

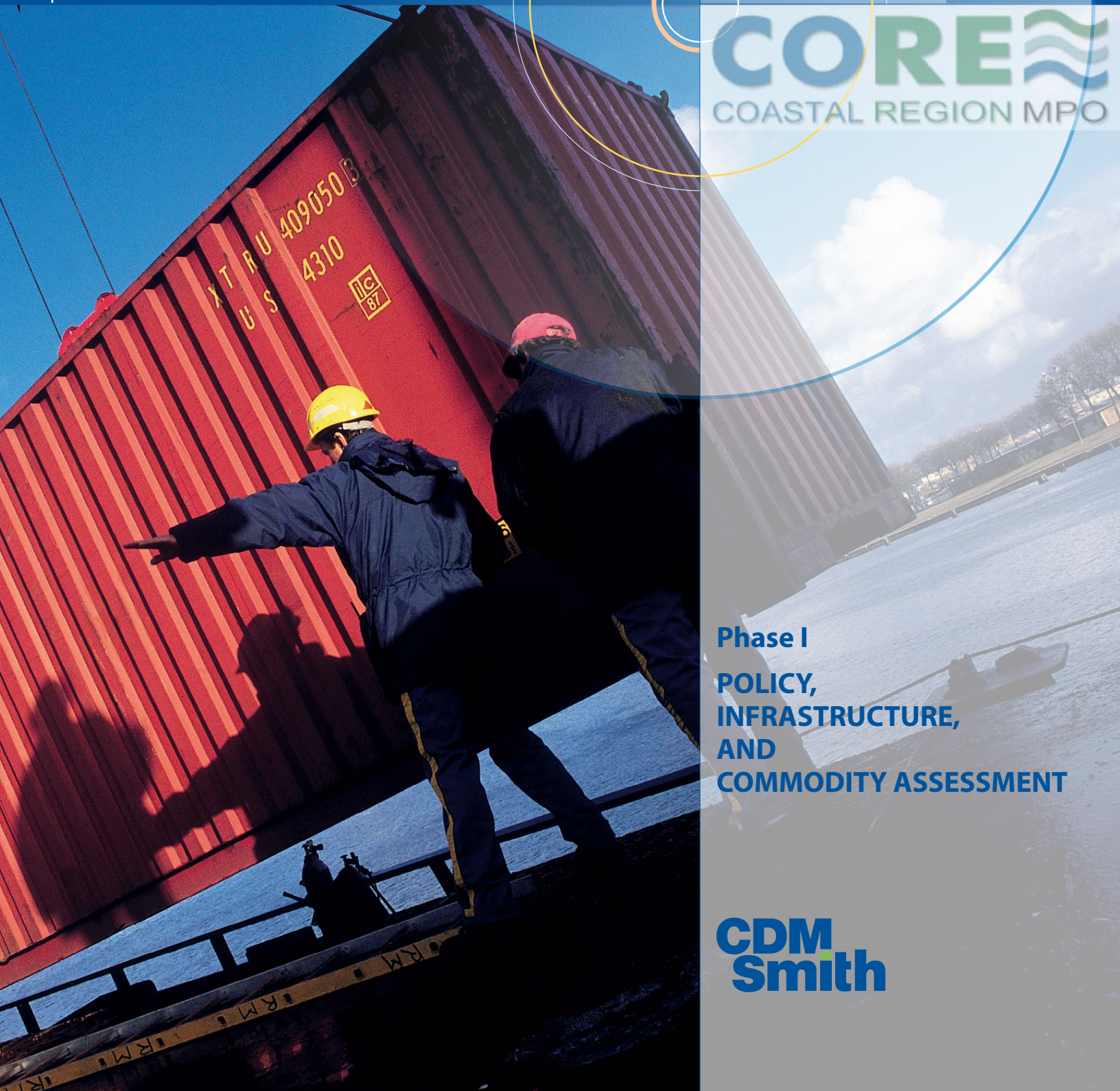
CORE Coastal Region MPO

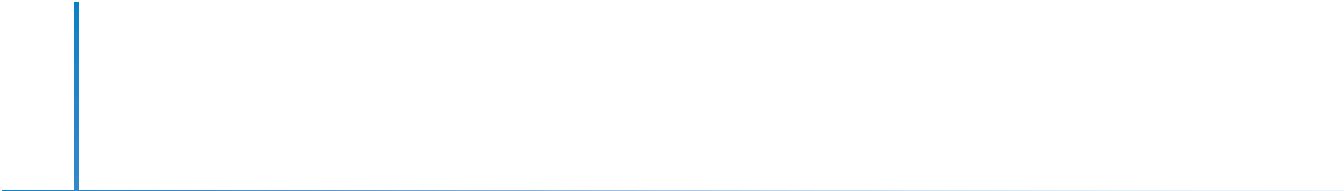
FREIGHT TRANSPORTATION PLAN

CORE 
COASTAL REGION MPO

Phase I
POLICY,
INFRASTRUCTURE,
AND
COMMODITY ASSESSMENT

**CDM
Smith**





The opinions, findings, and conclusions in this publication are those of the author(s) and not necessarily those of the Department of Transportation, State of Georgia, the Federal Highway Administration, or the Federal Transit Administration.

Prepared in cooperation with the Department of Transportation, Federal Highway Administration and Federal Transit Administration.

COASTAL REGION METROPOLITAN PLANNING ORGANIZATION

(as of July 2013)

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Section 1. Purpose of Freight Policy and Strategy

Freight policy, at all jurisdictional levels, is an increasingly important aspect of overall transportation policy making. As a subset of general transportation policy, freight policy may influence or be influenced by previous policies oriented to address passenger based transportation systems.

With the adoption of MAP-21, though not directed to guide local freight planning efforts, a national freight policy is being crafted. Drawing from efforts at the state level to generate a collaborative national policy, state efforts may be assisted by local policy making with an eye to the needs of national policy.

This section of the report will review current policies and strategies, as adopted by the Coastal Region Metropolitan Planning Organization (CORE MPO), identifying those with an inherent freight focus. This focus may be solely or in part directed towards solutions affecting the freight transportation system.

1.1 National Freight Policy Areas

Moving Ahead for Progress in the 21st Century, MAP-21, guidance offers six policy goals. These are established in 23 U.S.C. 167.

1. Improving the contribution of the freight transportation system to economic efficiency, productivity, and competitiveness
2. Reducing congestion on the freight transportation system
3. Improving the safety, security, and resilience of the freight transportation system
4. Improving the state of good repair of the freight transportation system
5. Using advanced technology, performance management, innovation, competition, and accountability in operating and maintaining the freight transportation system
6. Reducing adverse environmental and community impacts of the freight transportation system

If properly scaled, these goals can be translated to encompass the efforts present at the CORE MPO level, harnessing those efforts to state goals.

1.2 Sources

To review efforts at the CORE MPO level which support the state and national policy making process, the following sources were referenced, in conjunction with discussions with CORE MPO planning staff, Georgia Ports Authority, and local law enforcement and compliance officials.

- Metropolitan Planning Commission Tricentennial Plan, Sections 5.7 and 6.7
- FY2013-2016 Transportation Improvement Program (Adopted June 2012)
 - August 2012 TIP Revisions
 - October 2012 Amendments
 - February 2013 Revisions
- CORE Connections 2035 Framework Mobility Plan (LRTP)
 - August 2010 – August 2012 LRTP Amendments

1.3 Planning Efforts

Three potential focal points for the analysis and implementation of an efficient and effective freight transportation system within Chatham County are:

- *Identify Existing and Plan for Future Freight Corridors of Importance to Chatham County and Georgia:* Identify routes that are important to freight movement, assess their physical condition and capacity and develop options for improving them
- *Prioritize Infrastructure Investments with Freight Corridors as a Criterion:* In program delivery, make improvements to freight routes a priority in allocating funding
- *Develop and Implement an Effective Land Use Designation Program to Support Current and Future Freight Needs:* Evaluate the supply of land available for freight transfer and other related goods movement facilities and consider zoning additional areas where applicable to meet demand.

Section 5.7, *Transportation*, of the Chatham County-Savannah Comprehensive Plan, or *Tricentennial Plan*, begins to offer a vision, policies and strategies to realize these focal points.

The transportation visions opening language reflects elements of the national policy guidance.

- “Preserves the unique characteristics of neighborhoods”
- “Access to...commercial centers”
- “Anticipates and facilitates economic activity”

This section will explore the five goals of the Tricentennial Plan for relevance to freight planning. Further review will identify, within the national policy guidance, the strategies assigned to each goal with freight relevance. This assignment will accent those policy areas being addressed by local policy as potential future strategies which may be necessary for the CORE MPO to affect freight transportation system improvements.

The five goals within the Tricentennial Plan to be reviewed are:

1. Goal A: Work toward a community that has a safe and efficient multi-modal transportation system
2. Goal B: Develop a transportation system that is compatible with existing and future land use

3. Goal C: Develop a road system that maintains and preserves unique characteristics of neighborhoods and of the coastal area
4. Goal D: Work toward a regional public transportation system that provides all residents, regardless of their age, income, or special needs access to employment centers, institutions, commercial areas, recreational facilities, and other destinations
5. Goal E: Establish a transportation system that anticipates and facilitates economic activity

1.3.1 Goal A: “...Safe and efficient multi-modal...system”

Goal A is “work toward a community that has a safe and efficient multi-modal transportation system”¹. To achieve this goal, the Tricentennial Plan contains two policy objectives, each having a strategy which may impact future freight movements.

- Objective 2, *Encourage efficient transportation layouts in new developments*, with
 - Strategy b, “establish incentives for developers to emphasize connectivity with adjacent subdivisions and/or commercial developments in the layout of new developments”.
- Objective 3, *Expand the opportunity for multi-modal transportation opportunities linking employees to employers*, with
 - Strategy a, “encourage the expansion of CAT Authority route timetables during non-traditional second and third shifts in order to serve industries such as manufacturing”.

Future potential off-hour delivery programs, as piloted in other metropolitan areas and being researched as part of NCFRP 38, *Improving Freight System Performance in Metropolitan Areas*, will have requirements for more efficient work force mobility. This mobility extends by virtue of expanding pick-up and delivery operations into non-traditional hours the need for a more reliable work force presence during those hours. The strategic goal for implementation of “off-hour” or non-traditional times for pick-up and delivery operations is the reduction of commercial vehicle presence during “normal” work periods and periods of higher transportation volumes. The combined effect of fewer commercial vehicles and work force transportation during traditional peak periods proposes to lessen congestion in the urban area. The application of these two strategies in support of the national freight policy is illustrated in **Table 1-1**.

¹ Metropolitan Planning Commission Tricentennial Plan, Sections 5.7

Table 1-1: Goal A Strategies versus National Freight Policy Areas

Freight Associated Tricentennial Plan Objectives and Strategies	Improving contribution ...to economic efficiency, productivity, and competitiveness	Reducing congestion	Improving safety, security, resilience	Improving the state of good repair	Using advanced technology, performance management, innovation	Reducing adverse environmental and community impacts
Object 2, Strategy b “...connectivity with...commercial developments...”		X	X			X
Object 3, Strategy a “...CAT Authority route schedules...to serve industries such as manufacturing”	X	X			X	X

The Tricentennial Plan presents potential project descriptions associated with these objectives and strategies. **Table 1-2** provides potential schedules, participating agencies, and funding sources.

Table 1-2: Associated Project Descriptions

Tricentennial Plan’s Potential Project Description	Schedule Start/Complete	Potential Participating Agencies	Possible Funding Sources
Encourage efficient transportation layouts in new developments	2006-2016	LG, MPC, GDOT	LG, MPC, GDOT
Expand the opportunity for multi-modal transportation opportunities linking employees to employers	2006-2016	LG, MPC, GDOT, CMPO, CAT	LG, MPC, GDOT, CMPO, CAT

Source: Chatham County Savannah MPC Tricentennial Comprehensive Plan

1.3.2 Goal B: “...develop...system...compatible with...land use”

Goal B is described as “develop a transportation system that is compatible with existing and future land use”². A single objective is cited:

- *Objective, Integrate land use planning and transportation planning.*
 - *Strategy a, Involve the local government and citizens in the planning and prioritization process, promotes an inclusive approach to freight planning.*
 - *Strategy c, require that arterials and collectors be spaced according to the existing and proposed residential density, establishes a base line criteria for roadway designation.*

While previous transportation planning included outreach activities, MAP-21 recommends a collaborative process with involved stakeholders during freight planning efforts. Section 1117 describes an element, *State Freight Advisory Committee*, to provide a cross section of public and private sector freight experts for the exploration of necessary policies and strategies. Described in this report, roadway designation reflects intended use. By assigning collector and then arterial designations based on residential density, this network may direct greater truck flow away from

² Metropolitan Planning Commission Tricentennial Plan, Sections 5.7

the interior spaces of residentially designated land use parcels, to the outer and less intrusive corridors.

Application of these two strategies within national freight policy areas is illustrated in **Table 1-3**.

Table 1-3: Goal B Strategies versus National Freight Policy Areas

	Improving contribution ...to economic efficiency, productivity, and competitiveness	Reducing congestion ...	Improving safety, security, resilience...	Improving the state of good repair...	Using advanced technology, performance management, innovation...	Reducing adverse environmental and community impacts...
Object 1, Strategy a “Involve[ment] of local government and citizens in...planning”	X					X
Object 1, Strategy c “...arterial and collectors be spaced...[intended use]”		X	X			X

The Tricentennial Plan presents potential project descriptions associated with these objectives and strategies. **Table 1-4** provides potential schedules, participating agencies, and funding sources.

Table 1-4: Associated Project Descriptions

Tricentennial Plan’s Potential Project Description	Schedule Start/Complete	Potential Participating Agencies	Possible Funding Sources
Integrate Land Use Planning and Transportation Planning	2006-2016	LG, MPC, GDOT	LG, MPC, GDOT

Source: Chatham County Savannah MPC Tricentennial Comprehensive Plan

1.3.3 Goal C: “...develop a road system...preserves...neighborhoods..”

Goal C is described as “develop a road system that maintains and preserves unique characteristics of neighborhoods and of the coastal area”³. The impact of heavy truck operations on the structural and cultural integrity of local neighborhoods has the potential to elevate conflict between freight movement and citizenry needs. In planning intended usages for roadways in residential areas and the coast, the needs for local freight delivery and pick-up should be incorporated as part of the process. The requirement to provide services will direct heavy truck activity form established corridors to local roads. The objectives stated within this goal are:

- Objective 1, “tailor road building activities to the characteristics of the area where the road is located”; serving as a reference to intended use within a freight context.
 - Strategy d, develop urban design guidelines that relate to sidewalk width and materials, lighting, signage, landscaping, way finding, crosswalks, curb ramps, refuge islands, corner radii, and signals” are all design features when considering commercial vehicle movement on a given roadway.

³ Metropolitan Planning Commission Tricentennial Plan, Sections 5.7

The comparison of this strategy to national policy areas is illustrated in **Table 1-5**.

Table 1-5: Goal C strategies versus National Freight Policy Areas

	Improving contribution ...to economic efficiency, productivity, and competitiveness	Reducing congestion	Improving safety, security, resilience	Improving the state of good repair	Using advanced technology, performance management, innovation	Reducing adverse environmental and community impacts
Object 1, Strategy d “...develop urban guidelines [geometrics]...”						X

The Tricentennial Plan presents potential project descriptions associated with these objectives and strategies. **Table 1-6** provides potential schedules, participating agencies, and funding sources.

Table 1-6: Associated Project Descriptions

Tricentennial Plan’s Potential Project Description	Schedule Start/Complete	Potential Participating Agencies	Possible Funding Sources
Tailor road building activities to the characteristics of the area where the road is located	2006-2016	LG, MPC, CMPO, GDOT	LG, MPC, CMPO, GDOT

Source: Chatham County Savannah MPC Tricentennial Comprehensive Plan

1.3.4 Goal D: “...regional public transportation...destinations”

Goal D is described as “*work toward a regional public transportation system that provides all residents, regardless of their age, income, or special needs access to employment centers, institutions, commercial areas, recreational facilities, and other destinations*”⁴. This policy area is targets the pedestrian access to the public transportation system. These elements are considered in the context of goods movement to accommodate these needs where pedestrians, autos, transit vehicles and commercial vehicles are to share a right of way.

This policy element, in general not related to the discussion of freight, is a consideration to that system and resides in part within the national freight policy discussion, see **Table 1-7**.

Table 1-7: Goal D strategies versus National Freight Policy Areas

	Improving contribution ...to economic efficiency, productivity, and competitiveness	Reducing congestion	Improving safety, security, resilience	Improving the state of good repair	Using advanced technology, performance management, innovation	Reducing adverse environmental and community impacts
Goal D, all strategies “...[indirect influence on freight movement conditions]...”		X	X			X

The Tricentennial Plan presents potential project descriptions associated with these objectives and strategies. **Table 1-8** provides potential schedules, participating agencies, and funding sources.

