



# Crescent Corridor Update

December 21st, 2016

US DOT Talking Freight

Norfolk Southern Government Relations



# Norfolk Southern's Network

- NS operates approximately 20,000 route miles throughout 22 states and the District of Columbia
- Engaged in the rail transportation of raw materials, intermediate products, and finished goods
- Operates the most extensive intermodal network in the East and is a major transporter of coal and industrial products.
- NYSE: NSC



# NS Intermodal Network Growth

*Majority of growth has been over Corridors*

- Norfolk Southern has employed a “Corridor Strategy” focusing on four key principles:
  - Market access
  - Length of haul
  - Asset utilization
  - Productivity

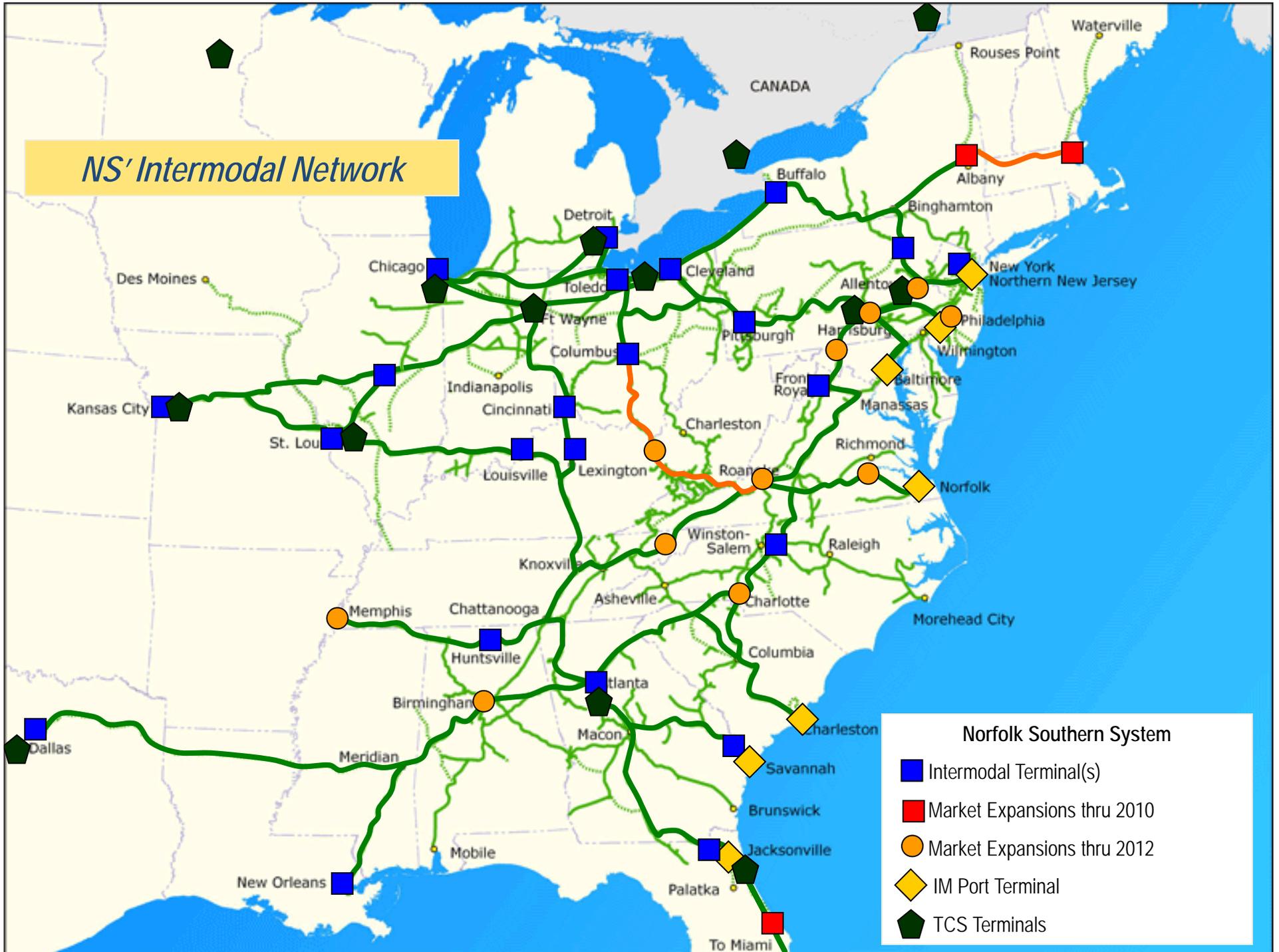


# What is an Intermodal Facility?

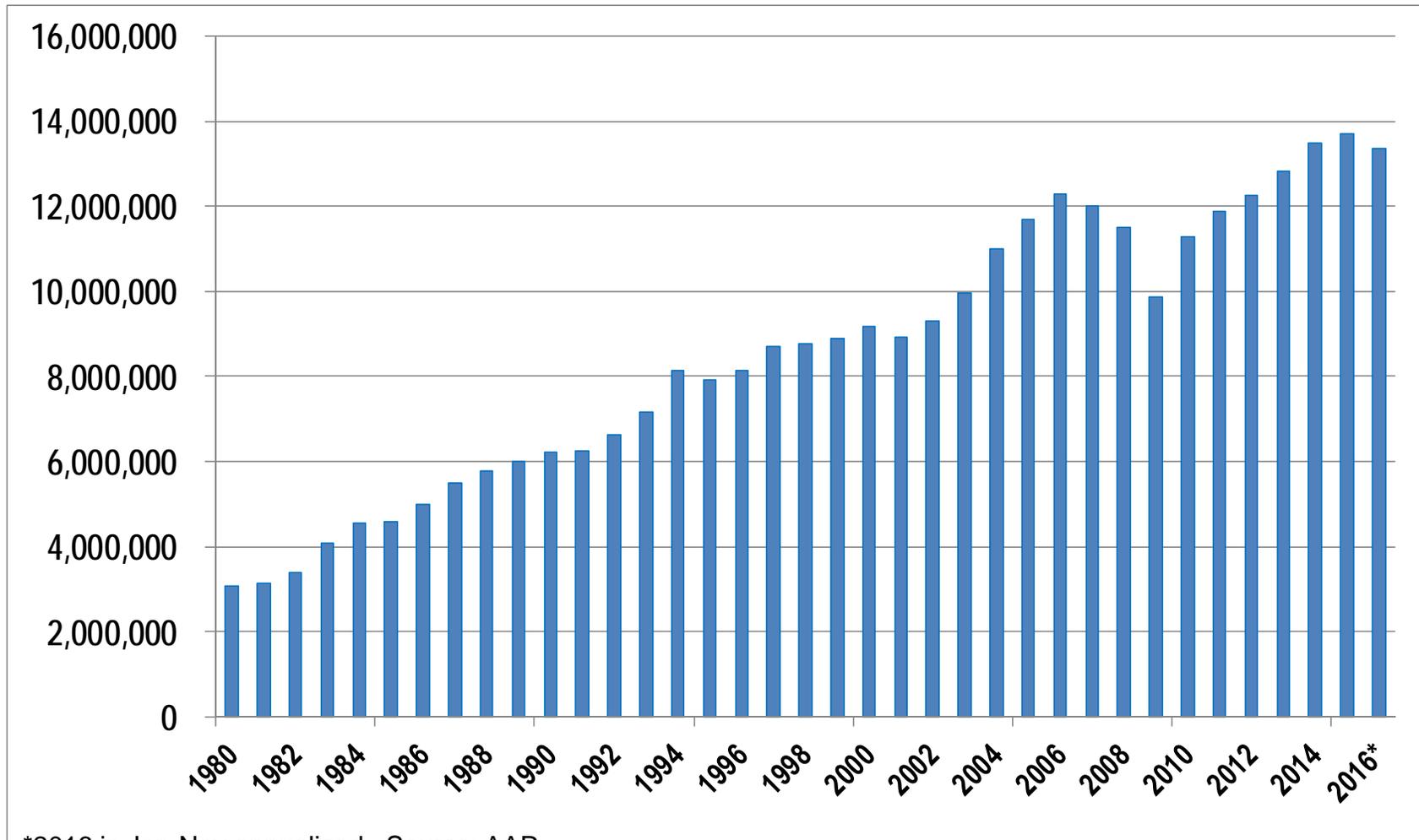
**Intermodal Facility** – A rail terminal for transferring freight from one transportation mode to another, either from truck-to-rail or rail-to-truck for the Crescent Corridor, without the handling of the freight itself when changing modes.



# NS' Intermodal Network



# Total U.S. Intermodal Units (Originated Units)



\*2016 is Jan-Nov annualized Source: AAR

# Crescent Corridor

## *Pre-Project Influences*

- **Norfolk Southern**
  - Continued cooperation with long-haul truck carriers
  - Increase in freight trade between Northeast and South
  - Infrastructure enhancements for speed and capacity
- **Key Drivers for Private, Local, State, and Federal Partners**
  - Increased highway congestion and vehicular emissions
  - Growing vehicle travel miles and congestion on I-81, I-40, I-85, I-20, and I-76.
  - Creates Options for shippers
  - State Economic Development Groups-Partner for Growth

