THE DRIVE TO MOVE SOUTH: AUTOMOTIVE MANUFACTURERS LOCATING PLANTS IN THE SOUTH

Until the last few decades of the 100-year history of automobile manufacturing in the United States, the industry revolved around a number of states surrounding the Great Lakes from Michigan to Ohio to Wisconsin to Indiana (and across the border to Ontario, Canada). Yet, even though these Great Lakes states (and Canadian province) continue to play a central role in setting the tone for the automotive industry in the country, the industry has seen in recent decades a flurry of automobile manufacturers, both domestic and foreign, moving their assembly plant operations to a number of states in the South. The movement of automotive plants to Southern climes has served to not only enhance the economic potential of these states, but also reconfigure the automotive corridor of the United States away from sites focused largely around the Great Lakes.

At a minimum, as indicated in table 12, the SLC states have close to 30 automobile assembly plants within their jurisdictions, certainly an impressive number. While some of the General Motors and Ford plants were established some 80 to 90 years ago, a number of the plants were established in the last 10 to 15 years. For instance, Georgia's role in the nation's automotive history goes back to 1909, when the Ford Motor Company established an operation in the state. Similarly, the Blue Bird Corporation, the world's largest producer of school buses, began manufacturing in the state back in 1927, while General Motors has been in Georgia since 1947. Then, General Motors began manufacturing vehicles at its Tarrant County, Texas, location in 1951, while Ford's Norfolk, Virginia, plant was established as far back as 1925. However, it is the spate of announcements made in the last decade or so that has garnered a great deal of attention with BMW locating in South Carolina in 1992, Mercedes settling in Alabama in 1993, Nissan deciding to locate in Mississippi in 2000, and the latest addition, Toyota, deciding to establish a plant in Texas in 2003.

According to a report released by the Federal Reserve Bank of Chicago several years ago, the decision of automakers to increasingly locate assembly plants in the South actually began some 30 years ago.[38] General Motors started this trend in the 1970s when they re-located a number of component

Assembly Plants in the South	
SLC State and City	**Manufacturer**
Alabama	
» Vance	Mercedes
» Lincoln	Honda
» Montgomery	Hyundai
Georgia	
» Doraville	General Motors
» Fort Valley	Blue Bird
» Hapeville	Ford
Kentucky	
» Georgetown	Toyota
» Bowling Green	General Motors
» Louisville	Ford
Louisiana	
» Shreveport	General Motors
Maryland	
» Baltimore	General Motors
Mississippi	
» Canton	Nissan
Missouri	
» Fenton	DaimlerChrysler
» Kansas City	Ford
» St. Louis	Ford
» Wentzville	General Motors
North Carolina	
» Cleveland	Freightliner
» Mt. Holly	Freightliner
Oklahoma	
» Oklahoma City	General Motors
South Carolina	
» Winnsboro	Mack Trucks
» Spartanburg	BMW
Tennessee	
» Madison	Peterbilt
» Spring Hill	Saturn
» Smyrna	Nissan
Texas	
» Arlington	General Motors
» San Antonio	Toyota
Virginia	
» Norfolk	Ford
» Hampton	Mercedes Truck
» Dublin	Volvo-General Motors

Source: "Assembly Plants in the South," *Developing Alabama*, Winter 2003 and survey responses from states

plants outside the traditional automobile manufacturing Great Lakes states in the South. In response, a number of Japanese-owned assembly and supplier plants followed General Motors, also setting up plants in the South. In fact, between 1970 and 1997, Kentucky and Tennessee expanded their national share of light vehicle production from 4 percent to 13 percent, a tripling of their production levels. As indicated in this report, between 1980 and 1997, seven new assembly plants opened in the South, including three in Kentucky, two in Tennessee, and one each in South Carolina and Louisiana. In addition to those listed in this report, more recently, additional plants either have opened or are about to open in Alabama (three), Georgia (one), Mississippi (one) and Texas (one).