⁴ Metropolitan Planning Commission Tri Centennial Plan, Sections 5.7

Table 1-8: Associated Project Descriptions

Tricentennial Plan’s Potential Project Description	Schedule Start/Complete	Potential Participating Agencies	Possible Funding Sources
Goal D, Regional Public Trans...	2006-2016	LG, MPC, GDOT, FG, BPE, CMPO, LIFE	LG, MPC, GDOT, FG, BPE, CMPO, LIFE

Source: Chatham County Savannah MPC Tricentennial Comprehensive Plan

1.3.5 Goal E: “...system that anticipates...economic activity”

Goal E is described as “establish a transportation system that anticipates and facilitates economic activity”⁵. Three objectives encompass language specifically addressing the needs for efficient freight transportation to support economic development and integration with passenger movements. Objectives 1 and 2 direct policy to meet the needs of freight transportation.

- Objective 1, “develop an intermodal transportation system that sustains economic activity by linking trucking facilities, rail terminals, airports, and seaports with limited access roads”
 - Strategy a: Determine the corridors that transport goods most directly from rail terminals, the airport, and seaport to the interstate highways and (1) limit the number of curb cuts along the corridors and (2) establish zoning that does not permit strip commercial development along the corridors.
 - Strategy b: Determine the most desirable corridors for future transportation of goods and establish zoning that provides for limited access roads to be constructed in the future.
 - Strategy c: Provide a highway system that is safe, convenient, and accessible to Chatham County and the surrounding region.
 - Strategy d: Maintain an airport system that provides people and goods with adequate linkages to other communities via public carriers and private aircraft.
 - Strategy e: Provide port, trucking and rail systems that are economically competitive and connected to regional and national markets.
 - Strategy f: Optimize the operations of transportation systems to minimize travel time delays and expenses especially for the movement of materials and goods throughout the County and the region.

- Objective 2, “encourage the development of a regional multimodal transportation system”
 - Strategy a: Maintain the continuing, cooperative relationship with all agencies that are involved in providing transportation facilities and services throughout the region.
 - Strategy b: Coordinate funding of interstate and intercounty projects to maximize returns on transportation investments and to avoid duplication of facilities.

With their direct association of language to national policy areas, many of the areas not or partially addressed in the previous can be identified in this fifth goal, see **Table 1-9**.

⁵ Metropolitan Planning Commission Tricentennial Plan, Sections 5.7

Table 1-9: Goal E Strategies versus National Freight Policy Areas

	Improving contribution ...to economic efficiency, productivity, and competitiveness	Reducing congestion	Improving safety, security, resilience	Improving the state of good repair	Using advanced technology, performance management, innovation	Reducing adverse environmental and community impacts
Object 1, Strategy a “...determine the corridors that transport goods...[preservation strategies]...”	X	X	X			X
Object 1, Strategy b “...[future corridor preservation]...”	X	X	X			X
Object 1, Strategy c “...provide a highway system that is safe...”			X			
Object 1, Strategy d “...maintain an airport system...”	X		X			
Object 1, Strategy e “...provide port, trucking, and rail systems...”	X					
Object 1, Strategy f “...optimize the operations of transportation system...”		X				
Object 2, Strategy a “...maintain [cross agency cooperation on transportation planning]...”					X	
Object 2, Strategy b “...coordinate funding...”				X		

The Tricentennial Plan presents potential project descriptions associated with these objectives and strategies. **Table 1-10** provides potential schedules, participating agencies, and funding sources.

Table 1-10: Associated Project Descriptions

Tricentennial Plan’s Potential Project Description	Schedule Start/Complete	Potential Participating Agencies	Possible Funding Sources
Develop an intermodal transportation system that sustains economic activity by linking trucking facilities, rail terminals, airports, and seaports with limited access roads.	2006-2016	LG, MPC, GDOT, FG, GC, SACC, GPA, CMPO	LG, MPC, GDOT, FG, GC, SACC, GPA, CMPO
Encourage the development of a regional multimodal transportation system.	2006-2016	LG, MPC, GDOT, FG, CMPO	LG, MPC, GDOT, FG, CMPO

Source: Chatham County Savannah MPC Tricentennial Comprehensive Plan

1.4 Governance Structure – Participation

1.4.1 Structure and Existing Freight Funding Mechanisms

The current Long Range Transportation Plan and Transportation Improvement Program list for the CORE MPO includes freight considerations as suggested by SAFETEA-LU, and now MAP-21, federal legislation. Goal 4 of the current LRTP is, “Accessibility, Mobility and Connectivity: Ensure and increase the accessibility, mobility and connectivity options available to people and freight, and ensure the integration of modes, where appropriate.”

Like many MPOs, freight is a consideration but not a quantitative value in a project ranking system. Likewise, projects that are known to support the movement of both people and goods are included in LRTP and TIP project lists, but no additional funds are currently identified to support freight related enhancements specifically. Examples of current TIP projects with direct impacts on the freight transportation system include:

- Bay Street Improvements from I-516 to the Bay Street Viaduct
- Brampton Road Connector from SR 25 to Georgia Ports Authority
- Jimmy DeLoach Phase II from US 80 to I-16
- Jimmy DeLoach Interchange at US 80
- SR 21 Corridor Improvements from I-516 to Effingham County Line
- SR 204 Corridor Improvements from Truman Pkwy Phase V to Forest River
- President Street/Islands Expressway/CSX Railroad/Truman Pkwy Overpass
- Widen Grange Road from SR 21 to SR 25

Example of freight –related TIP projects that are either under construction or under development:

- Port’s Last Mile Project of Jimmy DeLoach Parkway
- SR 307 Overpass
- SR 307 Widening from R. B. Miller Road to SR 21
- Truman Parkway Phase V

With additional guidance from MAP-21, greater refinement of national and state freight policies will influence more quantitative methods of evaluation and ranking at the urban level. These will be included in future LRTP and TIP amendments. Much like the incorporation of sidewalks and bike lanes into ‘Complete Streets’ planning, freight mobility will become an element of planning across all modes of transportation at the CORE MPO level. The LRTP and TIP will address freight related enhancements and plan for funds both transportation and freight specific in nature. Other modal planners will incorporate freight mobility plans into other levels of study, such as corridor plans, transit plans, access management plans, and bike/pedestrian plans.

1.4.2 Agency Participation and Areas of Responsibility

The CORE MPO Policy Board is comprised of elected and appointed officials from Chatham County and its municipalities, as well as modal and economic development representatives. Three standing committees serve in an advisory capacity to the CORE MPO. They are the Technical Coordinating Committee, the Citizens Advisory Committee and the Advisory Committee on Accessible Transportation. Working in concert, the CORE MPO, its committees and staff carry out the 3-C, continuing, cooperative and comprehensive, planning process by continuously monitoring and evaluating the entire transportation system, and providing the forum for all government agencies, transportation providers and the public to be involved in the development of transportation plans and programs. As local conditions change, transportation plans and programs are periodically reevaluated and updated to ensure that they continue to serve the needs of the community.

The following is a synopsis of the voting composition of the CORE MPO Board:

- Chatham County
- City of Savannah
- City of Garden City
- City of Pooler
- City of Bloomingdale
- City of Port Wentworth
- City of Tybee Island
- Town of Thunderbolt
- Town of Vernonburg
- Georgia DOT
- Chatham Area Transit Authority (CAT)
- Georgia Ports Authority (GPA)
- Savannah Airport Commission
- Chatham County – Savannah Metropolitan Planning Commission (MPC)
- Savannah Economic Development Authority (SEDA)
- Savannah Area Chamber of Commerce
- Hunter Army Airfield
- CORE MPO Citizens Advisory Committee (CAC)
- CORE MPO Advisory Committee on Accessible Transportation (ACAT)

The Technical Coordinating Committee (TCC) is made up of key government and agency transportation staff members who are involved in technical aspects of transportation planning. The TCC reviews and evaluates all transportation studies and provides technical guidance and direction to the CORE MPO. The TCC is comprised of technical staff members from local, state and federal agencies concerned with transportation planning:

- Chatham County
- City of Savannah
- City of Garden city
- City of Pooler
- City of Bloomingdale
- City of Port Wentworth
- City of Tybee Island
- Town of Thunderbolt
- Town of Vernonburg
- Georgia DOT
- Chatham Area Transit Authority (CAT)
- Georgia Ports Authority (GPA)
- Savannah Airport Commission
- CSX Transportation
- Norfolk Southern Railroad
- Trucking Industry
- Metropolitan Planning Commission (MPC)
- Savannah Economic Development Authority (SEDA)
- Savannah Area Chamber of Commerce
- Hunter Army Airfield
- CORE MPO Citizens Advisory Committee (CAC)
- CORE MPO Advisory Committee on Accessible Transportation (ACAT)
- Bicycle Advocacy Group

The CORE MPO manages federal transportation dollars and plans for transportation investments in the region. The CORE MPO, representation includes that of local, state and federal governments as well as members of the business community. By design, Commissioners and members of the Technical Coordinating Committee, oversee and approve recommendations for transportation enhancements for the region, including those supporting necessary improvements to freight mobility. The CORE MPO is supported by staff of the Chatham County-Savannah Metropolitan Planning Commission.

Section 2. Assets and Attractors

The development of an efficient and responsive future freight transportation system is dependent in part on a thorough understanding of the present system. As future investment strategies and policy assessments seldom emerge in a greenfield environment, decisions on the types and placements of infrastructural build-out, and the policies which guide that process, are shaped by the existence of the system, already in place.

This section of the report will present a current inventory of infrastructure within Chatham County, Georgia, related to the movement of goods in a multi-modal environment. Through research of existing plans, studies, and readily available databases, five areas will be explored and presented:

- Freight related infrastructure, by mode:
 - Highway
 - Railroad
 - Water
 - Air
- Freight generators or attraction features located in the study area, which may be described as:
 - Industrial, manufacturing, assembly facilities
 - Warehouses, transload facilities, distribution centers
 - Modal stations-terminals, intermodal centers
- Significant attraction features influencing the study area, limited to general descriptions
- Routes, designated for freight transportation
- Land Use Designation

The final area of research does not represent a specific freight generation activity, but a designation for current and future potential freight activities. This distinction, and observance, is important to future understanding of modal needs and changing freight environments.

Studies, plans and resources used throughout the preparation of this section include:

- *Georgia Freight and Logistics Plan*, GDOT (2011)
- *Atlanta Regional Freight Mobility Plan*, ARC (2006)
- *Georgia in Perspective*, Governor's Office of Planning and Budget (2013)
- Aviation Information
 - Flight Plan, www.fltplan.com
 - Savannah-Hilton Head International Airport
- Port Information
 - Georgia Ports Authority
 - World Port Source
- Rail Information
 - Association of American Railroads
 - Federal Railroad Administration
- Highway Information
 - GDOT

2.1 Geography and Historical Presence

The study area encompasses Chatham County, Georgia. Located on the Atlantic Coast of the State of Georgia, the county has been an important coastal establishment to the state. The site of James Oglethorpe's⁶ first landing at the outset of colonization, the county includes the Port of Savannah and the Wentworth Mill Wharf. The Port of Savannah was a center of trade for cotton, naval, and other goods during the pre-and post- Revolutionary periods. A primary port in the early to mid-1800 for the southern United States, the port was the origin of the first Atlantic crossing by a steamship, the *Savannah*, in 1819. Through the ebbs and tides of economic prosperity from the post-Civil War era to today, the port continues to contribute significantly to the level of commerce related activity within the county. The county's landside activities have grown with the port's success. In addition to supporting port activities, Chatham County and City of Savannah have witnessed growth in tourism and various business sectors. The attraction of Gulfstream Aerospace Corporation and JCB Inc., and other notable industrial names to the county, has led to a diversification of trade and economic prosperity; all of which requires an efficient, productive, and, most importantly, supporting freight transportation system to bring materials and goods into and finished products out of the region.

The county's largest city, and seat, is Savannah. Other significant population centers include Bloomingdale, Garden City, Pooler, Port Wentworth, Thunderbolt, Tybee Island, and Vernonburg.⁷

The total county population, according to the 2010 census, was 265,128. This was 2.7 percent of the population for the state. The working-age population, defined between 18 and 65 years of age, comprised 65 percent of the county's population. The total land area is approximately 426 square miles.⁸

2.2 Modal Infrastructure

Historical reliance on a vibrant freight movement network has shaped the current multi-modal infrastructure. Investment has occurred, publicly and privately funded, generating a network reflective of the modal needs of the freight transportation system user. As the needs of this user change or shift in priority, the current system will serve as the foundation on which investments will be applied. This section will provide a contextual overview of each modal's role in the freight system, identify specific infrastructural features related to that modal movement and, where applicable, an applicable description of the relevance of the feature to that mode's operational needs.

2.2.1 Highway

Highway goods movement is the cornerstone to the national and state freight transportation system. Highway, or "trucking", transports 70 percent of all the tonnage in the U.S. This takes place as "over-the-road" or short to long distance truck trips and "final mile" or pick-up and delivery movements. The dominance of the mode is derived through access and availability. Except where shippers or receivers have constructed facilities with immediate access to rail,

⁶ Identified founder of the Colony of Georgia

⁷ <http://georgia.gov/cities-counties/chatham-county>, February 12, 2013

⁸ Preceding data collected from <http://quickfacts.census.gov/qfd/states/13/13051.html>, February 12, 2013

water, or air assets, trucks serve as a connector between the alternative mode and the user or as the single transport mode. The lack of immediate access to other modes extends beyond the individual user. Resulting from geography, consolidations or bankruptcies, and operational decisions within the individual modes, communities and regions have been left without direct service by the other modes of water, rail or air. This lack of access to alternative modes has resulted in 80 percent of those communities, across the country, singularly dependent on trucking for access to goods and materials.

Availability is a second factor in this mode's dominant position in the freight transportation system. The "barrier to entry" or level of start-up and continuing costs for trucking is the lowest of all the modes. This characteristic has generated an extremely high number of providers. The lower operating costs, as compared to rail or air, and the elevated number of participants in this mode has produced a trend of lower costs to users accompanied by a higher level of service customization to meet the individual user's needs. As a result, users engage highway transport, in many cases, where alternative modes are accessible, as a part of or encompassing the entire transportation solution.

2.2.2 Infrastructure

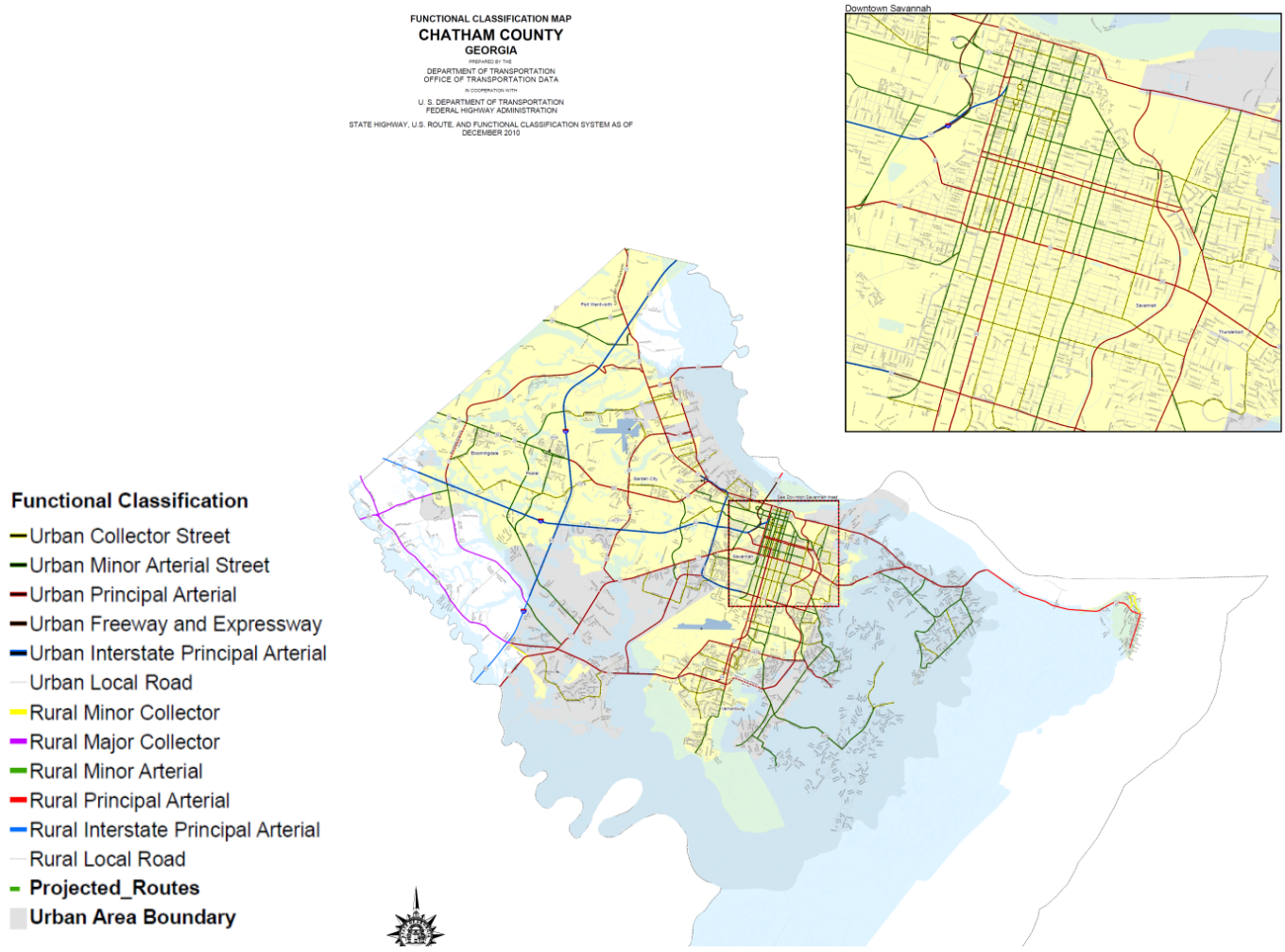
Highway infrastructure consists of several key elements. Those most associated with and readily available are:

- Functional Class
- Roadway, Constructed Features
- Bridges
 - Minimum Vertical Clearance
 - Weight or Load Restrictions
- Railroad Crossings
 - At-grade
 - Grade Separated

2.2.2.1 Functional Class

The dominant feature utilized by trucking is the publicly available roadway network. This network consists of multiple classifications, each assigned to a specific roadway in a collaborative manner by the local jurisdiction. Assignment of the specific classification is dependent upon the intended use. The major functional systems, as defined by [GDOT Design Policy Manual](#), are Freeway, Arterial, and Collectors, and Local Streets. As local streets are typically not intended to carry truck traffic, except to accommodate immediate access for pick-up or delivery functions, the focus for truck movements are Collector and above. These three classifications have additional sub-classifications within each, providing further definition, e.g. urban versus rural, principle versus minor. **Figure 2-1** illustrates the presence of each of these classifications within the county.