# Transit Times Will Have to be Truck Competitive

## Targeted Schedules

*Memphis*

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*Harrisburg – 32 hours*



*Memphis*

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*Philadelphia – 46 hours*

*Birmingham*

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*Greencastle– 30 hours*

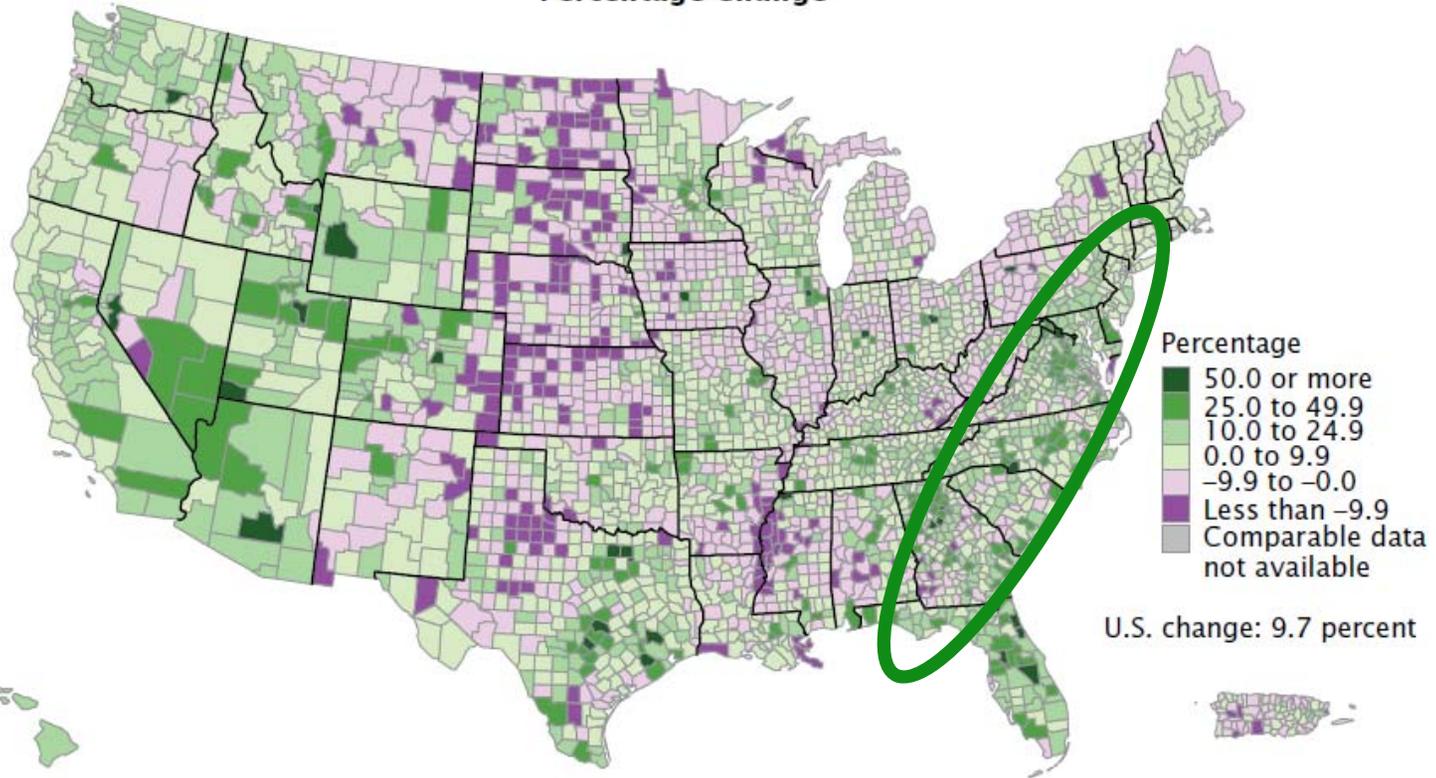
# Market Analysis: Population Growth



*Population shift from 2000 to 2010, shown as percentage*

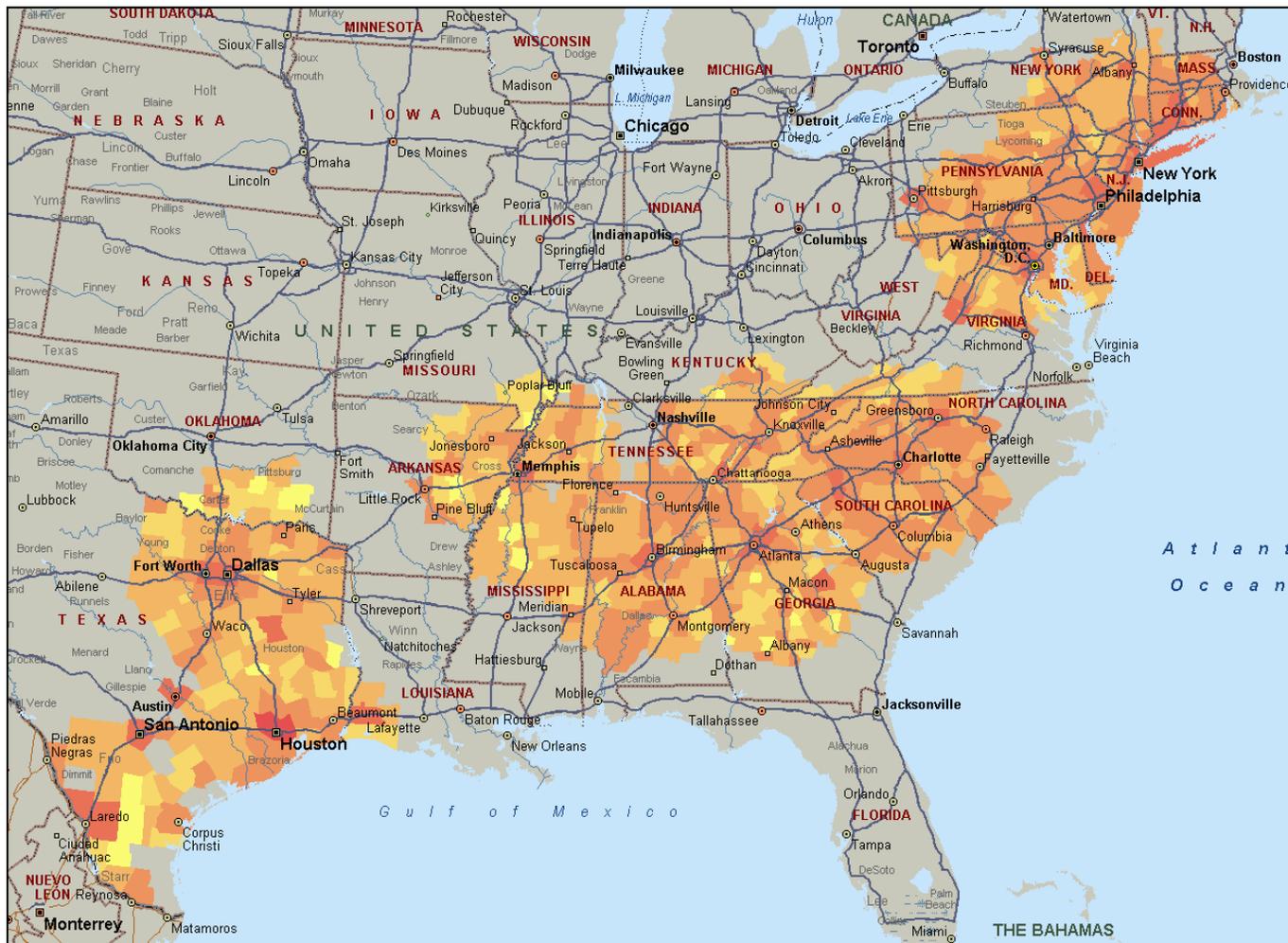
*\*Green indicates growth, Pink indicates loss*

