

# Georgia Statewide Freight and Logistics Plan

Project Development Advisory Committee

June 2011



# Update on Task 4

## Economic Analysis



- Subtask 4.1 – Compare Freight Forecasts
- Subtask 4.2 – Freight & Logistics (F&L) Importance to Georgia Economy
  - » Builds on the “Making the Business Case” report and presentation completed in Task 2
- Subtask 4.3 – Value of F&L Investment

# Subtask 4.1 – Compare Freight Forecasts

## Comparison of Alternative Macro-Forecasts



| Source  | Time Period | Tonnage Annual Growth Rate | Value Annual Growth Rate |
|---|-------------|----------------------------|--------------------------|
| GDOT F&L Plan forecast (Transearch base with FHWA FAF3 growth rates)* | 2007-2050   | 1.5%                       | 2.5%                     |
| GDOT Transearch forecast  | 2007-2027   | 1.0%                       | 1.9%                     |
| FHWA FAF3 extrapolated (entire U.S.)                                  | 2007-2050   | 1.3%                       | 2.7%                     |
| FHWA FAF3 extrapolated (Georgia flows only)                           | 2007-2050   | 1.0%                       | 2.5%                     |
| economy.com Georgia GDP   | 2007-2050   | –                          | 2.1%                     |

- \*GDOT F&L Plan forecast is “middle of the road” relative to other forecasts



# Subtask 4.1 – Compare Freight Forecasts

## Mode-Specific Forecasts



| Mode and Source                                 | Time Period | CAGR | Units             |
|---|-------------|------|-------------------|
| Port of Savannah Container Growth (GPA)         | 2010-2050   | 4.5% | TEUs              |
| Georgia Air Cargo (GDOT F&L Plan)*              | 2007-2050   | 3.1% | Tons              |
| National Air Cargo (Federal Aviation Authority) | 2010-2030   | 5.0% | Revenue ton-miles |
| Georgia Truck (GDOT F&L Plan)*                  | 2007-2050   | 1.5% | Tons              |
| National Truck (American Trucking Association)  | 2009-2021   | 2.2% | Tons              |
| Georgia Rail (GDOT F&L Plan)*                   | 2007-2050   | 1.0% | Tons              |

- **\*GDOT F&L Plan freight forecast is “middle of the road” relative to other mode-specific forecasts**



## Subtask 4.1 – Compare Freight Forecasts

### Key Determinants of Future Freight Volumes



- Identifying key factors that affect goods movement forecasts
  - » Economic, logistics, transportation, and policy factors
- Identifying key trends for each factor that would lead to low growth, middle of the road (base case), or high growth in freight demand
- Developing a matrix that maps factors, trends, and impacts on freight demand
  - » Sample shown on next slide

# Subtask 4.1 – Compare Freight Forecasts

## Example – Economic Factor (Consumption)



| Economic Factor – Consumption | Low Freight Demand Scenario              |   | Base Case Demand Scenario  |  | High Freight Demand Scenario                                   |  |
|-------------------------------|--|---|--|--|--|--|
|                               | Trend                                    | Freight Implications  | Trend  | Freight Implications   | Trend  | Freight Implications   |
| <b>Population</b>             | No growth                                |   | Moderate growth  |  | High growth  |  |
| <b>Households</b>             | Slight decrease                          | Freight demand declines relative to economy<br><br>Tonnage grows by about 50% by 2050 | Small increase   | Freight demand grows apace with economy<br><br>Tonnage grows about 60% by 2050 | Moderate increase  | Freight demand grows faster than economy<br><br>Tonnage grows about 100% by 2050 |
| <b>Income</b>                 | Flat or declining personal and HH income |   | Modest growth in personal and HH income                                |  | Significantly more disposable income and affluent HHs          |  |
| <b>Lifestyle</b>              | Older population; less consumption       |   | Older population with changing consumption patterns; greener lifestyle |  | Older population; greener lifestyle; more leisure expenditures |  |

Source: Consultant analysis





# Subtask 4.2 – F&L Importance to Economy

## Four Key Economic Sectors Related to Freight



- Major economic sector
  - » High dollar value industries (e.g. services)
- Freight-intensive sector
  - » Industries that are dependent on goods movement to be competitive (e.g. manufacturing)
- Population-driven sector
  - » Industries whose growth is driven by changes in population (e.g. retail)
- Opportunity sector
  - » Strategic industries that could catalyze future economic growth in Georgia
  - » Identified from GDEcD and regional agencies



## Subtask 4.2 – F&L Importance to Economy

### Project Work to Be Done on Four Sectors



- Major economic sector
  - » Developing summary profile
- Freight intensive sector
  - » Developing summary profile
- Population-driven sector
  - » Developing summary profile
- Opportunity sectors
  - » Developing description of all opportunity industries
  - » Developing detailed profile of food and agriculture, transportation equipment, and other manufacturing