Analysts proffer a variety of reasons for this move by automobile manufacturers to set up assembly operations in the South. According to a Federal Reserve Bank of Atlanta report, one of the major factors leading to the auto corridor's Southward movement is the fact that "innovative methods of production are more readily introduced and implemented here [in the South] than in older Midwestern assembly plants geared to more traditional approaches to manufacturing."[39] The driving motive here is that the U.S. auto industry is constantly experimenting and striving to stay ahead of consumer expectations, demand and purchasing habits. Since the margin for error–reflected in corporate finances–has almost immediate and significant impacts on the share prices of automakers, the industry has been forced to look to technology to meet these fluctuating consumer demands. Consequently, automakers have been pressured to develop technologically-superior production systems that are able to respond rapidly to these consumer trends.

As noted earlier, given the overarching prominence of technology in the automobile manufacturing process, the ability to establish modern assembly plants, incorporating the latest innovations and technologies in the field, remains critical. For instance, the older systems of auto design entailed a lead time of about five years for a car to progress from the conceptual stage to the manufacturing stage; under the latest sy stem, using such features as computer modeling that allow engineers to create "virtual cars," this lead time is almost halved as automakers move swiftly from conception to fabrication. It is in this technologically-demanding environment that the South has had a huge advantage because automakers can basically create ground-up manufacturing plants applying new technologies and even customizing the construction to their specifications. In contrast, reconfiguring the much older assembly plants in the Midwestern states would be significantly cost prohibitive resulting in the nation's auto corridor drifting Southward. Interestingly, a number of the nation's auto plants, even with the recent surge of plants to the South, continue to be located within 200 miles or so on either side of two major interstates: I-75 and I-65.

An additional factor leading to automakers locating in the South involves efficiency and productivity levels, and these trends are substantiated in a June 2003 report.[40] The 2003 version of the much-awaited *Harbour Report*, a report that measures assembly, stamping and powertrain productivity performances–plant-by-plant, and company-by-company–for North American automotive manufacturers, contained some positive results for the Big Three, but further reinforced how wide the competitive gap with the Japanese automakers remains. For instance, Nissan's Smyrna, Tennessee plant, which produces the Altima, led all assembly plants with a measure of 15.74 labor hours per vehicle (HPV), the best performance in this report's history. While this facility has been named the most efficient automotive plant in the United States for nine consecutive years, between 2001 and 2002, this Nissan facility shaved 66 minutes off the time it takes to build cars and trucks. On average, workers take an average of 16.8 hours to build each vehicle at the Smyrna facility; in contrast to the Altima (15.74 hours), the Frontier small pickup and the Xterra sport-utility vehicle each take more than 18 hours to produce. The best U.S.-based producer was General Motors in 2002, taking an average of 24.4 hours to build each vehicle. (Some of the other averages were Ford with 26.14 average hours per vehicle and Toyota with 21.83 hours).

A glimpse into the efficiency gains Nissan incorporated into the company's Tennessee plant exemplifies the attractiveness of locating new assembly plants in the South. For example, when Nissan began production of its Xterra sport-utility vehicle in 1999, it took 22 people to produce about 17 vehicles per hour in Smyrna. When Xterra sales spiked, Nissan increased

efficiency by adding robots and automating several functions. By 2001, the line produced 25 vehicles per hour while using only 16 workers.

Another critical factor propelling automakers to locate in the South deals with the favorable labor climate prevalent in these states. In addition to the lack of unions in the South, the right-to-work laws diminish union bargaining power considerably. Several additional elements are important here, including the readily available labor pool, the attractive incentives offered by states to train and instruct these workers, and certain automakers preferring workers who have not been trained in older methods of automobile manufacturing. Conversely, the onus is on the workers to remain flexible and technically competent to stay abreast of the latest industry developments. In this connection, several examples from the SLC states help illustrate the importance of worker training in attracting these automotive plants.

