1.1 BACKGROUND

East-west connectivity between Macon and LaGrange was an issue discussed in general as part of the Connect Central Georgia study, with recognition that it built on discussions and general-level analysis that has occurred in the recent past. The following section presents a brief history of various levels of investigation of potential needs between Macon and Lagrange – a region generally traversed by Georgia State Route 109/State Route 74 ("SR 109/SR 74").

GDOT Office of Planning's *"SR 74 Corridor Study"* completed in 2007

In June 2007, Congressman Lynn Westmoreland requested the State Transportation Board to study the SR 74 corridor between Macon and LaGrange. The request had originated with the Three Rivers and Middle Georgia Regional Commissions.

The stated purpose of the resulting study was to determine the feasibility widening the entire corridor to a four lanes, in light of a new KIA motors development under construction at that time near LaGrange. Figure 1 shows the corridor that was the subject of that study.

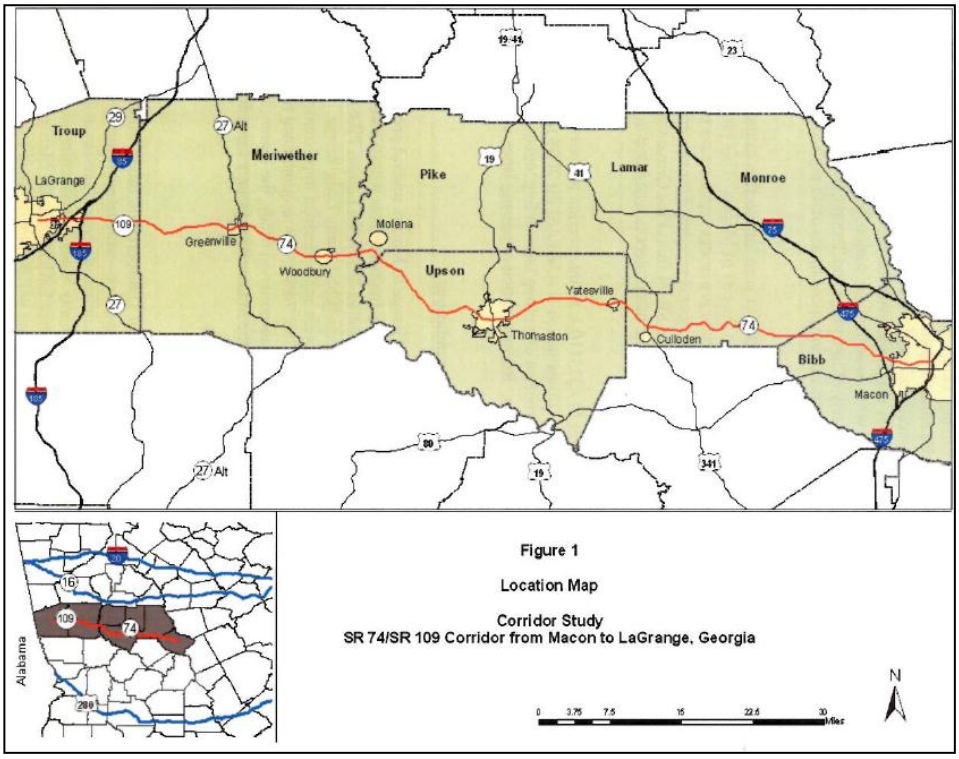


Figure 1: Study Location Map, 2007

Conducted by the GDOT Office of Planning, the study focused on existing and future-year traffic volumes (both car and truck) along the nearly 90 mile long corridor. Traffic volume numbers were translated into corresponding levels-of-service ("LOS"), which provided an indication of the relative levels of congestion that drivers could experience along each section of the roadway – both in a base (current) year as well as future years when traffic would expected to increase.

Projections of future year traffic volumes took into account basic factors, such as current and proposed land developments, build-out of KIA-related businesses such as suppliers and distributors, and future land use scenarios envisioned local governments in their adopted planning documents.

The analysis indicated that some sections of the corridor may have deficient LOS and unacceptable levels of congestion in the future due to increasing traffic volumes; however, these locations would not be widespread and would not justify widening all of SR 109/SR 74 through its entire length. In addition, the existence of regional routes serving relatively similar east-west travel such as the Fall Line Freeway (an existing four-lane route) and SR 16 (an existing two-lane route) were taken into account.

The study's final recommendation did not find sufficient incentive to justify widening the entire corridor due to sufficient current and future travel conditions as well as the availability of regional parallel routes.

Investing in Tomorrow's Transportation Today ("IT3") and ***"Statewide Strategic Transportation Plan 2010-2030"*** completed in April 2010

Serving as the final report for IT3, in April 2010 the Statewide Strategic Transportation Plan was released. This report addressed many aspects of transportation in the state.

