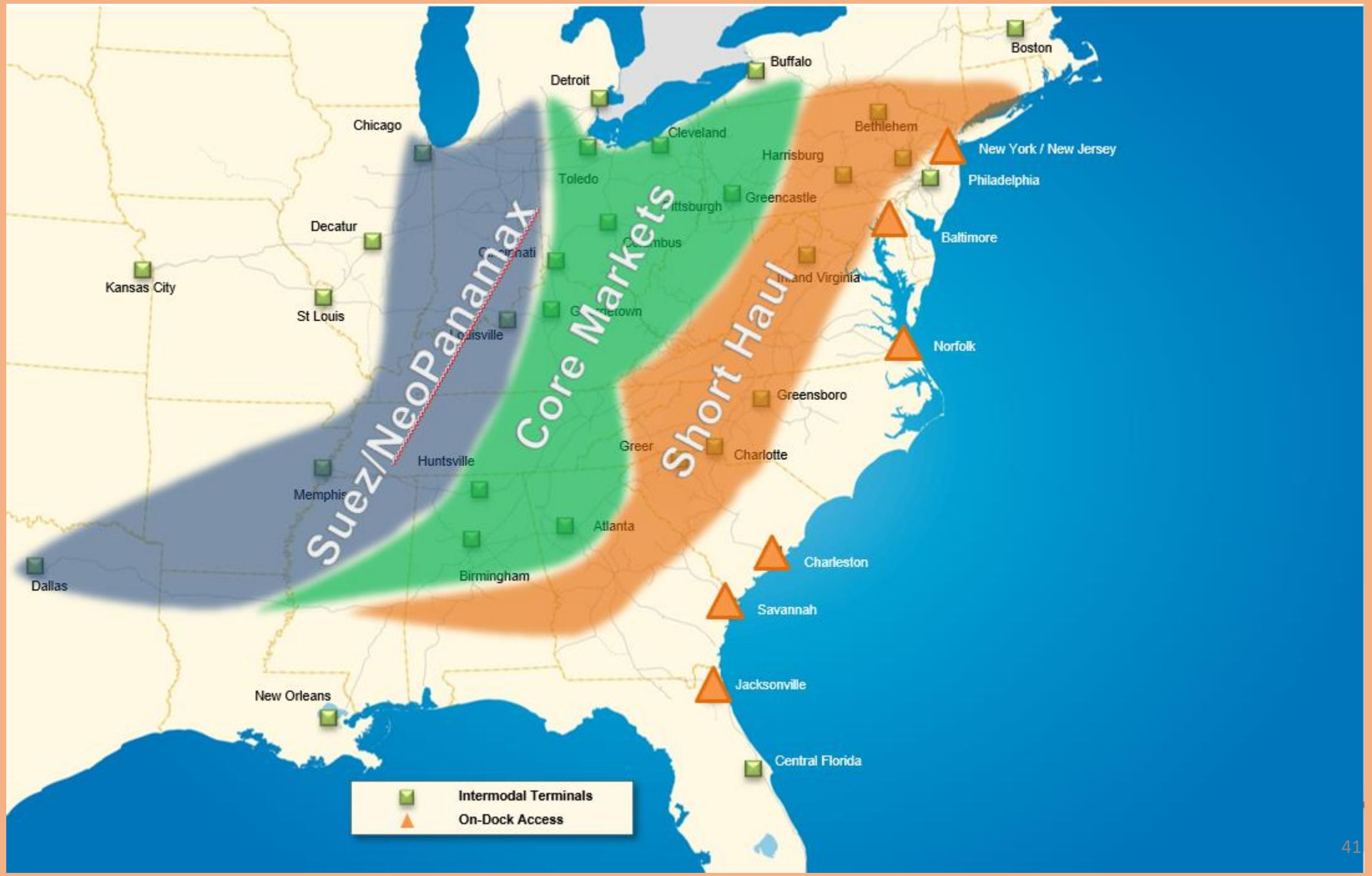
Locations too far away from intermodal rail terminals are captive customers of long-haul trucking.