Figure 2-1: Functional Classifications within Chatham County, GA, 2010



Source: <http://www.dot.ga.gov/maps/pages/highwaysystem.aspx>, February 13, 2013

Functional classification and the associated characteristics may be used as a predictor of truck usage. Though final construction may be inconsistent with the design characteristics, as a whole, the intended use and design vehicle will guide features which may induce commercial operator usage.

Freeway

The first and most identified functional class for truck use is the interstate system. This limited access corridor provides a reliable and safe roadway to transport goods typically over long distances. Though restricted by the ability to access other roadways, local or shorter distance trips may gravitate to these systems. The GDOT Design Policy Manual describes this classification as:

- Provides uninterrupted flow
- Access to the freeway facility is controlled and limited to ramp locations. A freeway experiencing extreme congestion differs greatly from a non-freeway facility experiencing extreme congestion, in that the conditions creating the congestion are commonly internal to the facility, not external to the facility.
- May have interactions with other freeway facilities as well as other classes of roads in the vicinity. The performance of a freeway may be affected when demand exceeds capacity on these nearby road systems.

Two interstates, I-95 and I-16, pass through, with an auxiliary interstate I-516 within the county.

- I-95 is the primary corridor for transporting goods and people along the east coast of the U.S. This corridor’s termini are in Miami, Florida and the US [Maine]/Canadian border. The length of I-95 within the county is 20.7 miles.
- I-16 with termini near Macon Georgia, at the connection with I-75 and in the City of Savannah. Though not traveling outside the state, connection with I-75 provides direct access to the Atlanta region. The length of I-16 within the county is 20.1 miles.
 - The significance of this connection is the resultant access from the Ports of Savannah and Wentworth to the Atlanta region. This nationally recognized region of commerce and distribution serves the southeast U.S. and provides linkages to the national and North American markets.
- I-516 serves as a spur to I-16. The termini are the junction with SR21 in Garden City, GA and SR21 in Savannah, GA. The length is 6.5 miles.

The posted speed limit for interstates and other limited access roads in the state is noted in **Table 2-1**.

Table 2-1: Posted Speed Limits, Interstate and Other Limited Access, Georgia

State	Rural Interstates		Urban Interstates		Other Limited Access Roads	
	Cars (mph)	Trucks (mph)	Cars (mph)	Trucks (mph)	Cars (mph)	Trucks (mph)
Georgia	70	70	55	55	65	65

Source: GHSA, http://www.ghsa.org/html/stateinfo/laws/speedlimit_laws.html, February 12, 2013

The design vehicle⁹ for this classification is WB-67 with a design speed of 70 mph. The WB-67 is defined as a tractor-trailer, instate combination vehicle with an overall wheelbase of 67 feet.

Arterial

The arterial class represents a set of roadways intended to be used for longer trips and accommodate greater traffic volumes than collectors or local roads. The GDOT Design Policy Manual describes arterials as “intended to provide for through trips that are generally longer than trips on collector facilities and local streets”.

This classification provides access to areas not adjacent to the interstate system and between non-adjacent areas of freight activity, not immediately accessible by the interstate system.

Arterial posted speeds are designated in coordination between GDOT and the local jurisdiction. This applies to existing and future roadways.

The design vehicle for this classification consists of three types, corresponding to the sub-classification. Interstate Principle Arterial is WB-67 with a design speed of 65 mph. Primary or Principal Arterial, rural and urban, range from WB-40 to WB-62, with rural design speed of 65 mph and urban of 55 mph. Minor arterial, rural, the SU or single unit truck is the design vehicle at 65 mph. The urban sub-classification differs, using the WB-40 at 40 mph.

Collector

The GDOT Design Policy Manual describes this classification as “provid[ing] access and traffic circulation within residential neighborhoods, commercial, and industrial areas” and “may penetrate residential neighborhoods, distributing trips from the arterials to destinations”. Truck utilization of these roadways typically reflects local truck trips.

The design vehicle for rural and urban collector is the SU or single-unit truck. Design speed varies from 55 mph for rural to 35 mph for urban.

2.2.2.2 Road, Constructed Features

Route selection by the individual driver or company is heavily influenced by the physical characteristics of the roadways available. Commercial Vehicle (CMV) operations perform “over the road” and “final mile” functions with specific routes or route guidance. Route selection, whether pre-determined for the CMV operator-driver, or open for the CMV driver to determine, is guided by three considerations; shortest distance, transit time, and safety.

Shortest distance is a key factor as this represents the route with the least associated cost to the carrier. The basis for cost calculations in medium-long distance or “over the road” CMV operations is on a “per mile” denomination. Operator-driver wages are typically based on the number of miles driven. Though this may not reflect actual miles driven¹⁰, all costs associated with the given trip, or directly reflect the charges to be presented to the payee, all are a function of that relationship.

⁹ Vehicle type with defined operational characteristics utilized in the design of features on a roadway. Design vehicle represents the vehicle with the most significant performance needs for the intended use of the roadway.

¹⁰ Mileage may be calculated based on “household goods mileage”, defined as the distance between the centroid of the origin and destination zip codes.

Transit times or the time between pick-up and final delivery is a marketing tool and is a cost component to the carrier. Customers engage individual carriers, in part, on the ability to satisfy a transportation travel time between two locations or steps in the supply chain. Based on the transit time offered by the carrier, a route may include higher cost roadways, e.g. tolled versus non-tolled, longer-less congested versus shorter-more congested, to arrive at destination in the committed time period. The carrier's cost is associated with amount of time equipment is committed to the transportation of a given shipment. Each trip, dedicated to a given shipment or combination of shipments, will only have the opportunity to invoice the payee once. A reduced transit time allows the carrier to free equipment for the next shipment, increasing the revenue generated.

The safe operation of a CMV has benefit for the driving public and the carrier. The size and performance of the various sized vehicles driven present demands on the route selected. Low hanging branches or signs, narrow travel lanes, lack of shoulders, and the degree of access management each have a degrading effect on the ability of the vehicle to operate safely, as the vehicle size increases.

The Georgia Department of Transportation RCFfile, or Road Condition File, represents a collection of physical roadway characteristics to be used to analyze the roadway network within the county.

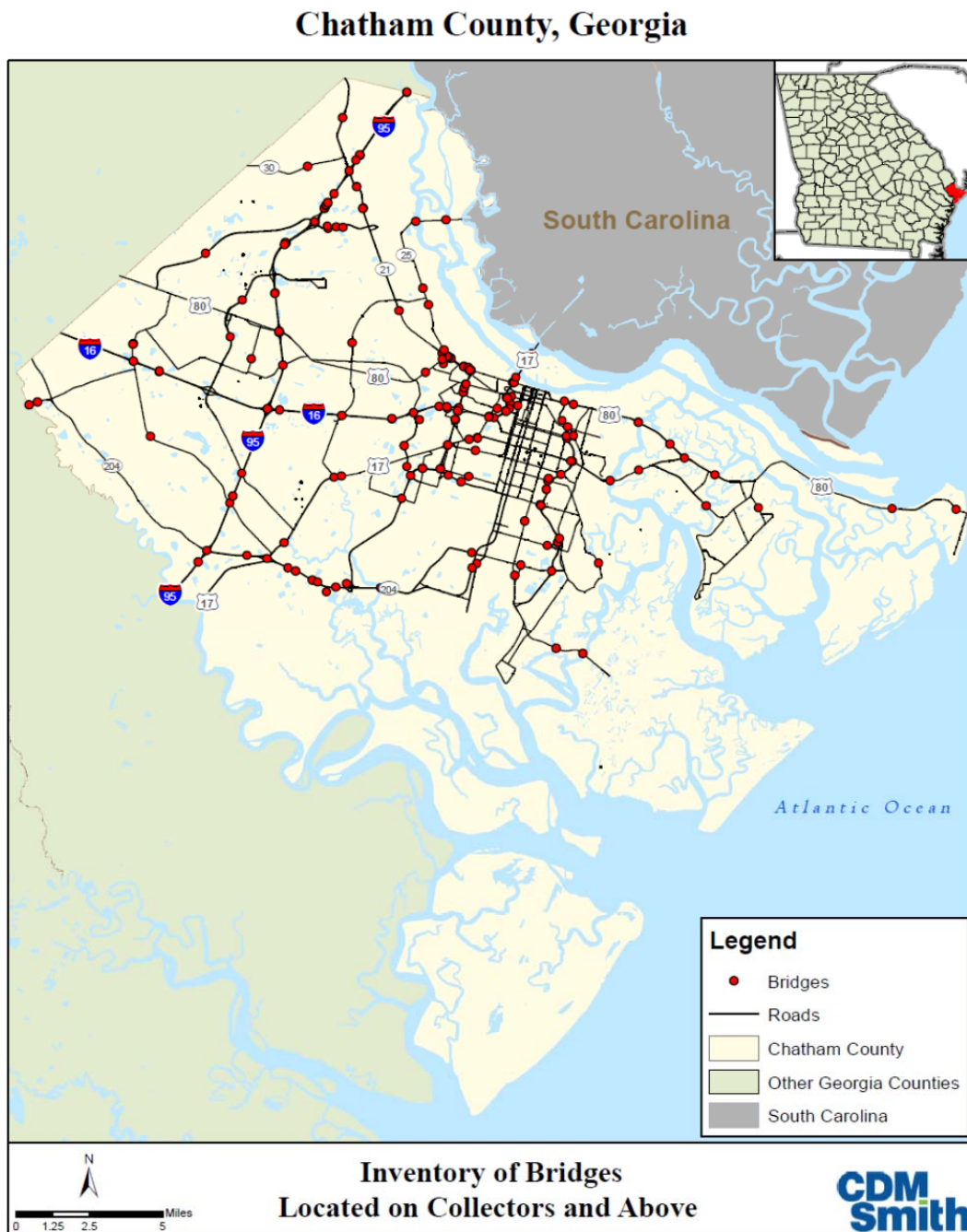
2.2.2.3 Bridges

Two physical characteristics of bridges located on or spanning the roadway impact the inclusion as part of a CMV operator's route: Vertical Minimum Clearance and Weight-Load Restrictions. Vertical minimum clearance is the distance from the road surface to the lowest point on the overhead obstruction [bridge] within the confines of the travel lane. The larger CMV, class 8, which includes interstate tractor-trailer combinations and many of those combinations used for pick-up and delivery, has an operating height of 13 feet and 6 inches.¹¹ Interstate design standards have a minimum vertical clearance standard of 15 feet. Other functional classes may not define clearance standards or include structures built prior to standards being introduced. On collector, arterial and interstate roadways within the county, there are 199 bridges¹². There are 77 which span a road surface, 32 over a railroad, and 90 that do not span either. This latter category may cross water, which will be important in evaluation of water borne traffic restrictions. This same consideration will be necessary when reviewing the potential for restriction to rail operations. **Figure 2-2** illustrates the location of these bridges.

¹¹ Equipment in excess of this height, dependent upon state and local regulations, are subject to permitting requirements. Those requirements have a route selection component which must account for and avoid low clearances.

¹² <http://www.fhwa.dot.gov/bridge/nbis/>, July 30, 2013, "A bridge is defined in section 650.305 Definitions as 'A structure including supports erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.'"

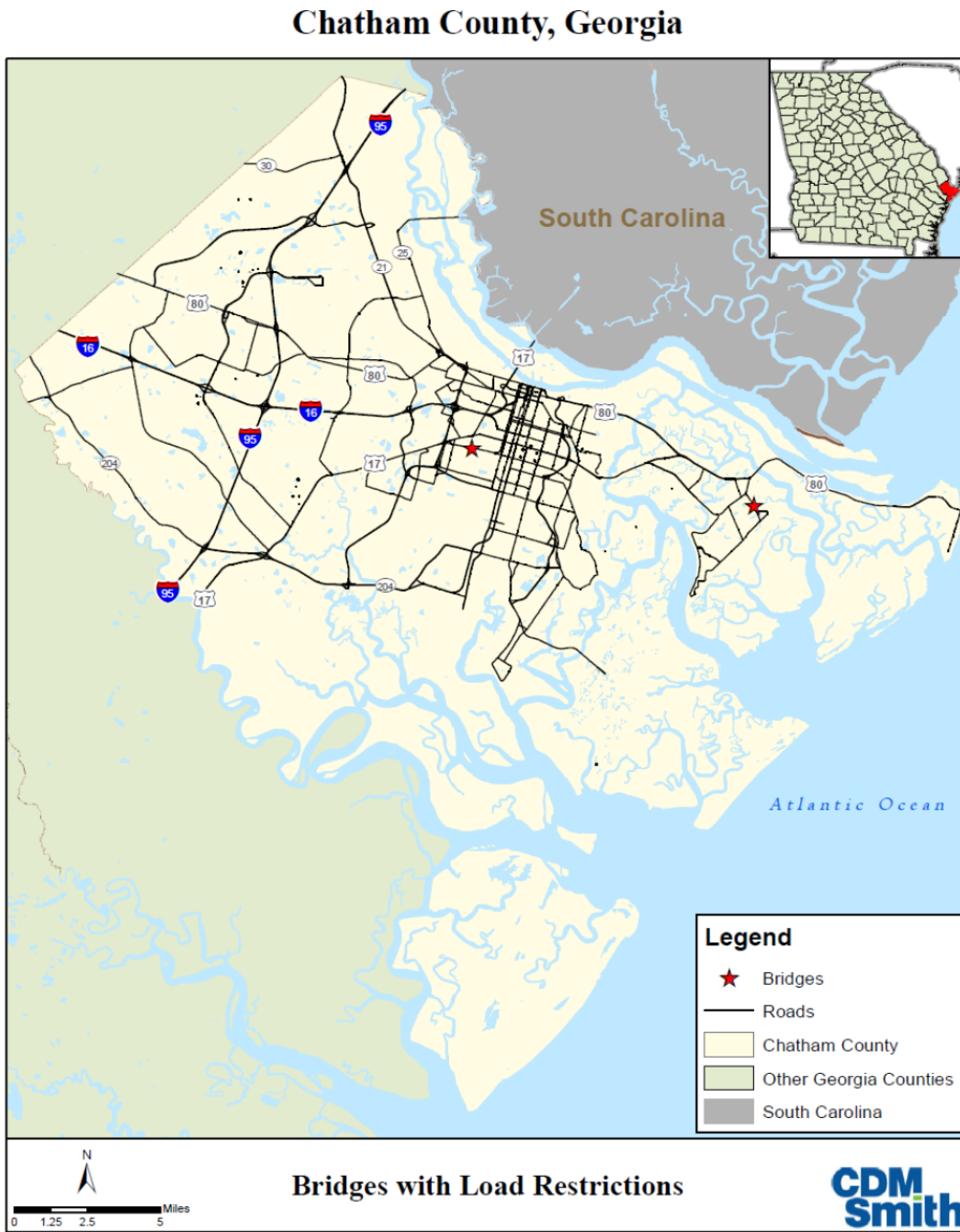
Figure 2-2: Bridges Located on Collector, Arterial, or Interstate Roadways



Source: CDM Smith, National Bridge Inventory

Weight-load restrictions limit the gross vehicle weight (GVW) of a vehicle driving across the structure. These restrictions may be a function of the bridge design and intended purpose or use. Another factor may be the level of previous use or structural age. In combination, a restriction placed on a bridge may range from a simple notation, without any formal limitations, to a more defined restriction on what weight and types of vehicles may use the structure. There are two bridges with specific load restrictions assigned. These are illustrated in **Figure 2-3**.