Once aspect it touched on was congestion in metro Atlanta. Specifically, the Statewide Strategic Transportation Plan discussed "A northwest bypass around metro Atlanta (running from Macon toward LaGrange, to the Tennessee border)…as an alternative path to I-75 between Macon and the Tennessee border". The estimated cost of such a bypass, as a new route, was estimated to be $7.3 billion. In a section entitled "Strategy With Current Funding Levels", the report went on to provide a broad overview of state transportation finances and discussed the affordability of new interstate or limited-access bypass highways.

GDOT ***"State Freight & Logistics Plan"*** adopted in the Spring of 2012

The GDOT State Freight and Logistics Plan took a statewide look at the transportation needs related to the freight and logistics industries. It studied the current and future freight and logistics business environments in Georgia, investigated how the various modes (highways, rail, seaports and air cargo) interact to move freight and goods, what future needs would be, and

recommended infrastructure improvements that would serve this important industry and support its success and growth throughout the state.

One area this initiative re-examined -- through an enhanced freight focus -- was a potential improvement to the Macon-to-LaGrange corridor by considering recent freight and logistics developments and the ongoing projected growth expected at Georgia's Atlanta coast ports, especially the Port of Savannah.

For this corridor, the analysis found that the need for an improved connection between I-16 and US 27 (roughly Macon to LaGrange) -- packaged with the completion of the US 27 corridor widening (a GRIP-designated route) through the state -- was one important recommendation. The hypothesis was that this 'package' could not only provide enhanced east-west access through central Georgia, but it could 'dovetail' with north-south mobility on US 27 to create a "bypass" alternative around the western portion of the metro Atlanta region.

As recommended, this 'package' is illustrated in Figure 2. It called for an (unspecified) Macon-to-LaGrange improvement plus the completion of the last sections of US 27 north of I-20 yet to be four-laned.

Figure 2: Freight "Bypasses"
Source: GDOT State Freight & Logistics Plan

The State Freight and Logistics Plan utilized GDOT's statewide travel demand model to identify current and future-year traffic congestion from a large network level, and projected how well proposed improvements could maintain efficient traffic flow. It quantified anticipated benefits such as changes in vehicle hours traveled and vehicle miles traveled that could result from implementing the proposed projects, through the year 2050, while taking into account developments and the ongoing growth of the state's freight and logistics industries.

More specifically, the model also took into account current and anticipated economic growth and development, including the Georgia Ports Authority's

most recent projections of growth for the Port of Savannah. In addition, specific economic development impacts were modeled utilizing Regional Economic Model analysis ("REMI") software to predict how investments could affect the state's gross domestic product.

The study's recommendation of improving the Macon-to-LaGrange Connection with the US 27 four-laning could have a positive cumulative economic return on investment of up to 18-to-1 when considered through a horizon year of 2050. The GDOT Freight and Logistics Plan recommended the optimum implementation of this improvement 'package' would be within the years 2031- 2040.

GDOT Office of Planning's ***"Connect Central Georgia Study"***–completed 2013

Subtask: Detailed Corridor Study of the Macon-LaGrange Connector

As a result of the State Freight and Logistics Plan findings, the Connect Central Georgia study took on a supplemental task to determine what detailed improvements should be recommended for the Macon-to-LaGrange corridor in the year 2031-2040 timeframe.

This involved completing a more detailed focus on current and future year transportation needs along the SR 109/SR 74 corridor, with a continued economic development and freight-focused perspective in mind. This meant considering the development and growth trends along the corridor -- taking into account such key industries such as mining, timber and agricultural/food processing industries; supply chain movements associated with the KIA vehicle assembly plant in LaGrange (see Appendix for examples); the freight/logistics clusters in the Macon and Warner Robins area; and continued growth projected at the Port of Savannah. In addition, it was important to consider the needs with an awareness of budget considerations and cost-effectiveness.

Work included coordinating with other studies being done that provide insight to freight movement as it relates to auto production. Specifically, many auto parts suppliers locate in areas that allow them to efficiently serve both the Kia plant in LaGrange, as well as the Hyundai plan in Montgomery, Alabama. (Hyundai is Kia's parent company; more information is in the Appendix.)

While analyzing the needs for commuter and personal vehicles, future truck-related traffic volumes were also predicted in this subtask. This work took into account current industry activity and potential traffic growth due to industry expansion or relocation into the area/region. It referenced the growth anticipated at the Port of Savannah as predicted by the Georgia Ports Authority, as well as the future land use changes and developments along the corridor -- reflective of each county's locally-adopted comprehensive plans and state-required documents as per the Georgia Planning Act of 1989. Therefore, a comprehensive investigation of known changes that could affect traffic volumes and conditions was accounted for and considered within the analysis.