Actionability Ratio:

$$\frac{\text{(Origin + Destination Dray Miles)}}{\text{(O+D Dray Miles) + OTR Miles}}$$

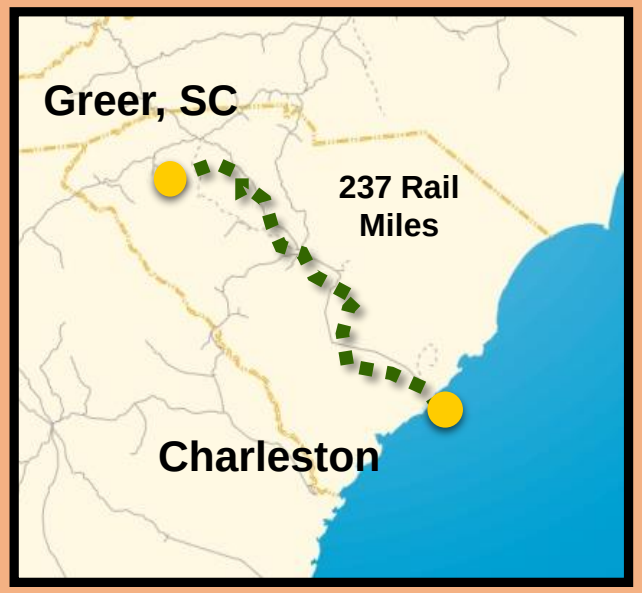

Charlotte
Market Comparison
New York
(Croxton)
Chicago &
Beyond
Western U.S. Markets
Memphis
Charlotte
Dallas
Charleston
Savannah
Mexico
Jacksonville
New
Orleans
Titusville
Winter Haven
Miami
Network Differences
NS Exclusively Served
CSX Exclusively Served
NS & CSX Served


Perimeter West (5.2 miles)
LIBERTY PROPERTY TRUST
INTERSTATE 85
INTERSTATE 77
INTERSTATE 485
Charlotte·Douglas
NS
Shopton Ridge (2.7 miles)
Steele Creek Corp. Center (5.3 miles)
CDC South (6.0 miles)
Google earth


Boston
Buffalo
Detroit
Chicago
Cleveland
Bethlehem
Harrisburg
New York / New Jersey
Philadelphia
Toledo
Greencastle
Baltimore
Decatur
Kansas City
St Louis
Norfolk
Greensboro
Charlotte
Huntsville
Atlanta
Charleston
Savannah
Jacksonville
Dallas
Birmingham
New Orleans
Central Florida
Suez/NeoPanamax
Core Markets
Short Haul
Intermodal Terminals
On-Dock Access

South Carolina Inland Port
Greer, SC

Buffalo
Albany
Ayer
Boston
Chicago
Detroit
Toledo
Cleveland
Taylor
Bethlehem
NY/NJ
Harrisburg/
Rutherford
Morrisville/Navy Yard
Decatur
Columbus
Pittsburgh
Greencastle
Baltimore
Indianapolis
Cincinnati
Front Royal
Kansas City
St Louis
Evansville
Louisville
Georgetown
Norfolk
Greensboro
Huntsville
Charlotte
Birmingham
Charleston/ Marine
Terminal
Shreveport
Meridian
Savannah
Jacksonville
New Orleans
Titusville
Ft Lauderdale
Miami


Greer, SC
237 Rail
Miles
Charleston

MASON MEGA RAIL
Complete by end-2021

- ✓ Doubling Savannah rail lift capacity to 2M TEUs
- ✓ Complete end-2021
- ✓ Capacity for six 10,000-ft trains
- ✓ 100% on-dock connectivity to NS & CSX
- ✓ Largest intermodal rail facility on any U.S. port

SOFKEE INDUSTRIAL PARK

GA-BIBB-9

PHYSICAL CHARACTERISTICS

SIZE :	405.00 acres. Subdivision would be a matter of negotiation.
LOCATION :	2 miles south of Macon in Bibb County.
TOPOGRAPHY :	Elevation between 280.00 - 380.00 ft.
ZONING :	Industrial
OWNERSHIP :	Southern Region Industrial Realty

UTILITIES

WATER :	Macon-Bibb County Water Auth. Line size is 12.00 in. Located along US-41. 75 MGD excess capacity.
SEWERAGE :	Macon-Bibb County Water Auth. Line size is 10.00 in. Located on site. 20 MGD excess capacity.
GAS :	Atlanta Gas Light Company. Line size is 6.00 in. Located on site.
ELECTRICITY :	Georgia Power Company. Customer may choose alternate supplier.