For instance, a portion of the incentive package offered by the state of Mississippi to Nissan to establish its plant in Canton, $23.5 million to be precise, will be directly applied toward worker training. While the starting hourly wages for these positions will hover between $13.25 and $18.50, the intense competition for the positions is one indication of the attractiveness of the salaries. Even at the lowest starting pay, a position at the Canton Nissan plant will yield an annual wage of $27,560, while the average private sector salary in the state was $26,066 in 2001.[41] The Mississippi Employment Security Commission (ESC) remains an integral player in the recruitment of workers for the Nissan plant and over a period of 28 months, Nissan and the ESC held 45 job fairs and screened more than 87,000 applications and resumes for the available positions. In May 2004, when the plant reaches full production capacity, 5,300 maintenance technicians, assembly workers and salaried employees will have been hired. As of late April 2003, almost 1,500 individuals were hired to work at the 3.5 million-square foot, $1.43 billion assembly plant.[42]

Similarly, Maryland supports the preparation and improvement of the state's workforce through programs such as flexible training grants and an apprenticeship program that allows workers to build competence in their skill area. A network of community colleges provides specialized training in a variety of automotive industry disciplines. In addition, these community colleges revise their training programs and courses based on market changes in cooperation with state and local economic development offices. For instance, in fiscal year 2003, the division of Mack Trucks that manufactures diesel engines and transmissions in Hagerstown, Maryland, received a $400,000 grant to provide training for workers. Similarly, during fiscal year 2000, Allison Transmission, a manufacturer of transmissions in White Marsh, Maryland, was authorized to receive a grant of up to $1.5 million in state funds to facilitate worker training.

Alongside these factors propelling automotive companies to relocate in the South, there are several general features which analysts contend have resulted in scores of high technology companies either setting up operations or moving to Southern locations. Historically, high technology companies have tended to develop and/or locate in close proximity to technology clusters and this is more than apparent in a number of Southern states.[43] As noted previously, given the strong emphasis on technology-driven growth in the automotive industry, these attributes are very important in this discussion. Some of these additional factors are:

> "proximity to other technology companies, proximity to research universities that were spinning out new technology and new businesses, and proximity to venture capital. The cost of labor, the cost of initial investment, and the cost of operations were important–but secondary."[44]

Following this logic, it is apparent that the location decisions of a number of automotive manufacturers were influenced by the presence of such high-technology incubator cities as Austin and Dallas, Texas; Atlanta, Georgia; Research Triangle Park, North Carolina; Orlando, Florida; and Huntsville, Alabama. While these locations continue to be hotbeds for development and growth, a number of additional Southern cities have emerged as very qualified high-tech cities, including Oklahoma City, Oklahoma; Jackson, Mississippi; Hampton Roads, Virginia; Birmingham, Alabama; Tampa and Jacksonville, Florida; Charleston, South Carolina; Charlotte, North Carolina; and Knoxville, Tennessee. Hence, a review of the location of the latest crop of automotive manufacturers in the South reveals that they are in close proximity to these emerging incubator cities. Specifically, the Mercedes plant in Vance, Alabama, is close to Birmingham; similarly, the BMW plant in Spartanburg, South Carolina is near Charleston.

In this section on Southern advantages in luring automobile manufacturers, it is relevant to emphasize the significance of the highly efficient intermodal transportation systems within the South, particularly ports. Not only does a large majority of the nation's exports and imports transit through a Southern port, several Southern ports rank very high in handling vehicles. Automobile manufacturers often stress the importance of efficient intermodal transportation strategies (such as rails and ports) to move not only automobiles ready for both the United States and overseas markets, but also parts and components critical for the production process. The presence of a number of the nation's busiest and most efficient airports, such as in Atlanta, Dallas, Charlotte, Miami, Baltimore, Washington Dulles and Houston, including the hubs of several airlines at some of these locations, remains another pivotal factor in the location decisions of automakers. These airports are critical links in the supply and transportation chains of the automobile industry whether transporting personnel or parts and components.