The following section details the subtask findings and final recommendations.

1.2 MACON-TO-LAGRANGE CONNECTION --

A SUBTASK OF THE CONNECT CENTRAL GEORGIA STUDY

Though a nondescript need for improvement was previously identified in the State Freight and Logistics Plan for this corridor, the need was not uniform throughout as discovered through the detailed segment-level analysis conducted through the subtask of the Connect Central Georgia Study.

Currently, the entire SR 109/SR 74 corridor is functionally classified as a 'rural minor arterial', with traffic volumes varying in different sections of the corridor. There are some are travelers using the entire corridor; however a significant number of more 'sub-regional' trips are made along the route.

In addition, the land use types adjacent to the corridor vary from such uses as urban, semi-urban, rural, agricultural, and undeveloped. For the purposes of analysis, the corridor was split into five segments based on similar current and future-year land use and traffic volume characteristics.

Segment 1

This segment currently is a total of two lanes stretching from I-85 in LaGrange eastwards to downtown Greenville in Troup and Meriwether Counties. The statewide travel demand model projects that the future (year 2035) traffic volumes on this segment will be approximately 12,600 vehicles per day ("v.p.d.").

GDOT currently has a project programmed for the Troup County portion of this segment known as GDOT project #0008674.

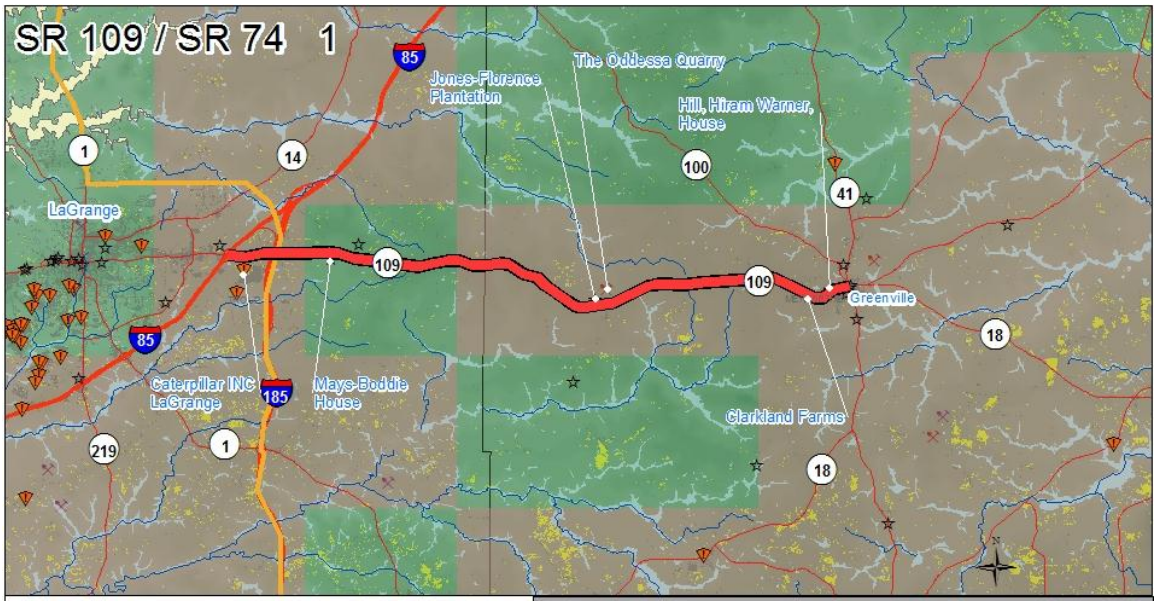


Figure 3: Macon-to-LaGrange Connector – Segment 1

Segment 2

This 13-mile existing two-lane segment extends from Greenville eastwards to SR 74 east of Woodbury in Meriwether and Pike Counties. The future (year 2035) traffic volumes on this corridor are projected to be approximately 10,700 v.p.d.