Figure 2-3: Bridges with Load Restrictions Assigned



Source: CDM Smith, National Bridge Inventory

2.2.2.4 Railroad Crossings

The presence of railroad crossings, more specifically at-grade, on roadways has the potential to offer safety or operational concerns to those CMV utilizing the roadway. Grade separated, crossing where the roadway and rail are at different elevations, pose a concern of clearance versus an actual CMV and train interaction. The ability for the CMV to travel across a raised track, to fully exit the path of a potential train before reaching a stop bar, or have the line of sight to

identify warning signalization are three leading causes of CMV and train related accidents. CMV operators, resulting from the types of cargo being transported, may be required to come to a complete stop before proceeding across an at-grade crossing. This has the potential to adversely affect the flow of CMV and passenger vehicles.

There are 27 grade separated crossings located within the county. At-grade crossings are 54. **Figure 2-4** illustrates the locations of these grade separated, either below or above the roadway and the at-grade crossings.

Figure 2-4: Railroad Crossings



Source: CDM Smith, Federal Railroad Administration

2.2.3 Railroad

Railroad transport provides a lower cost, higher capacity and low environmental impact landside solution to the movement of goods. Operating a variety of rail car configurations, e.g. tanker, open top hopper, side load, closed boxcar, flatcar, in trains comprised of over 100 units; rail provides shippers with a low cost solution to moving goods. Due to the nature of the load-unload and overall train operations supporting that movement, rail typically produces rates or cost to the shipper which decreases as the distance traveled increases. With a limited number of locomotives or power units required to transport the significant volume of goods, in comparison to other landside solutions, e.g. truck, the impact on air quality, noise pollution, and other environmental factors is significantly reduced.

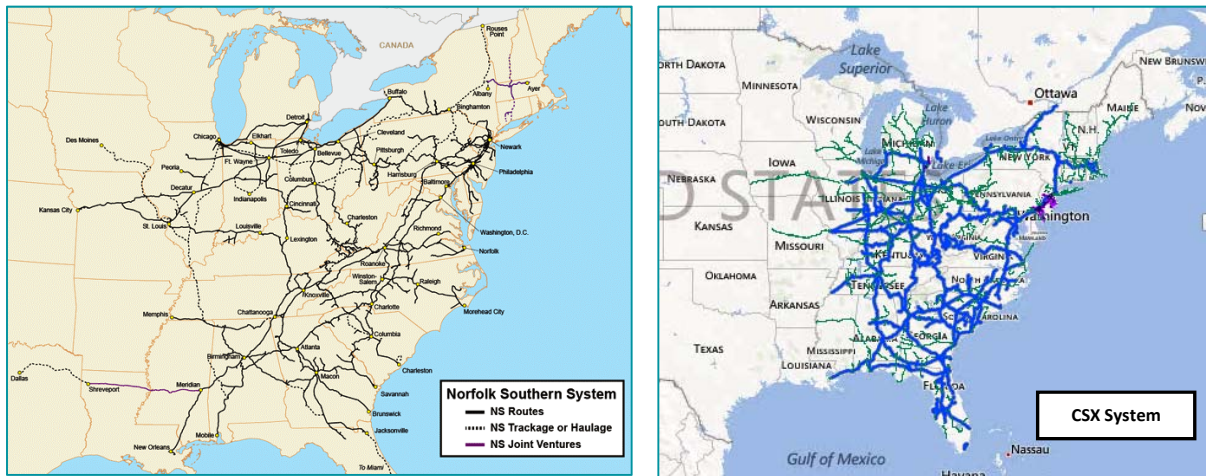
Intermodal traffic on today’s railroads has been the fastest growing segment of all the cargo types. Over 50 percent of the tonnage transported as intermodal rail is traveling as an import or export good.¹³

Railroads, unlike trucking, operate on infrastructure primarily owned by the railroad company. Though regulated by the federal government, the railroad has the opportunity to make all operational decisions regarding services and market place without outside influences.

2.2.3.1 Class I

There are seven Class I¹⁴ railroads in operation within the U.S. Two Class I railroads operate in the Chatham County: Norfolk Southern (NS) and CSX. Each operates exclusively east of the Mississippi River. Illustrations of the individual coverage or service areas are presented in **Figure 2-5**.

Figure 2-5: Norfolk Southern and CSX Coverage Areas



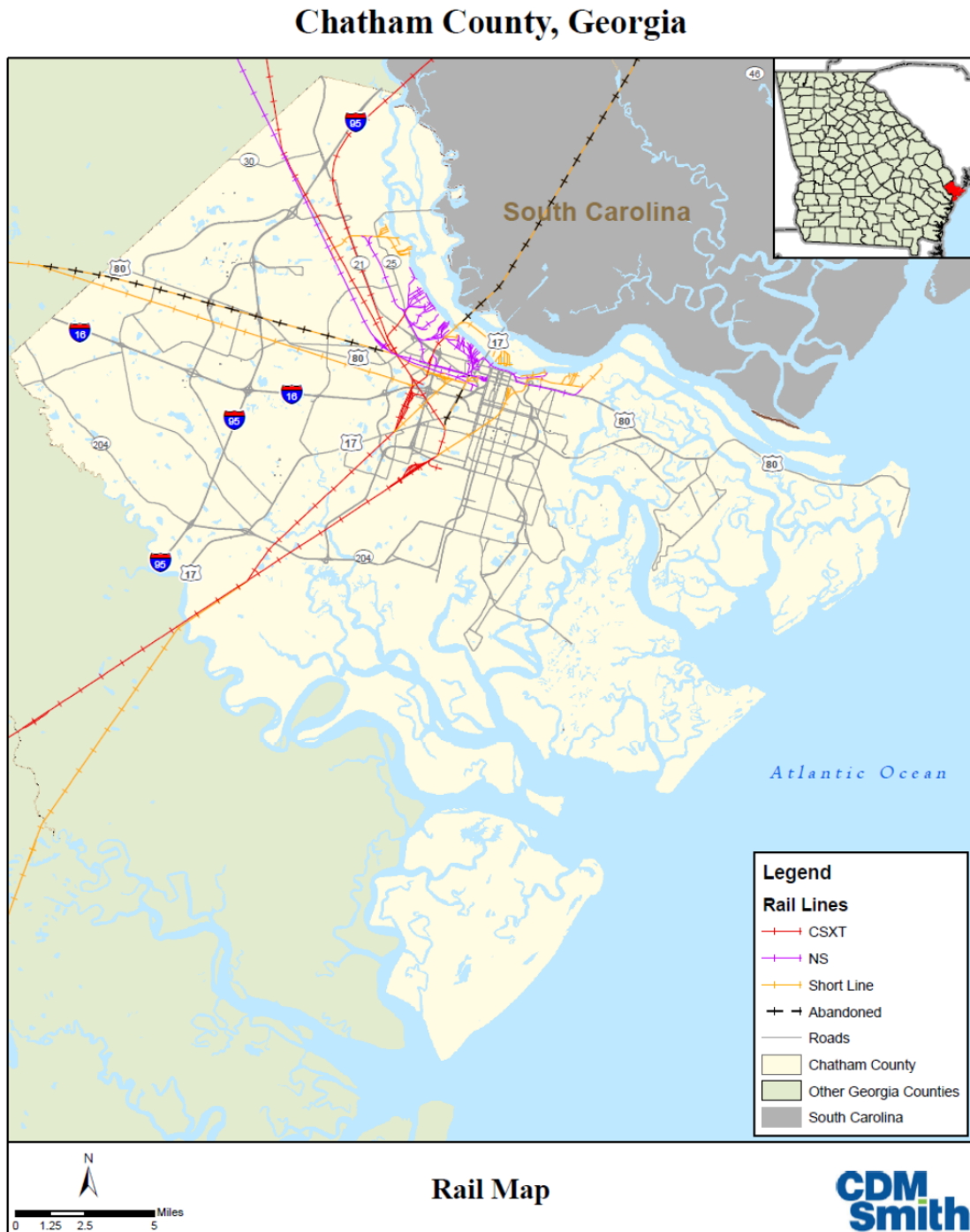
Source: www.nscorp.com, www.csx.com, February 27, 2013

¹³ <https://www.aar.org/keyissues/Documents/Background-Papers/Overview-US-Freight-RRs.pdf>, February 13, 2103

¹⁴ American Association of Railroads classification, railroad with revenues in excess of \$378 million

The CSX line provides north and south directional access to the county. NS only offers direct access to the north, see **Figure 2-6**.

Figure 2-6: Class I Railroads in Chatham County



Source: CDM Smith, INTAD

There are three significant bridges located on the rail system within the county, see **Figure 2-7**.

Figure 2-7: Significant Bridges Located on Rail Right of Way



Source: CDM Smith, INTAD

2.2.3.2 Short Line or Class III

The other classification of railroads in operation within the county is Short Line or Class III. There are three separate operating entities owned by Genessee and Wyoming Inc. Headquarters located in Greenwich, Connecticut, the GWI owns and operates numerous short line railroads across North America, in Australia, the Netherlands and Belgium. These individual operations support goods movement at 23 ports in North America, Australia, and Europe.¹⁵ The three within Chatham County are:

- Savannah Port Terminal Railroad, Inc. (SAPT)
- Golden Isles Terminal Railroad (GITM)
- Georgia Central Railway, LP (GC)

The SAPT was purchased by GWI in 1998 and operates 18 miles. This line is purposed to serve the Georgia Ports Authority and interchanges with both Class I's.¹⁶

The GITM, also purchased by GWI in 1998, operates 13 miles. As with the SAPT, the line services the Georgia Ports Authority and interchanges with the NS and CSX.¹⁷ The GITM and SAPT note transported commodities types of automobile, chemicals, and food-feed products.

The GC, acquired by GWI in 2005, is significantly longer operating railroad at 171 miles. This line operates between Savannah and Macon Georgia and interchanges with both Class I's and the short line, Heart of Georgia. Commodity types include coal, chemicals, farm and food products, forest products, minerals and stone, plastics, and pulp and paper products.¹⁸

2.2.4 Water

Ocean and inland water transport provide access to markets overseas and a low cost solution via barge and short sea shipping around the state and continent. With the globalization of the supply chain over the previous decades, the ability to transport materials and goods between continents has flourished. This movement is characterized by the increasing utilization of containerization. With this method as a standard, intermodal connectivity between ocean and landside transport eases cost and increases speed across the entire supply chain. The use of inland waterway and short sea shipping, a transport method having been in decline within the U.S., has experienced a minor renaissance with recent innovations and capital investment. Though continuing declines in investment in maintenance occur, e.g. Savannah River depths from Savannah to Augusta, other regions have experienced increasing use of waterways once the sole means of goods transport e.g. Mississippi, Alabama.

The Federal Navigation Channel provides deep draft vessel passage from the ocean trade routes to the Port of Savannah. Current navigable depths provide 42 feet at mean low tide.

¹⁵ http://www.gwrr.com/about_us, February 13, 2013

¹⁶ http://www.gwrr.com/operations/railroads/north_america/savannah_port_terminal_railroad, February 13, 2013

¹⁷ http://www.gwrr.com/operations/railroads/north_america/golden_isles_terminal_railroad, February 13, 2013

¹⁸ http://www.gwrr.com/operations/railroads/north_america/georgia_central_railway, February 13, 2013

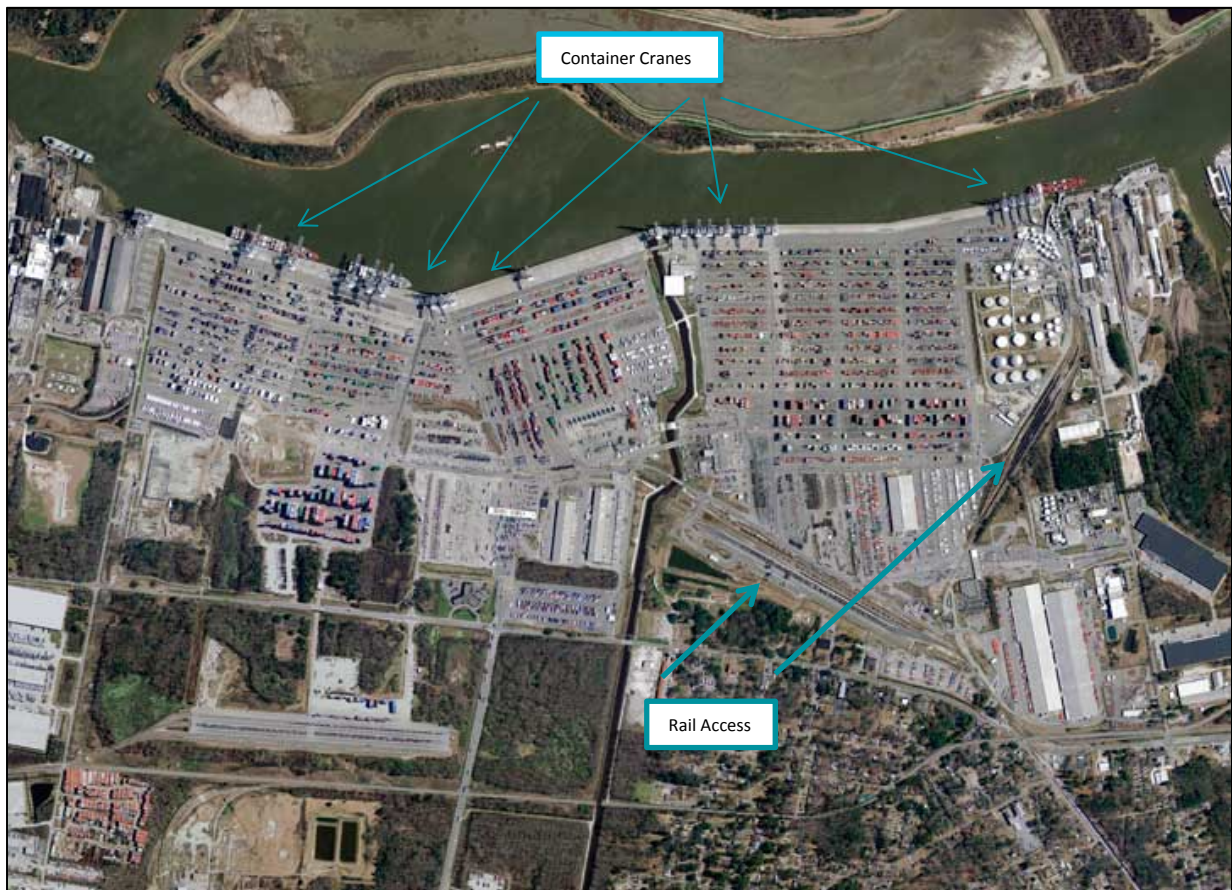
2.2.4.1 Port of Savannah

The Port of Savannah handles multiple commodity types through employment of Ro-Ro [roll-on, roll-off], breakbulk, container, and reefer [refrigerated] operations. Two terminal locations perform these services; Garden City and Ocean Terminals. Each are owned and operated by the Georgia Ports Authority.

Garden City Terminal

The Garden City Terminal is the newer of the two facilities offering container services across 486 acres, see **Figure 2-8**. This is the fourth largest container port in the U.S. by size.

