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Economic Development and Workforce Impacts of State DOT Expenditures

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Final Report

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GDOT Research Project No. 12-19

Final Report

ECONOMIC DEVELOPMENT AND WORKFORCE IMPACTS OF STATE DOT HIGHWAY EXPENDITURES

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Contract with

Georgia Department of Transportation

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16. Abstract: The research measured the impact of Georgia Department of Transportation's highway expenditures on economic activity in the State. The analysis covered awards made between January 2009 and April 2013. The research is unique in that it not only examined economic impacts statewide, but also for each of Georgia's 159 counties and seven GDOT Administrative Districts. The IMPLAN model was used to generate six impacts at each geographic level. They included the following: total output, value added in production, new jobs created, household income, small business revenue and tax revenues. GDOT's highway expenditures of $3.094 billion were estimated to have created 51,246 new jobs and generated $5.859 billion in economic output. The study also found that expenditures supported by the Federal Fiscal Stimulus program created 15,088 jobs. A most important finding is the impact per dollar spent differed significantly across counties and GDOT Districts. In other words, $1.0 million spent on highway projects in County A did not generate the same economic activity and number of jobs as did $1.0 million spent on identical projects in County B. An important recommendation therefore is that GDOT planners must take these differential impacts into consideration in order to maximize the effect of highway expenditures on local economic development.

17. Key Words: GDOT Economic Impact, Georgia Highway Expenditures Impacts, Highway Investment Impacts, GDOT Impact on Jobs	18. Distribution Statement:

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EXECUTIVE SUMMARY

This research measured the impact of the Georgia Department of Transportation's highway expenditures (made between 2009 and 2013) on job creation and economic activity at the county, highway district and statewide levels. Impact Analysis for Planning (IMPLAN) software was used to conduct the assessment. Six (6) categories of economic impacts were estimated: 1. total economic output; 2. value added in production; 3. new jobs created; 4. household income arising from wages paid to employees; 5. revenue generated by proprietors of small businesses; and 6. tax receipts. The study is unique in that it not only estimated total economic impacts at the state level, but also for each of Georgia's 159 counties and seven GDOT Administrative Districts. Economic impacts were examined for three time intervals: (1) January 2009 through April 2013; (2) calendar year 2012 (the most recent full year for which data were available); and (3) 2009 - 2010 (the time during which GDOT's expenditures were supplemented by support from the Federal Fiscal Stimulus Program, ARRA).

Between January 2009 and April 2013, GDOT awarded $3.094 billion in connection with 1,271 highway projects. Multiple awards occurred in each of the State's 159 counties. The average award was $2.435 million and the median (midpoint) award value was $.845 million. During 2012, the most recent full year for which data were available, GDOT spent $.911 billion on highway projects. Finally, between 2009 and 2010, GDOT spent $1.264 billion on highway projects. That amount included $.604 billion received from the federal government under the Fiscal Stimulus Program.

GDOT's Highway expenditures had a significant impact on the State's economy. At a time when Georgia and the nation struggled to recover from the "Great Recession", GDOT's $3.094 billion in direct highway expenditures resulted in a combined statewide economic impact of $5.859 billion. This means every dollar of highway investment generated a total economic impact of $1.89. The impact occurred across

GDOT's seven Districts as follows: District 1 – Gainesville: $634.1 million; District 2 – Tennille: $759.9 million; District 3 – Thomaston: $910.3 million; District 4 – Tifton: $530.5 million; District 5 – Jesup: $664.0 million; District 6 – Cartersville: $481.6 million; and District 7 – Chamblee: $880.0 million.

GDOT's highway expenditures created an estimated 51,246 new jobs statewide. This means for each $1.0 million of direct highway spending, 16.6 new jobs were created. The highway expenditures also sustained numerous existing jobs. Employment gains occurred across GDOT Districts as follows: District 1 – Gainesville: 5,872; District 2 – Tennille: 7,910; District 3 – Thomaston: 9,271; District 4 – Tifton: 5,569; District 5 – Jesup: 6,624; District 6 – Cartersville: 5,323; District 7 – Chamblee: 6,605.

The study concluded that significant policy insights can be gained by examining economic impacts at the county and district levels, instead of limiting the analysis to statewide impacts only. Geographic differences in the industry composition of counties, as well as differences in supply chain characteristics and patterns of consumer expenditures cause notable differences in total impact per dollar spent.

For example, among all seven GDOT Districts, District 3 (Thomaston) experienced the highest rate of job creation per dollar spent (i.e. 16.4 jobs were created for each $1.0 million of highway expenditures). In contrast, District 7 (Chamblee, which encompasses the central counties of Metro Atlanta) experienced the smallest number of new jobs per $1.0 million of highway expenditures — 12.9. In contrast, highway expenditures in District 7 led to the largest gain in small business revenue ($21.40 per $100.00 spent on highway projects) among all Districts. This is because of District 7's relatively strong supply chain characteristics, which resulted in fewer leakages of supply chain purchases to firms located outside the District.

By examining how highway expenditures affect local areas, policy makers can improve the effectiveness of resource allocation, be more responsive to stakeholders and maximize local economic development.

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INTRODUCTION

Understanding the full economic impact of transportation infrastructure investments is a national priority because of the anemic job market recovery following the "Great Recession". On August 31, 2011, President Obama issued a Memorandum directing the heads of all executive departments and agencies to "identify and work to expedite permitting and environmental reviews of high priority infrastructure projects with significant potential for job creation".[1] The requirement to measure job creation resulting from new infrastructure projects was a fundamental component of the Federal Fiscal Stimulus Program (technically known as the American Recovery and Reinvestment Act of 2009). Eight million jobs were lost during the recession of 2007:Q4 to 2009:Q2 and the pace at which the economy recovered was unusually slow. As a result, tracking the number of new jobs associated with highway projects became a top policy priority.

The Georgia Budget & Policy Institute (a nonpartisan organization) estimated the State lost 340,000 jobs between the start of the recession and the end of 2011. Further, Georgia's job growth during the recovery was among the slowest in the nation. In August of 2013, Georgia's unemployment rate was 8.7% while the national average was 7.3%. Fortunately, by December of 2014 Georgia's employment growth ranked among the fastest in the country, but its unemployment rate (6.9%) was still higher than the national average (5.6%).

This research documents the contribution of GDOT's highway expenditures to job creation in the State. The results imply that Georgia's job market recovery was enhanced significantly by highway expenditures. The research tracked all highway project expenditures made between January 2009 and April 2013. The impacts of those expenditures were measured at the state, district and county levels.

[1] US Department of the Treasury and the Council of Economic Advisers (2012) A New Economic Analysis of Infrastructure Investment, March 23, 2012. http://www.treasury.gov/resource-center/economic-policy/Documents/20120323InfrastructureReport.pdf accessed November 7, 2013. P3.

Impacts were also examined over three time intervals: (1) January 2009 through April 2013; (2) calendar year 2012, which was the most recent full year for which data were available; and (3) 2009 through 2010, the period during which GDOT's highway expenditures were supplemented by funds related to the Federal Fiscal Stimulus Program (i.e. American Recovery and Reinvestment Act of 2009).

PROCEDURE

Impact Analysis for Planning (IMPLAN) was used to conduct the assessment. IMPLAN is one of the most frequently used software applications by governmental agencies and private organizations to estimate local, regional and national impacts. After classifying highway expenditures by industry and geographic location, the IMPLAN model was used to estimate six (6) categories of economic impacts, which are defined as follows:

1. Total Output: When new highway expenditures are injected into the economy, they set in motion three types of effects. The first effect is the initial spending that is undertaken by the firms that are the recipients of highway awards. This initial spending is referred to as, "direct effects". Second, the direct spending creates demand for goods and services among firms operating in the supply chains of related industries. This demand is classified as "indirect effects". Third, the direct and indirect spending effects result in additional compensation to workers. With the added income, households undertake additional spending. This additional spending is referred to as, "induced effects". Taken together, these three effects lead to an increase in final sales in the economy. Total output is the amount of final sales that are caused by the initial injection of new highway expenditures.

2. Value Added in Production: Value added is the output that occurs in an industry (as measured by final sales) minus the value of the intermediate goods and services required to create the new output. Value added measures the contribution to new economic output (resulting from highway expenditures) made by an individual producer, sector or industry.

3. New Jobs Created: Workers are required to produce the goods and services created by the direct, indirect and induced demand of new highway expenditures. The new demand helps to sustain the existing workforce and typically results in an expansion of new hiring. Jobs created measures the

number of new full and part-time employees that are needed to deliver each million dollars of final demand resulting from the initial highway expenditures.

4. Household Income: This is the compensation to employees paid in return for the work they performed in creating the new final demand.

5. Revenue to Proprietors and Small Business Owners: This consists of payments received by self-employed individuals and unincorporated business owners as recorded on Federal Tax form 1040C. The payments reflect added demand resulting from the new total output.

6. New Tax Revenue: Additional tax revenues are derived from the increase in final sales. The revenues come from sales and excise taxes, customs duties, property taxes, motor vehicle licenses, severance taxes and special assessments.