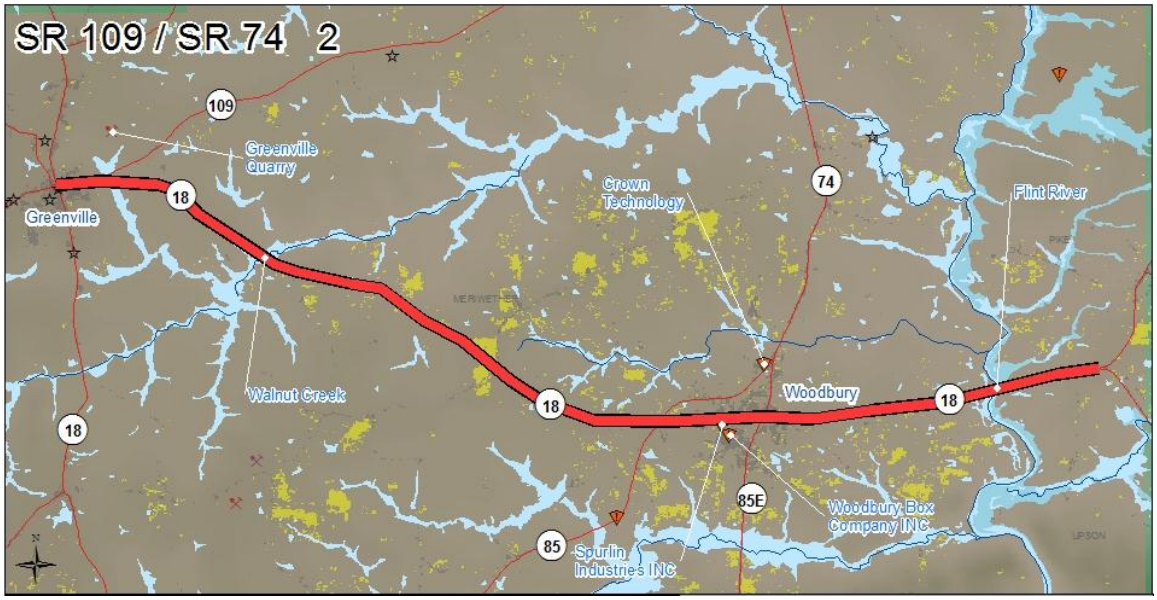


Figure 4: Macon-to-LaGrange Connector – Segment 2

Segment 3

Segment 3 continues east as two lanes through Pike and Upson Counties from the SR 74 split and continuing eastwards to SR 3 in Thomaston. Traffic volumes on this segment are projected to be approximately 5,800 v.p.d. in the year 2035.

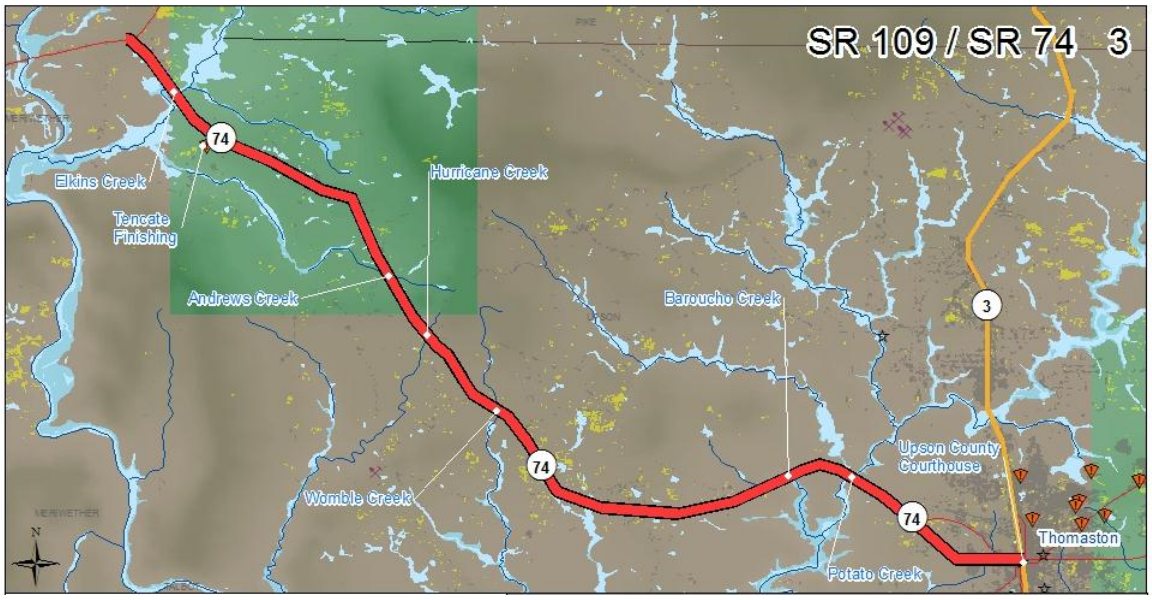


Figure 5: Macon-to-LaGrange Connector – Segment 3

Segment 4

The existing two lanes of segment 4 stretches from Thomaston eastwards to US 341 through Upson and Monroe Counties. Average future traffic volumes on this segment in the year 2035 are projected to be approximately 2,400 v.p.d.