Figure 2-8: Garden City Terminal, Aerial View



Source: www.gaports.com, February 13, 2013

Channel width is 500 feet to a depth of 42 feet. Future dredging operations are planned to deepen the channel to 48 feet. Specific characteristics of the terminal include¹⁹:

- Eleven berths
 - Nine for container operations. Five have a depth of 42 feet, with the remaining four approximately 48 feet.
 - Two are for liquid bulk cargo

¹⁹ http://www.worldportsource.com/ports/commerce/USA_GA_Port_of_Savannah_320.php, February 13, 2013

- Warehousing space is over 11 acres
 - 3,378 of on terminal and side warehouse rail sidings
 - 852 outlets for refrigerated container plug-in
- Outdoor, paved container storage space of over 175 acres
- Thirty-seven interchange lanes with 25 pre-check lanes at three gates
 - Specific lanes are equipped with scales, over-height sensing devices
 - Gate Operations²⁰:
 - Operating Hours Gate 3
0700 -1800 Monday, Tuesday, Wednesday and Thursday
(Cut-off for Pick-up 1630, Drop-off 1700)
(Cut-off for Reefer Services 1615)
(Perimeter inbound gates should close at 1700)

0700 – 1700 Friday
(Cut-off for Pick-up 1630, Drop-off 1700)
(Cut-off for Reefer Services 1615)
(Perimeter inbound gates should close at 1700)
 - Operating Hours Gate 4
0700 -1800 Monday through Friday
(Cut-off for Pick-up 1630, Drop-off 1700)
(Cut-off for Reefer Services 1615)
(Perimeter inbound gates should close at 1700)

0800 – 1200 x 1300 - 1700 Saturday
(Cut-off for Pick-up 1600, Drop-off 1630)
(Reefer Services MUST BE AUTHORIZED by the Line)
(Perimeter inbound gates should close at 1630)
 - Operating Rules:
Gates 3, and 4 are for Containerized transactions only
Commercial Vans and loose freight should be directed to Gates 1 or 5
Bob-tail Trucks should enter through Gate 1 or Gate 5 and proceed to the Internal Kiosk for Pick-up Ticket processing
Bob-tail Trucks should exit through Gate 1 or Gate 5
- Container crane equipment
 - Five have 16 container reach lengths and 48.1 metric ton lift capacity
 - Six have 18 container reach and 71 metric ton left
 - Eleven have 22 container reach and 71 metric ton lift
- Current capacity for the terminal is 2.6 million TEU [Twenty Foot Equivalencies]
- Intermodal Container Facility has unrestricted double stack

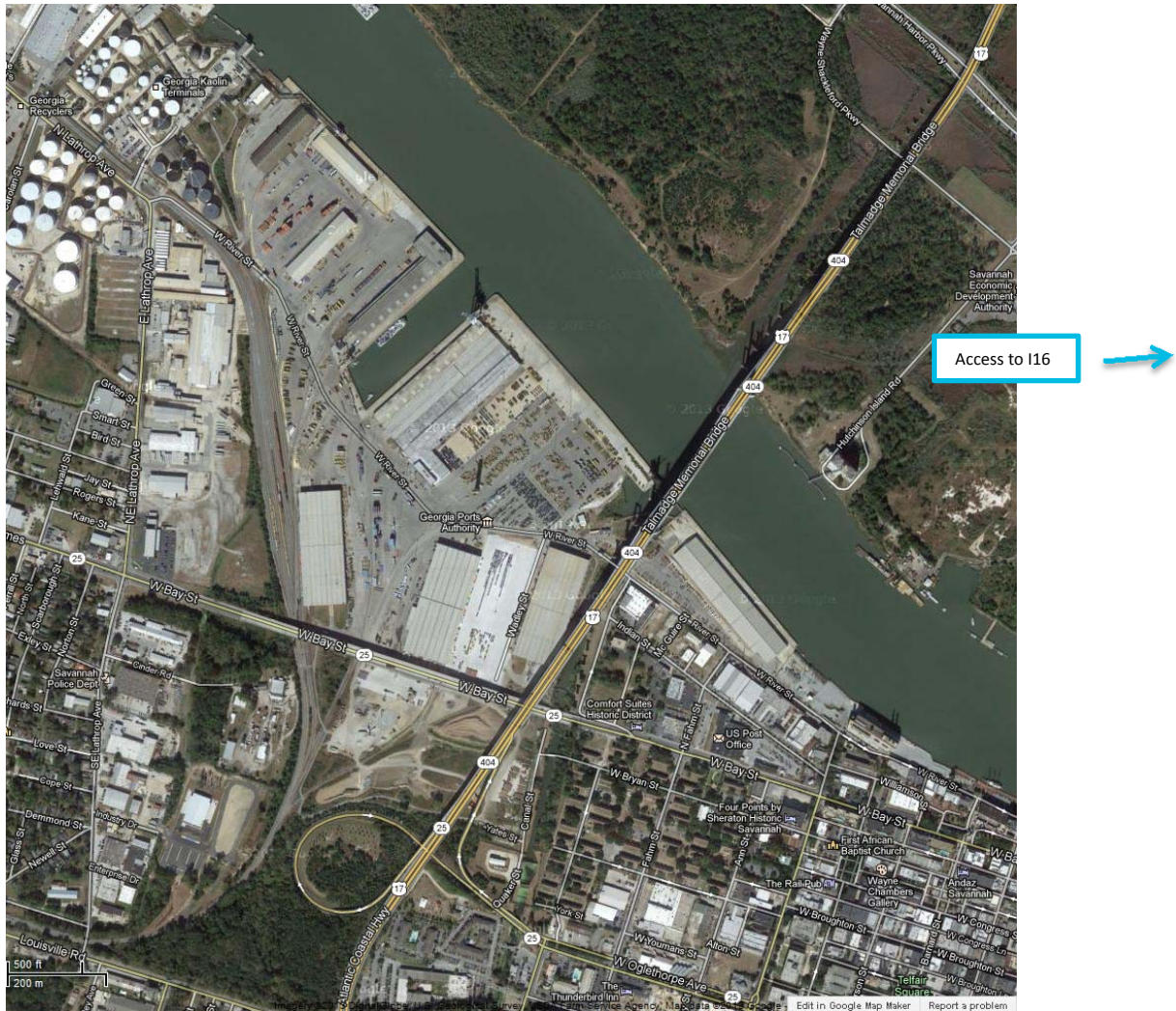
²⁰ <http://www.gaports.com/Default.aspx?tabid=122>, February 13, 2013

- Serviced by Norfolk Southern and CSX
- Immediate access to I-95 and I-16

Ocean Terminal

The Ocean terminal provides breakbulk and Ro-Ro services, see **Figure 2-9**.

Figure 2-9: Ocean Terminal, Aerial View



Source: www.google.com, March, 28, 2013

Operational highlights include:

- Ten berths
- 139,000 square meters of covered storage
 - Side warehouse rail sidings
- Over 34 acres of open storage
- Crane equipment
 - Two gantry cranes
 - One container crane

- Two intermodal container transfer facilities
 - Mason ICTF has six working rail tracks and three storage tracks
 - Chatham ICTF has three working and one storage
- Has access to I-95 and I-16

2.2.4.2 Port Wentworth

Port Wentworth is located 3.3 nautical miles north of the Garden City Terminal on the Savannah River, see **Figure 2-10**.

One of six paper mill locations for the Weyerhaeuser Company is located in Chatham County. The mill produces bleached pulp for paper products. Convenient to the Port of Savannah, the site includes the Smurfit-Stone Container Corporation’s Port Wentworth Mill Wharf. Rail lines are present which connect to the Norfolk Southern line. A 460 by 225 foot warehouse exists for storage. One berth is present with a depth of 30 feet.

2.2.5 Air

Air cargo consists of mail products and freight commodities. There are numerous entities which are participants in this mode, e.g. freight forwarders, deferred air carriers. The physical carriage of goods in this mode occurs on dedicated, cargo configured aircraft or in the “belly” or luggage compartments of passenger aircraft. With the transition to regional jets to service smaller markets, e.g. Savannah, major airlines and their regional partners have reduced the overall available space for air cargo. Increased requirements to satisfy elevated security for this cargo type has also decreased the amount of cargo by limiting the number of acceptable shippers at smaller airports. This reduction has shifted cargo to other modes or to consolidator or forwarders who transport these shipments to larger airports via ground transportation. A third factor in the reduction of air cargo volumes are economic conditions. As the asset costs, e.g. aircraft, fuel,

Figure 2-10: Port Wentworth, Aerial View



Source: www.google.com, February 13, 2013

terminals, outweigh those of other modes, the cost to shippers is extremely high. As economic pressures influence transportation budgets, many former air customers shift to less costly but slower transportation modes by modifying the needs of their individual supply chains.

Of the three airports located within the county, see **Figure 2-11**, only the Savannah-Hilton Head International Airport handles sufficient volumes of air cargo for analysis.

Figure 2-11: Airports Located within Chatham County

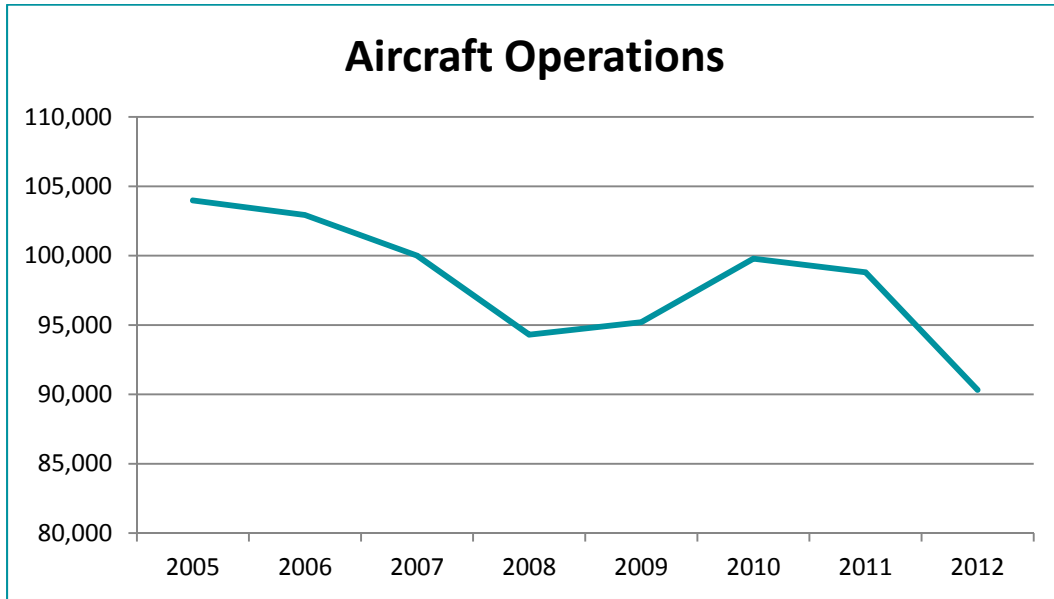


Source: CDM Smith, www.fltplan.com February 27, 2013

2.2.5.1 Savannah-Hilton Head International (SAV)

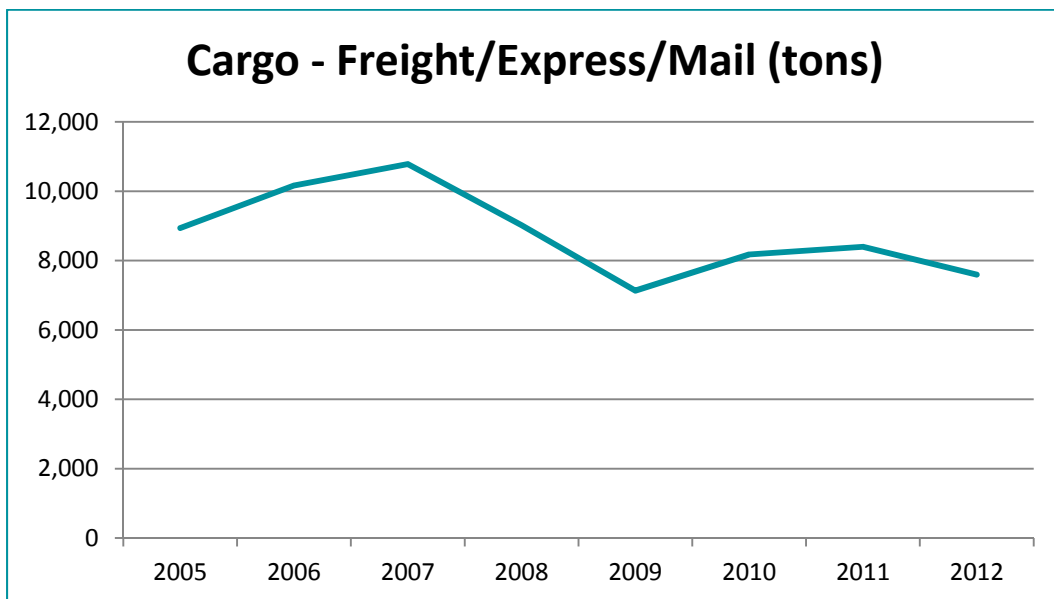
The Savannah-Hilton Head international Airport services a growing number of passenger and cargo interests for individuals in Georgia and South Carolina. One of three identified airports within the state handling measureable air cargo, SAV has experienced a decrease in aircraft traffic. The use of the airport for cargo transport has stabilized, see **Figures 2-12** and 2-13.

Figure 2-12: SAV Aircraft Traffic Counts, 2005-2012



Source: <http://savannahairport.com/>, February 14, 2013

Figure 2-13: SAV Air Cargo Traffic, Freight-Mail-Express, 2005-2012 (tons)



Source: <http://savannahairport.com/>, February 14, 2013

SAV operates with two active runways, four designations, with one at 7,002 feet and a second at 9,351 feet. Designating air cargo capacities, based on runway lengths, does not provide sufficient information to identify aircraft types and cargo volumes. These are subject to additional factors of mean air temperature, altitude, aircraft weight (empty and loaded), and other performance based metrics.

Figure 2-14 is a dimensional and aerial view of the airport, illustrating runway orientation and the location of support buildings.

Figure 2-14: Savannah-Hilton Head International, Dimensional Drawing and Aerial View



Source: www.ftplan.com, February 13, 2013

In addition to commercial service by four major airlines, American Eagle, Delta, United, and US Airways, a number of aircraft are based at this airport for business and personal use. The number of aircraft by type is listed in **Table 2-2**.

Table 2-2: SAV Based Aircraft, Not Airline Owned

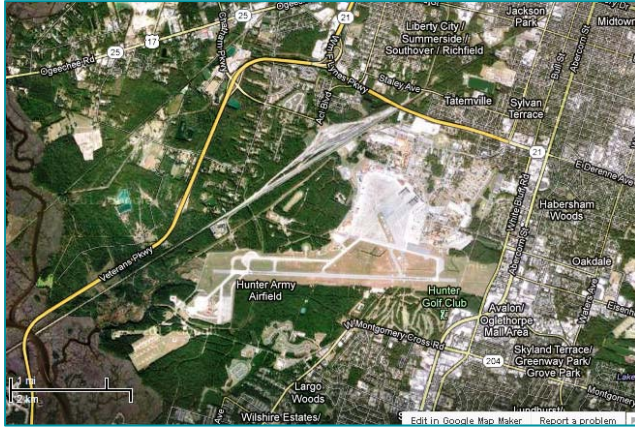
Aircraft based on Field	
General Aviation Singles	79
General Aviation Multi	19
Jet Aircraft	11
General Aviation Helicopters	8
Military Aircraft	8
Gliders	0
Ultralights	0

Source: www.ftplan.com, February 27, 2013

2.2.5.2 Hunter AAF (SVN)

A private U.S. Army Air Field, Hunter AAF, see **Figure 2-15**, has one asphalt runway of 11,375 feet in length. This is a restricted field with no commercial air service.

Figure 2-15: Hunter AAF, Aerial View

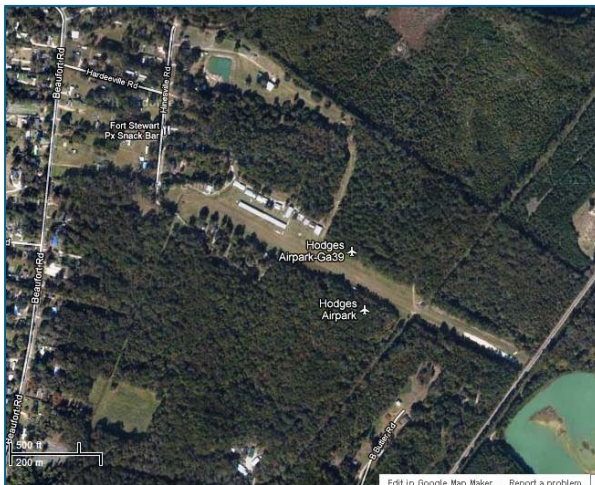


Source: www.google.com, February 13, 2013

2.2.5.3 Hodges Air Park (GA39)

A privately owned airfield, Hodges Air Park, 500 Hinesville Drive, Savannah GA, see **Figure 2-16**, has one turf surfaced runway of 2,640 feet in length. There are no tower, repair or service facilities. As of January 1, 2013, there were 18 general aviation single engine aircraft, one multi engine, and one ultralight based at this location. There is not commercial service available.

Figure 2-16: Hodges Air Park, Aerial View



Source: www.google.com, February 13, 2013

2.3 Freight Generators

The need for modal availability and access are determined by the presence of local freight generators and driven by their specific supply chain needs. These generators are comprised of the various types of businesses which could be present in a region. These businesses in turn can be categorized within business sectors, each reflecting a particular commodity, production volume;

customer designated service or coverage area, and cost structure. All of these considerations contribute to the modal preference present in their supply chains.

Supply chain modal needs vary with the commodity type. In illustration, a business sector catering to the high technology field, e.g. computers, medical devices, will be influenced by the high value of their inbound parts and outbound finished goods. That all or part of these have very high carrying costs or have the capacity to capture a large percentage of a company's cash holdings until the product is sold, speed and reliability of transportation becomes a dominant concern. The servicing transportation mode in this instance may be air cargo, where high levels of reliability and speed are the dominant characteristics, when compared to other modes.

Recognizing the need to associate modal availability and access with business sector supply chain needs, this section will identify the significant freight generators within the county. These generators are categorized within five business sectors; Distribution, Government, Healthcare, Manufacturing, and International²¹. **Figure 2-17** illustrates those identified generators across all five sectors. Each sector will be discussed in detail in subsequent sections.