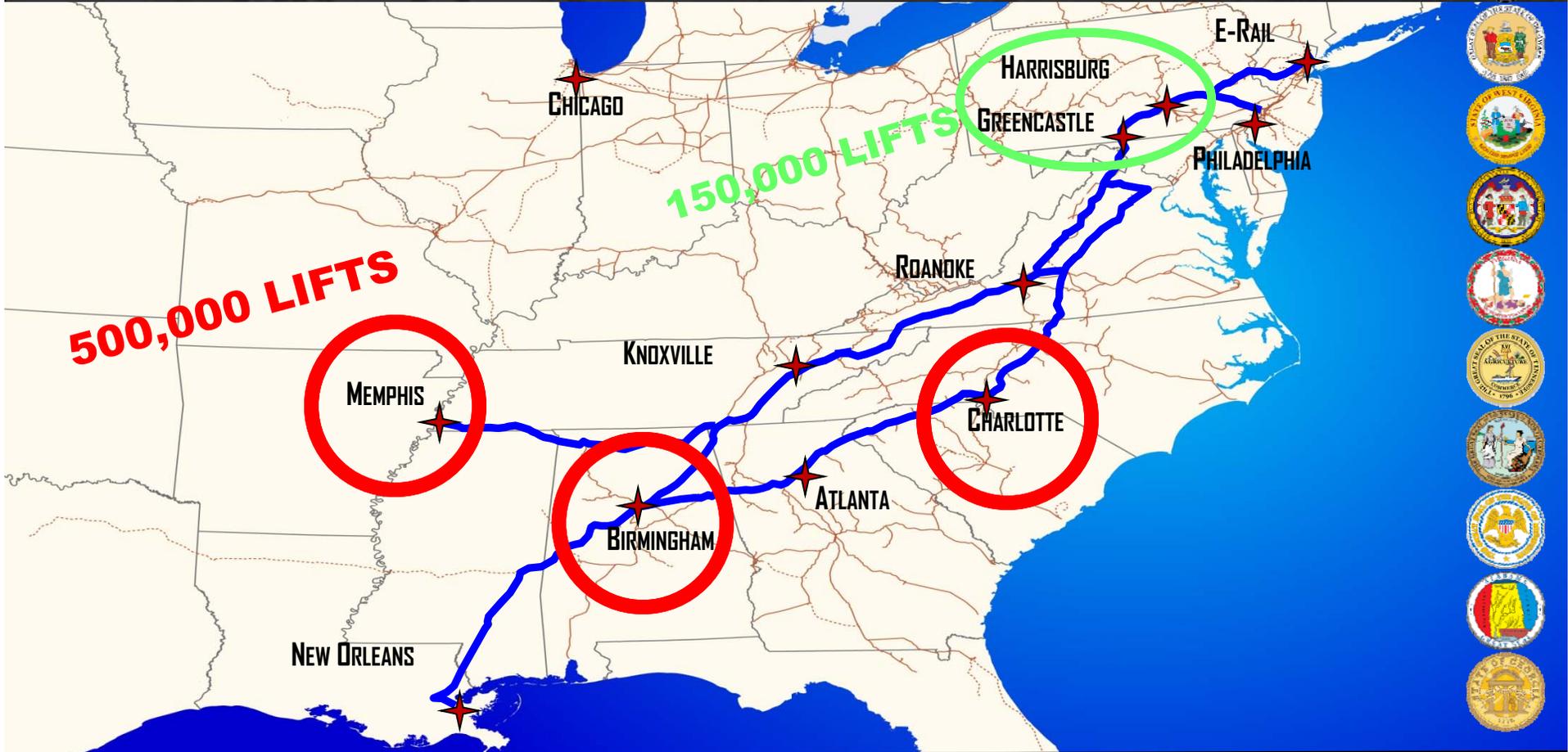
**Percentage Change**



Source: U.S. Census Bureau, 2010 Census and Census 2000.

# Market Analysis: Surface Freight Volumes





# Crescent Corridor Intermodal Facilities Facilities 2009



## Existing 2009

- Atlanta, GA
- Croxton, NJ
- Morrisville, PA
- Harrisburg, PA (Lucknow)
- Harrisburg, PA (Rutherford)

# Crescent Corridor Intermodal Facilities

## New Facilities –TIGER I or State PPP 2010



### Open 2012

- Birmingham, AL-TIGER I
- Memphis, TN-TIGER I
- Greencastle, PA- State PPP
- Harrisburg, PA –Lucknow State PPP

### Open 2013

- Charlotte, NC-State PPP

	Open 2012
	Open 2013

# Crescent Corridor Intermodal Facilities

## Expanded Facilities TIGER III 2015



Open 2015

•Rutherford, PA Expansion  
Tiger III

 Open 2015



# Intermodal Terminal Expansion Capacity

Facility Location	Groundbreaking Date	Completion Date	Annual Volume Capacity (Lifts)
Greencastle, PA**	October 2010	Fall 2012	85,000
Memphis, TN*	April 2011	Fall 2012	200,000
Birmingham, AL*	June 2011	Fall 2012	100,000
Harrisburg, PA**	Fall 2011	Spring 2012	65,000
Charlotte, NC**	Fall 2011	Summer 2013	200,000
Rutherford, PA*	Fall 2013	Fall 2015	150,000
Total Capacity			800,000