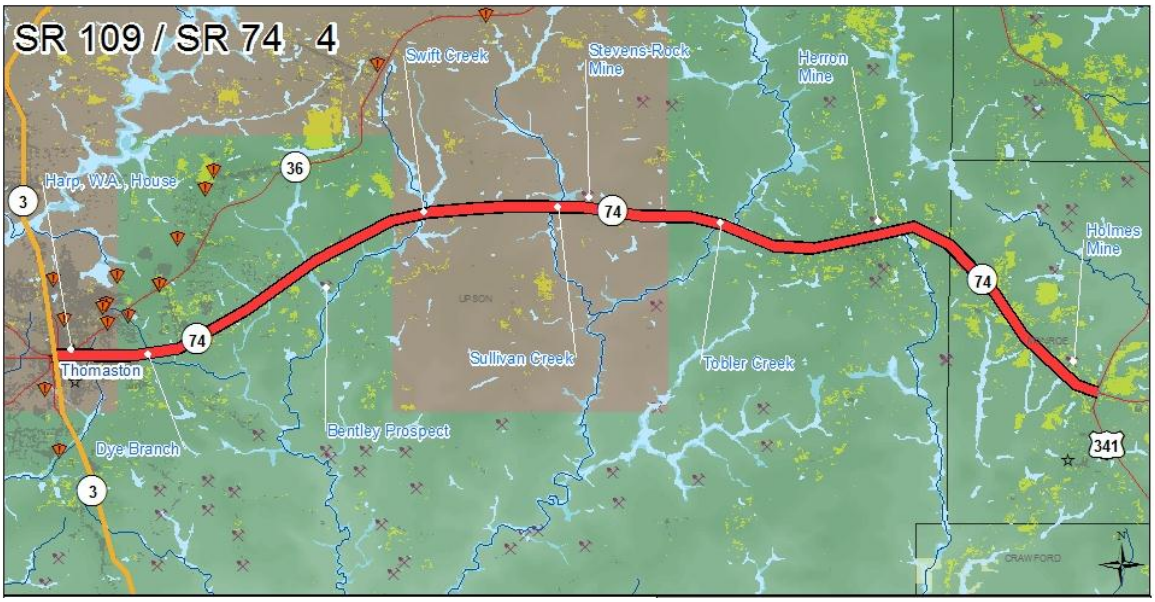


Figure 6: Macon-to-LaGrange Connector – Segment 4

Segment 5

Segment 5 continues through Monroe and Bibb Counties between US 341 eastwards to the corridor's eastern terminus at I-475 in Macon. Most of this segment is currently two lanes, with the exception of having four lanes near I-475. The average volume on this corridor is projected to be 2,400 v.p.d by the year 2035.

Figure 7: Macon-to-LaGrange Connector – Segment 5

OPERATIONAL ANALYSIS

Understanding the importance of continued economic growth and subsequent future traffic increases, the anticipated operational needs of the corridor were assessed into the future year 2035.

Table 1 shows the future-year average traffic volumes are projected to vary from 12,600 to 2,400 vehicles per day representing LOS ranging between "E" and "C".

Segments 1 and 2 experience portions which operate at LOS "E", which means future year congestion could be moderate-to-heavy. Traffic volume on this segment is anticipated to be greater than 55 percent of capacity.

Segment 3 predicts traffic volumes will be somewhat below the roadway capacity available, which could mean mild-to-moderate congestion concerns for drivers into the future year. Future year LOS ranging from "C" to "D", as on Segment 3, indicates that the roadway volumes are in the range of 35 to 55 percent of the available capacity of the roadway.

Segments 4 and 5 both operate at a LOS "C" or better in the future year, which are acceptable traffic conditions. Specifically, this denotes that traffic volumes are less than 35 percent of roadway capacity.

Table 1: Segment Characteristics

Segment	Length (mi.)	Year 2035 Volume (vpd)	LOS
1	15.9	12,600	"E"
2	13.0	10,700	"E"/"D"
3	14.7	5,800	"D"/"C+"
4	15.8	2,400	"C+"
5	23.0	2,400	"C+"

In addition to considering operational needs and potential benefits, costs should be estimated of the possible improvements. Funding for transportation projects is limited; to be developed it is critical that recommendations support a project's identified need and purpose.

With this in mind and the understanding that congestion is not expected to be an issue on segments 3, 4 and 5, cost-effective alternatives to a four-lane widening were assessed.

Currently, the roadway consists of a total of two lanes (each 12 feet wide) and several locations also have separate turning lanes. Study analysis indicated that vehicles slowing/stopping to make turns from the 'through' lanes may

affect the flow of traffic -- especially for trucks which take additional time to accelerate back up to speed after slowing/stopping. Therefore, this improvement concept would include adding turn lanes at select locations and eastbound and westbound passing lanes in specific segments.

Comparisons of the estimated cost of alternate improvement concepts for Segments 3, 4 and 5 --- compared to the cost of widening to four lanes -- is shown in Table 2.