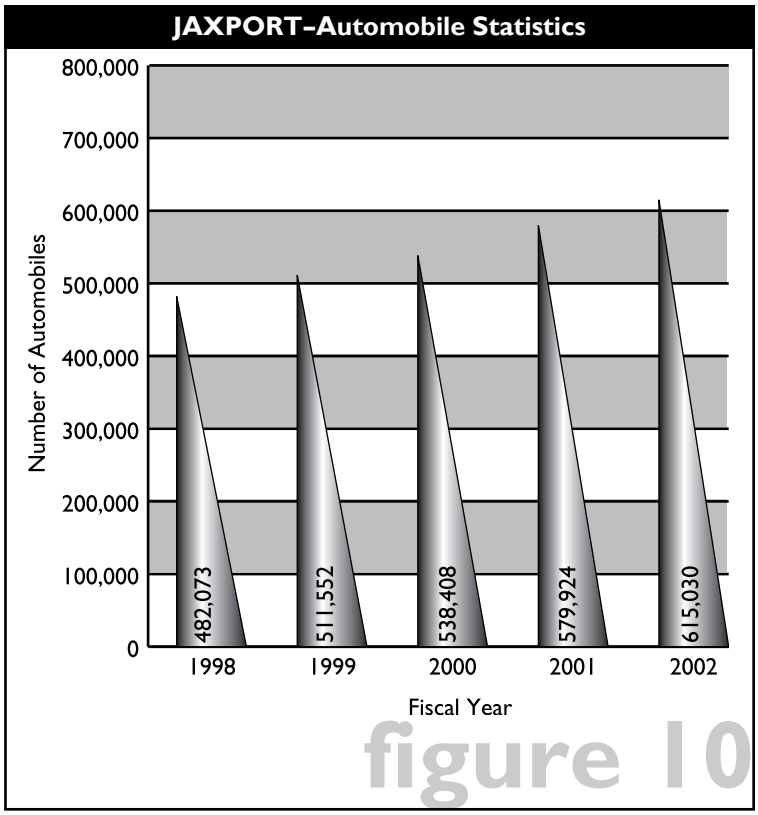
Some details on the Southern comparative advantage in the area of ports are listed below. This information helps bolster the case that ports in the South maintain a dominant position in transporting the nation's automobile cargo, in addition to highlighting that this feature is a crucial consideration in the location decision of automakers.

JACKSONVILLE PORT AUTHORITY-JAXPORT

In fiscal year 2003, JAXPORT's three marine terminals handled a record number of vehicles, more than 615,000, making it the busiest vehicle handling port in the country. The following graph, figure 10, presents this information for the past five fiscal years. As indicated, there has been a steady rise in the number of automobiles moving in and out of the Port of Jacksonville. As documented in the figure, between fiscal years 1998 and 2002, there was a 28 percent increase in the number of vehicles handled by the Port, the highest number in the country.

Roll-on/Roll-off cargo is driven onto the Blount Island wharf at the Port of Jacksonville.