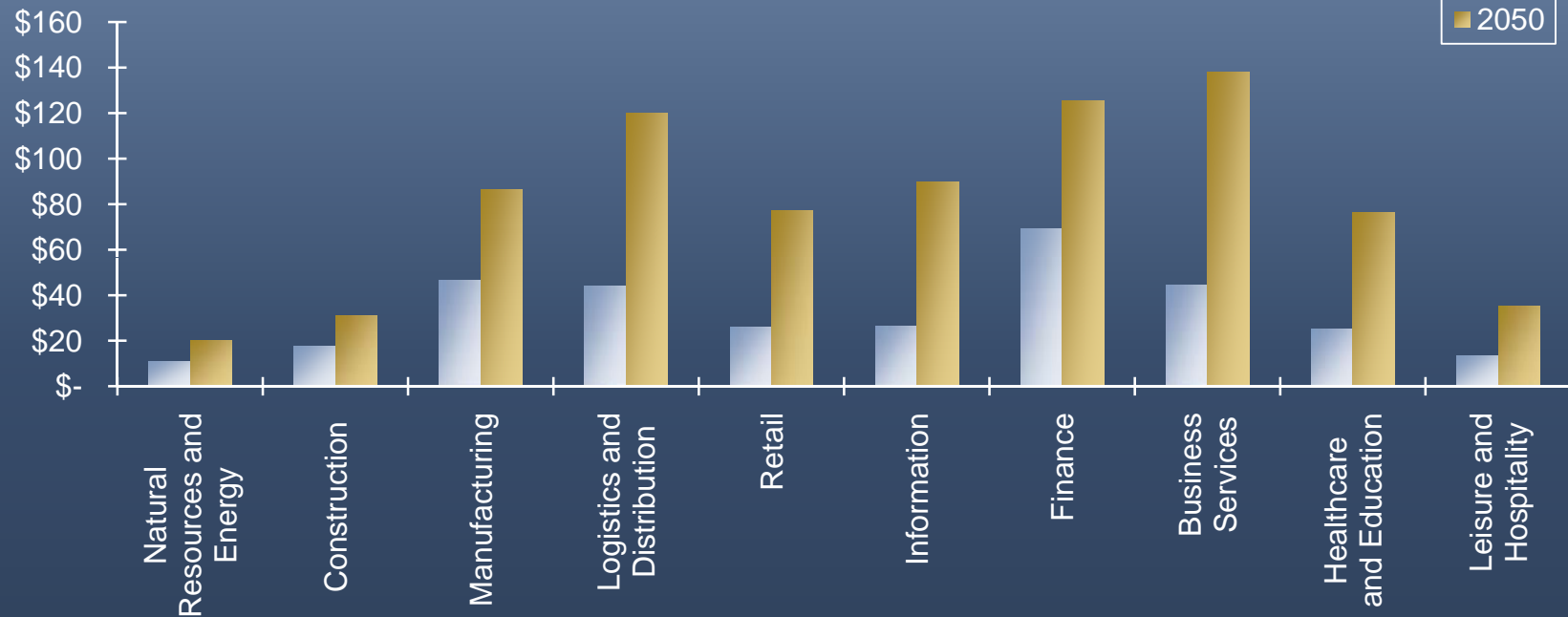


# Subtask 4.2 – F&L Importance to Economy

## Output by Major Georgia Economic Sectors



in \$billions of \$2005



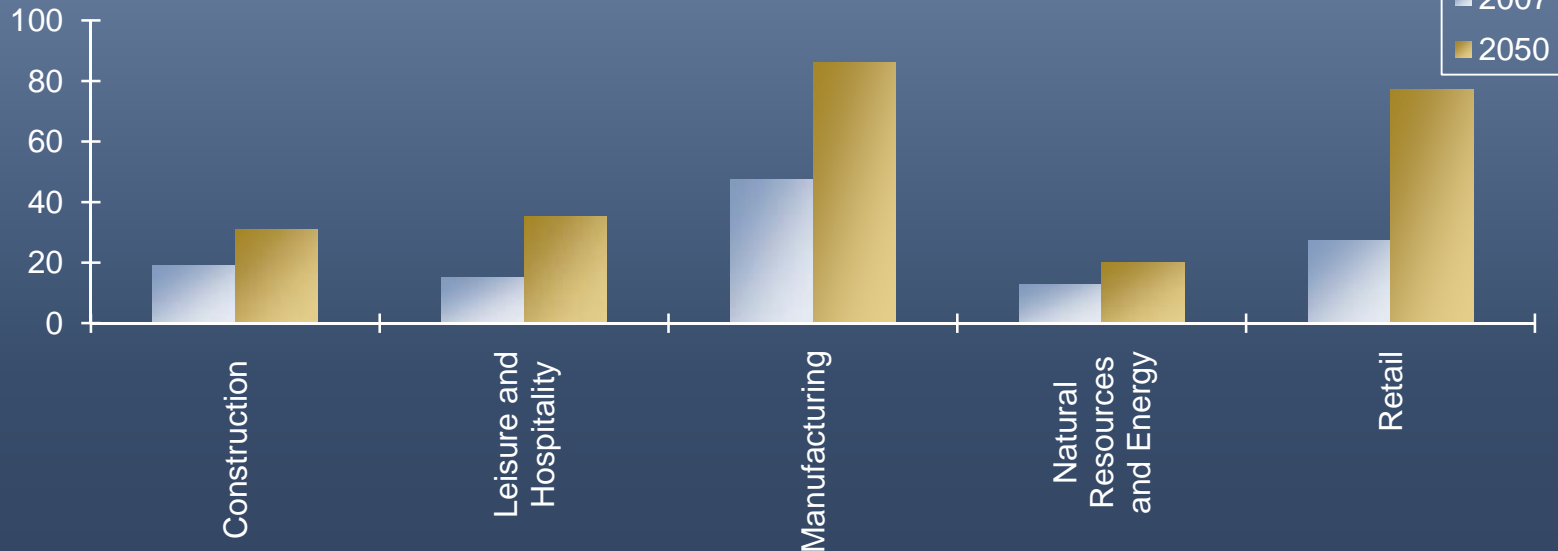
- Major economic sectors are those that have high total dollar output amounts, including
  - » Manufacturing
  - » Logistics and distribution
  - » Information technology
  - » Finance
  - » Business services

Source: economy.com

# Subtask 4.2 – F&L Importance to Economy Output for Georgia Freight Intensive Industries



in billions of \$2005



- **Freight intensive industries rely heavily on freight infrastructure**
  - » Agriculture
  - » Mining
  - » Utilities
  - » Construction
  - » Manufacturing
  - » Retail and wholesale trade
  - » Leisure and hospitality