Table 2: Estimated Segment Improvement Costs, by Concept

Segment	Estimated Cost: Widen to 4 Lanes	Estimated Cost: Turn & Passing Lanes
1	$146.6 M	N/A
2	$154.6 M	N/A
3	$76.0 M	$13.2 M
4	$81.7 M	$13.4 M
5	$100.3 M	$13.9 M
Total	**$559.2 M**	**$40.5 M**

RECOMMENDATION:

Considering the lack of justification for widening segments 3, 4 and 5 to four lanes, it is recommended that their improvements be in the form of added passing lanes and turn lanes as needed. Widening to four lanes would be appropriate in segments 1 and 2. Cost estimates for all these recommendations are shown in Table 3.

Table 3: Cost Estimate for Final Recommendation 'package'

Segment	Estimated Cost	Concept
1	$146.6 M	Widen to four lanes
2	$154.6 M	Widen to four lanes
3	$13.2 M	Turn & Passing lanes
4	$13.4 M	Turn & Passing lanes
5	$13.9 M	Turn & Passing lanes
Total	**$341.7 M**	

These recommendations will serve both the current and future mobility needs along the corridor, in light of anticipated growth and economic development activity. They also support the intended goal of enhancing connectivity between key activity centers in this area of the state.

Prioritized Tiers for Implementation

Within the year 2031-2040 timeframe recommended in State Freight & Logistics Plan:

- **Tier 1**: Segments 3, 4 and 5
- **Tier 2**: Segments 1 and 2

1.3 SUMMARY

- In 2007, GDOT Office of Planning conducted a corridor study of State Routes 74 and 109. That study did not recommend a corridor-wide widening to four lanes due to acceptable existing (and future) year traffic flow conditions.
- The "IT3" report identified a "northwest bypass" around metro Atlanta to provide an alternate for 'through' traffic.
- The GDOT Statewide Freight and Logistics Plan recommended that completion of the 4-laning of US 27 north of I-20 with unspecified improvement of a Macon-to-LaGrange connection could create an enhanced west metro Atlanta "bypass" alternative. Development in freight-focused business sectors, growth at the Savannah Port, and associated economic benefits indicated that 'package' of improvements could have a positive return-on-investment (ROI); cumulative ROI (the ratio of cumulative long-term economic benefit and cost) could be as high as 18:1 through the year 2050. Pursuit of this 'package' is recommended in the years 2031-2040.
- A subtask of GDOT's Connect Central Georgia study completed a detailed analysis and recommends this strategy for the Macon-to-LaGrange Connection:
    - **Add passing lanes and localized operational improvements (such as turn lanes)…implement as '1st tier' in the 2031-2040 timeframe:**
        - Between SR 74 split and SR3/Thomaston (*segment 3*)
        - From SR 3/Thomaston to US 341 (*segment 4*)
        - Between US 341 and I-475/Macon (*segment 5*)
    - **Widen to four lanes… implement as '2nd tier' in the 2031-2040 timeframe:**
        - From area of I-85/LaGrange to Greenville (*segment 1*)
        - Between Greenville and SR 74 split (*segment 2*)

Cost Estimates, By Segment

Segment	Estimated Cost	Recommended Concept
1	$146.6 M	Widen to four lanes
2	$154.6 M	Widen to four lanes
3	$13.2 M	Add Turn & Passing lanes
4	$13.4 M	Add Turn & Passing lanes
5	$13.9 M	Add Turn & Passing lanes
Total	**$341.7 M**	

1.4 APPENDIX

Columbus, Ga. Ledger-Enquirer September 11, 2013

"Mando America Recruiting More than 70 Workers For Its Auto Parts Plan in Meriwether County"

Kia and its parts suppliers now employ a collective 14,000 people in the region

By Tony Adams

Auto parts manufacturer Mando America Corporation is looking for workers to staff its second plant in Meriwether County, north of Columbus.

The South Korean company is planning a recruiting event 9 a.m. to noon Saturday at its casting facility in Meriwether Park at 955 Meriwether Park Drive, Hogansville, which is the address for the park that sits on the border of Meriwether and Troup counties.

Georgia Labor Department spokesman Sam Hall said more than 70 jobs are being filled. They are for the first shift, 7 a.m.-3:30 p.m.

At its initial plant in Meriwether Park, Mando *makes steering, brake and suspension components for several auto companies, including Kia and Hyundai,* both of which have large manufacturing plants in west Georgia (West Point) and east Alabama (Opelika). The casting facility is just now getting up and running.