2.3.1 Freight Generators by Sector

2.3.1.1 Distribution

Inclusive of several distinct categories, the distribution sector is generally defined as including finished goods warehouses, parts or sub-assembly distribution centers, and transload facilities. This latter category exists to transfer goods between ocean going containers and the other modes equipment, e.g. trailers, aircraft cargo containers. Transloading capacity will continue to increase in coastal areas as container owners restrict inland transport of the physical container to locations immediately adjacent to the port.

There are nine companies operating distribution facilities in the county with employee counts of over 100 as reported in October 2011²². These companies are listed in **Table 2-3** and their locations in **Figure 2-18**. Many of these locations are between the port and the interstate facilitating access to other markets.

Table 2-3: Distribution Companies with 100+ Employees

Company	Product/Service	Employment
The Home Depot	Home improvement supplies	440
Dollar Tree Stores	Assundry product distribution	229
Coca-Cola Bottling Company United	Soft drink/water bottling warehouse	211
Target	Assundry import center	160
Pier 1 Imports	Household goods	150
Schneider	Warehousing, distribution, export packaging	150
CalCartage	Warehousing for K-Mart	140
Chatham Steel Corporation	Steel service center	120
IKEA Wholesale Inc.	Furniture distribution	100

Source: CDM Smith, www.seda.org, February 27, 2013

²¹ <http://www.seda.org/savannah/4/industries-companies.html>, February 14, 2013

²² <http://www.seda.org/savannah/40/port-related-distribution.html>, February 14, 2013

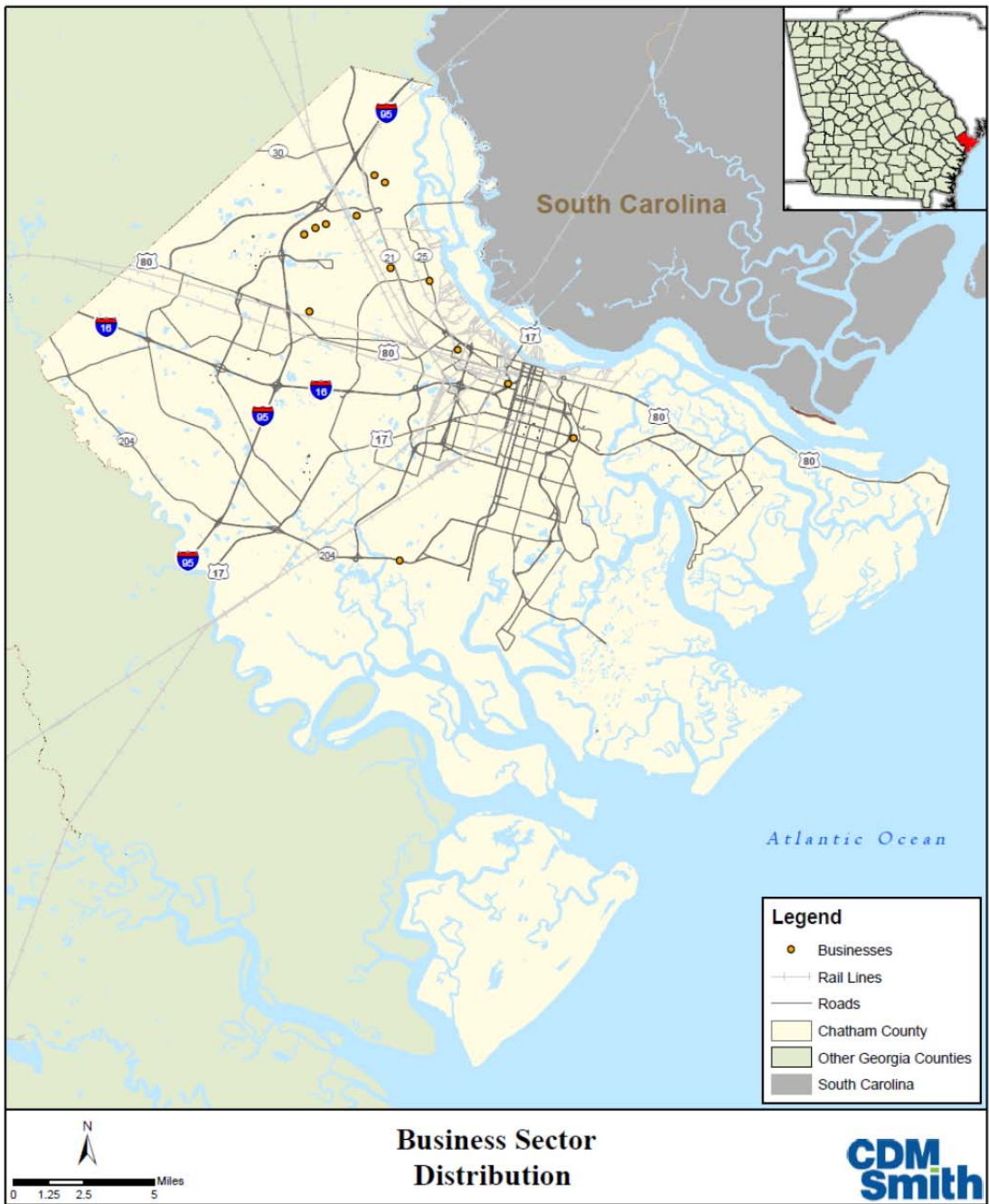
Figure 2-17: Freight Generators, by Location and All Business Sectors, Chatham County



Source: CDM Smith, www.seda.org, February 27, 2013

Figure 2-18: Distribution Locations

Chatham County, Georgia



Source: CDM Smith, www.seda.org, February 27, 2013

2.3.1.2 Government and Military

Government, more specifically educational facilities, and military installations generate a significant volume of goods on an inbound and outbound level. Text books, general supplies for schools and the variety of goods, e.g. food products to military hardware, are necessary to sustain operations on a daily and annual basis.

Significant employers, with employment counts of 500 or more, are listed in **Table 2-4** and identified by specific or “central office” location in **Figure 2-19**.

Table 2-4: Government/Military Organizations with More than 500 employees

Company	Product/Service	Employment
Ft. Stewart/Hunter Army Airfield	Civilian personnel	4,719
Savannah-Chatham County Board of Education	Public schools	4,600
City of Savannah	Government	2,500
Savannah College of Art & Design	Education	1,750
Chatham County	Government	1,500
Georgia Ports Authority	Ship terminal operation	973
Armstrong Atlantic State University	Education	613
US Army Corp of Engineers	Civil Engineering	600
Savannah State University	Education	527

Source: CDM Smith, www.seda.org, February 27, 2013

2.3.1.3 Healthcare

Large healthcare centers require a small to medium volumes of goods on a continuous and regular basis. These generators do not generally employ large vehicles or transport methods. Though this is the case, the continuous flow of goods and the immediate need of many of those trips require consideration in a discussion of freight transportation systems.

Significant employers are listed in **Table 2-5** and identified by specific location in **Figure 2-20**.

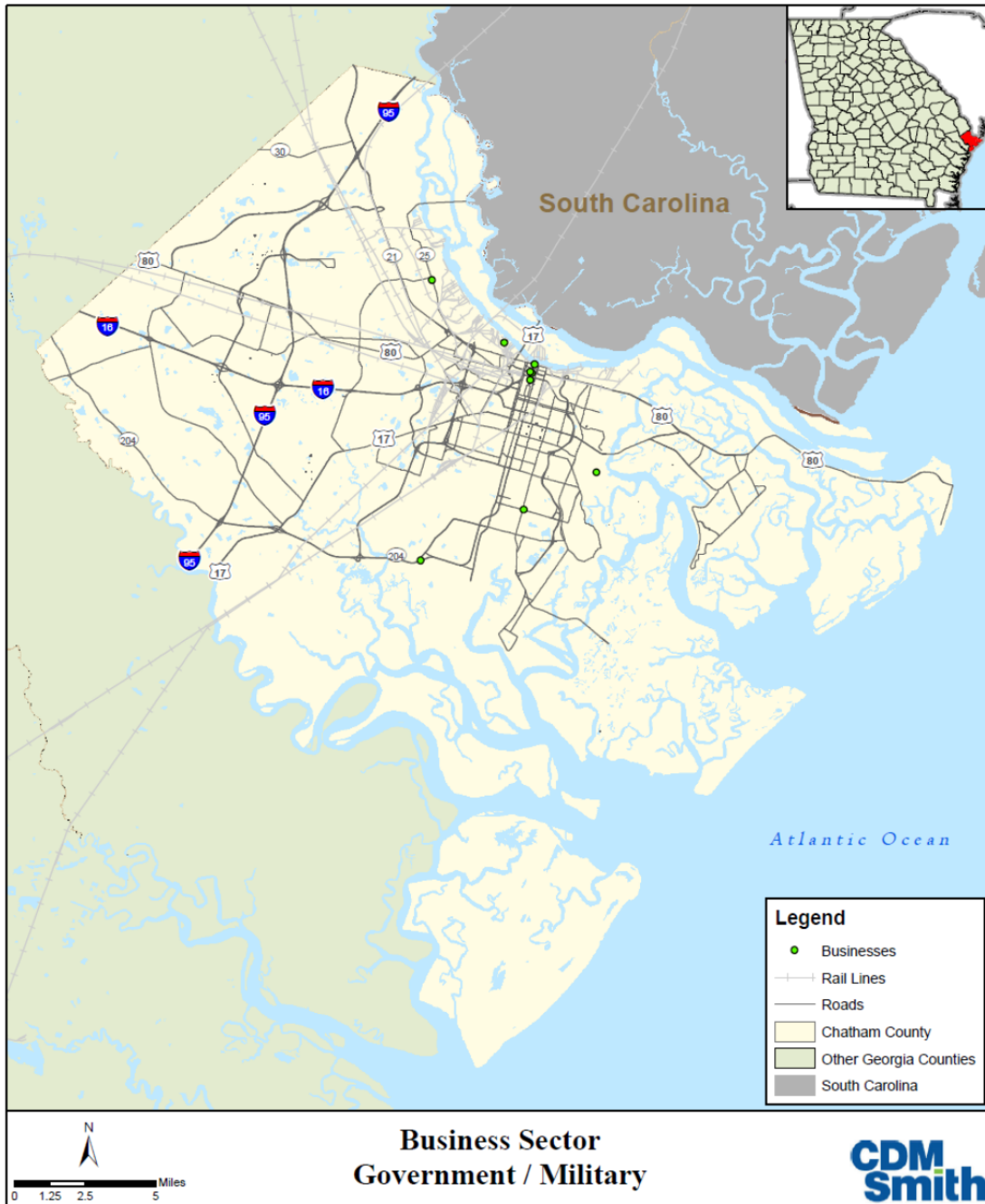
Table 2-5: Significant Healthcare Employers

Company
Memorial Health University Medical Center
St Joseph Hospital Campus
Candler Hospital Campus

Source: CDM Smith, www.seda.org, February 27, 2013

Figure 2-19: Government and Military by Location

Chatham County, Georgia



Source: CDM Smith, www.seda.org, February 27, 2013

Figure 2-20: Healthcare Locations



Source: CDM Smith, www.seda.org, February 27, 2013

2.3.1.4 International

The increasing importance of international business in the local economy generates the need for goods from professional sustainment, e.g. office supplies, to the potential for import-export activities. As this sector continues to increase, identification of those freight generators is germane to a continuing effort of analysis.

Significant employers are listed in **Table 2-6** and identified by specific location in **Figure 2-21**.

Table 2-6: Significant International Employers

COMPANY	Country	Description
BASF	Germany	Chemical- Manufacturer
Coby Electronics	China	Electronics - Warehousing
DIRTT	Canada	Movable internal walls- Manufacturer
Douglas Brothers of Georgia	Canada	Fabricated Structural Metal Manufacturer
EFACEC	Portugal	Power Transformer - Manufacturer
EMD Chemicals	Germany	Chemical- Manufacturer
Fuji Vegetable Oil Co.	Japan	Vegetable Oil Manufacturer
IKEA	Sweden	Commodity & Merchandise- Warehousing
JCB, Inc.	UK	Excavating Equipment- Manufacturer
Kerry Ingredients & Flavours	Ireland	Food Processing
Lummus Corporation	Switzerland	Cotton Ginning Equipment- Manufacturer
Maersk Sealand	Denmark	Public Finance Activities
Mitsubishi Power Systems	Japan	Gas Turbine Manufacturer
Mitsui-Soko	Japan	Electronics - Warehousing
Nippon Express USA, Inc.	Japan	Freight Forwarding
Noritake Co., Inc.	Japan	Warehousing & Storage
Oracal USA	Germany	Adhesive Film - Manufacturer
Vopak	Netherlands	Public warehousing
Wallenius Wilhelmsen Logistics	Norway	Transportation and Logistics

Source: CDM Smith, www.seda.org, February 27, 2013

Figure 2-21: International Business Locations



Source: CDM Smith, www.seda.org, February 27, 2013

2.3.1.5 Manufacturing

From light to heavy industrial and manufacturing activities, this sector represents the traditional freight generator. This sector has the potential to span the entire supply chain from raw materials, through sub-assembly, to final assembly or product manufacturing. There are twenty identified organizations in this sector with an employee count exceeding 100, as reported in October 2011²³.

Significant employers are listed in **Table 2-7** and identified by specific location in **Figure 2-23**.

Table 2-7: Manufacturing Employers with Greater than 100 Employees

COMPANY	Product/Service	Employment
Gulfstream Aerospace Corporation (Direct & Contract Workers)	Jet aircraft, aerospace equipment	8,406
International Paper	Paper products, chemicals, corrugated containers	650
JCB Americas, Inc.	Construction equipment	558
Imperial Sugar	Refined Sugar	450
Brasseler USA, Inc.	Dental Instruments	400
Mitsubishi Power Systems Americas, Inc.	Gas turbines and steam turbines used by power plant	315
Weyerhaeuser	Bleached pulp	300
Derst Baking Company	Bread, rolls, cakes	275
Diamond Crystal Brand	Salt, Pepper, Sugar Packaging	250
Roger Wood Foods	Smoked sausage and meats	220
Kerry Ingredients & Flavours	Formulation, manufacture, & containerization of technology-based ingredients, flavors & integrated solutions	200
Savannah Morning News	Information company - paper and pixels	200
Arizona Chemical	Specialty Resins & pine-based chemicals	175
EMD Chemical	Industrial Pigments	154
Oracal, USA	Adhesive film	137
Coastal Concrete SE, LLC	Ready mix concrete	125
Intercat	Catalyst production	120
GAF Materials Corporation	Residential and commercial rolled roof manufacturer	113
Fuji Vegetable Oil, Inc.	Cooking Oils	105
DIRTT Environmental Solutions	Modular internal walls for residential, commercial and industrial buildings	100

Source: CDM Smith, www.seda.org, February 27, 2013

²³ <http://www.seda.org/savannah/40/port-related-manufacturing.html>, February 14, 2013

Figure 2-22: Manufacturing Locations



Source: CDM Smith, www.seda.org, February 27, 2013

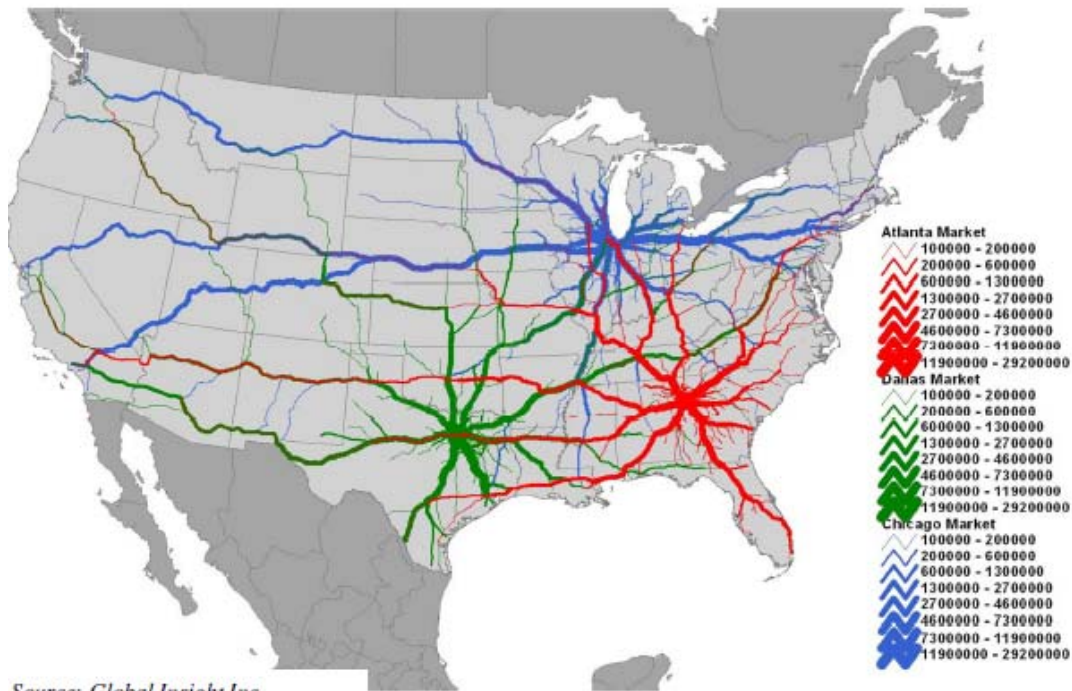
2.4 Significant Attractions

With the presence of the Port of Savannah, the largest port complex in the state, the county experiences goods movement related to other locations and regions throughout the state and nation. Unlike other counties where significant percentages of the goods movement across all modes is tied to local production, distribution, or consumption, the freight transportation system in Chatham County is subject, in significant measure, to the demands of other areas. The single largest influence on goods movement for the county is the Atlanta Metropolitan Region.