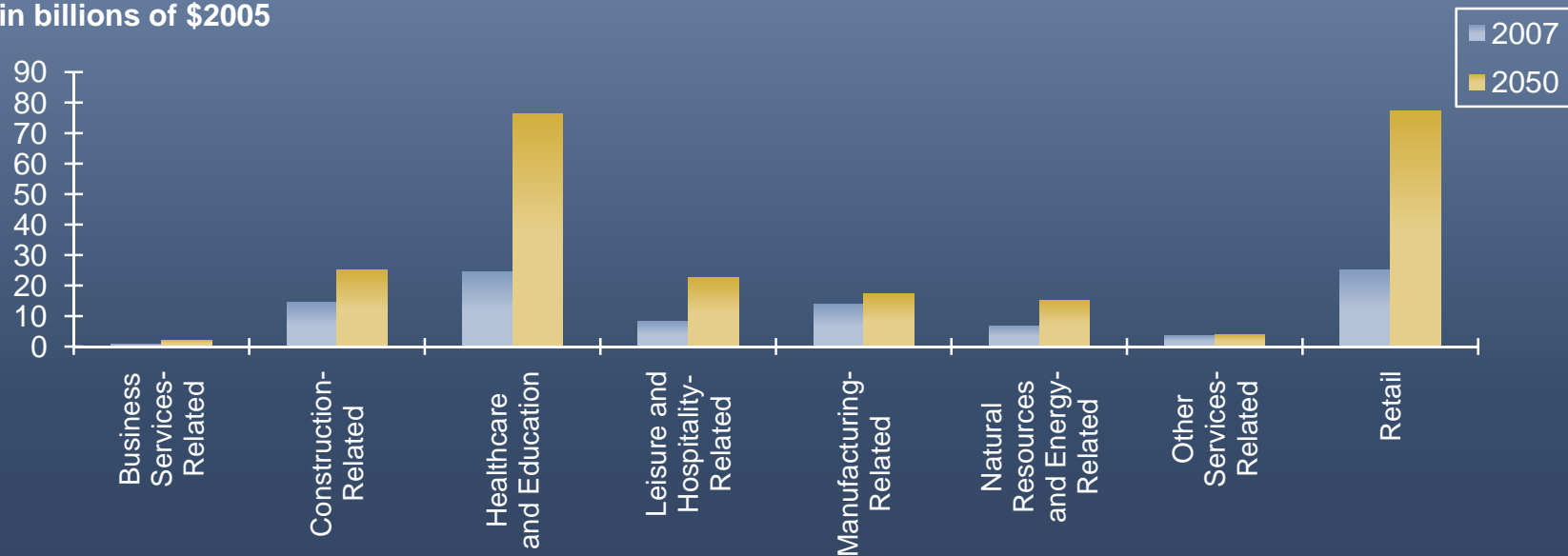
Source: economy.com

# Subtask 4.2 – F&L Importance to Economy

## Growth in Georgia Population Driven Industries



in billions of \$2005



- **Freight transportation system will also need to support population-driven industries, including**

- » Utilities
- » Construction
- » Food and beverage, including food services
- » Wood products
- » Stone
- » Furniture
- » Consumer goods
- » Waste management
- » Healthcare and education
- » Repair and maintenance
- » Personal services

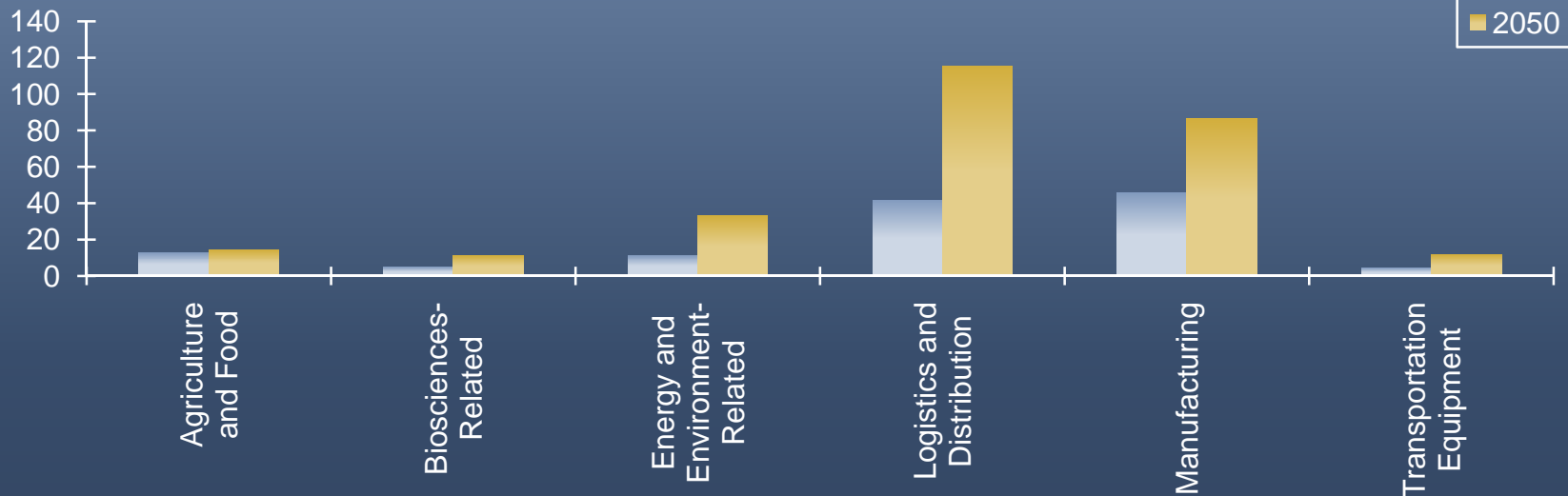
Source: economy.com

# Subtask 4.2 – F&L Importance to Economy

## Output by Georgia's Key Opportunity Industries



in billions of \$2005



- Opportunity industries are being targeted by GDEcD for recruitment and growth
- Opportunity industries with most transportation needs are being analyzed in detail
  - » Transportation equipment (automotive and aerospace)
  - » Manufacturing – other mfg
  - » Agriculture and food – shown in next slides

Source: economy.com



## Subtask 4.2 – F&L Importance to Economy

### Detailed Analysis – Agriculture and Food Industry



- **Agriculture and food is a major freight generator**
  - » Agriculture and food are “freight-intensive” industries
  - » Population growth is key determinant for agriculture and food demand
- **Agriculture and food is a key component of the Georgia economy**
  - » \$12 billion contribution to GSP (gross state product)
  - » \$1.3 billion in Georgia-originated exports
  - » 125,000 jobs

Sources: Bureau of Economic Analysis, WISERTrade



## Subtask 4.2 – F&L Importance to Economy Agriculture and Food - Industry Overview



- Georgia is the nation's top producer of “broilers” (frozen chickens) and peanuts; ranks second in cotton
  - » Georgia produces 16% of nation's broilers
    - State's largest agricultural product – 25% of all GA agriculture
    - 1.4 billion chickens raised valued at \$3.1 billion in 2010
    - Increased 9% from 2000 to 2010
  - » Georgia produces half of nation's peanuts
    - Increased from 1.3 to 2.0 billion pounds from 1990 to 2010
  - » Georgia produces 12% of nation's cotton
    - Recent harvests generally 10%-20% higher than 1990s levels