TRANSPORTATION

RAIL :	Norfolk Southern Railway. main line.
HIGHWAY :	Nearest Interstate Highway: I-75. Distance to interchange: 3 miles. US-41/129 adjacent and west.
AIR :	3.00 mi from Lewis B. Wilson Airport

For additional information, please contact Norfolk Southern

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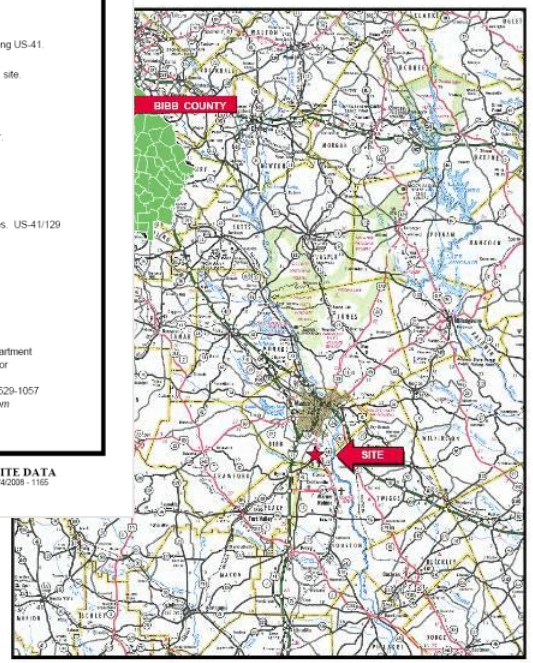
Email : nmbaker@nscorp.com