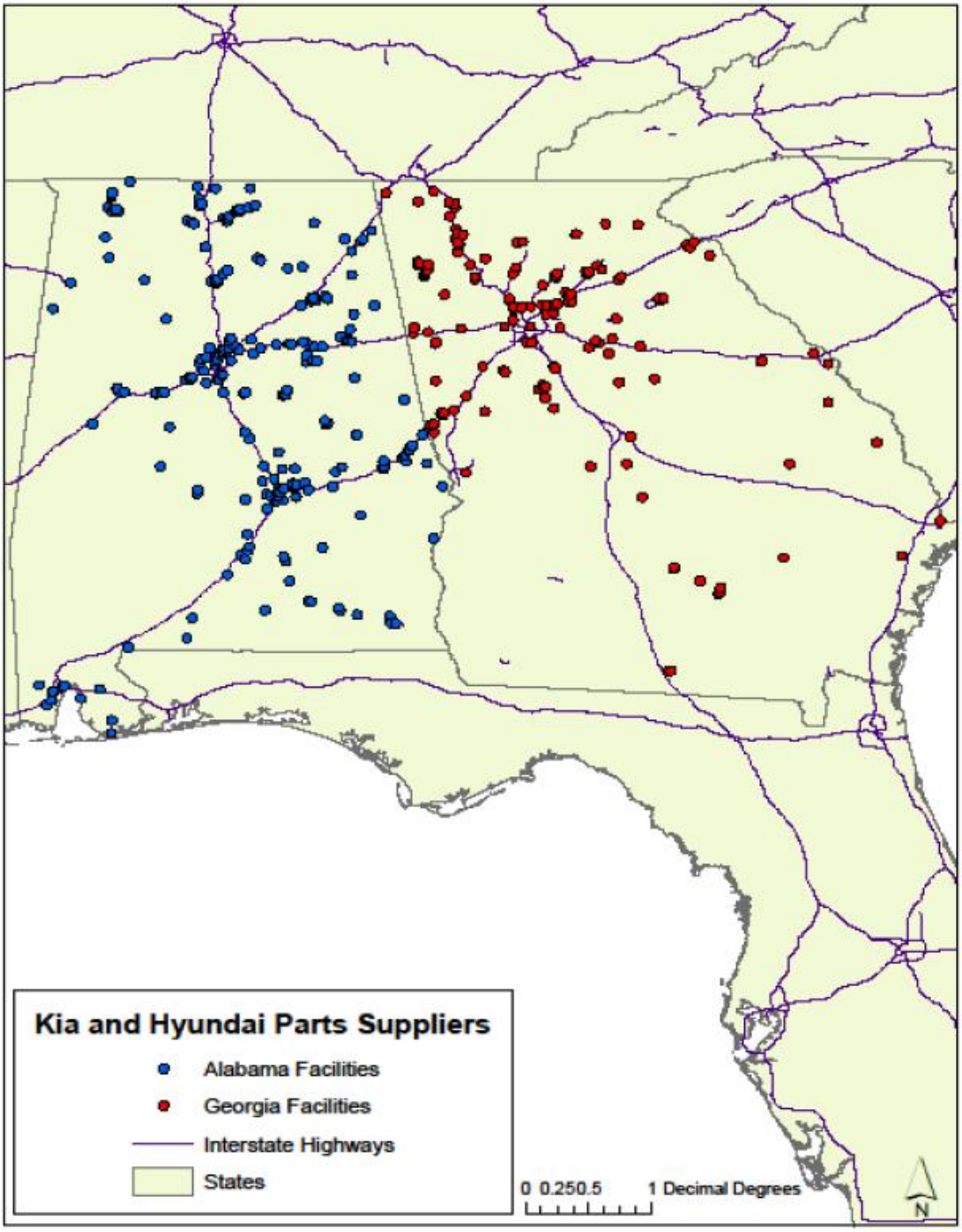
The labor department, which will help with the hiring, said positions available include finishing casting processing operator, melting and molding operators, quality technician and inspector, lab operator and technicians, inventory team leader, stock clerk and mobile equipment operator. Those under 18 years of age and with no heavy manufacturing experience need not apply.

The latest auto industry recruitment follows a recent calculation by Kia Motors Manufacturing Georgia that its presence has created more than 14,000 jobs in the region. Kia's main assembly plant is located in West Point, near the Alabama border, having opened in November 2009.

Kia itself has more than 3,000 workers on its three-shift payroll. The South Korean automaker estimated 7,000 more people are employed at parts suppliers in west Georgia, and another 4,000 in east Alabama.

The Kia Sorento, Kia Optima and Hyundai Santa Fe are assembly at the West Point complex.