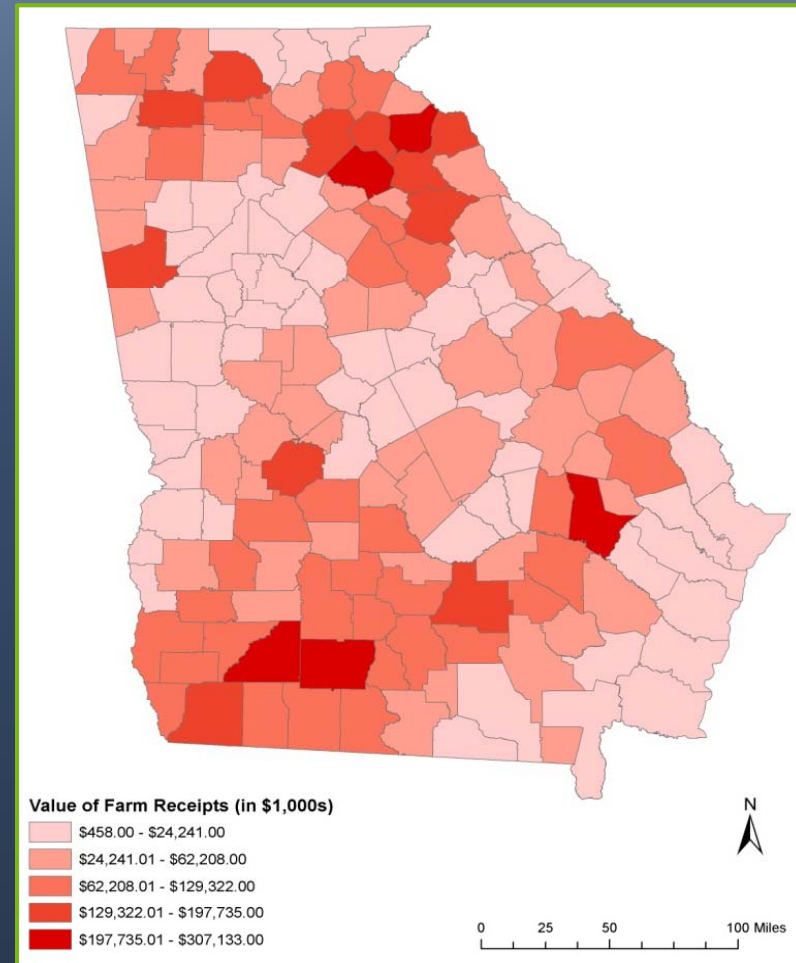


# Subtask 4.2 – F&L Importance to Economy

## Geographical Distribution of Agricultural Production



- Agriculture produced in “Z formation” in Georgia
- Concentrated production are growing and raising areas for top agricultural outputs
- Broilers are concentrated in NE GA and stretch to just north of metro Atlanta
- Cotton and peanuts are produced in SW GA with the cotton belt extending to SC border



Source: U.S. Department of Agriculture, 2009





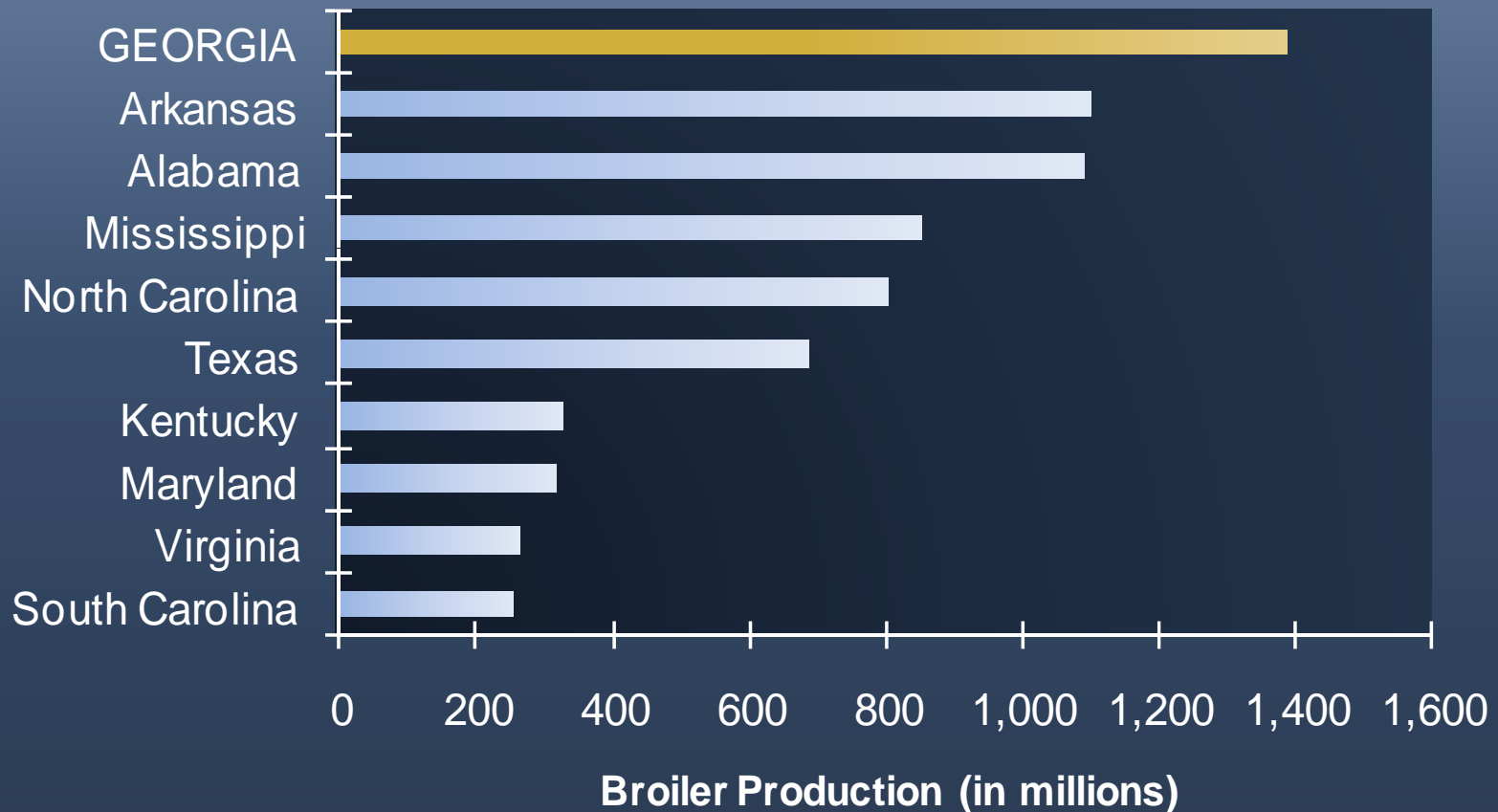
## Subtask 4.2 – F&L Importance to Economy Agriculture and Food - Logistics Considerations



- Port of Savannah is key gateway with 44 electrified container racks able to power over 1,000 “reefer” containers
- Atlanta airport also has expanding cold storage capabilities
- Atlanta’s Forest Park Farmer’s Market acts a wholesale distribution center for entire southeast
- Food safety and security are critical
  - » Cold storage requires specialized fleets and containers
  - » Fast growing organic market requires carrier certification and isolation from other foods during shipping
  - » Due to ease of resale, theft of food loads is the #1 freight theft - recently surpassing electronics and pharmaceuticals