NS -	\$58.9 Million
TIGER -	\$52.5 Million
CMAQ/TDOT -	\$14.2 Million

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<b>TOTAL -</b>	<b>\$125.6 Million</b>
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Construction Time: 20 Months

## **Rossville Intermodal Facility**

McCalla- Birmingham, AL  
\$105.0 m Project  
\$52.5 m Tiger  
\$8 m CMAQ  
\$45 m NS



**McCalla – Earth Moving Equipment**

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Greencastle, PA  
\$95 m Project  
\$45 m State of PA  
\$50 m NS

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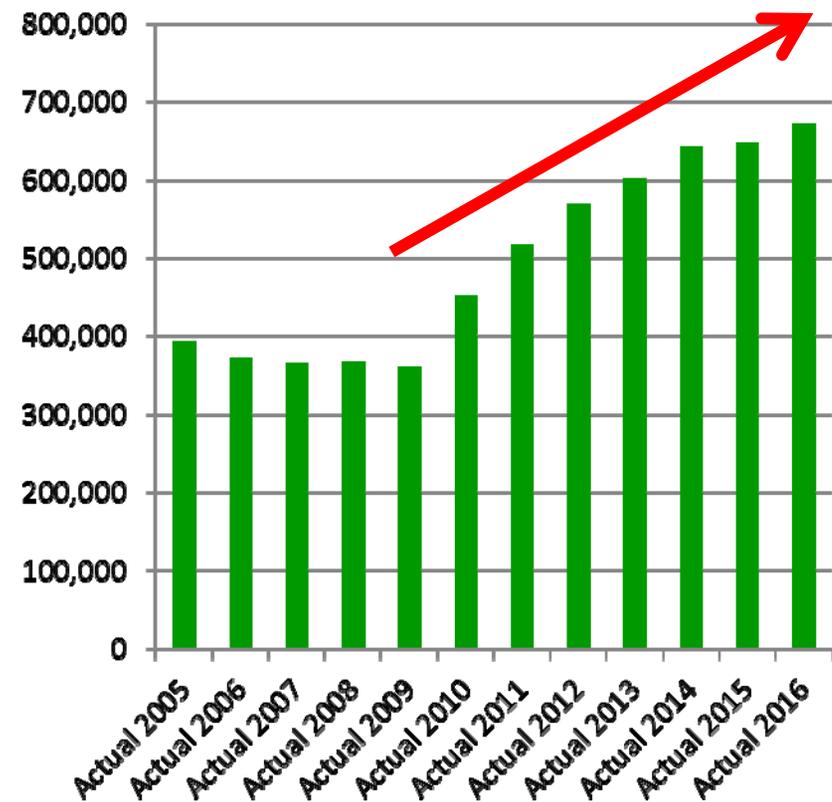
# Greencastle

# Harrisburg Intermodal Expansion

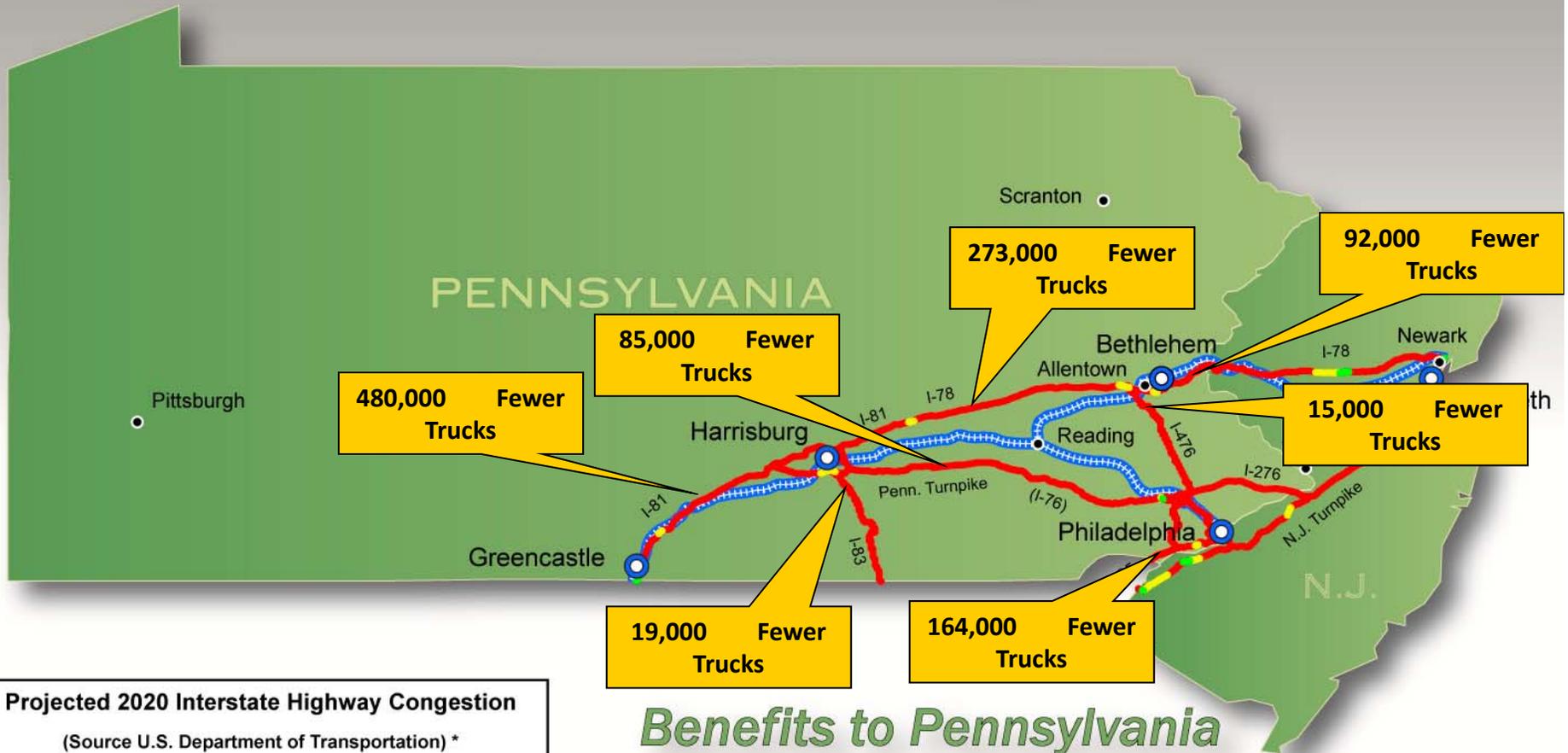
- Harrisburg/Rutherford Intermodal shipments were forecasted to exceed capacity at IMFs in Harrisburg region
- 2011 TIGER III request for Harrisburg:
  - Federal Funds: \$22 million
  - State/Other Funds: \$7 million
  - Norfolk Southern \$26.5 million