Research Method

Between 2009 and 2013, GDOT commissioned 1271 infrastructure projects costing $3.094 billion. Projects were initiated in every county of the State. The average award was $2.435 million and the median (midpoint) award value was $.845 million.

Total economic impact is the cumulative effect of numerous rounds of spending set in motion by the original expenditures on highways and roadways. In other words, each highway investment set in motion secondary expenditures because prime contractors buy goods and services from suppliers, hire subcontractors and make payments to workers and suppliers. As suppliers, subcontractors and workers spend portions of their income on other goods and services, new rounds of spending occur. Total economic impact is the cumulative result of the successive rounds of spending.

At the county level, the economic impact of a local highway project depends upon the extent to which the successive rounds of spending recirculates within the county, or leaks out to other areas. Leakages occur when households and businesses make purchases from firms outside of the local economy. Examples include prime contractors hiring nonlocal subcontractors or buying supplies from nonlocal businesses. Another leakage is when households make purchases from vendors outside of the county. Thus, local economic impacts are influenced by the pattern of consumer spending, characteristics of businesses in the local economy, nature and location of firms in the supply chain and the kinds of products and services required by the highway construction project. The IMPLAN model attempts to capture these dynamic processes.

IMPLAN is an acronym for Impact Analysis for Planning. The software is widely used by governmental agencies and private organizations. It was created through a joint effort of the US Department of Agriculture Forest Service and the Federal Emergency Management Agency (FEMA). IMPLAN was used by the US Department of Agriculture, Natural Resources Conservation Service to estimate the number of jobs created by the Fiscal Stimulus Act of 2009. Today, IMPLAN is one of the most frequently used software applications to estimate national and regional impacts.

The IMPLAN model is based on a 440 sector social accounting table and input output-matrix. The model replicates industry supply chain linkages and patterns of household expenditures occurring in each user-defined geographic location. It traces how expenditures on goods and services in one sector of the economy create demand for commodities and services in other sectors. The linkages are expressed numerically as multipliers. For example, the model of Georgia's economy produced a total output multiplier of 1.89 for highway construction expenditures. This means every dollar spent on highway projects generated a total economic impact of $1.89.

The study derived a separate model for each of Georgia's 159 counties. Secondly, counties were aggregated into GDOT's seven (7) Administrative Districts and district level impacts were estimated. Finally, impacts were estimated for the statewide economy.

Readers of this report should note that District and statewide economic impacts are not necessarily equivalent to the sum of county impacts. This is because the extent of leakages from an area depends in part upon how the area is defined geographically. As a result, one must develop separate models to estimate county, district and statewide impacts.

The multipliers produced by the IMPLAN model estimated how an initial dollar of highway investment affected final demand (total output), employment (jobs), wages (household income), value-added (new value created at each stage of production), small business revenue (proprietor's income) and tax receipts (county and state tax revenues). The multipliers create estimates of "direct effects", "indirect effects" and "induced effects".

Data

The report is based on GDOT's prime contracting data covering the period January 2009 through April 2013. Contracting data included a detailed description of each project awarded during the timeframe of the analysis. Highway awards were classified by work code and industry (for example resurfacing, bridge construction, traffic signal installation, signing and pavement marking, intersection improvements, fencing and guard rail installation, drainage improvements, electrical contracting, etc.). Contracting data also included the geographic location of the highway project and other relevant information. Prequalification records were used to collect information on contractors, including the geographic location of their operation.

Literature Review of Related Research

Numerous studies of transportation impacts have been conducted with IMPLAN software and similar models. A comprehensive list of such studies is provided by Babcock and Leatherman (2011).

Title: *Methodology for Measuring Output, Value Added, and Employment Impacts of State Highway and Bridge Construction Projects***,** Babcock and Leatherman (2011). The research provides a methodology for measuring the economic impact of state highway projects. It does so by applying the IMPLAN model to highway expenditures in Kansas; specifically, the Kansas Comprehensive Transportation Program (CTP). This program spent $5.2 billion on highway and bridge projects between 1999 and 2009. Firms receiving highway project awards were identified and interviewed. A 345 sector input-output model was used and calibrated to the year 2006, the midpoint of the project. Researchers identified the portion of project expenditures that occurred outside of the state and estimated the total impact on jobs (50,483). Multipliers were derived for the purpose of allowing policy makers to estimate the impact of highway projects on job creation. The authors provided a comprehensive bibliography of related studies.

Title: *Mississippi's Unified Long-Range Transportation Infrastructure Plan,* Mississippi Department of Transportation (2011). This report was commissioned by the Mississippi Department of Transportation (MDOT) in response to the national recession. The research was part of the MULTIPLAN 2035 long-term planning process and was used to make a stronger case for transportation investments.

MDOT used the IMPLAN model to estimate the economic impact of transportation infrastructure spending over the planning horizon. It was estimated that the implementation of the Plan would require $14.5 billion in infrastructure expenditures between 2008 and 2035. The plan calls for expenditures on highways ($9.2 billion), bridges ($2.6 billion), transit ($1.0 billion), bicycle/pedestrian

paths ($140 million) and aviation ($1.6 billion). The study estimated the cumulative impact on jobs created at 189,930.

Title: *A New Economic Analysis of Infrastructure Investment*, US Department of the Treasury and the President's Council of Economic Advisers (2012). The two agencies conducted an updated report on the impact of the $50 billion infrastructure investment scheduled in President Obama's FY 2013 budget. The upfront investment was connected to a six-year reauthorization of the Surface Transportation Program in the amount of $476 Billion. The President's "August 31, 2011 Memorandum" directs heads of all executive departments and agencies to expedite infrastructure projects with significant job creating potential. This report was designed to estimate the effect of transportation infrastructure investments in the United States. The analysis concluded that such infrastructure investments would be highly beneficial to the US economy in the short-run and long-run. Citing authoritative research studies, the report noted that infrastructure projects accelerate economic growth because they lead to significant productivity gains.

Increases in infrastructure investments were found to be positively correlated with improvements in property values and housing affordability. Finally, the analysis concluded that transportation investments can spur long-term economic growth, increase productivity and land values and improve economic development, energy efficiency and public health.

Title: *Performance Driven: A New Vision for US Transportation Policy***,** National Transportation Policy Project (2009). This bipartisan report makes an argument for a broad set of transit goals to capture the full impact of transit investment. The report used information collected from test cases, best practices and interviews with subject matter experts, politicians and policy makers. The five key outcomes of highway investments were identified as follows: increased economic growth per dollar invested; more

efficient national connectivity among people and goods across regions; greater metropolitan accessibility and efficiency of access to jobs; greater energy security and environmental protection; and improved safety. Along with outlining goals, the report also identified several performance based metrics that can be used to capture benefits.

Title: *Economic Impact of Public Transportation investment***,** Weisbrod & Reno, Economic Impact of Public Transportation Investment (2009). The research examined the specific impact that public transit investments can have on the economy. In particular, it examines wages, employment, and business income. The authors identified short-term impacts, such as jobs and income. They also identified long-term impacts, such as greater economic efficiency and productivity. According to Weisbrod and Reno, capital investments (in the form of purchases of vehicles and equipment and infrastructure investments to support transit activities) generate about 24,000 jobs per one billion dollars spent. Operational investments (i.e. management, operations and maintenance of equipment and facilities) generate about 41,000 jobs per year for every one billion dollars spent. Metrics used to capture short-term impacts include jobs (employment), output (business sales), Gross Domestic Product (measured by the value added technique), Labor Income (wages), and Tax Revenue. Specific long-term impacts that were tracked included travel and vehicle costs savings for passengers; reduced traffic congestion; lower business operating costs associated with improved worker reliability and reduced congestion; improved business productivity as a result of greater labor accessibility to diverse markets; and increased business growth resulting from higher worker productivity. The study noted that these factors enhance the global competitiveness of local areas.

Title: *The Economic Effects of Public Investment in Transportation and Directions for the Future***,** deBettencourt (2012)**.** The report examined techniques employed by various organizations to estimate the effect of public transit investment. The findings were based on information gathered from nine

state transportation agencies, several metropolitan planning organizations and an exhaustive literature review. After closely examining the research, the author derives several main conclusions:

1. The typical measures of direct user benefits do not fully capture the full impact of investments because they omit factors such as livability, which is measured by factors such as environmental quality, health, land, resource use, walkability; regional economic development arising from short-term employment gains, employment and employment shifts, induced development, value capture and fiscal impacts; benefit-cost and cost effectiveness associated with lower travel time and travel costs and improved safety, equity and accessibility; and system performance enhancements such as greater utility and connectivity and improved operational finances.

2. The increased interest in determining the economic benefit of transportation investment is in part a response a new national priority.

3. The scope of benefits should be broadened to capture factors such as improved access to medical and education services.

Title: *Transit Investment and Economic Development,* Vickerman (2008)**.** The author argues that urban economists are concerned with accessibility, i.e. how increased access allows different economic activities to occur more efficiently by reducing costs and increasing mobility in urban areas. Vickerman provides an overview of the links between urban transit and the urban economy, their influence on land rent and land values, and the agglomeration effect (i.e. wider effects that are not captured). The findings indicate the impact of specific investments depend upon the context. Specifically, each situation and city requires different rules and calculations.