# Subtask 4.2 – F&L Importance to Economy

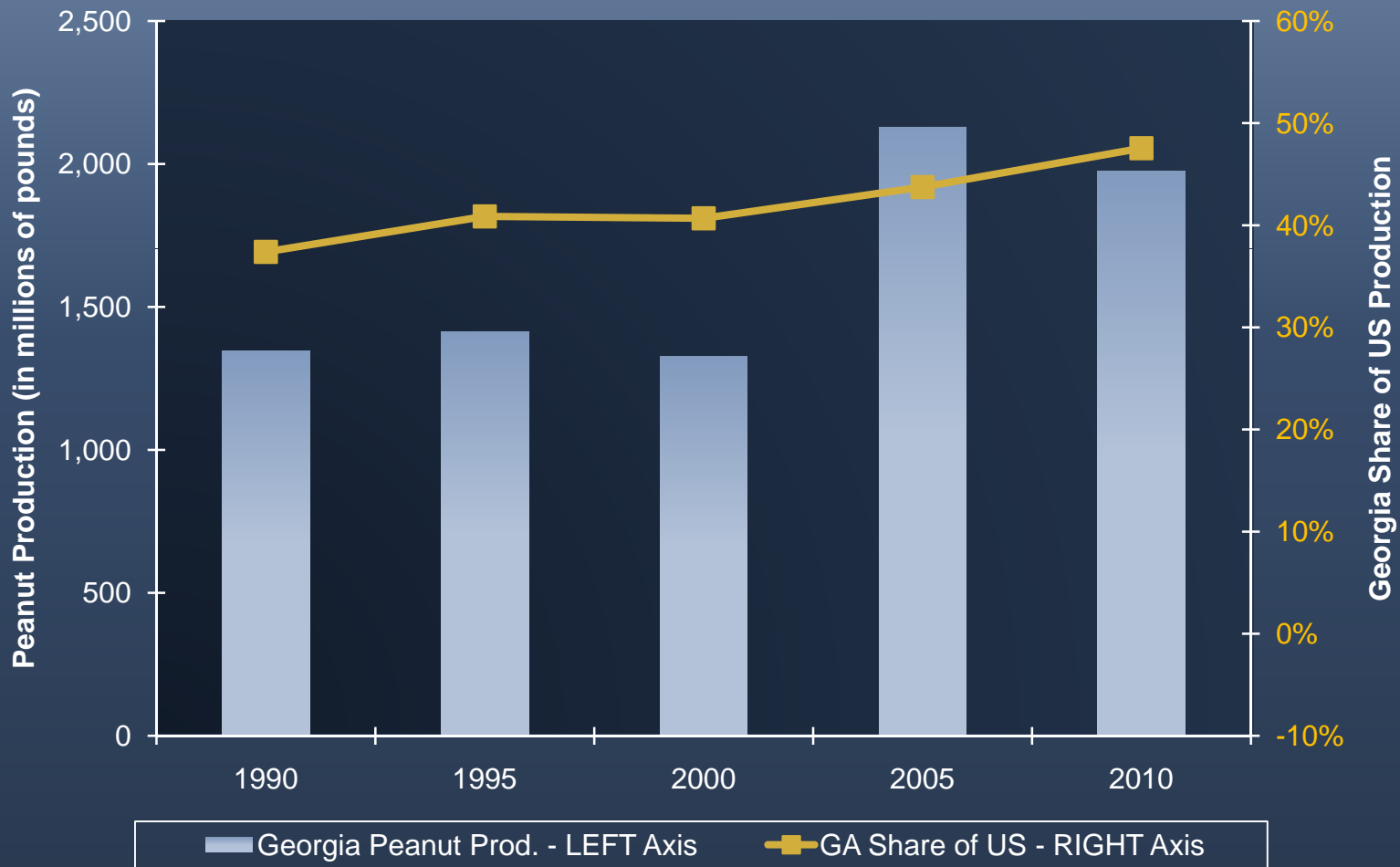
## Leading States in Broiler Production



**Georgia is also the top broiler exporting state**

# Subtask 4.2 – F&L Importance to Economy

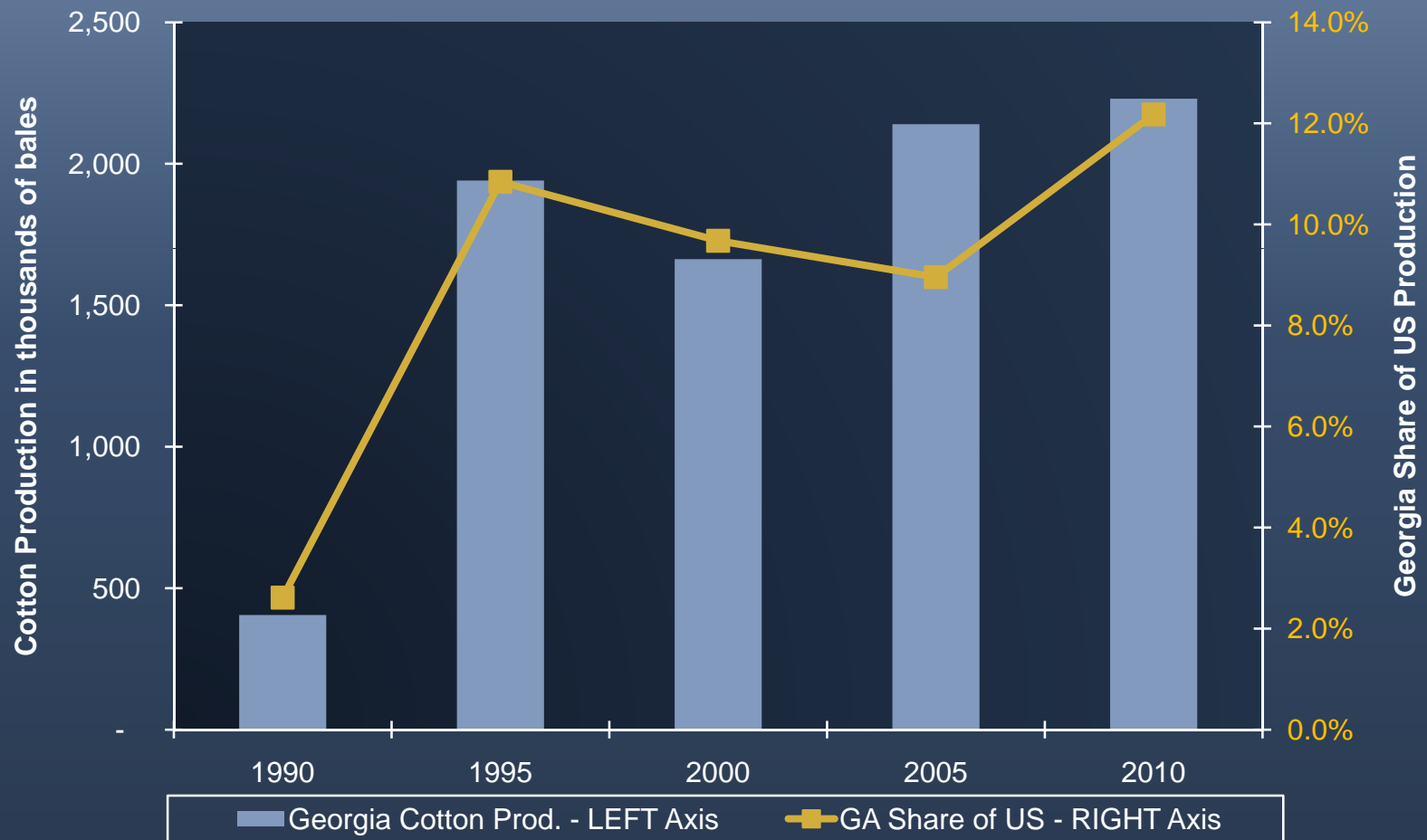
## Georgia Peanut Production Trends, 1990-2010