2.4.1 Atlanta Metropolitan Region

The City of Atlanta and the surrounding metropolitan area is a distribution hub for the southeast United States. The region surrounding the City of Atlanta has historically been a central hub or location for many trade routes. From the city’s inception as a small settlement, *Terminus*, serving as the connecting point of two railroads, the region has grown to become one of three largest distribution markets in the U.S. **Figure 2-23** illustrates the volumes and travel directions for these markets.

Figure 2-23: Three Largest Distribution Markets in the U.S.; Atlanta, Chicago, Dallas-Ft Worth (2007)



Source: Global Insight Inc.

Source: CDM Smith

2.5 Freight Designated Routes

2.5.1 Federal and State Designations

Though no local route designations exist for the movement of goods within the county, e.g. designated truck route, federal and state designations do exist which may supersede any current or future prohibitions and influence future planning. These designations assign roadways specific responsibilities for the safe and efficient movements of freight by truck.

The Surface Transportation Assistance Act of 1982 designated a system of highways and one mile distance from those highways on other roadways, access for specific commercial vehicles. These CMV's are described as single unit up to 40 feet in length and combination vehicles up to 67 feet. This network, titled the National Network (NN), encompasses Interstates and majority of US Highways for a total of greater than 200,000 miles. Specific highways relevant to the county are:

- I-16
- I-95
- GA-21

CMV's of lesser overall lengths, e.g. combinations including trailers less than 48 feet in length, are authorized access on all state highways, within the state. An additional condition of access does exist for CMV's performing pick-ups and deliveries. Those CMV's have access to any roadway where a documented and specific need exists, e.g. a local road containing a location where a pick-up or delivery exists. The CMV is required to follow the shortest and safest route when exiting the NN or state highway system to reduce usage of non-designated roadways.

STRAHNET (Strategic Highway Network) is an additional federally designated network which describes CMV access. A total of 61,000 road miles, including the interstate system, designated to support movement of materials and persons for purposes of national defense.

2.6 Land Use Designation

While not specifically dictating the location of all activities requiring freight transportation, Land use designation practices and implementation does influence the planning process for access and potential needs. The conflict of freight activities, e.g. truck trips, warehousing and rail yard noise pollution, and community activities, e.g. schools, bicycle-pedestrian, and residential needs, may be mitigated in the freight planning process by understanding and potentially segregating these activities through land use designation. Planning for route designations between two freight generators, for truck trips, as an illustration, may be influenced by the presence of parcels designated for residential use.

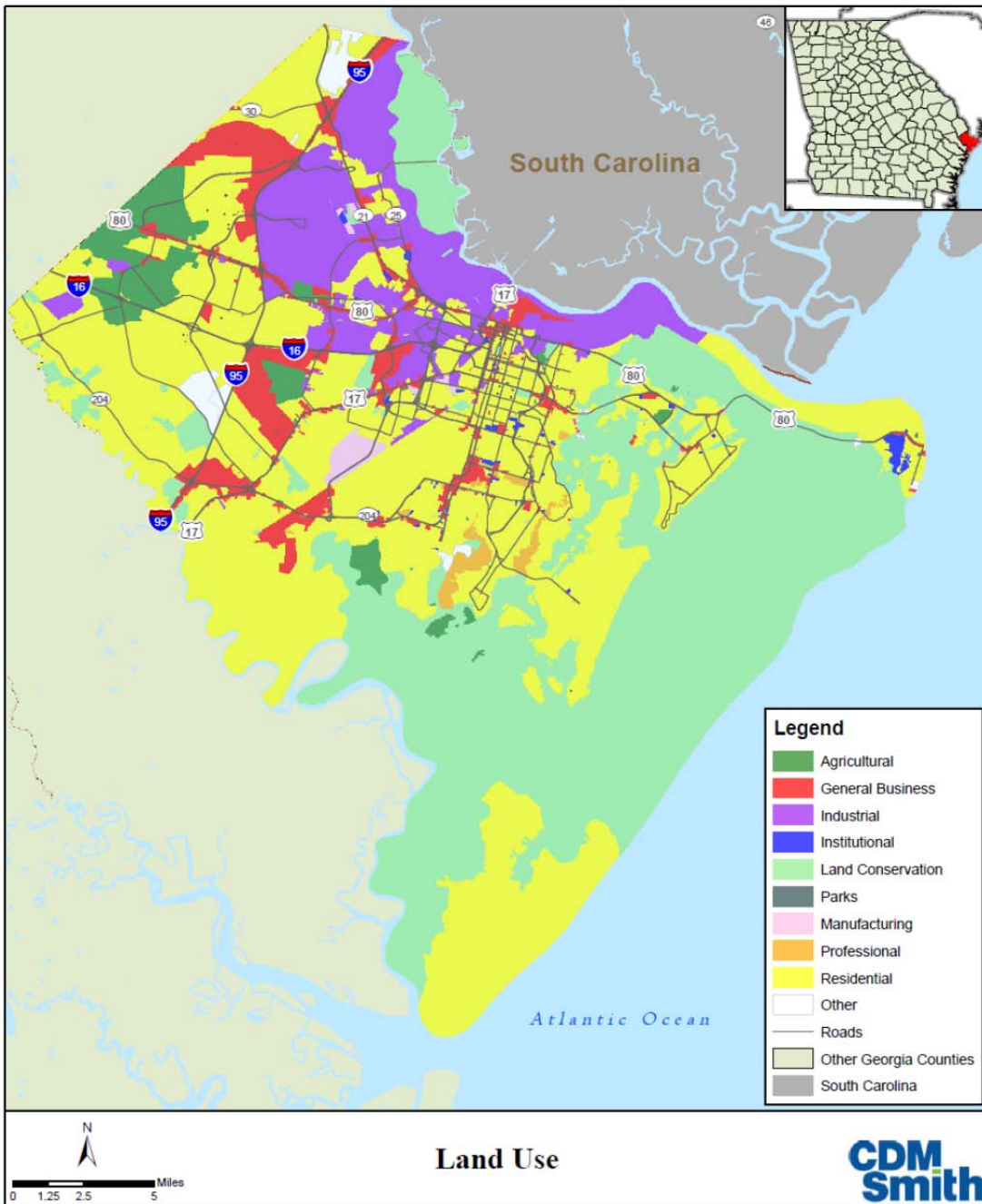
2.6.1 Current Land Use Designations

With numerous specific classifications present in the current Chatham County land use designation plan, an aggregation of common or like designations presents a tool for analysis in freight planning. The details underlying the aggregation are useful in continuing analysis.

Figure 2-25 illustrates the results of this aggregation.

Figure 2-24: Current Land Use Designation, Aggregated Classifications

Chatham County, Georgia



Source: CDM Smith, Chatham County-Savannah MPC

Section 3. Modal Usage and Flow

To produce a meaningful description of goods movement, without the availability of commodity flow data at a sufficient level of granularity, a depiction of the “whys” of modal usage with a description of known commodity flow will be provided. The product may be used in furthering discussions with public and private sector participants, of the freight community, in developing a more complete analysis urban freight movement needs and forecast.

This section will develop a modal usage narrative, accompanied with readily available, commodity flow information. The five primary modes will be explored:

- Highway
- Railroad
- Water
- Air
- Pipeline

3.1 Sources

The existing studies, plans, and databases used to produce this memorandum include:

- *Georgia Freight and Logistics Plan*, GDOT (2011)
- *Georgia in Perspective*, Governor’s Office of Budget and Planning (2013)
- World Port Source, www.worldportsource.com
- Georgia Ports Authority, www.gaports.com
- FltPlan, www.fltplan.com
- Savannah-Hilton Head International Airport website, www.savannahairport.com

3.2 Content Organization

This portion of the report is comprised of five sections:

- 2.3 Introduction to Modal Usage and Selection
- 2.4 Water Flow Data
- 2.5 Rail Flow Data
- 2.6 Highway Flow Data
- 2.7 Air Flow Data

3.3 Modal Usage

3.3.1 Modal Selection Criteria

Modal usage is determined by an evaluation of six criteria. Each criterion describes a condition which can be unique to the particular commodity, supply chain, or business model. The six criteria are compared to the needs of a specific movement within a complete supply chain. In satisfying these six criteria, modes are chosen and may be selected as a “chain” or combination of modal selections. This latter selection, “multi-modal”, encompasses a significant percentage of movements for Chatham County, to be described.

The six criteria are:

- **Transport Times**
 - Movement of materials and/or goods from one point to another within the supply chain. This may encompass raw materials to refinement, refinement to manufacturing, manufacturing to distribution, and distribution to consumer.
 - Key note: This may not always result in a selection of the fastest as other factors influence the relevant need for speed of movement.
- **Reliability**
 - Degree of predictability that the stated transport time will be adhered to when the materials or goods are shipped
 - Key note: Acceptance of known and predictable delays, e.g. rush hour congestion for truck movement in a major metropolitan area, may not be viewed as a disqualifier where the delay can be predicted and planned.
- **Cost**
 - Taken into consideration with the previous two criteria, this heavily influences modal selection
 - Transportation cost must not place an inordinate burden on the final cost of the product. Transportation may impart a cost on the final price of the product sufficient to render the goods non-competitive to another supplier offering.
- **Capacity**
 - Mode should meet the need to transport sufficient quantities
 - Ability to transport quantities at an acceptable price per weight or volume measurement
- **Safety**
 - Stewardship to other occupants of the mode. This may be to adjacent shipments or passengers traveling on the same mode.
 - Provide damage-free, good condition receipt of materials or goods transported
- **Accessibility**
 - Availability of the mode to the shipper and receiver
 - Connecting mode, e.g. rail to the port, is available at a reasonable cost

3.3.2 Modal Overview

The practical application of these six criteria can be viewed as two stages: Assessment and Application.

In the Assessment stage, Safety and Accessibility may be used to accept or reject a mode for further consideration. Is the mode capable of safely transporting the commodity? Hazardous materials or oversize-project freight, e.g. windmill assemblies, may not be handled by all modes. Is the mode available in a meaningful manner? All modes may be available yet must be reasonably located and accessible for the movement of the commodity. A railroad may be located three hours by truck, in the opposite direction of the final destination. The overall truck transit time from origin to destination is six hours. This may render the railroad as “out of route” or circuitous. This may negatively impact the necessary transit times and required cost needs of the supply chain.

Table 3-1 illustrates the generally accepted cost, reliability, and relevant transit time of each mode.

Table 3-1: Modal Comparisons by Selection Criteria

Transit	FAST	--			SLOW
Mode	AIR	TRUCK	RAIL	WATER	PIPELINE
Cost (\$/lb)*	>\$1.00	\$0.10 - \$0.03		\$0.01 - \$0.005	< \$0.005
Reliability	Higher	Variable		Lower	Higher
Freight Profile	Low Weight, High Value, High Time Sensitive, High Inventory Cost	Broad Range of Weight, Value, Sensitivity, and Inventory Cost		High Weight, Lower Value, Low Time Sensitivity, Low Inventory Cost	Variable characteristics associated with the specialized nature of the commodity

*Cost for comparison only. Actual costs may vary.²⁴

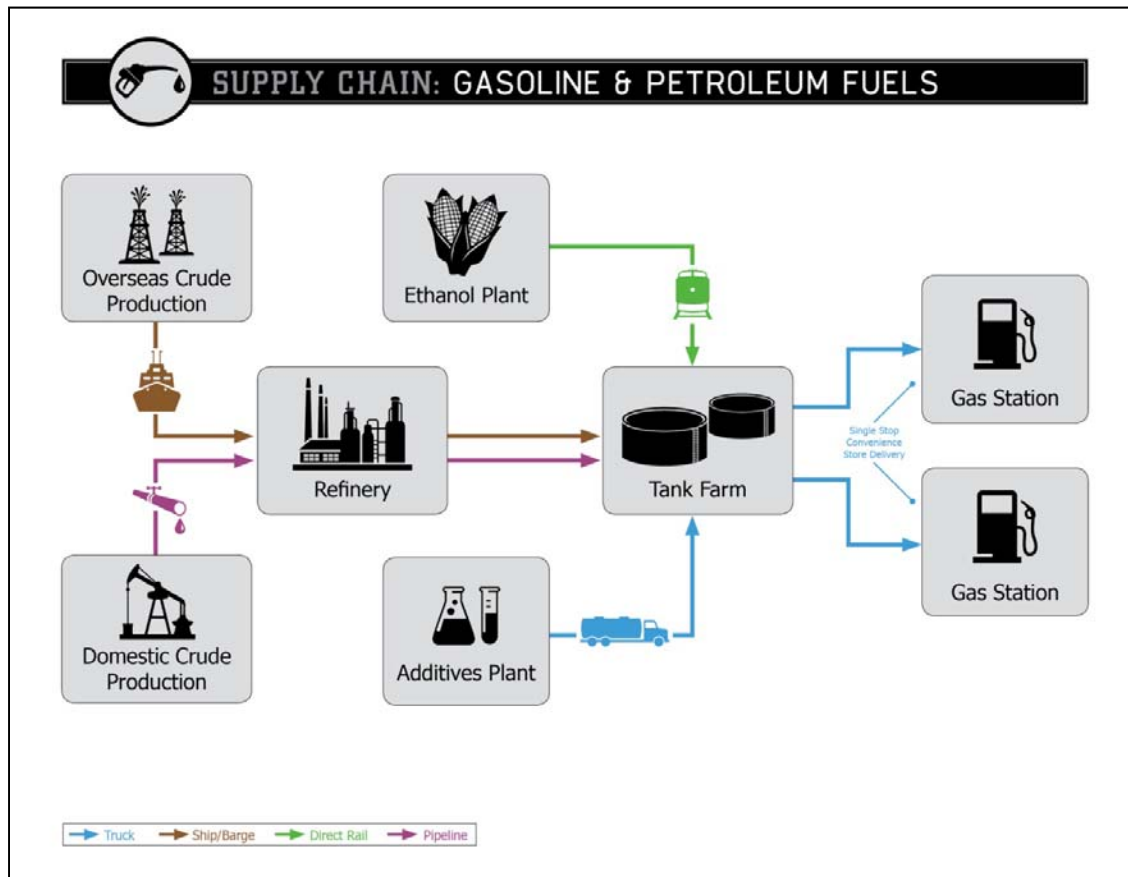
Once this assessment takes place for the region, the application of the criteria can describe the type or profile of the freight most likely to employ the mode. This becomes the fundamental planning criteria for transportation facilities enhancing freight mobility. Not only does this identify needed facilities but supports the prevention of planning and designing for unnecessary transportation facilities or facilities not appropriate to support the local freight needs.

3.3.3 Case Study of Modal Selection and Usage

The global gasoline and petroleum supply chain is representative of the general modal selections associated with the Port of Savannah. This sector can be concisely traced from origin to final distribution location, where the end user intersects with the supply chain. The entire process is illustrated in **Figure 3-1**. As consumption can be expected to exist at predictable levels, this process follows one of “push” methodology with elements of “pull” modifying the general production levels.

²⁴ Movement costs incurred by shippers and receivers are subject to individual transportation carriers tariff, discounting practices, and bias. Cost as presented are typical representations to express the relative costs between the modes.

Figure 3-1: Case Study, Gasoline and Petroleum Supply Chain



Source: CDM Smith

The supply chain is subject to provider-supplier locations, both overseas and domestic sources. Foreign sources are transported by ocean tanker, which is an example of geographically limited modal choices or accessibility. Domestic sources, national and continental, gravitate to that mode which provides for reliable and cost efficient transport. Though rail and truck are available, this sector typically transports by pipeline. Pipeline presents the least potential for regular disruptions to supplies and satisfies the need to provide a steady source material for the continuous operation of the refinery. Water and pipeline modes continue beyond the refinery to provide product to various points for distribution across the country.

Stored in “tank farms”, the product requires an injection from two separate supply chains, which may or may not be subject to the supply chain decision making process guiding the overall modal selection process. As many grades of fuel are blended with ethanol, movement of large quantities of liquid products is necessary. Transported in bulk, requiring a low cost mode to carry high volumes, this is typically carried to the tank farms for mixing via rail. Other chemicals are required to raise the refined product to grades for commercial usage. These are not necessary in such large quantities as the ethanol additive, and may be co-located with the tank farm. To efficiently transport these additives, truck is the common selection. The quantities may be high volume, which may lend itself to rail, but these producers may not have direct rail access. “Final mile” or distribution to the point where the consumer is located, is from the tank farm or “rack” to

the local fueling station. Truck is the final mode to conclude this supply chain as the local gasoline station typically does not have access to other modes.