Title: *Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications,* Litman (2009)**.** This guidebook presents the latest techniques used in quantifying the full costs and benefits of various modes of transportation. The book provides a comprehensive review of transportation benefit and costs and identifies techniques that can be used in planning and policy analysis. Included in this research are summaries of previous transportation impact studies and descriptions of how nonmarket factors are estimated.

FINDINGS

Summary of GDOT Highway Expenditures, 2009 - 2013

The research team examined each prime contract awarded during the relevant time frame (2009 to 2013). The contracts amounted to $3.094 billion in construction expenditures. Figure 1 provides detailed information on GDOT's expenditures. Expenditures in the figure are broken down by work code, value and percent distribution. Figure 2 records the year of awards, value and number of awards made during the year. Figure 1 indicates that 67.7% of the projects funded by GDOT (i.e. 861 out of 1271) involved resurfacing activities. Those projects accounted for $2.386 billion or, 77.1% of all expenditures. The second largest category of expenditures was bridge construction and rehabilitation, which accounted for 10.1% of the number of awards and 14.0% of the total award value ($.435 billion).

It is also important to note that GDOT awarded $84.9 million in transportation expenditures to local jurisdictions such as cities, townships and state parks. Those jurisdictions either executed highway projects using their internal workforce or they engaged prime contractors to do so.

Figure 1: GDOT Highway Expenditures by Amount, Number and Type, 2009- 2013

TYPE OF GDOT HIGHWAY PROJECTS BY TOTAL EXPENDITURE AND WORK CODE AREA JANUARY 2009 - APRIL 2013					
		HIGHWAY PROJECT AWARDS			
		PROJECT EXPENDITURES	% TOT. EXPENDITURES	NO. OF PROJECTS	PERCENT OF PROJECTS
	PLANT MIX RESURFACING	$ 2,386,502,034	77.1%	861	67.7%
	BRIDGE CONSTRUCTION AND REHIBILATATION	$ 434,692,113	14.0%	128	10.1%
	TRAFFIC SIGNAL INSTALLATION AND UPGRADES	$ 48,278,103	1.6%	44	3.5%
	SIGNING AND PAVEMENT PARKING	$ 9,231,195	0.3%	10	0.8%
	INTERSECTION IMPROVEMENT, ROAD WIDENING	$ 39,976,406	1.3%	7	0.6%
	DRAINAGE IMPROVEMENTS	$ 65,110,346	2.1%	5	0.4%
	FENCING, GUARDRAIL INSTALLATION	$ 4,796,603	0.2%	6	0.5%
	OTHER VERTICAL CONSTRUCTION	$ 12,468,552	0.4%	10	0.8%
	ELECTRICAL CONTRACTING	$ 8,301,475	0.3%	10	0.8%
	LOCAL JURISDICTIONS: CITIES, TOWNSHIPS, STATE PARKS	$ 84,897,979	2.7%	190	14.9%
	Total	$ 3,094,254,806	100.0%	1271	**100.00%**
SOURCE: All competitive bid projects and awards to local jurisdictions					

Figure 2: GDOT Highway Expenditures by Year, Amount and Number of Projects, 2009 – 2013

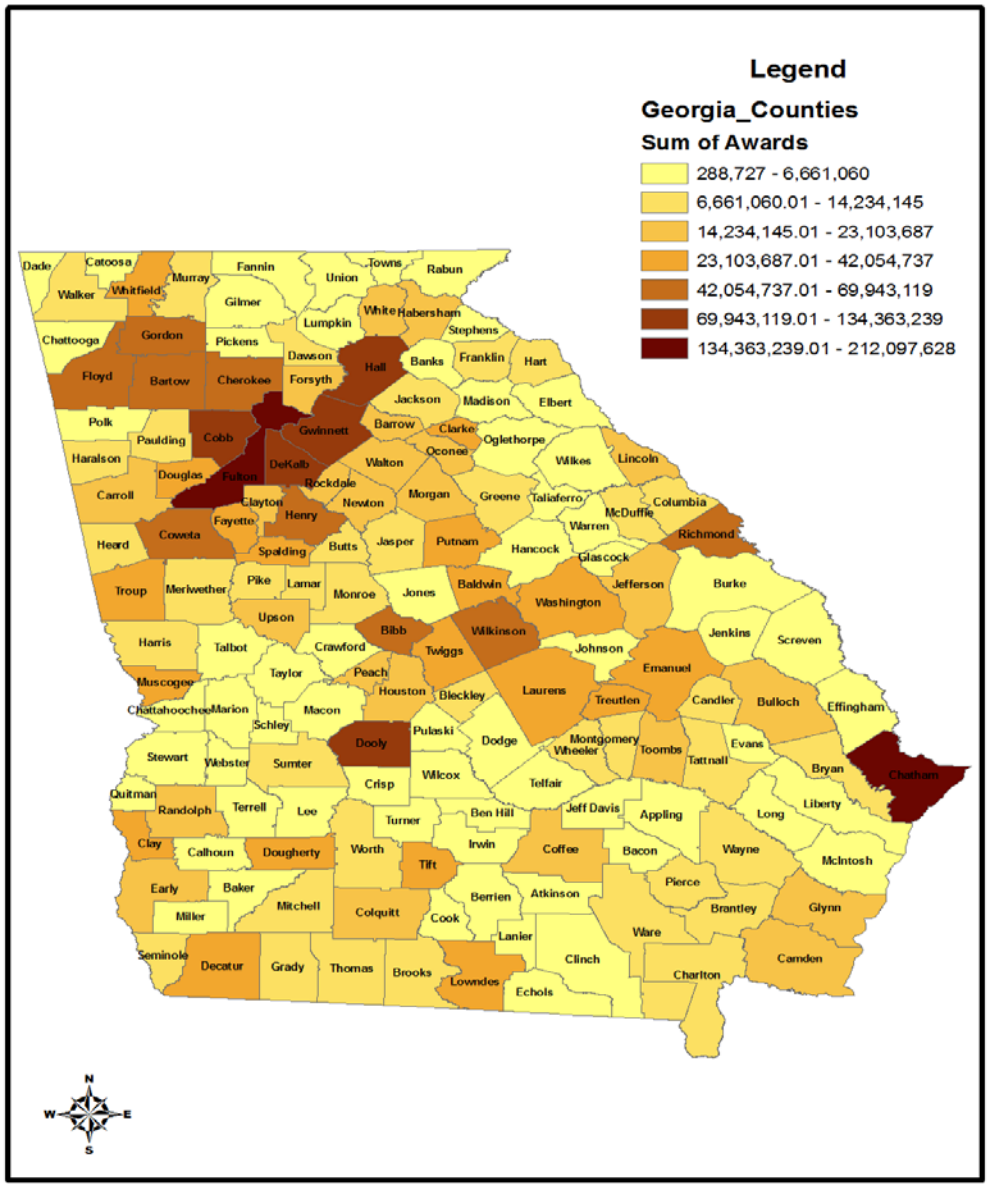
GDOT HIGHWAY PROJECTS BY YEAR, TOTAL EXPENDITURE AND NUMBER OF PROJECTS JANUARY 2009 - APRIL 2013			
		HIGHWAY PROJECTS	
		TOTAL EXPENDITURES	NUMBER OF PROJECTS
YEAR OF EXPENDITURE	2009	$ 723,756,828	354
	2010	$ 539,857,840	211
	2011	$ 817,279,331	284
	2012	$ 911,016,410	380
	2013	$ 102,344,396	42
	Total	$ 3,094,254,806	1271
SOURCE: All competitively bid projects plus awards to local jurisdictions			

Location of GDOT's Highway Projects

Multiple highway projects were commissioned in every county of the State. Chatham County received the largest value of project awards ($212.1 million or 6.9%). It was followed by Fulton County ($187.9 million or 6.1%), DeKalb County ($134.4 million or 4.3%), Cobb County ($116.9 million or 3.8%), Gwinnett county ($93.7 million or 3.0%) and Dooly County ($92.5 million or 3.0%). The Appendix (entitled Figure 35) provides an alphabetical listing of all counties with the number of projects and total expenditures made in each county.

Figure 3 geographically depicts counties in the State with a map that is color-coded according to the value of projects awarded within each county. The smallest classification represents total project expenditures that ranged from $.29 million to $6.7 million. The largest classification included values that ranged from $134.4 million to $212.1 million.

Figure 3: Map of Georgia Counties, Color-coded by the Amount of GDOT Expenditures, 2009 - 2013



GDOT Highway Expenditures by District

Figure 4 depicts the geographic boundaries of Georgia's seven GDOT Districts while Figure 5 records total expenditures on projects awarded in the Districts. Figure 5 lists total value of awards in each District, the percent distribution of awards by District and the number of awards made within each District.