Location of Parts Suppliers for Kia and Hyundai auto plants



Source: "Microdynamics of Industrial Location", Ghosal & Southworth
Georgia Institute of Technology: June 2013

"Kia and Hyundai Supplier to open plant in Columbus' Corporate Ridge Business Park, employ 65 people" Columbus, Ga. Ledger-Enquirer July 23, 2013

Kia and its parts suppliers now employ a collective 14,000 people in the region

By Tony Adams

A South Korean *company that makes floor mats and cargo trays for Kia, Hyundai and General Motors* has chosen Columbus for its first U.S. plant, creating 65 jobs and investing $3 million in its facility.

AFS America LLC, a subsidiary of NVH Korea Co. Ltd., said today it will open a production facility and warehouse in Corporate Ridge Business Park in east Columbus. The timeline calls for manufacturing to begin by the fourth quarter of this year, with operations ramping up through 2013.

"The fact that we had an available building that they could move into helped set us apart from some of the other communities," said Brian Sillitto, senior vice president of economic development with the Greater Columbus Chamber of Commerce, and the person who spearheaded recruitment of the company. "We've got in Columbus a portfolio of property with available buildings that other communities just don't have."

AFS America is a *supplier for Hyundai Mobis, a major Kia supplier located adjacent to the main Kia Motors Manufacturing Georgia* assembly plant in nearby West Point, Ga. It *also delivers parts to the Hyundai Motors Manufacturing Alabama factory near Montgomery, Ala.*

It will be the first U.S. production plant for AFS America, although the company already has a warehouse in Troy, Mich., supplying General Motors factories, said AFS President Richard Park. He said the Columbus operation will employ nearly 30 at first, then progress toward 65 on its payroll by 2014. The company is locating at 4825 Cargo Drive in one of two former Goody Products structures. Other companies now operating in Corporate Ridge Business Park are supplemental insurer Aflac, credit-card processor TSYS, ATM assembler NCR and health-care/nutrition product manufacturer Bayer Corp.

"Our plan is at first we lease that building, then we will purchase the building," said Park of the Columbus location. "We hope our business (gets) much better."

Aside from the property, Sillitto said Georgia's QuickStart training program was an incentive that helped the city land the company.

"There is the potential for property tax savings on the equipment, and also on land and building should they decide to acquire a building. That would be made available to them," he said.

This is the city's second exposure to NVH Korea, which in 2009 stopped a deal that would have brought a car mat and cargo liner called DongNam Tech to Columbus. The project was halted after NVH, which has been around since 1984, bought the smaller company.

At the time, DongNam was pledging to invest $29 million in a facility that would employ 350 people. The company had planned to locate in a 100,000-square-foot speculative building in Muscogee Technology Park on the city's east side.

Georgia Auto Supplier to Add 150 Jobs August 16, 2012

ATLANTA (AP) — An auto manufacturing supplier in LaGrange, Ga. plans a $10 million expansion with 150 new jobs.

Sewon Group Chairman Moon-Ki Kim said Thursday the project at Sewon America Inc. is scheduled to be finished by the end of the year. The plant currently employs about 700 people, and workers provide metal stamping for a variety of automotive parts.

The facility is the *largest supplier for Georgia's Kia Motors plant. It also supplies a Hyundai Corp. manufacturing plant in Alabama*.

A spokeswoman for the state economic development agency says Sewon stands to recoup $2.7 million of its expansion investment through income tax credits for the new jobs and sales tax exemptions on machinery.

The Korean firmed opened its Georgia facility in 2008 with a $170 million investment.

Public Tour of Kia Shows Modern, Sophisticated Manufacturing Processes

Newnan Times Herald December 20, 2009

The most modern and sophisticated manufacturing processes in the world are on display at the $1 billion Kia Motor Manufacturing Georgia plant 45 miles south of Newnan along Interstate 85 in West Point near the Georgia/Alabama state line. The plant, which produced its first vehicle -- a white 2011 Sorento CUV -- on Nov. 16, is now producing 450 Sorento vehicles a day with 1,184 employees and hundreds of robots operating one shift daily. Hiring has begun for a second shift of more than 1,000 additional workers. When those workers are hired and undergo state-aided Quick Start training, Kia will begin assembling a second vehicle model at the West Point plant. Company officials won't say what that second production vehicle will be. They only say they will see what the market demands before making a decision. When the second production shift is in place, the plant expects to produce up to 300,000 vehicles annually and employ about 2,500 workers. On site and nearby suppliers are expected to create about 7,500 jobs. Most of those suppliers are now in place in neighboring counties in West Georgia and East Alabama.

Kia is a boon to the West Point area, which during the past two decades has seen thousands of textile manufacturing jobs disappear. In fact, *the I-85 corridor from LaGrange to Montgomery, Ala., is reaping significant benefits from Kia. The parent Korean company of Kia -- Hyundai -- has a huge manufacturing operation near Montgomery. Many of the suppliers to Kia and Hyundai are located between the two automakers' plants.*