Source: U.S. Department of Agriculture

# Subtask 4.2 – F&L Importance to Economy

## Georgia Cotton Production Trends, 1990-2010



Source: U.S. Department of Agriculture



# Subtask 4.2 – F&L Importance to Economy

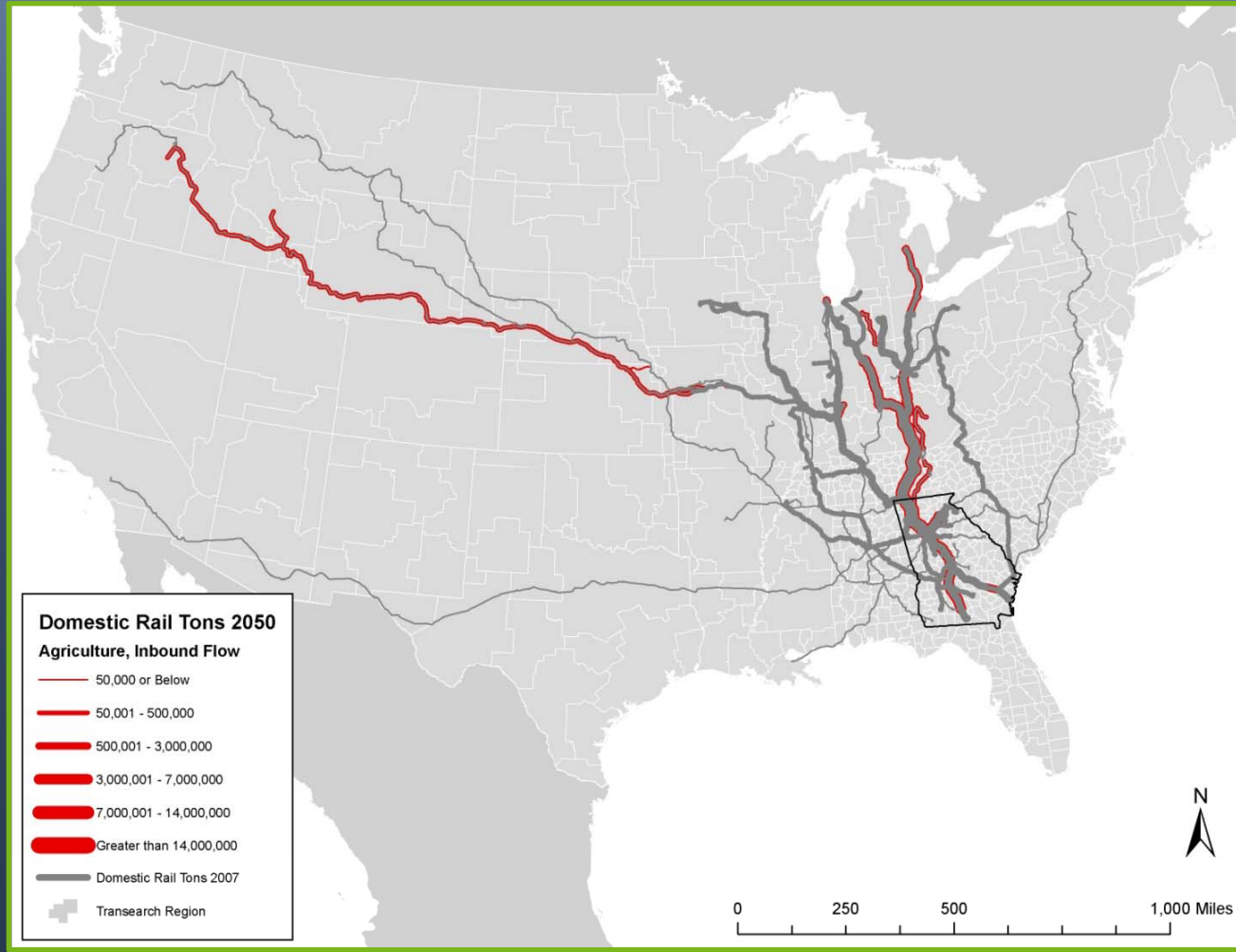
## Georgia Agricultural Industry Freight Flows



- **Mode and distance**
  - » Truck dominates trips less than 500 miles
  - » Higher rail mode share for longer trips
- **Inbound flows**
  - » Reflect inputs required by broiler industry, mainly high-volume flows of grain/feed by rail from the Midwest corn belt
  - » Rail also brings in field crops and potatoes from Pacific NW
  - » Trucks bring in fresh produce from around the U.S.
- **Outbound flows**
  - » Perishability of broilers, fruits/vegetables increases truck share
  - » Major markets include U.S. urban areas and export gateways
  - » Rail used to transport peanuts from SW GA to Virginia processors