Figure 4: Geographic Boundaries of GDOT's 7 Administrative Districts

Figure 5: GDOT Expenditures by Amount, District and Number of Projects

GDOT HIGHWAY PROJECTS BY HIGHWAY DISTRICT, TOTAL EXPENDITURE, NUMBER AND PERCENT JANUARY 2009 - APRIL 2013					
		HIGHWAY PROJECTS			
		TOTAL EXPENDITURES	PERCENT OF EXPENDITURES	NUMBER OF PROJECTS	PERCENT OF PROJECTS
	District 1 - Gainesville	$ 387,541,849	12.5%	187	14.7%
	District 2 - Tennille	$ 511,158,514	16.5%	174	13.7%
	District 3 - Thomaston	$ 565,913,056	18.3%	224	17.6%
	District 4 - Tifton	$ 345,522,400	11.2%	183	14.4%
	District 5 - Jesup	$ 442,533,459	14.3%	183	14.4%
	District 6 - Cartersville	$ 330,836,134	10.7%	131	10.3%
	District 7 - Chamblee	$ 510,749,394	16.5%	189	14.9%
	Total	$ 3,094,254,806	100.0%	1271	100.0%
SOURCE: All competitively bid projects plus awards to local jurisdictions					

In descending order, the largest value of awards occurred in District 3 (Thomaston) 18.3%; District 2 (Tennille) 16.5%; District 7 (Chamblee) 16.5%; District 5 (Jesup) 14.3%; followed by District 1 (Gainesville) 12.5% and District 4 (Tifton) 11.2%.

Between 2009 and 2010, Georgia undertook $604.1 million in projects with funding provided by the Federal Fiscal Stimulus Program. Stimulus awards were made in all counties of the State and Figure 6 records the amount of fiscal stimulus awards made to each District. Figure 7 records the number of fiscal stimulus awards made to Districts. Figure 8 records the awards made by GDOT to local jurisdictions within each district. They include cities, townships and park authorities. Finally, Figure 9 records information on projects made during 2012, the latest period for which data were available for the entire year.

Figure 6: GDOT Expenditures Supported by the Federal Fiscal Stimulus Program, 2009 - 2010

GDOT EXPENDITURES BY FEDERAL FISCAL STIMULUS SUPPORT AND DISTRICT, 2009 - 2010						
		STIMULUS AND NON-STIMULUS FUNDED PROJECTS				
		STIMULUS SUPPORTED PROJECTS		NON-STIMULUS SUPPORTED PROJECTS		TOTAL EXPENDITURE
		TOTAL EXPENDITURE	SHARE OF DISTRICT EXPENDITURES (ROW %)	TOTAL EXPENDITURE	SHARE OF DISTRICT EXPENDITURES (ROW %)	STIMULUS AND NON-STIMULUS EXPENDITURES
DISTRICT	District 1 - Gainesville	$ 96,162,659	59.3%	$ 66,050,375	40.7%	$ 162,213,035
	District 2 - Tennille	$ 105,607,435	62.4%	$ 63,632,034	37.6%	$ 169,239,469
	District 3 - Thomaston	$ 128,831,320	42.5%	$ 174,391,090	57.5%	$ 303,222,410
	District 4 - Tifton	$ 45,220,173	47.9%	$ 49,188,083	52.1%	$ 94,408,256
	District 5 - Jesup	$ 58,893,154	25.9%	$ 168,641,605	74.1%	$ 227,534,759
	District 6 - Cartersville	$ 42,602,254	42.0%	$ 58,946,401	58.0%	$ 101,548,655
	District 7 - Chamblee	$ 126,764,047	61.7%	$ 78,684,038	38.3%	$ 205,448,085
	Total	$ 604,081,043	47.8%	$ 659,533,625	52.2%	$ 1,263,614,669
SOURCE: All competitive bid projects and awards to local jurisdictions						

Figure 7: Number of GDOT Projects Supported by Federal Fiscal Stimulus Program, 2009 – 2010

NUMBER OF GDOT PROJECT AWARDS BY FEDERAL FISCAL STIMULUS STATUS, 2009 - 2010						
		STIMULUS AND NON-STIMULUS FUNDED PROJECTS				
		STIMULUS SUPPORTED		NON-STIMULUS SUPPORTED		NUMBER
		NUMBER OF PROJECTS	SHARE OF DISTRICT PROJECTS (ROW %)	NUMBER OF OF PROJECTS	SHARE OF DISTRICT PROJECTS (ROW %)	STIMULUS AND NON-STIMULUS SUPPORTED
DISTRICT	District 1 - Gainesville	36	43.9%	46	56.1%	82
	District 2 - Tennille	33	44.0%	42	56.0%	75
	District 3 - Thomaston	43	40.6%	63	59.4%	106
	District 4 - Tifton	31	47.0%	35	53.0%	66
	District 5 - Jesup	28	29.2%	68	70.8%	96
	District 6 - Cartersville	24	41.4%	34	58.6%	58
	District 7 - Chamblee	41	50.0%	41	50.0%	82
	Total	236	41.8%	329	58.2%	565
SOURCE: All competitive bid projects and awards to local jurisdictions						

Figure 8: GDOT Awards to Local Jurisdictions within District, 2009 - 2013

GDOT AWARDS TO LOCAL JURISDICTIONS WITHIN DISTRICTS		
		AWARDS TO ALL LOCAL JURISDICTIONS
DISTRICT	District 1 - Gainesville	$ 19,047,107
	District 2 - Tennille	$ 5,173,293
	District 3 - Thomaston	$ 13,944,035
	District 4 - Tifton	$ 9,823,267
	District 5 - Jesup	$ 4,190,629
	District 6 - Cartersville	$ 17,279,696
	District 7 - Chamblee	$ 18,770,083
	Total	$ 88,228,110
SOURCE: All awards to local jurisdictions		

Figure 9: GDOT Total Expenditures in 2012 by District

GDOT HIGHWAY PROJECT EXPENDITURES IN 2012 BY DISTRICT			
		HIGHWAY PROJECT AWARDS	
		TOTAL PROJECT EXPENDITURES	NUMBER OF PROJECT AWARDS
DISTRICT	District 1 - Gainesville	$ 146,972,635	**64**
	District 2 - Tennille	$ 178,857,061	**54**
	District 3 - Thomaston	$ 113,157,135	**60**
	District 4 - Tifton	$ 126,448,062	**60**
	District 5 - Jesup	$ 79,678,424	**53**
	District 6 - Cartersville	$ 102,412,940	**35**
	District 7 - Chamblee	$ 163,490,152	**54**
	Total	$ 911,016,410	**380**
SOURCE: All competitive bid projects and awards to local jurisdictions			

Summary of GDOT Highway Expenditures by Counties within Districts

Figure 10 - 23 Illustrate highway expenditures by districts and counties. The figures containing maps illustrate counties within each district color coded by the value of awards received from January 2009 to April 2013. There are five color categories: lighter colors represent smaller award values while the darker colors represent larger values. A summary figure is provided after each map. The figures give the dollar amount of awards and the corresponding number of projects funded in the county. The ten counties receiving the largest value of awards were as follows:

	County	Ranked by Total GDOT Expenditure
1.	CHATHAM	$ 212,097,628
2.	FULTON	$ 187,887,067
3.	DEKALB	$ 134,363,239
4.	COBB	$ 116,860,880
5.	GWINNETT	$ 93,704,343
6.	DOOLY	$ 92,486,465
7.	HALL	$ 83,899,932
8.	RICHMOND	$ 69,943,119
9.	FLOYD	$ 62,369,901
10.	CHEROKEE	$ 59,180,921

The ten counties that were awarded the largest number of projects are as follows:

	County	Ranked by Number of GDOT Funded Projects
1.	FULTON	90
2.	DEKALB	53
3.	COBB	36
4.	GWINNETT	35
5.	CHATHAM	29
6.	HENRY	26
7.	HALL	25
8.	COWETA	20
8.	DOUGLAS	20
8.	RICHMOND	20

Figure 10: Map of Counties in District 1 Color-coded by Total GDOT Expenditures, 2009 – 2013