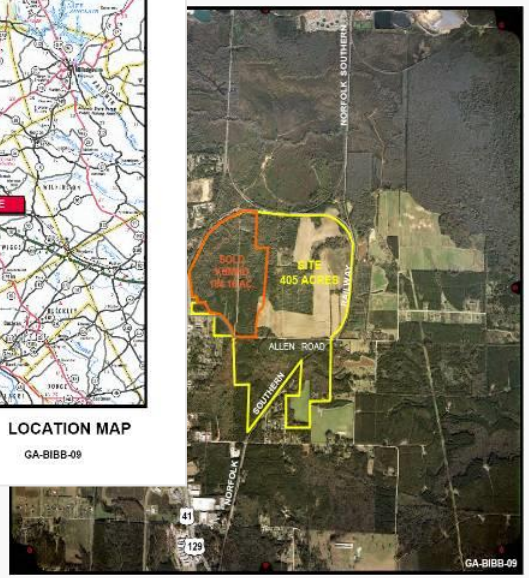
NS

SITE DATA
7/4/2008 - 1165



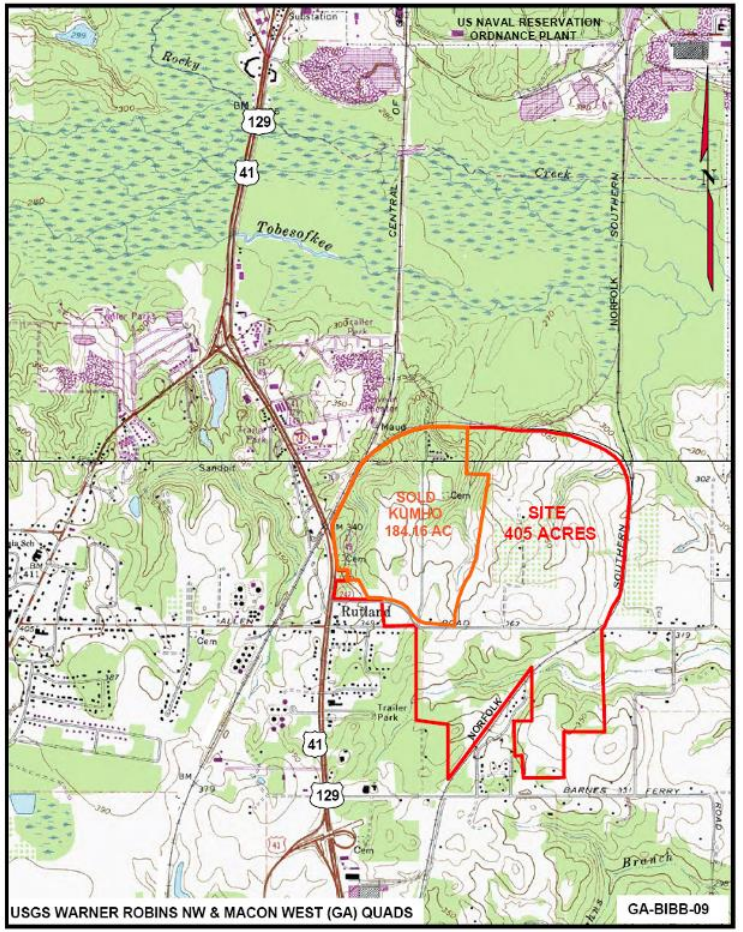
NS NORFOLK SOUTHERN

LOCATION MAP
GA-BIBB-09



NS NORFOLK SOUTHERN

AERIAL PHOTOGRAPH
Provided by U.S. Geological Survey
Image Date 02/22/1998

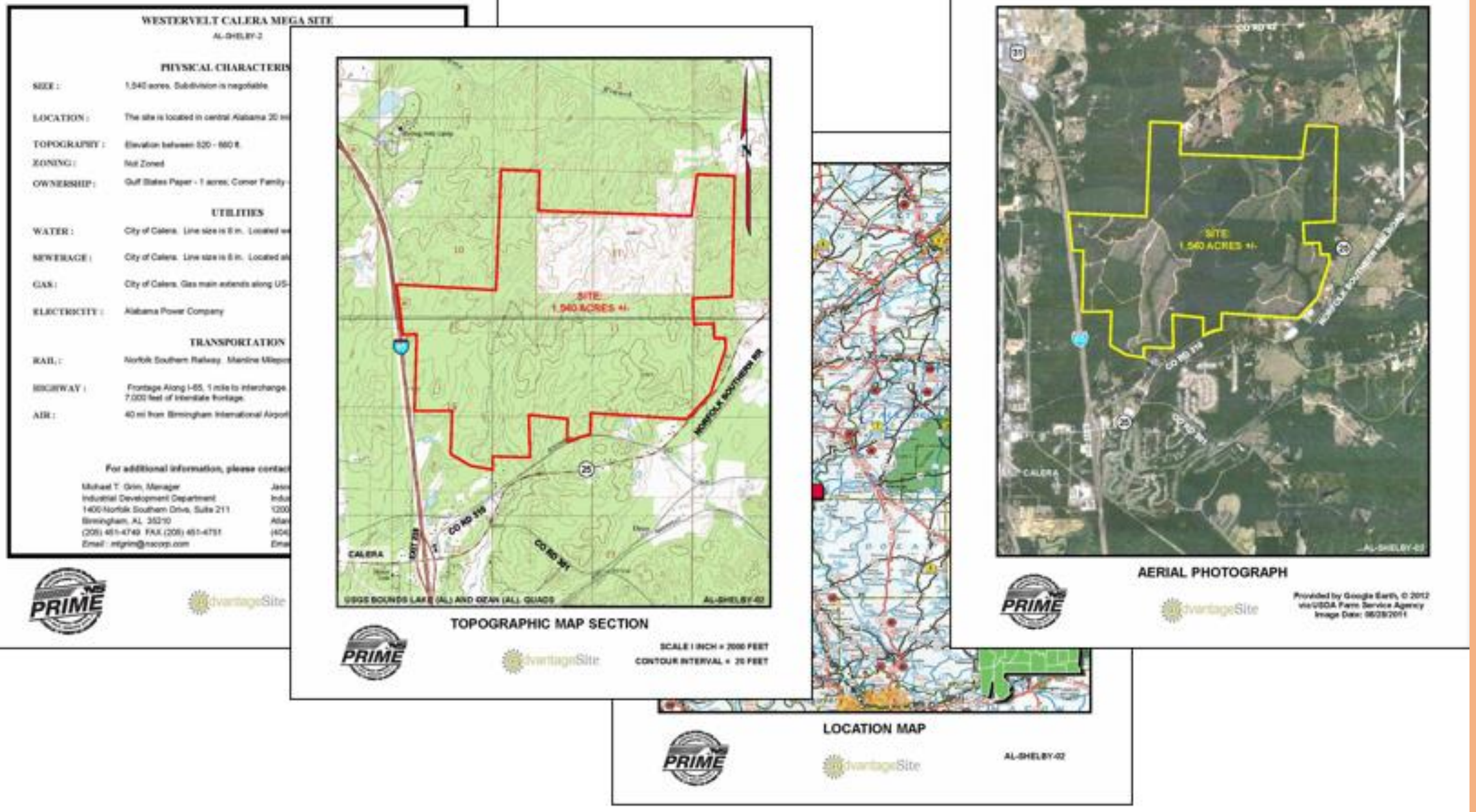


TOPOGRAPHIC MAP SECTION

NS NORFOLK SOUTHERN

SCALE I INCH = 2000 FEET
CONTOUR INTERVAL 10 FEET

NS Automotive Network
Sterling Heights
Detroit Jefferson
Warren Truck
Hamtramck
Dearborn
Wayne
Melvindale
6
Buffalo
Mechanicville
Ayer
Davisville
Chicago
Elkhart
2
Toledo
Avon Lake
Lordstown
Fostoria
Ft. Wayne
Normal
Lafayette
Greensburg
Ridgefield Heights
Newark
Port Newark
Doremus
North Bergen
Baltimore
Port Wilmington
2
Kansas City
Voltz
Wentzville
St. Louis
Princeton
2
Shelbyville
2
Georgetown
Petersburg
Chesapeake
Winston-Salem
Memphis
Chattanooga
Greer
Commerce
Lincoln
2
Atlanta
Vance
Birmingham
Charleston
Meridian
Savannah
Brunswick
Westlake
Jacksonville
New Orleans
Titusville
Miami
Assembly Plant
Auto Distribution
Terminal
Service Hub