# Subtask 4.2 – F&L Importance to Economy

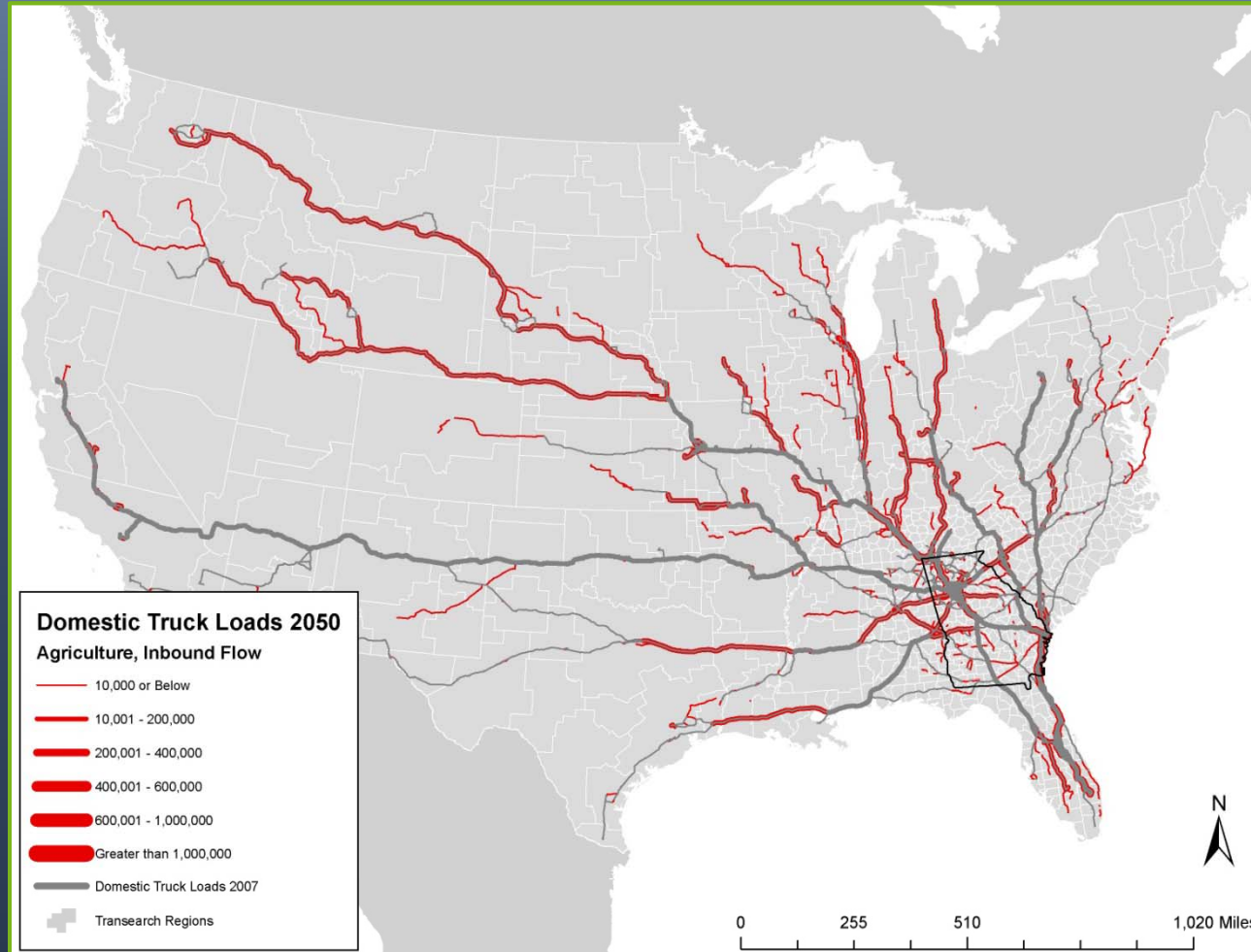
## Agricultural Rail Inbound Flows and Forecast