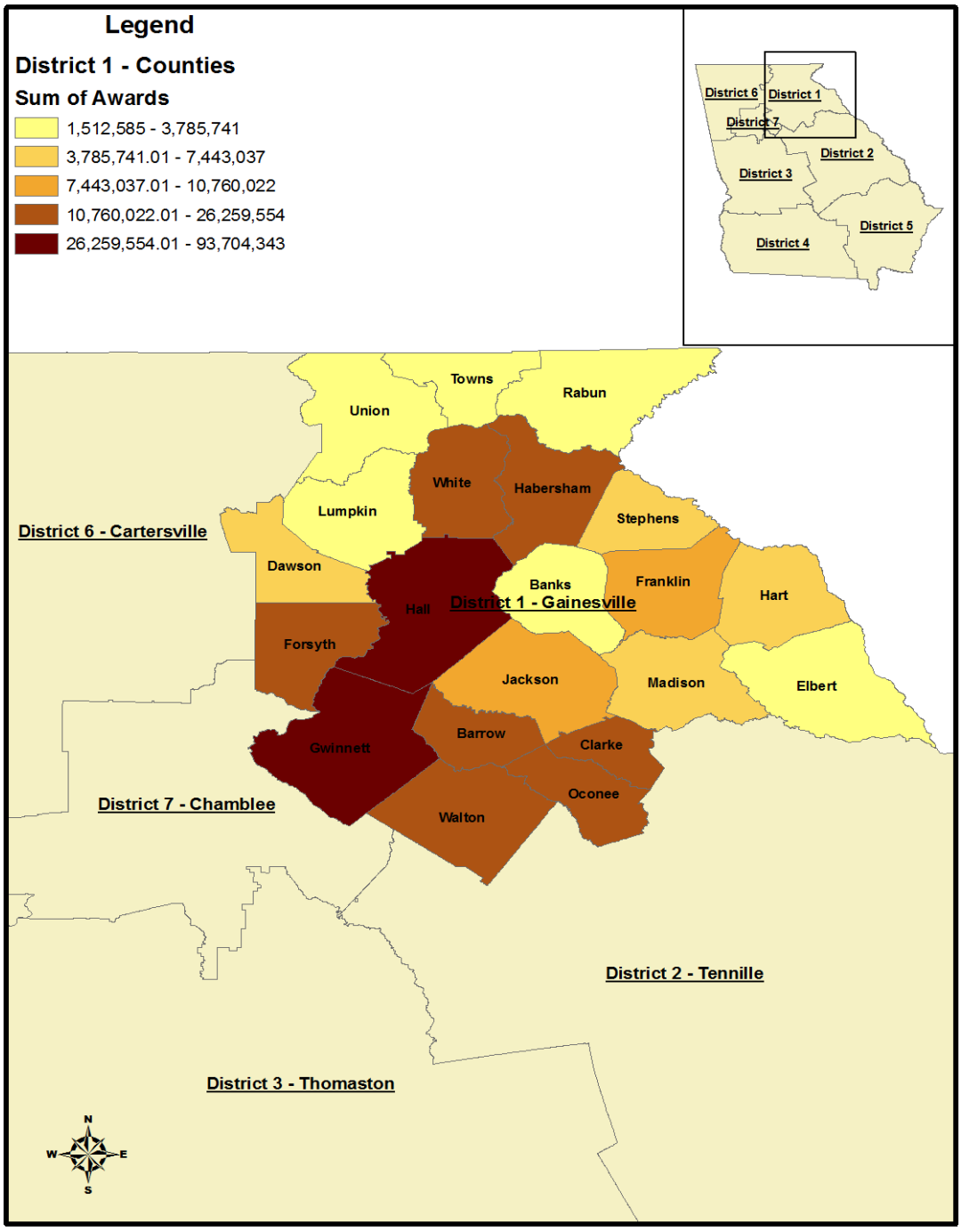


Figure 11: District 1 - Total GDOT Expenditures and Number of Projects, 2009 - 2013

DISTRICT 1 - GAINESILLE: GDOT HIGHWAY EXPENDITRES BY COUNTY 2009 - 2013			
		TOTAL EXPENDITURE	NUMBER OF PROJECTS
COUNTY	BANKS	$ 2,076,103	6
	BARROW	$ 20,562,906	14
	CLARKE	$ 26,259,554	14
	DAWSON	$ 7,443,037	9
	ELBERT	$ 3,785,741	7
	FORSYTH	$ 22,671,499	13
	FRANKLIN	$ 8,431,138	11
	GWINNETT	$ 93,704,343	35
	HABERSHAM	$ 17,019,236	14
	HALL	$ 83,899,932	25
	HART	$ 7,037,709	9
	JACKSON	$ 10,760,022	16
	LUMPKIN	$ 3,307,278	7
	MADISON	$ 5,407,368	8
	OCONEE	$ 18,639,427	10
	RABUN	$ 3,108,453	9
	STEPHENS	$ 5,627,418	10
	TOWNS	$ 1,512,585	6
	UNION	$ 2,846,866	7
	WALTON	$ 22,254,613	8
	WHITE	$ 21,186,620	8
	DISTRICT TOTAL	**$ 387,541,849**	**246**

Figure 12: Map of Counties in District 2 Color-coded by Total GDOT Expenditures, 2009 - 2013

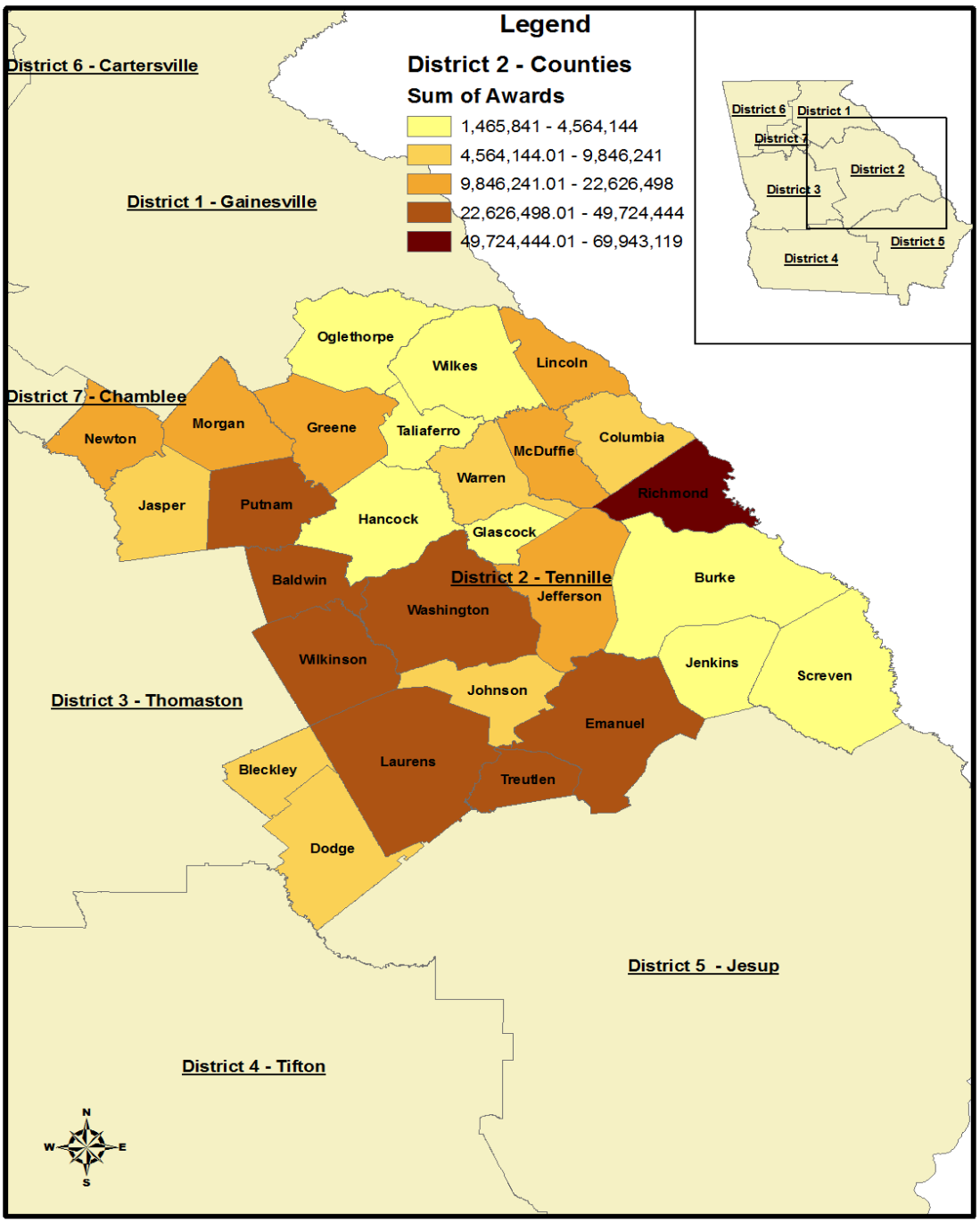


Figure 13: District 2 - Total GDOT Expenditures and Number of Projects, 2009 - 2013

DISTRICT 2: TENNILLE - GDOT HIGHWAY EXPENDITRES BY COUNTY 2009 - 2013			
		TOTAL EXPENDITURE	NUMBER OF PROJECTS
COUNTY	BALDWIN	$ 33,483,783	11
	BLECKLEY	$ 9,846,241	6
	BURKE	$ 4,415,152	5
	COLUMBIA	$ 9,721,661	9
	DODGE	$ 6,313,838	9
	EMANUEL	$ 39,371,339	8
	GLASCOCK	$ 1,465,841	5
	GREENE	$ 12,336,531	11
	HANCOCK	$ 4,116,731	6
	JASPER	$ 7,141,674	9
	JEFFERSON	$ 14,942,435	13
	JENKINS	$ 2,655,523	6
	JOHNSON	$ 5,944,588	8
	LAURENS	$ 42,054,737	15
	LINCOLN	$ 22,626,498	7
	MCDUFFIE	$ 12,053,601	9
	MORGAN	$ 19,475,692	12
	NEWTON	$ 15,118,954	13
	OGLETHORPE	$ 2,619,862	5
	PUTNAM	$ 38,881,056	6
	RICHMOND	$ 69,943,119	20
	SCREVEN	$ 3,465,672	7
	TALIAFERRO	$ 2,855,122	5
	TREUTLEN	$ 29,497,299	5
	WARREN	$ 5,347,758	8
	WASHINGTON	$ 41,175,219	9
	WILKES	$ 4,564,144	6
	WILKINSON	$ 49,724,444	9
	DISTRICT TOTAL	**$ 511,158,514**	**242**