**Combined Harrisburg Lifts**  
Actual 2005 - 2016



# Clean, Green Relief for Congested Roads



**Projected 2020 Interstate Highway Congestion**  
 (Source U.S. Department of Transportation) \*

- Not Congested (LOS A, B)
- Approaching Congestion (LOS C)
- Congested (LOS D, E, F)
- ⋯ Norfolk Southern Crescent Corridor
- Crescent Corridor Terminals

\* The DOT estimates that congestion will increase significantly by 2035.  
 Not all interstate highways or rail lines shown

## Benefits to Pennsylvania

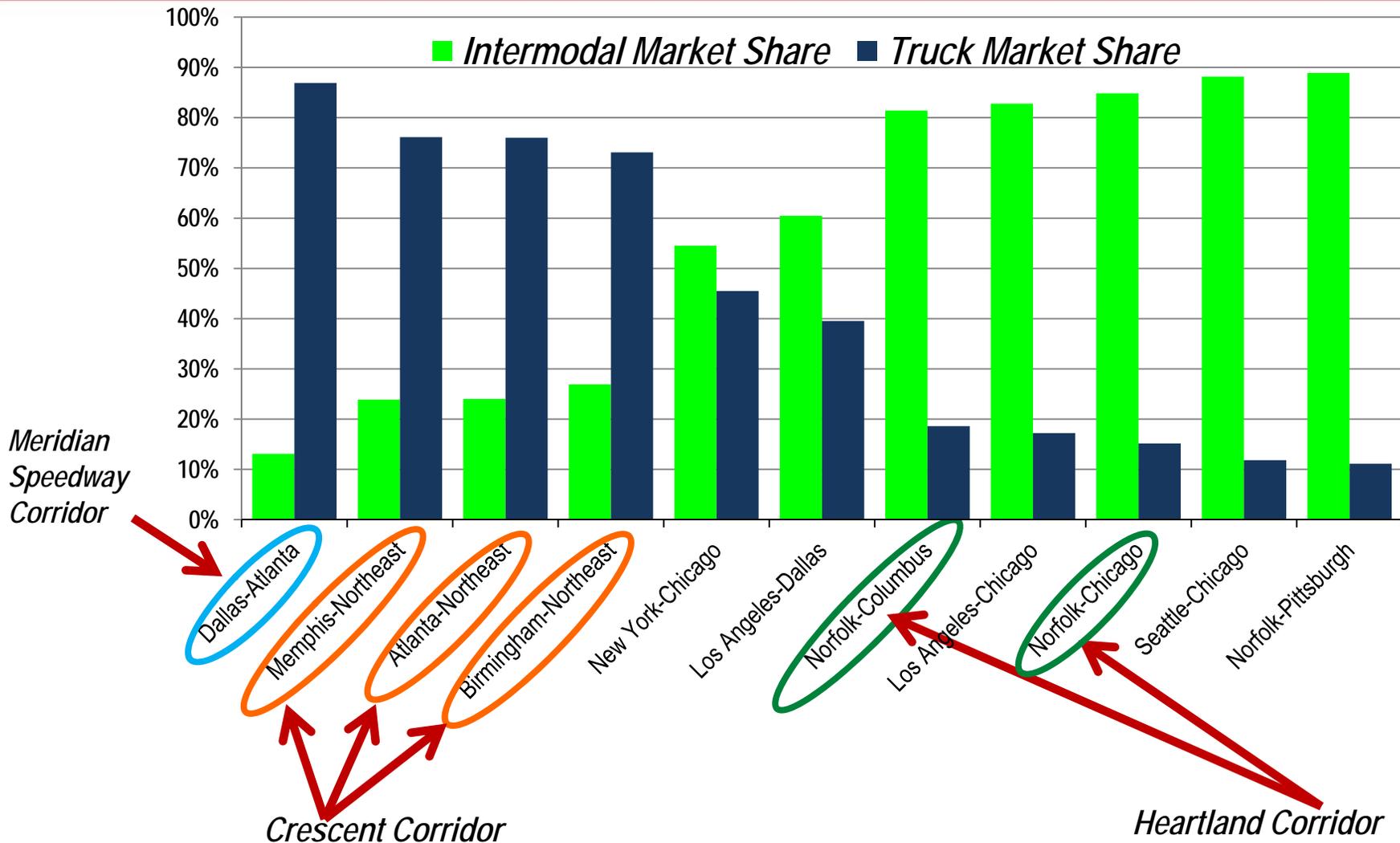
**690,000**  
**10 Million**  
**110,000 Tons**  
**\$ 5 Million**  
**\$44 Million**  
**\$ 9 Million**