3.4 Waterborne

Described in Section 3, the Port of Savannah and the potential for Port Wentworth Mill Wharf contribute significantly to the flow of goods within Chatham County. Materials and goods movement take place in two distinct mode types: container and non-container. The latter consists of breakbulk, bulk, Ro-Ro (roll-on, roll-off, e.g. automobiles), and other shipment types which are not transported in the physical container.

Containerized goods have in recent decades gained dominance due to ease of conveyance, lowered costs in handling, and simplicity in cross modal transfer, e.g. water to rail, rail to truck. Garden City Terminal is designed as a containerized port facility with the Ocean Terminal having limited containerized services. Combined these two terminals have experienced dramatic growth in the number of TEUs. The TEU is the typical ocean borne container and is the standard measure equated to the capacity to transport goods within a twenty-foot container. Other container sizes include 40-foot for international and domestic movements. Fifty-three-foot containers have been introduced for domestic U.S. use.

3.4.1 Commodity Flows

Table 3-2 describes the increase in TEU’s for all terminals. TEU measures are divided into two categories: Full and Empty. A container carrying cargo is described as “full”. Those without cargo are “empty”. These distinctions are important as they further describe the concept of “balance”. Transport costs are significantly altered by the ability to carry goods in each direction of travel. A ship which transports more loaded containers out of a port than into received greater revenue in the loaded direction. Without a corresponding amount of revenue for transporting containers into the port, the vessel may increase the actual cost for goods being transported out of the port to compensate for the lack of revenue for entering the port.

Table 3-2: Port of Savannah, TEU Count for All Terminals, Combined

YEAR	TOTAL TEU	IMPORT		EXPORT FULL TEU	
		FULL TEU	EMPTY TEU	FULL TEU	EMPTY TEU
2012	2,966,221	1,088,291	295,822	1,250,172	331,936
2011	2,944,684	1,065,199	305,205	1,241,278	333,002
2010	2,825,185	1,051,258	285,254	1,149,217	339,456
2009	2,356,574	883,553	226,453	1,026,801	219,767
2008	2,616,162	1,073,263	152,984	1,082,940	306,975
2007	2,604,509	1,074,024	126,242	1,005,367	398,876
2006	2,160,218	866,189	97,892	964,081	413,691
2005	1,901,391	808,238	78,501	706,461	308,191
2004	1,663,136	679,215	84,574	649,516	249,835
2003	1,521,856	615,445	71,379	570,221	264,815

Source: Georgia Ports Authority, February 17, 2013,

<http://www.gaports.com/SalesandMarketing/MarketingBusinessDevelopment/GPABytheNumbers.aspx>

Commodity movements at the ports are containerized and non-containerized. The annual tonnage measure for each is noted in **Table 3-3**. Breakbulk and bulk are presented separately. Breakbulk goods are commodities which are packaged, e.g. palletized or boxed, but not containerized. Bulk commodities are goods which are not packaged, e.g. aggregates.

Table 3-3: Tonnage for All Terminals

YEAR	TOTAL CONTAINERIZED	NON-CONTAINERIZED		
		TOTAL	BREAKBULK	BULK
2012	22,484,176	4,100,610	2,539,854	1,560,754
2011	22,053,459	3,970,167	2,197,270	1,772,897
2010	20,506,902	3,781,887	1,596,624	2,185,263
2009	18,397,312	4,234,529	1,873,483	2,361,046
2008	20,459,317	5,368,001	2,254,320	3,113,681

Source: Georgia Ports Authority, February 17, 2013,

<http://www.gaports.com/SalesandMarketing/MarketingBusinessDevelopment/GPABytheNumbers.aspx>

The 2.9 million TEUs of containerized goods transported in 2011 are comprised of 1.6 million TEUs in exports and 1.3 million TEUs in imports. Of the 1.6 million exported TEUs, 1.2 million were “full”, while of 1.3 million total imports, 1.1 million were “full”. The leading commodities in combined export and import were:

- | | |
|---------------------------------------|-------------|
| 1. Food Products | 229,100 TEU |
| 2. Consumer Goods | 201,800 TEU |
| 3. Machinery, Appliances, Electronics | 197,800 TEU |
| 4. Automotive Goods | 170,700 TEU |
| 5. Wood Pulp | 165,400 TEU |

The Top 10 commodities, by tonnage, transported as export for 2008 through 2012 are listed in **Table 3-4**.

Table 3-4: Top 10 Commodities, by Tonnage, 2008-2012

COMMODITY GROUPING	2008	2009	2010	2011	2012
Wood Pulp	177,491	165,960	175,653	160,735	178,654
Food	120,487	121,246	129,639	144,117	157,531
Paper & Paperboard, Incl. Waste	134,620	115,645	158,372	140,817	144,710
Clay	96,201	82,690	99,919	92,424	97,054
Automotive	46,454	47,727	52,969	75,888	87,778
Machinery, Appliances, Electronics	56,857	58,246	58,290	75,971	80,760
Fabrics, Incl. Raw Cotton	57,274	53,663	50,837	70,215	74,877
Chemical	63,111	53,149	65,331	78,694	73,871
Retail Consumer Goods	52,389	50,733	65,881	71,984	63,299
Resins & Rubber	63,643	47,486	61,805	65,279	61,021
Other	159,362	143,833	177,742	212,661	214,324
Total	1,027,890	940,376	1,096,437	1,188,786	1,233,877

Source: Georgia Ports Authority, February 17, 2013,

<http://www.gaports.com/SalesandMarketing/MarketingBusinessDevelopment/GPABytheNumbers.aspx>

The Top 10 commodities, by tonnage, transported as import for 2008 through 2012 are listed in **Table 3-5**.

Table 3-5: Top 10 Commodities, by Tonnage, 2008-2012

COMMODITY GROUPING	2008	2009	2010	2011	2012
Furniture	185,670	157,307	147,154	154,167	143,412
Retail Consumer Goods	156,682	130,017	129,614	140,124	132,244
Machinery, Appliances, Electronics	119,668	101,927	97,740	114,258	121,482
Hardware and Housewares	105,238	85,344	91,915	104,781	98,877
Automotive	61,493	59,097	60,477	82,457	96,576
Food	61,194	65,856	68,212	74,202	80,078
Apparel	59,488	56,206	61,290	61,699	55,800
Toys	50,019	47,528	51,989	53,388	49,666
Mineral	59,136	49,336	46,121	52,289	49,373
Chemical	29,242	28,395	30,181	35,421	36,436
Other	232,316	193,243	197,591	211,359	220,900
Total	1,120,145	974,256	982,282	1,084,144	1,084,844

Source: Georgia Ports Authority, February 17, 2013,

<http://www.gaports.com/SalesandMarketing/MarketingBusinessDevelopment/GPABytheNumbers.aspx>

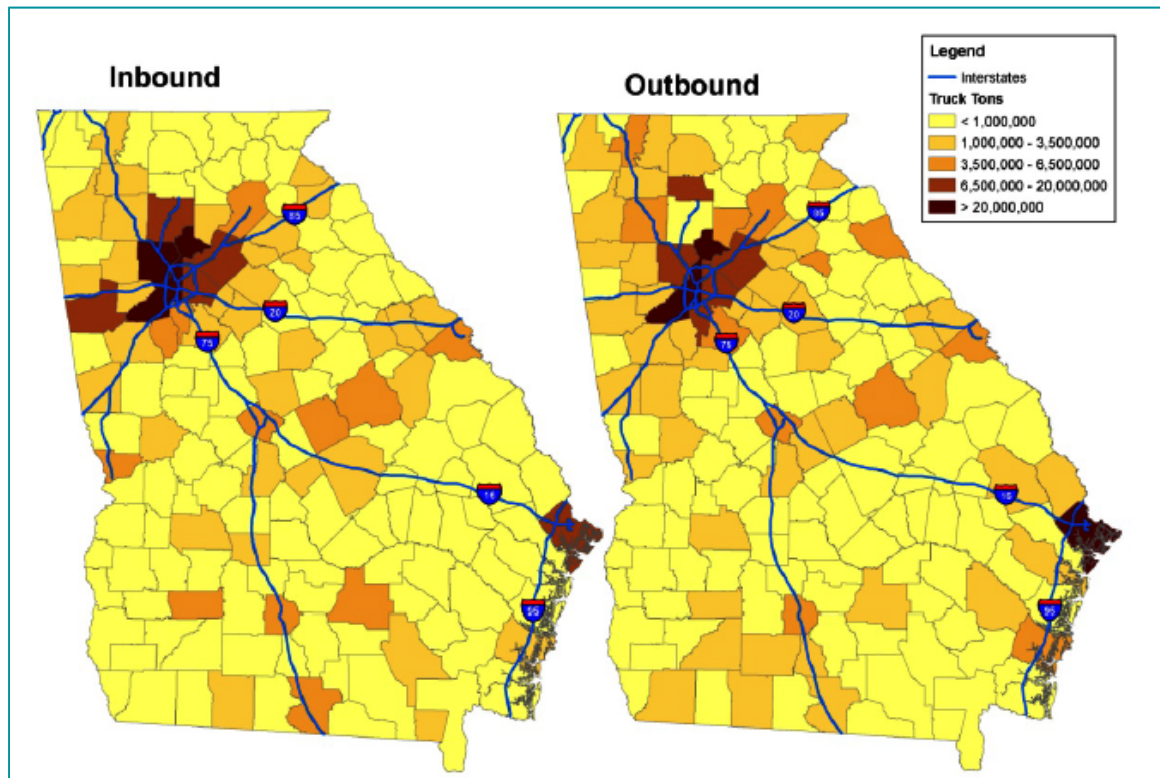
3.5 Highway

Highway is the dominant mode for goods movement nationally, with Chatham County contributing significantly to the total truck trip counts for the state. In comparison with the other 159 counties in the state, for 2006, Chatham County is the leading county in truck trip generation. Trips originating from the county account for over 21 percent of all outbound truck movements for the state²⁵. This is greater than the combined originating trips from Fulton, Gwinnett, DeKalb, and Cobb Counties, all located in the Atlanta Metropolitan area. This accounts for 24, 747,960 tons of cargo. The projected increase to 49,343,003 tons for 2050, represents a 99 percent increase. Chatham County ranks second for inbound truck trips accounting for 8 percent of the total. This is 8,677,489 tons with a 2050 forecasted total of 22,101,174 tons, a 154 percent increase. An illustrated comparison of the 2006 truck volumes by tonnage is noted in **Figure 3-2**.

Highway or truck movements, by truck tons, in 2006, were predominately outbound at a ratio of 1.85 to 1.00. The increased tonnages forecasted for 2050, significantly shifts this ratio to more balanced 1.23 to 1.00. This forecast is dependent on the ability of the port to continue to accept greater numbers of vessels and containers and users to place containers on trucks versus rail.

²⁵ <http://www.dot.ga.gov/informationcenter/programs/georgiafreight/logisticsplan/Documents/Plan/TruckModal-Task3.pdf>, February 17, 2013

Figure 3-2: Truck Tonnages by Direction, by County, 2006



Source: <http://www.dot.ga.gov/informationcenter/programs/georgiafreight/logisticsplan/Documents/Plan/TruckModal-Task3.pdf>, February 17, 2013

3.5.1 Commodity Flows

A survey conducted by GDOT in 2005 illustrates commodity diversity for truck trips on I-95 in Chatham County; see **Table 3-6**. Food and Farm Products were the dominant commodity. An important observation is the absence of Secondary Traffic as a commodity. Studies conducted in many regions identify Secondary Traffic, e.g. apparel, housewares, as a leading commodity type for truck movements.

Table 3-6: Commodity Distribution on Trucks, by Percentage, 2005

COMMODITIES	I-95 Chatham
Others	48%
Food and Farm Products	25%
Textiles	8%
Chemicals	7%
Clay/Concrete/Glass/Stone	5%
Transportation Equipment	4%
Lumber/Wood/Logs	4%
Warehousing (Secondary Traffic)	0%
Sand and Gravel (Non-Metallic Minerals)	0%
Total	100%

Source: <http://www.dot.ga.gov/informationcenter/programs/georgiafreight/logisticsplan/Documents/Plan/TruckModal-Task3.pdf>, February 17, 2013

The estimated daily truck volumes moving between Savannah and the other MPOs of the state were provided by the GDOT Freight and Logistics Plan. Utilizing the Statewide Travel Demand Model, GDOT used, as inputs, commodity movement data acquired through purchase of the Transearch product from IHS Global Insight. The data represented a base year of 2007 and described origin-destination commodity flow data, by tonnage, for a number of commodity types; see **Table 3-7**. The leading MPO is Atlanta, with more than all other MPOs combined.

Table 3-7: GDOT Statewide Travel Demand Model for Truck Volume between MPOs, 2010²⁶

MPO	Savannah
Albany	25
Athens	26
Atlanta	820
Augusta	178
Brunswick	143
Chattanooga	23
Columbus	37
Dalton	8
Gainesville	15
Hinesville	167
Macon	51
Rome	8
Valdosta	32
Warner Robins	45

Source: <http://www.dot.ga.gov/informationcenter/programs/georgiafreight/logisticsplan/Documents/Plan/TruckModal-Task3.pdf>, February 17, 2013

3.6 Rail²⁷

Chatham County was ranked first, in transported tonnage by rail, as an origin county within the state, in 2006. As a point of origin, the total transported tonnage was 3.8 million tons²⁸. Commodity types were chemicals, freight all kinds²⁹, pulp and paper, and food products. Ranked third as a destination county, for all counties in the state, the total tonnage transported rail was over 10 million tons. The commodities transported into the county were nonmetallic minerals, clay, concrete, glass and stone products, freight all kinds, pulp and paper, chemicals, and empty containers.

The ratio of outbound to inbound tonnage, for Chatham County, is opposite of that found in truck flows. Rail flows were 1.00, inbound, to 1.63, outbound, as measured in 2006.

²⁷ Rail commodity flow, due to the proprietary nature of the data, lacks a readily available resource for this report. Statewide Freight Plan does provide county level information.

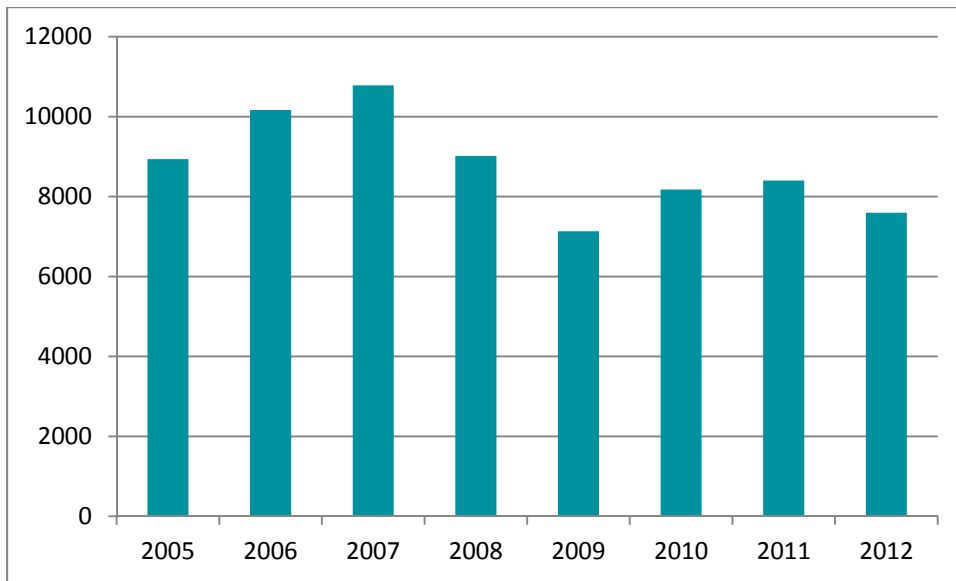
²⁸ <http://www.Dot.ga.gov/informationcenter/programs/georgiafreight/logisticsplan/Documents/Plan/RailModal-Task3.pdf>, February 17, 2013

²⁹ *Freight All Kinds*, FAK, is a classification of goods including finished goods. Also designated as *Secondary Goods*.

3.7 Air

Chatham County is one of three counties with significant air cargo operations resident at local airports. The Savannah-Hilton Head International Airport (SAV) provides tonnage data on an annual basis, aggregating mail, cargo, and express freight. **Figure 3-3** illustrates air cargo tonnage from 2005 to 2012.

Figure 3-3: SAV Air Cargo Tonnages, 2005-2012



Source: www.savannahairport.com, February 27, 2013

Air cargo moving through the International Airport does so primarily in the luggage compartments of servicing passenger aircraft. The data provided by the airport, in aggregate form, would suggest these shipments are smaller in size to be transported in this manner.



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