Source: Port of Jacksonville, *www.jaxport.com*



Source: Jacksonville Port Authority, *www.jaxport.com*

MARYLAND PORTS ADMINISTRATION-PORT OF BALTIMORE

According to the Port of Baltimore, in the past 10 years, more than 3.5 million vehicles have rolled through the Port with a steady increase every year.[45] The Port also notes that rail leaders Norfolk Southern (NS) and CSX Transportation play an important role in elevating the Port of Baltimore to be one of the country's leading automobile ports. Once again, this partnership emphasizes the crucial role played by intermodal transportation strategies in contemporary commerce. In fact, the presence of these two rail leaders makes the Port of Baltimore very attractive to automobile manufacturers ilooking to export their vehicles. The railroads' ability to transport automobiles across the country also makes the Port of Baltimore popular with overseas car makers who use the Port as their primary distribution center east of the Mississippi River. Norfolk Southern recently expanded its commitment to the Port by improving clearances along its Northeast Corridor. The high clearances allow NS to utilize rail cars capable of transporting automobiles stacked on three levels. This tri-level direct service to and from the Port's Dundalk Marine Terminal improves the Port's efficiency and cost effectiveness. The use of unit trains enhances the Port of Baltimore's reputation as one of the nation's top *Ro/Ro* (*Roll-on/Roll-off*) ports.[46]

In January 2002, the Port of Baltimore became the first U.S. port to receive Honda automobiles manufactured in the United Kingdom. As a result, the Port of Baltimore's Masonville Auto Facility, one of the most technologically advanced in the country, will import at least 70,000 Honda Civics and SUVs every year.[47] Then, in February 2002, Ford announced an agreement solidifying the Port of Baltimore's reputation as a national leader for automobile exports: consolidating some of its auto export business with the addition of approximately 27,000 vehicles over the Port's docks en route to overseas markets. This move was estimated to save Ford some $2 million in annual transportation costs given the Port of Baltimore's intermodal (rail) advantage while generating at least another 155 jobs throughout the state.[48] Also, in May 2002, Hyundai Motor America announced the opening of a vehicle processing center at the Port of Baltimore. The Port is expected to process more than 47,000 vehicles under this agreement with Hyundai each year while creating 300 jobs in the region.[49]

Automobiles lined up at the Port of Baltimore

Source: Maryland Port Administration, *www.mpa.com*

Finally in April 2003, Maryland state officials announced that Mercedes-Benz USA had signed a 10-year lease with Dundalk Marine Terminal at the Port of Baltimore, with options to extend for an additional 20 years.[50] Mercedes has been shipping cars through the terminal since 1965, but this is the first time that the automaker has signed a lease directly with the Maryland Port Authority as opposed to contracting with a third-party automobile processor. As laid out in the deal, Mercedes will lease 16.5 acres of land from the Port with an option to expand. Last year, about 82,000 Mercedes vehicles were shipped through the terminal while about 86,000 are expected to come through this year.