Figure 14: Map of Counties in District 3 Color-coded by Total GDOT Expenditures, 2009 – 2013

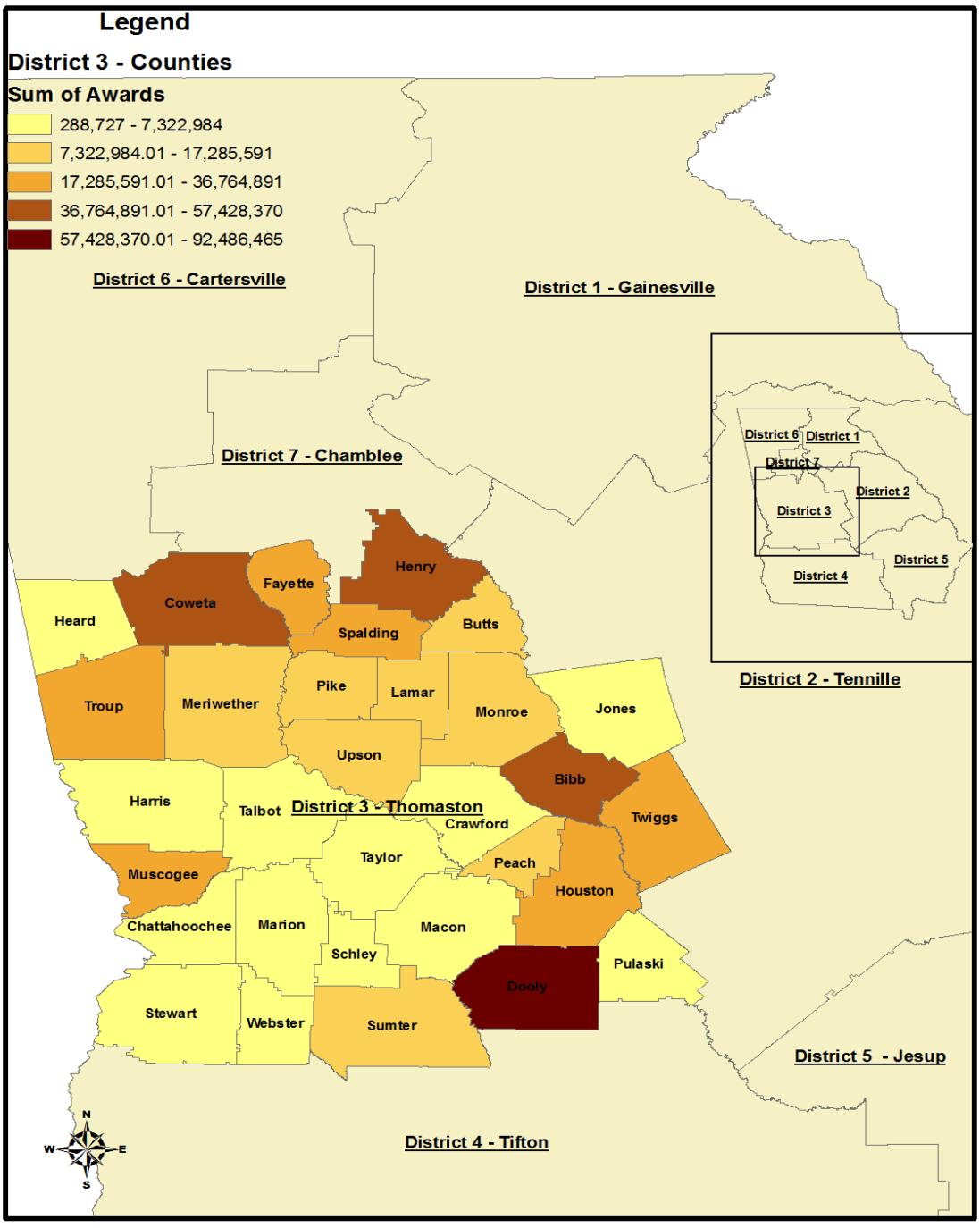


Figure 15: District 3 - GDOT Expenditures and Number of Projects, 2009 - 2013

DISTRICT 3: THOMASTON- GDOT HIGHWAY EXPENDITRES BY COUNTY 2009 - 2013			
		TOTAL EXPENDITURE	NUMBER OF PROJECTS
COUNTY	BIBB	$ 57,428,370	17
	BUTTS	$ 12,148,335	10
	CHATTAHOOCHEE	$ 288,727	3
	COWETA	$ 46,022,395	20
	CRAWFORD	$ 4,486,468	8
	DOOLY	$ 92,486,465	13
	FAYETTE	$ 28,128,421	13
	HARRIS	$ 7,322,984	8
	HEARD	$ 7,018,028	6
	HENRY	$ 47,332,059	26
	HOUSTON	$ 23,103,687	13
	JONES	$ 2,134,348	7
	LAMAR	$ 14,234,145	12
	MACON	$ 4,590,307	9
	MARION	$ 5,163,148	8
	MERIWETHER	$ 8,756,890	10
	MONROE	$ 9,103,107	11
	MUSCOGEE	$ 35,374,497	11
	PEACH	$ 17,285,591	12
	PIKE	$ 11,119,161	9
	PULASKI	$ 2,778,228	6
	SCHLEY	$ 1,863,785	5
	SPALDING	$ 36,764,891	15
	STEWART	$ 418,512	3
	SUMTER	$ 8,710,152	8
	TALBOT	$ 5,223,934	5
	TAYLOR	$ 2,234,895	5
	TROUP	$ 27,195,295	8
	TWIGGS	$ 28,831,375	10
	UPSON	$ 15,835,552	9
	WEBSTER	$ 2,529,306	5
	DISTRICT TOTAL	**$ 565,913,056**	**305**

Figure 16: Map of Counties in District 4 Color-coded by Total GDOT Expenditures, 2009 – 2013