WESTERVELT CALERA MEGA SITE
AL-SHELBY-2
PHYSICAL CHARACTERIS
SIZE :
1,540 acres. Subdivision is negotiable.
LOCATION :
TOPOGRAPHY :
Elevation between 520 - 660 ft.
ZONING :
Not Zoned
OWNERSHIP :
Gulf States Paper - 1 acres; Corner Family
UTILITIES
WATER :
SEWERAGE :
GAS :
ELECTRICITY :
Alabama Power Company
TRANSPORTATION
RAIL :
HIGHWAY :
AIR :
For additional information, please contact
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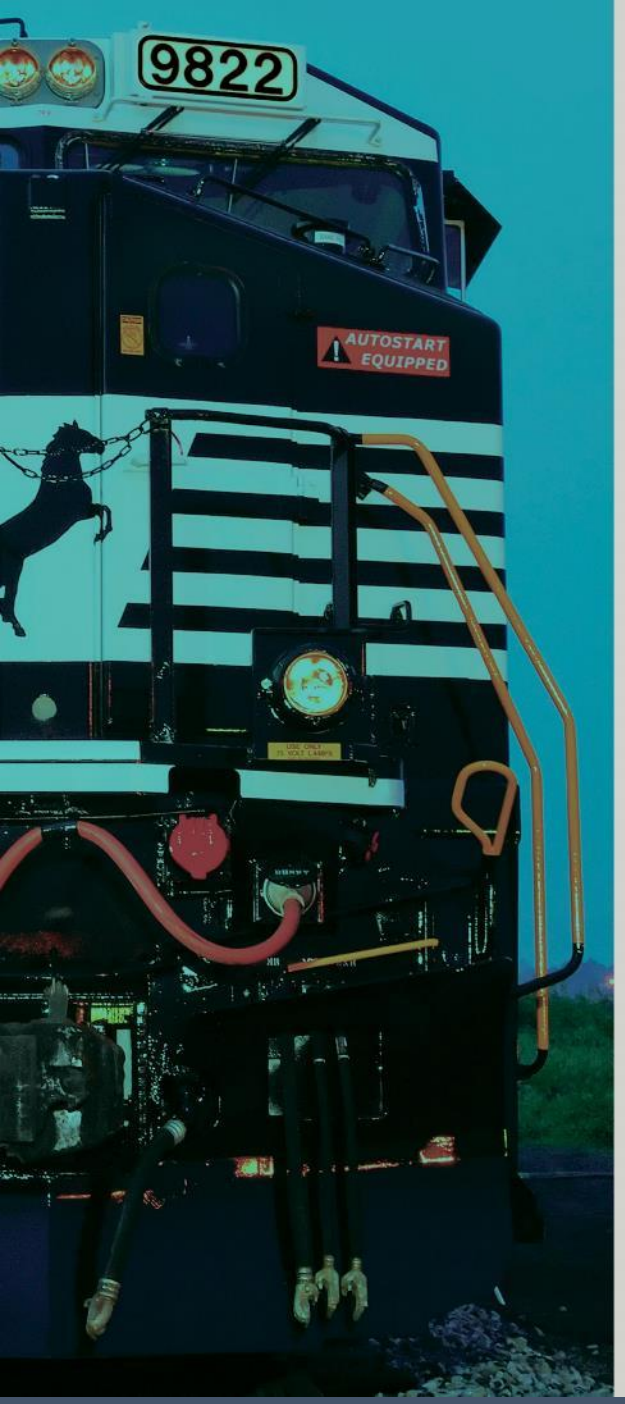
Email : mtgrim@nscorp.com
PRIME
SITE
1,540 ACRES +/-
CALERA
CO RD 319
CO RD 361
NORFOLK SOUTHERN RR
USGS BOUNDS LAKE (AL) AND DEAN (AL) QUADS
AL-SHELBY-02
TOPOGRAPHIC MAP SECTION
SCALE 1 INCH = 2000 FEET
CONTOUR INTERVAL = 20 FEET
LOCATION MAP
AL-SHELBY-02
AERIAL PHOTOGRAPH
Provided by Google Earth, © 2012
via USDA Farm Service Agency
Image Date: 06/28/2011



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Jun 12, 2014, 2:58pm EDT | **UPDATED:** Jun 13, 2014, 10:19am EDT

Chatham-Randolph megasite receives N.C. certification

Catherine Carlock
Reporter-
Triad Business Journal
Email | Twitter | Google+ | LinkedIn