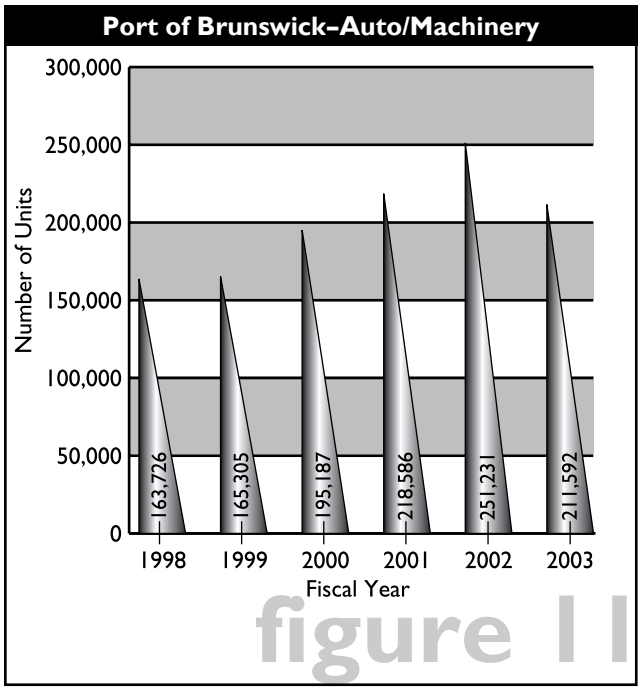
GEORGIA PORTS AUTHORITY-PORT OF BRUNSWICK

The Georgia Ports Authority announced in late March 2003 that as a result of its Brunswick location's ongoing expansion efforts, significant infrastructure investments and prime location, a record number of auto and machinery units moved through the Port in the first eight months of fiscal year 2003.[51] Specifically, an unprecedented 211,592 auto and machinery units moved through the Port of Brunswick, a 33.3 percent increase between July 2002 and February 2003, or 52,832 more units than at this time last year. Just in the month of February 2003, the Port of Brunswick handled 22,568 units. In fact, as their press release notes, since 1994, car and machinery traffic at Brunswick has increased 250 percent with the increased business generating new jobs, including 500 new jobs at the state's auto processors in just the past four years and many more in the trucking and other industries. Even though DaimlerChrysler decided in late September 2003 against building a cargo van plant in nearby Pooler, a move that would have resulted in significant cargo from northern Europe to Georgia, state officials indicate that they are in the process of aggressively pursuing a number of other prospective companies to set up operations at the site.

Autos at Colonel's Island Terminal, Port of Brunswick

Source: Georgia Ports Authority, *www.gaports.com*

Figure 11 provides a glimpse into the steady expansion in automobile and auto machinery traffic at the Port of Brunswick in the last six fiscal years. (Please note that fiscal year 2003 figures reflect numbers for just the first eight months of the fiscal year. Given the pace set for these eight months, it is very possible that the fiscal year 2003 numbers will surpass the level reached in the prior fiscal year.)



Source: Georgia Ports Authority, *www.gaports.com*

Several additional details on the Port of Brunwick's capabilities, the fourth largest autoport on the Eastern seaboard, helps illustrate the attractiveness of the South to automakers.[52] For instance, BMW announced in June 2003 that the company would begin shipping the Z4 roadsters and X5 Sports Activity Vehicles, built exclusively at its Spartanburg, South Carolina manufacturing plant and destined for their Japan market, through the Port of Brunswick. In April 2002, Porsche Cars of North America moved its southeast distribution center to the Port of Brunswick. Today, a total of eight *Ro/Ro* carriers call on the Port of Brunswick's Colonel's Island Auto Facility and 14 automakers utilize the facility for the import or export of their automobile models. With three dedicated *Ro/Ro* berths, immediate rail and interstate access, terminal acreage encompassing 1,700 acres providing ample room for future growth, Colonel's Island is strategically poised for expanding the Port's important automotive cargo segment. An important factor that draws the auto industry to Brunswick is the naturally pristine, environmentally clean location that prevents damage or corrosion to automobile finishes fresh off the assembly line.

An integral part of BMW's supply chain to the overseas market includes the ocean carrier, Wallenius Wilhelmsen Lines (WWL), which provides the car carrier vessels to load the product out of the Colonel's Island Terminal at the Port of Brunswick. There also are a number of manufacturers that import their vehicles for the U.S. market through the Port of Brunswick. Once the product arrives at Colonel's Island, Atlantic Vehicle Processors (AVP), a subsidiary of WWL, performs the minor cosmetics of auto processing to make the cars ready for dealer lots and showrooms. Hence, AVP is an important supporting link in these automakers' supply chain leasing and maintaining 50 acres of space on Colonel's Island. Twenty of these 50 acres are dedicated to processing for up to 3,000 vehicle units while the remaining space is reserved for the import and export of heavy farm and marine industry equipment and the transport of personal vehicles owned by U.S. military personnel. In addition to BMW, auto processing for Jaguar and Ford also are handled by AVP.

Importantly, AVP is one of three world-class auto processors in residence at the Port of Brunswick. In addition, Amports handles auto processing for Volkswagen, Porsche, Volvo and Mitsubishi, while International Auto Processing, Inc. handles auto processing for Mercedes, Hyundai, Saab, and Land Rover.

Another player active in processing vehicles at the Port of Brunswick is Waggoners Trucking Company, the motor carrier moving BMWs from the plant in South Carolina to the Port in addition to transporting Porsche, Volkswagen, Audi, Hyundai, and Mitsubishi from the Port of Brunswick to locations across the country. Waggoners Trucking has a team of almost 1,100 professional drivers and support personnel and has been in business since 1951.