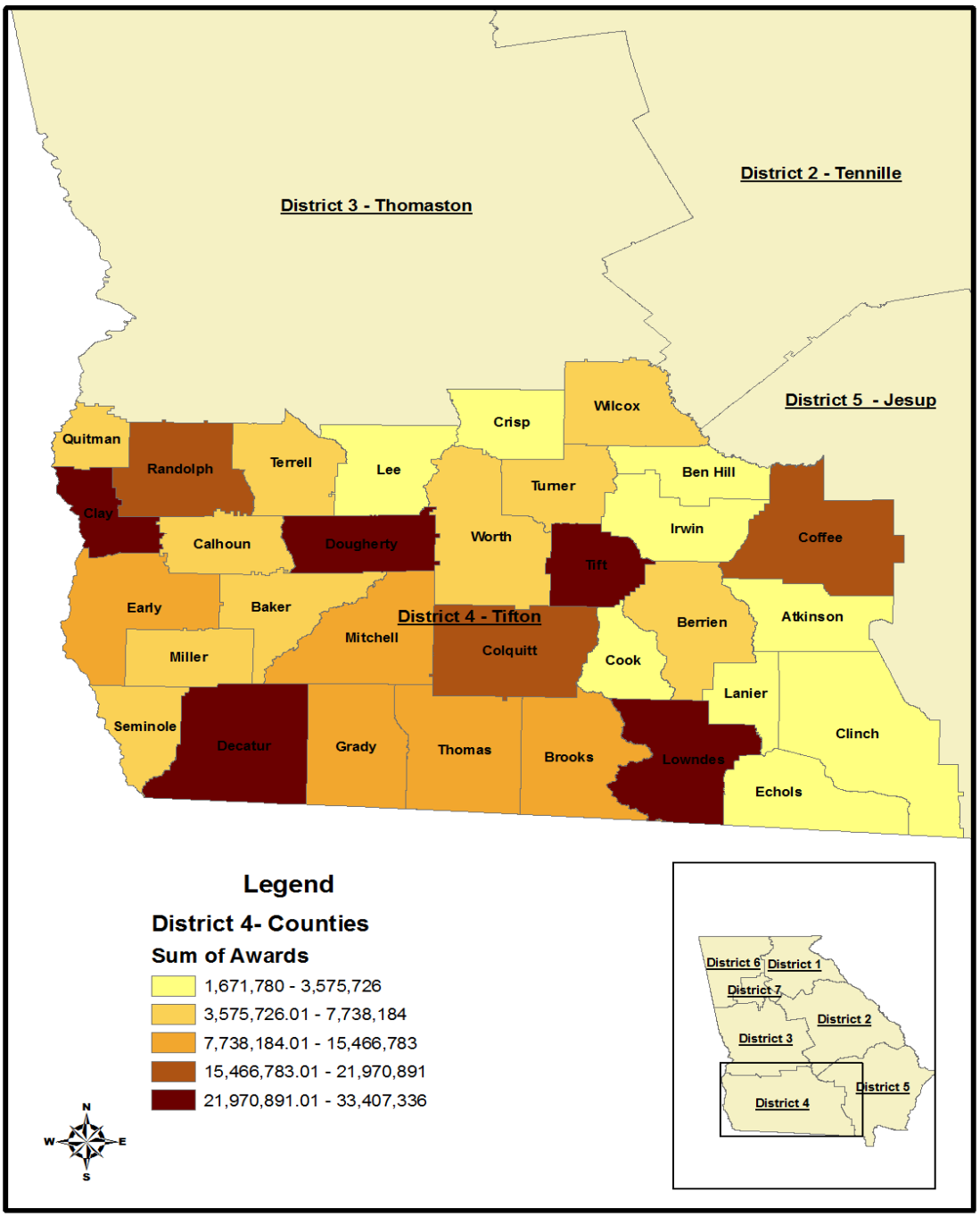


Figure 17: District 4 - GDOT Expenditures and Number of Projects, 2009 - 2013

DISTRICT 4: TIFTON - GDOT HIGHWAY EXPENDITRES BY COUNTY 2009 - 2013			
		TOTAL EXPENDITURE	NUMBER OF PROJECTS
COUNTY	ATKINSON	$ 2,947,658	7
	BAKER	$ 4,314,857	7
	BEN HILL	$ 2,635,505	7
	BERRIEN	$ 4,868,820	7
	BROOKS	$ 12,074,953	10
	CALHOUN	$ 4,350,563	6
	CLAY	$ 28,726,447	9
	CLINCH	$ 2,228,901	6
	COFFEE	$ 19,534,692	13
	COLQUITT	$ 21,970,891	12
	COOK	$ 2,852,099	5
	CRISP	$ 3,575,726	6
	DECATUR	$ 26,184,782	12
	DOUGHERTY	$ 33,407,336	12
	EARLY	$ 15,466,783	9
	ECHOLS	$ 1,671,780	4
	GRADY	$ 10,306,366	13
	IRWIN	$ 1,711,860	6
	LANIER	$ 2,480,282	6
	LEE	$ 2,432,497	7
	LOWNDES	$ 28,008,600	13
	MILLER	$ 6,661,060	10
	MITCHELL	$ 13,228,862	9
	QUITMAN	$ 6,101,287	4
	RANDOLPH	$ 17,175,978	10
	SEMINOLE	$ 6,782,461	8
	TERRELL	$ 5,285,953	9
	THOMAS	$ 10,701,909	8
	TIFT	$ 30,042,507	17
	TURNER	$ 5,879,284	9
	WILCOX	$ 4,173,519	8
	WORTH	$ 7,738,184	8
	DISTRICT TOTAL	**$ 345,522,400**	**277**

Figure 18: Map of Counties in District 5 Color-coded by Total GDOT Expenditures, 2009 – 2013

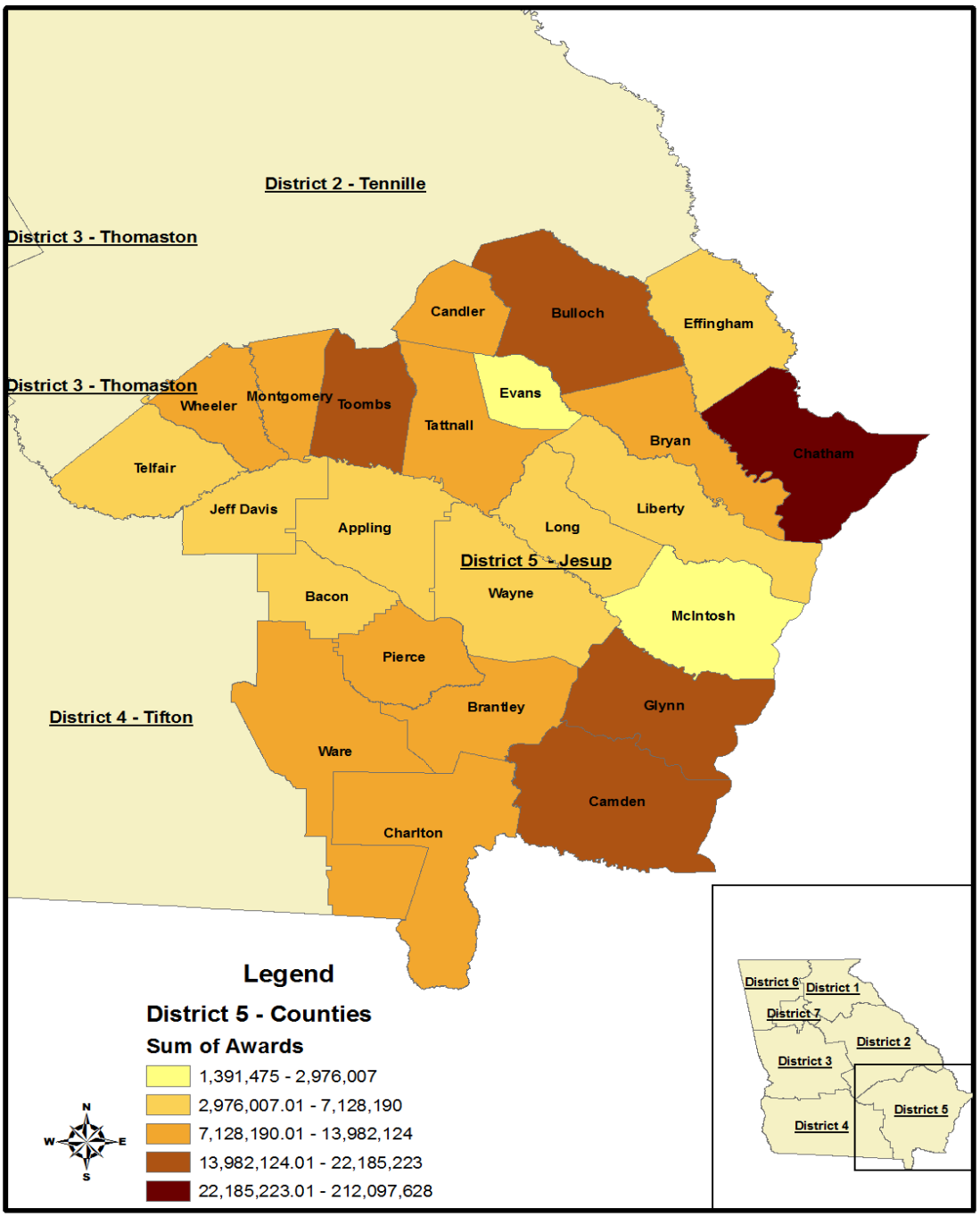


Figure 19: District 5 - GDOT Expenditures and Number of Projects, 2009 - 2013

DISTRICT 5 JESUP - GDOT HIGHWAY EXPENDITRES BY COUNTY 2009 - 2013			
		TOTAL EXPENDITURE	NUMBER OF PROJECTS
COUNTY	APPLING	$ 5,471,750	9
	BACON	$ 4,888,284	11
	BRANTLEY	$ 13,982,124	17
	BRYAN	$ 11,487,266	12
	BULLOCH	$ 21,446,316	19
	CAMDEN	$ 16,266,943	11
	CANDLER	$ 10,818,662	15
	CHARLTON	$ 10,391,925	12
	CHATHAM	$ 212,097,628	29
	EFFINGHAM	$ 4,957,193	10
	EVANS	$ 2,976,007	9
	GLYNN	$ 22,185,223	10
	JEFF DAVIS	$ 5,983,259	7
	LIBERTY	$ 5,706,708	8
	LONG	$ 4,667,821	7
	MCINTOSH	$ 1,391,475	6
	MONTGOMERY	$ 13,584,665	14
	PIERCE	$ 9,202,822	12
	TATTNALL	$ 10,305,271	14
	TELFAIR	$ 4,434,232	11
	TOOMBS	$ 18,568,863	10
	WARE	$ 10,832,383	8
	WAYNE	$ 7,128,190	15
	WHEELER	$ 13,758,447	11
	DISTRICT TOTAL	**$ 442,533,459**	**287**

Figure 20: Map of Counties in District 6 Color-coded by Total GDOT Expenditures, 2009 – 2013