**Annual Trucks Diverted**  
**Gallons of Fuel Saved**  
**Reduced Tons of CO<sub>2</sub>**  
**Pavement Savings**  
**Congestion Savings**  
**Safety Savings**

**Note: Trucks passing through Harrisburg and Bethlehem are counted twice**

# External Variable – Market Analysis

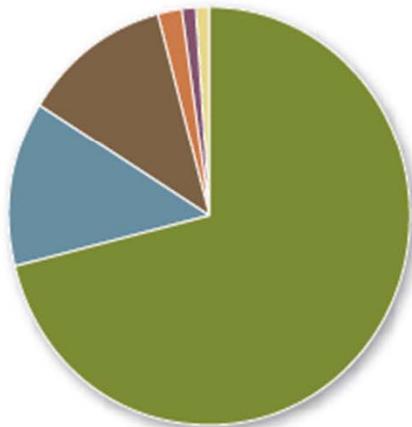
## Key Origin/Destination Pairs in the Freight Transportation Market



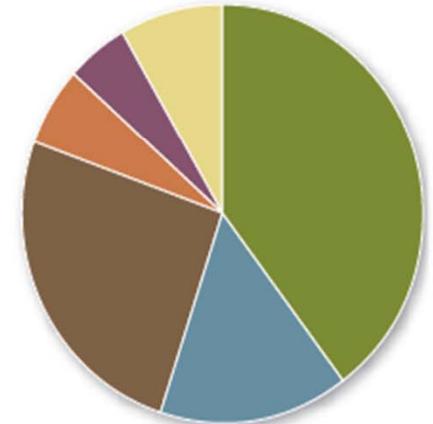
# External Variable: Market Analysis

## *Current Lengths of Haul on Long-Distance Trucks*

2008 Transearch Dry-Vans in AL, GA, MD, NC, NJ, PA, TN, and TX



LOH	Dry-van loads	Percent of total	Weighted by VMT
0 to 100 miles	102,307,182	72%	39%
100 to 200 miles	18,926,475	13%	15%
200 to 400 miles	17,149,078	12%	25%
400 to 600 miles	2,312,247	2%	6%
600 to 800 miles	1,355,705	1%	5%
Over 800 miles	1,240,863	1%	8%



4% of all hauls are over 500 miles in length

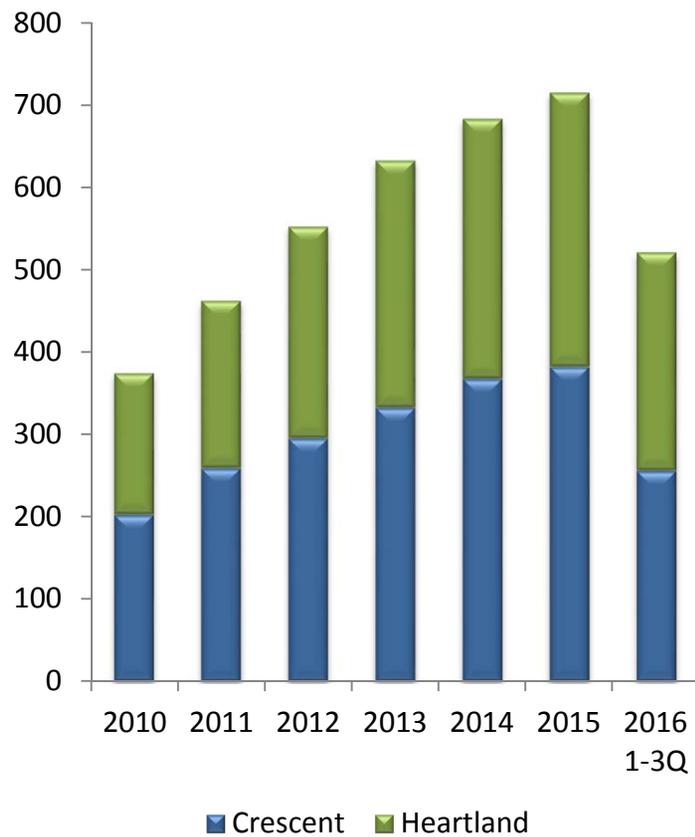
Hauls over 500 miles represent 20% of total vehicle miles traveled