Source: Transearch

# Subtask 4.2 – F&L Importance to Economy

## Agricultural Truck Inbound Flows and Forecast

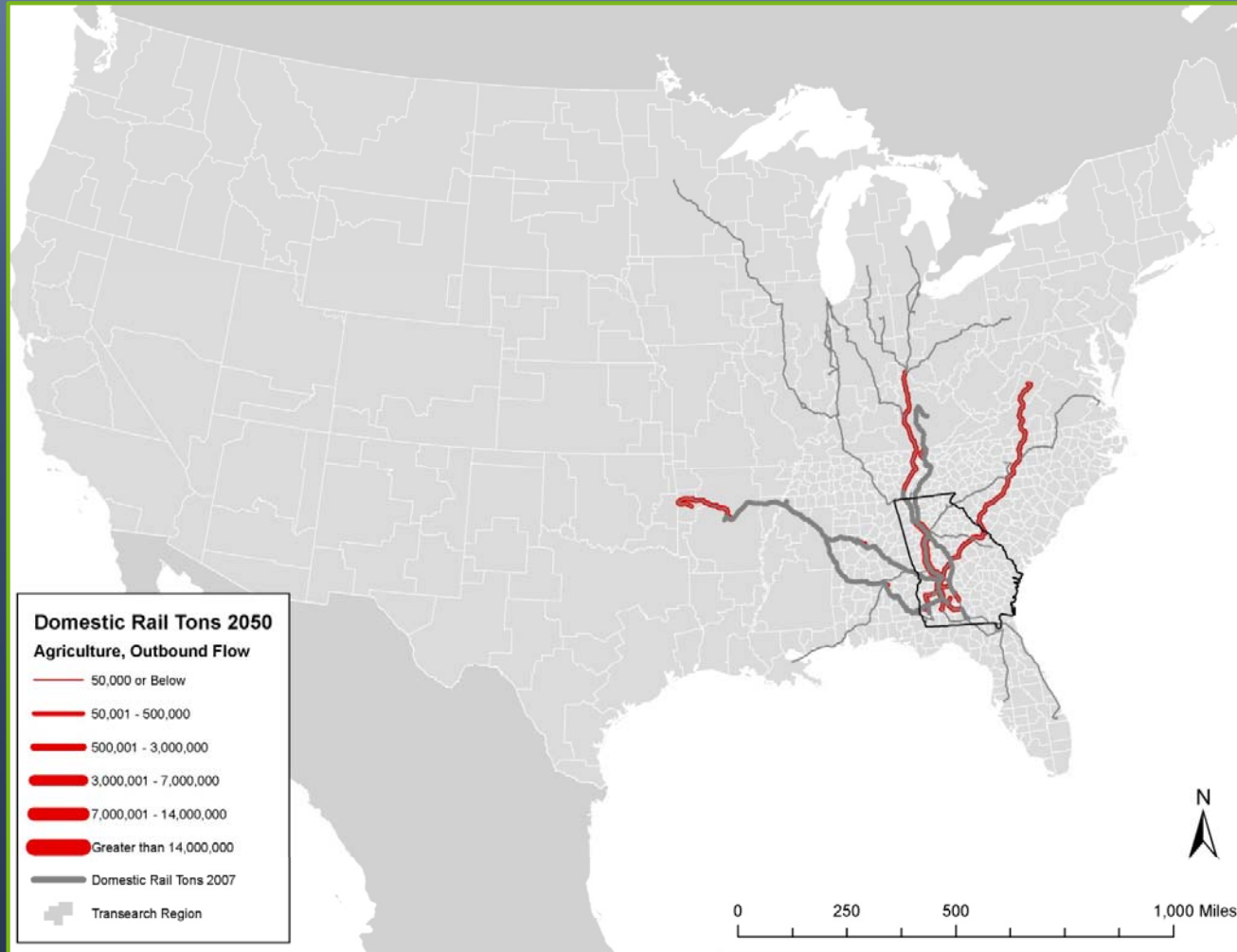


Source: Transearch



# Subtask 4.2 – F&L Importance to Economy

## Agricultural Rail Outbound Flows and Forecast

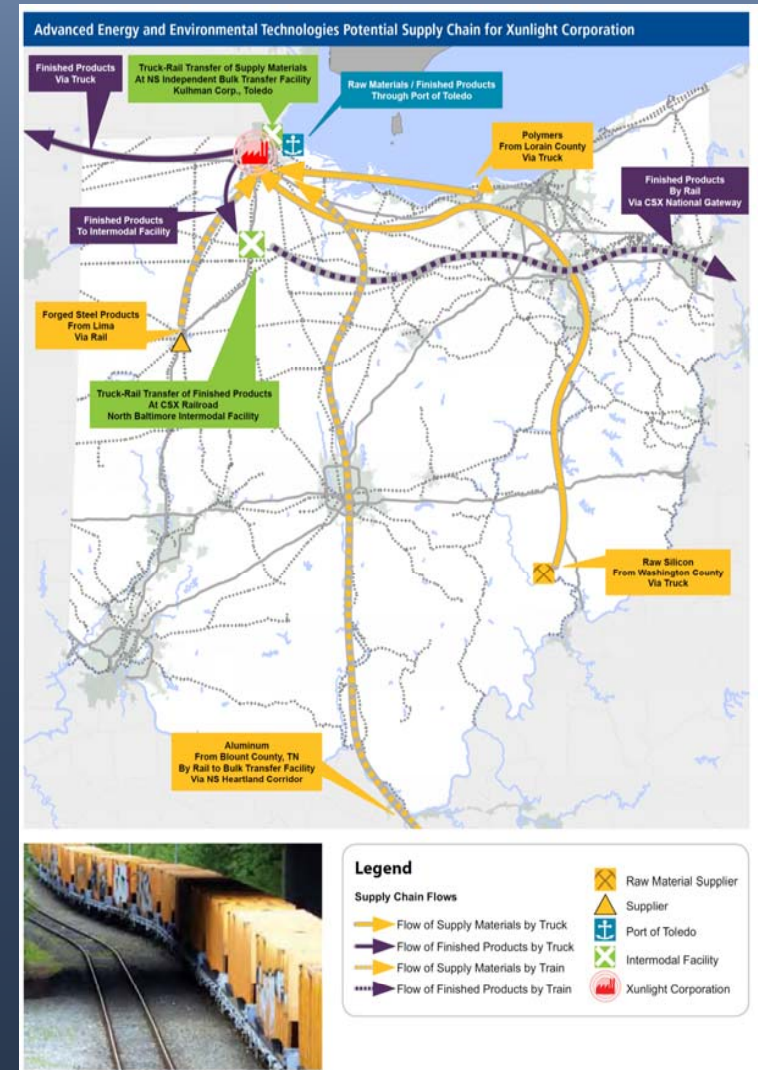


Source: Transearch

# Subtask 4.3 – Value of F&L Investment Case Studies



- Demonstrates specific use of GA transportation infrastructure
- To include interviews of logistics managers and development of high-level supply chain maps
- Pursuing case studies with
  - » Perdue Chicken
  - » Home Depot
  - » Weyerhaeuser

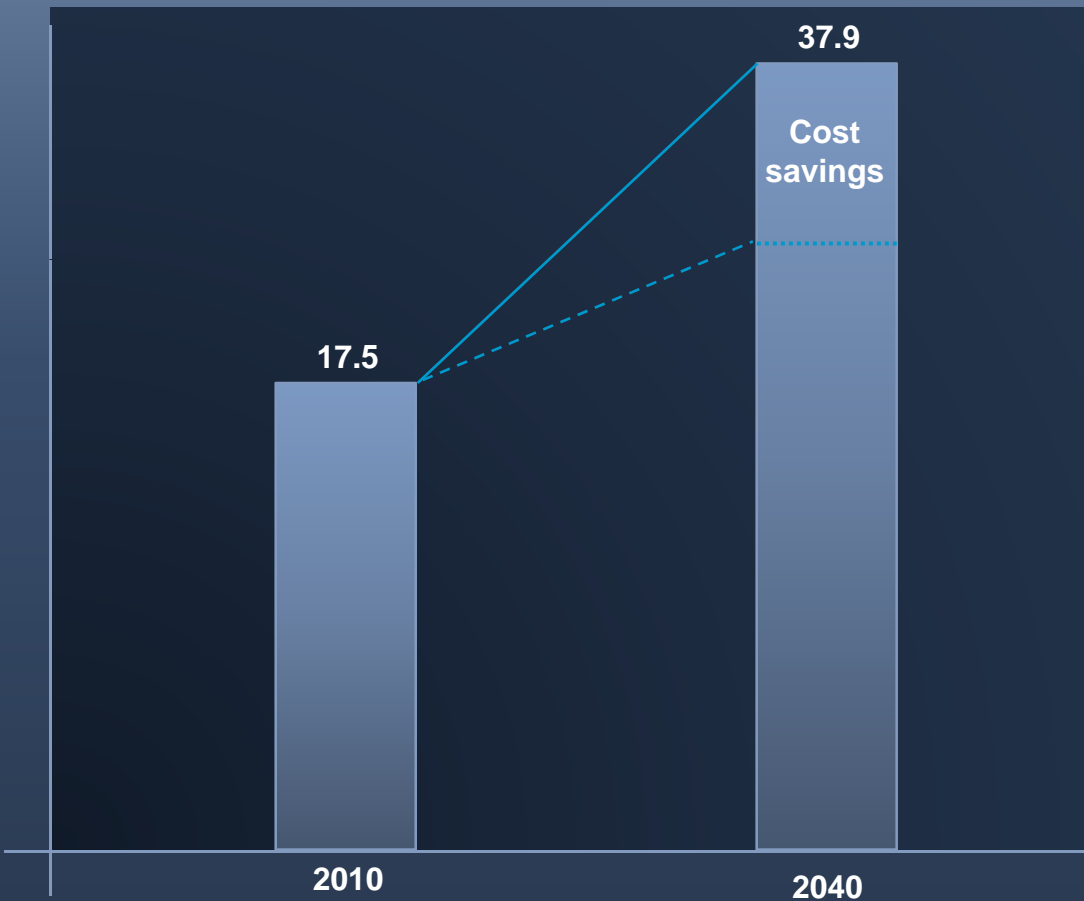


# Subtask 4.3 – Value of F&L Investment

## Economic Benefit of Delay Reduction



Total Transportation Costs in Georgia (\$ Billions)



- By reducing transportation costs by 0.5% per year from 2011 to 2040, the Georgia economy will cumulatively gain
  - \$16 billion in output
  - 188,000 jobs

Source: BEA, REMI Forecast, Consultant Analysis.



## Next Steps



- **Continue with economic analysis task**
  - » **Subtask 4.1 – Describe key economic metrics that will drive future Georgia freight demand**
  - » **Subtask 4.2 – Develop detailed analysis for remaining 3 sectors**
  - » **Subtask 4.3 – Conduct case studies**