SOUTH CAROLINA STATE PORTS AUTHORITY (SPA)- PORT OF CHARLESTON

The Port of Charleston is acknowledged as an invaluable resource for the state's prominent automaker–BMW. In fact, BMW's 1992 decision to locate its North American construction facility in South Carolina was driven by a set of fundamental assets associated with the state. Of these four assets, "accessible transportation facilities, including a deep-water port at Charleston, an airport, modern rail and road systems" were hugely important.[53] In fact, the SPA was intimately involved in the project to secure BMW's location decision in South Carolina. The SPA acquired the property and assisted with site preparation, helping BMW set an auto-industry record for factory construction–23 months from announcement to first assembly. The SPA was later reimbursed by the state for a large portion of the expenses incurred to acquire the property and still owns the land today.[54]

BMW's decision to locate its plant in the state has reaped rich dividends for the Port of Charleston, a development that, in turn, has generated a range of economic benefits that ripples across the state. For instance, the fact that BMW is a major player in the Port is quickly apparent when one considers that 257,970 vehicles traveled through the Port as BMW exports vehicles to dozens of countries around the world between 1993 and 2001. In addition, BMW imports finished vehicles for regional distribution, and 213,064 vehicles transited through the Port as imports between 1993 and 2001. Then, between 1992 and 2002, the trade effects of BMW were further accentuated by the fact that $252.4 million in U.S. import fees were paid.

Hundreds of BMW X5s and Z4s are at the Port of Charleston

Source: South Carolina Ports Authority, *www.scspa.com*

According to the SPA, in 2002, to support production at its Spartanburg plant, BMW imported more than 3,800 containers of parts and components through the Port. In addition, BMW's containerized exports totaled more than 900 container loads in 2002. Alongside finished vehicle exports of the BMW X5 and Z4 automobiles, BMW imports its 3 series, 5 series, 7 series and its newest addition, the Mini Cooper, vehicles for regional and national distribution through the Port of Charleston. It is expected that in 2003, total finished vehicle shipments will exceed 120,000 cars, with nearly three dozen BMW suppliers in the state relying on the Port to source materials for production inputs. Given that approximately half of a BMW vehicle's content is secured from overseas, a substantial volume of containerized import items are essential for both BMW and its suppliers.

Finally, BMW and related suppliers shipped more than half a billion pounds of cargo through the Port of Charleston in 2002. In this context, it is apparent that BMW's decision to locate its facility in South Carolina was influenced by the Port of Charleston, one of the busiest, and one of the most efficient, ports in the country.

ALABAMA STATE DOCKS-PORT OF MOBILE

One of the most important–and prestigious–international automobile companies, Mercedes-Benz, operates a manufacturing plant in the South (in Vance, Alabama, specifically) and among the key considerations in this location calculation was the proximity of the Port of Mobile. Another deep-water port, with easy access to the Gulf of Mexico and beyond, the Port remains a crucial component of the Mercedes-Benz production cycle. According to the president of Mercedes-Benz in the United States, Eisenmann, the company responsible for building the new state-of-the art paint shop associated with the $600 million expansion project at the Mercedes-Benz facility in Vance, selected the Alabama State Docks as its port of entry for all inbound equipment shipments.[55] As a result, Eisenmann plans to ship approximately 600 containers through the Alabama State Docks between December 2002 and May 2003. The containers, inbound from Germany, will then be transported by truck to the Mercedes-Benz warehouse in Bessemer, Alabama. In addition to the ocean-going containers, the Alabama State Docks also will handle approximately 60 Lighter Aboard Ship (LAS) barge vessels for Eisenmann. Cargo on the LAS barges will consist of oversized paint system equipment that does not fit in ocean-going containers.