# NS Intermodal Network Growth

*Majority of growth has been over Corridors*

2010-2015 CAGR	
Crescent	14%
Heartland	13%
<b>Total</b>	<b>14%</b>

Units  
In Thousands

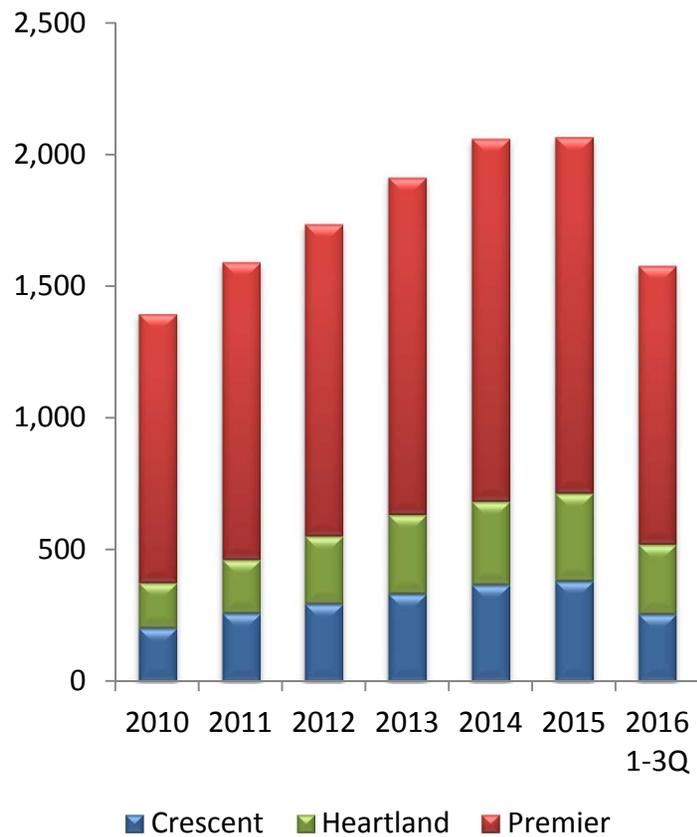


# NS Intermodal Network Growth

*Majority of growth has been over Corridors*

2010-2015 CAGR	
Crescent	14%
Heartland	13%
Premier	6%
<b>Total</b>	<b>8%</b>

Units  
In Thousands



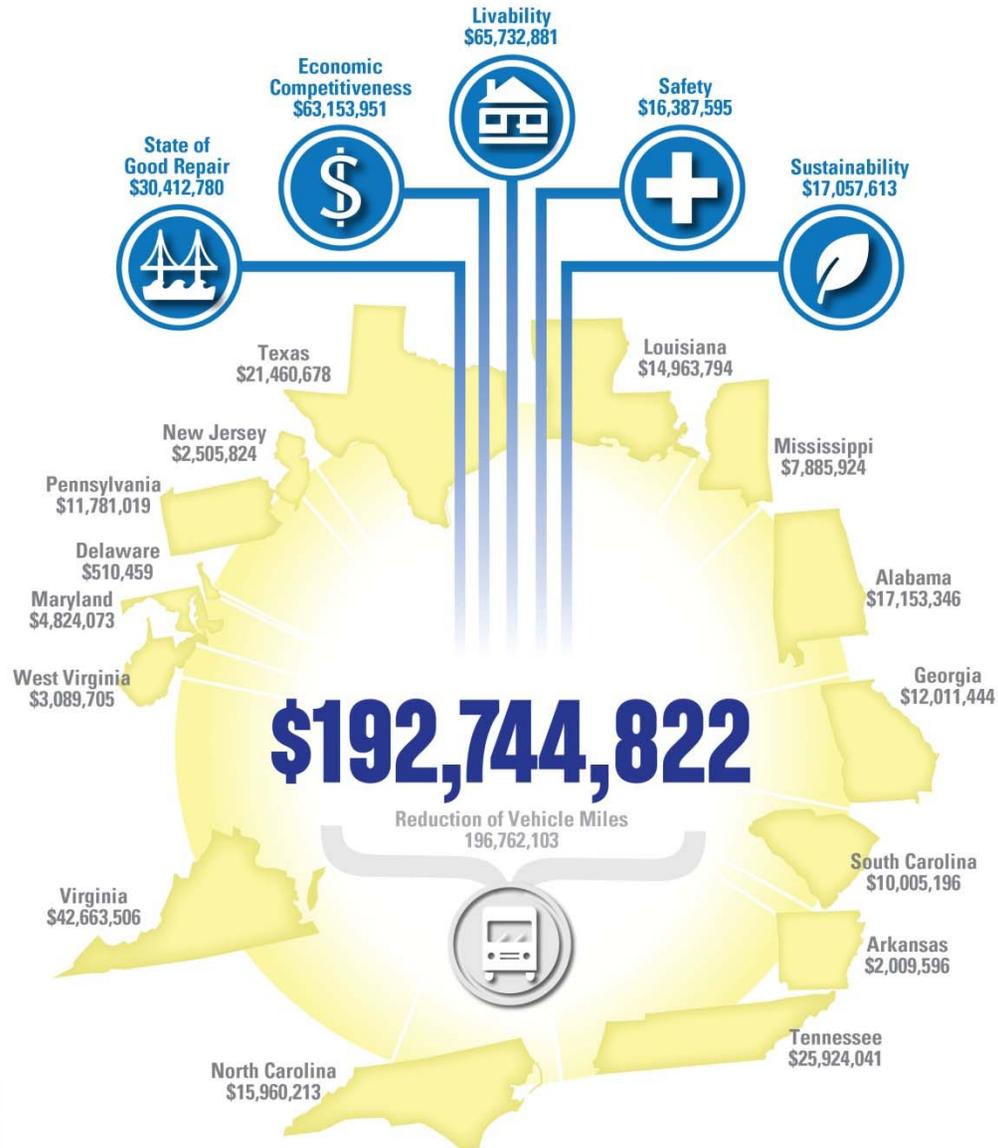
# Crescent Corridor Public Benefits

## Long-Term Public Benefits (Based on 1.3m units per year)

- Cambridge Systematics (CS) performed a thorough benefit-cost analysis of the Crescent Corridor
- Based on benefit categories and factors specified by USDOT guidance, CS concludes at full operation Crescent will ANNUALLY deliver:
  - \$543 million in Shipping Savings
  - \$566 million in Congestion Savings (*22.5 million hours of travel time savings*)
  - \$146 million in Safety Savings (*1,256 fewer heavy truck crashes*)
  - \$147 million in Sustainability Savings  
(*162 million gallons of fuel saved & 1.8 million tons of CO<sub>2</sub> eliminated*)
  - \$261 million in Highway Maintenance Savings (*1.263 billion truck VMTs reduced*)

# Crescent Corridor

## Public Benefits 2013



*QUESTIONS?*