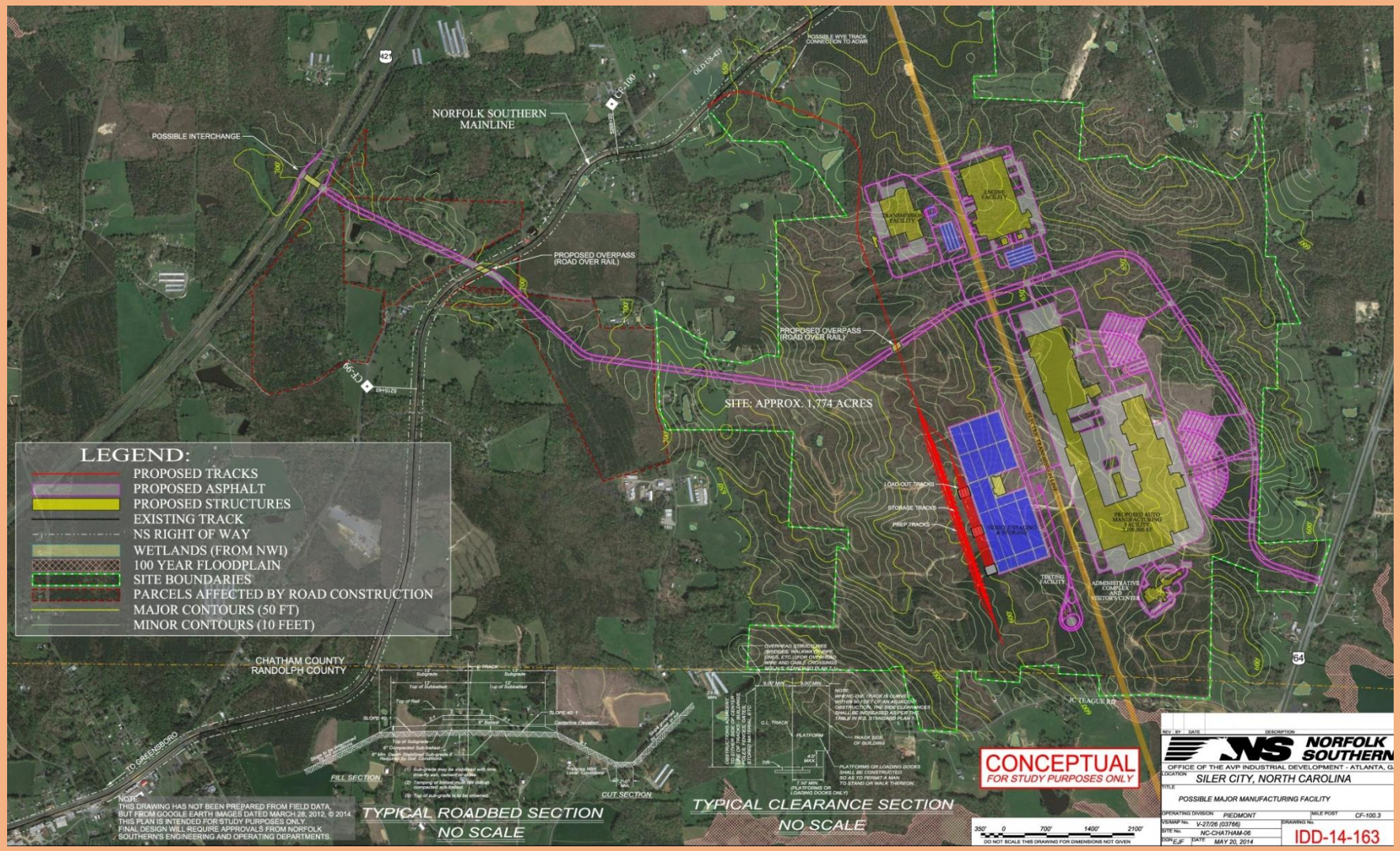
Julie Knight

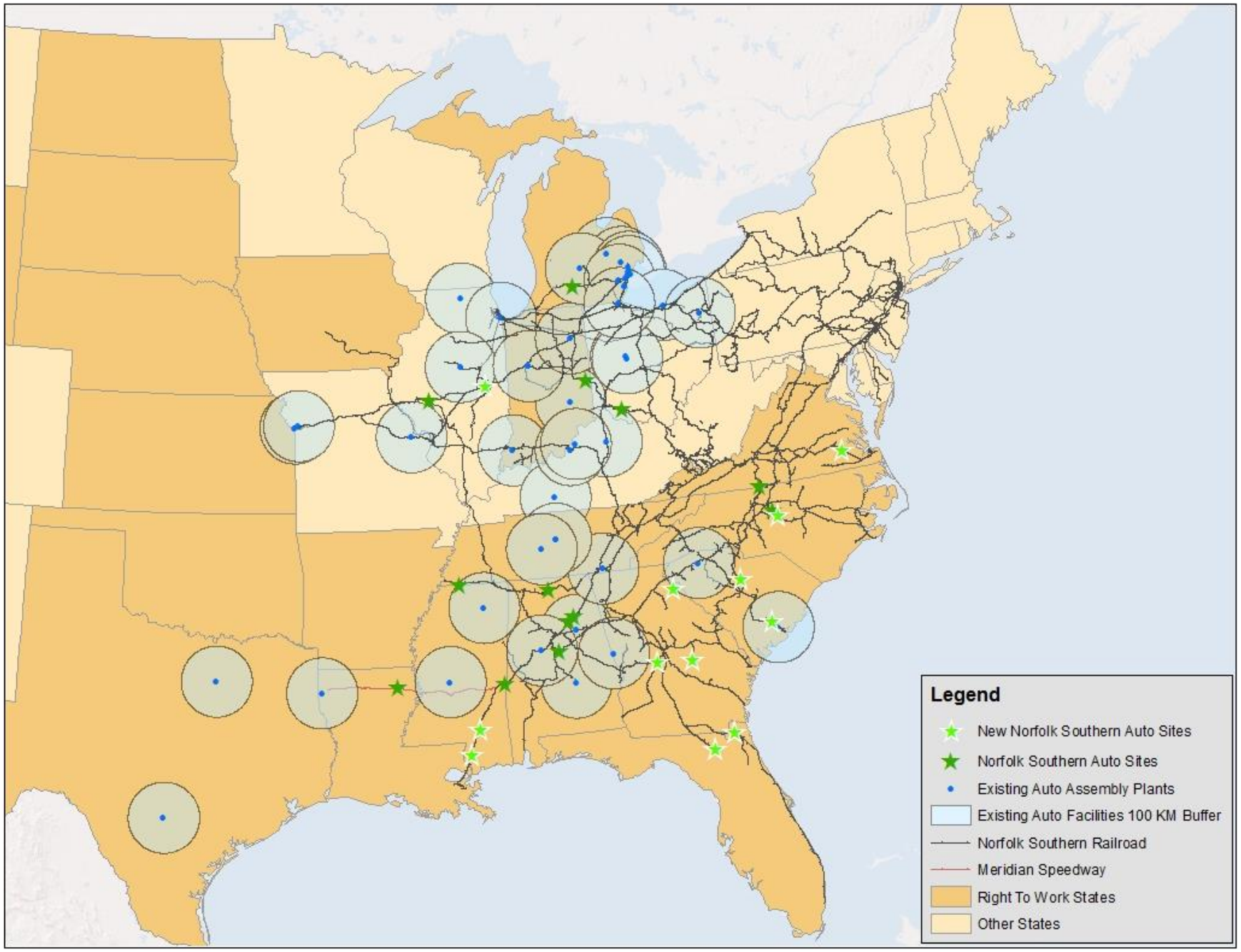
Dianne Reid, president of the Chatham Economic Development Corporation, at the Chatham-Randolph megasite. The 1,818-acre site on Wednesday received official site certification from the state.

The 1,818-acre megasite in Chatham and Randolph counties this week received official state certification, a crucial step in marketing the site to potential end users such as an automobile manufacturer or other large-scale industrial user.

The Chatham-Randolph land is now the largest site in the state with the certification and the only certified megasite. The certification indicates to those considering the land for development that it has all necessary infrastructure and engineering in place to be construction-ready within a year.

At the conclusion of a Duke Energy site selection study last summer, site selection expert Mark Sweeney of McCallum Sweeney Consulting reached the conclusion that the Chatham megasite is a "potentially strong competitor" to lure an automaker to the state. And Norfolk Southern shows the Chatham megasite as a "prime site" within its economic development division.




Legend
New Norfolk Southern Auto Sites
Norfolk Southern Auto Sites
Existing Auto Assembly Plants
Existing Auto Facilities 100 KM Buffer
Norfolk Southern Railroad
Meridian Speedway
Right To Work States
Other States

TOYOTA
mazda

MADE IN ALABAMA
HUNTSVILLE
The Star of Alabama
HUNTSVILLE MADISON COUNTY CHAMBER
ALABAMA · USA
NORFOLK SOUTHERN
HUNTSVILLE UTILITIES
LIMESTONE COUNTY
LCEDA
Athens ALABAMA
ATHENS UTILITIES
TVA

KOCH
TM

Inversión por ThyssenKrupp, 2007
Calvert, Alabama
Posteriormente adquirido por ArcelorMittal y Nippon Steel & Sumitomo Metal [AM/NS], 2013

Fire exit
GREEN BIN

¡Gracias!