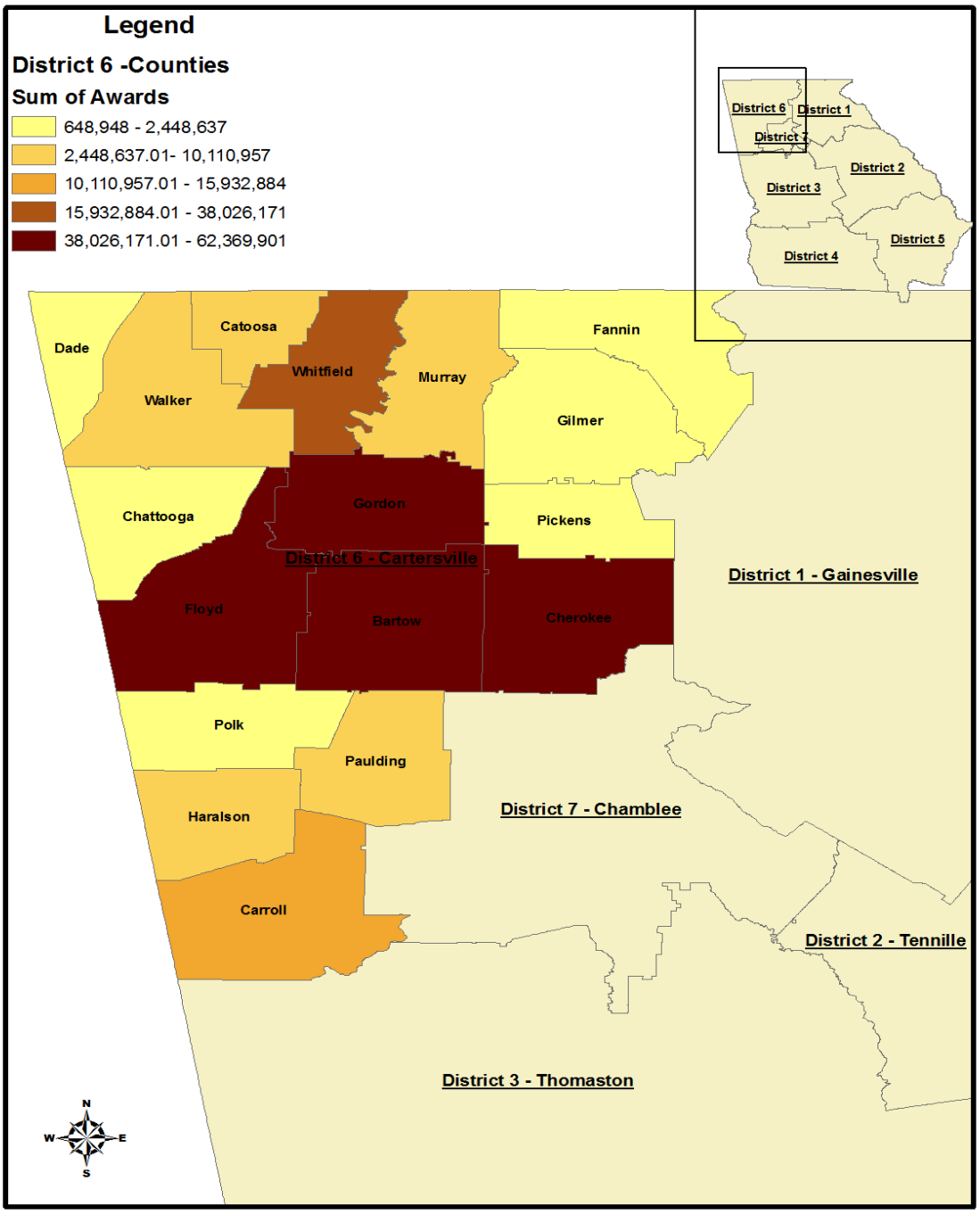


Figure 21: District 6 - GDOT Expenditures and Number of Projects, 2009 - 2013

DISTRICT 6: CARTERSVILLE - GDOT HIGHWAY EXPENDITRES BY COUNTY 2009 - 2013			
		TOTAL EXPENDITURE	NUMBER OF PROJECTS
COUNTY	BARTOW	$ 55,368,844	15
	CARROLL	$ 15,932,884	14
	CATOOSA	$ 6,029,280	9
	CHATTOOGA	$ 1,179,660	4
	CHEROKEE	$ 59,180,921	19
	DADE	$ 1,516,067	4
	FANNIN	$ 2,448,637	6
	FLOYD	$ 62,369,901	10
	GILMER	$ 728,910	4
	GORDON	$ 53,192,023	13
	HARALSON	$ 6,790,533	9
	MURRAY	$ 8,324,474	10
	PAULDING	$ 10,110,957	11
	PICKENS	$ 1,244,032	5
	POLK	$ 648,948	4
	WALKER	$ 7,743,894	11
	WHITFIELD	$ 38,026,171	5
	DISTRICT TOTAL	**$ 330,836,134**	**153**

Figure 22: Map of Counties in District 7 Color-coded by Total GDOT Expenditures, 2009 – 2013

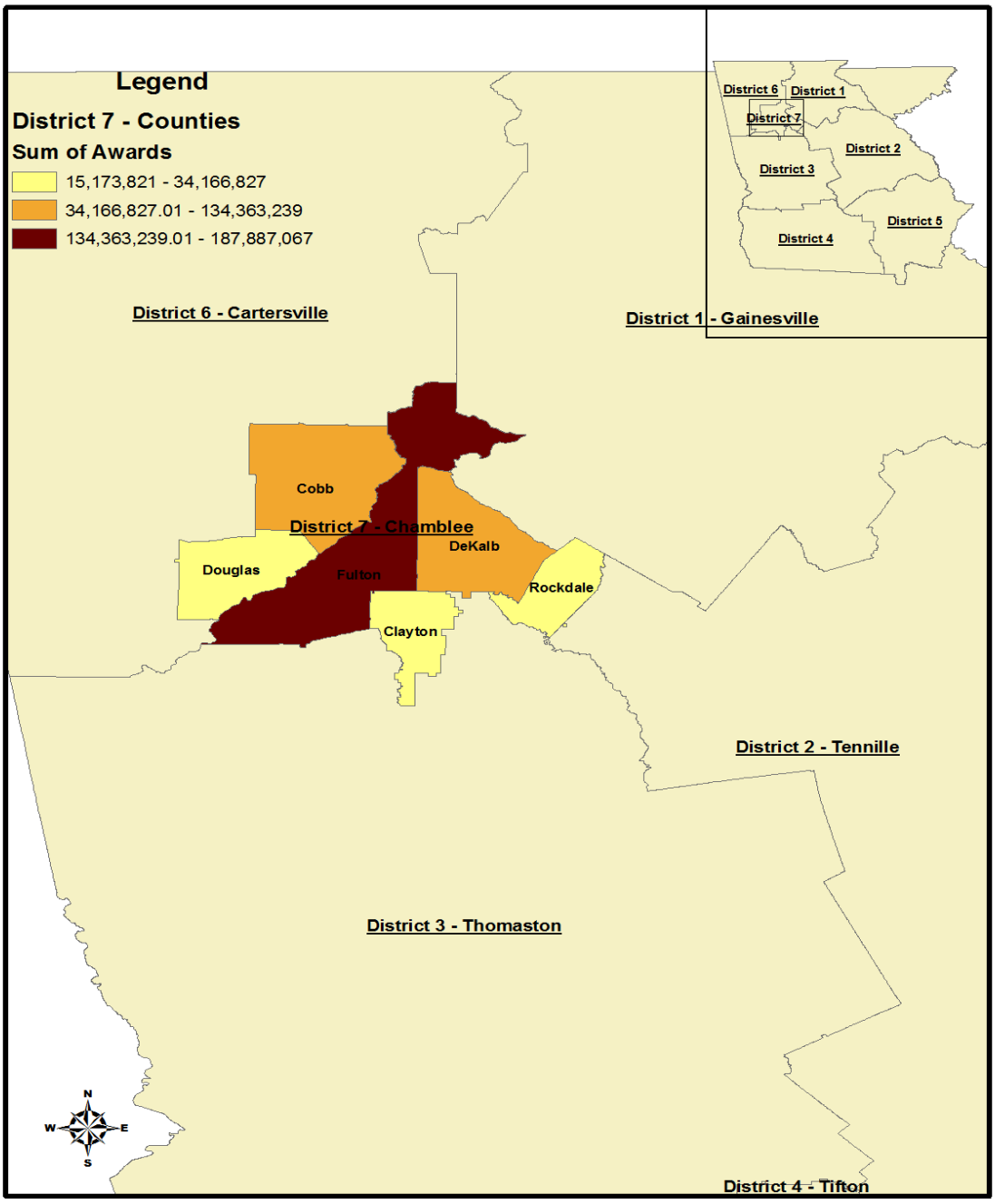


Figure 23: District 7 - GDOT Expenditures and Number of Projects, 2009 - 2013

DISTRICT 7 CHAMBLEE - GDOT HIGHWAY EXPENDITRES BY COUNTY 2009 - 2013			
		TOTAL EXPENDITURE	NUMBER OF PROJECTS
COUNTY	CLAYTON	$ 22,297,560	17
	COBB	$ 116,860,880	36
	DEKALB	$ 134,363,239	53
	DOUGLAS	$ 34,166,827	20
	FULTON	$ 187,887,067	90
	ROCKDALE	$ 15,173,821	14
	DISTRICT TOTAL	**$ 510,749,394**	**230**

Summary of Statewide Economic Impacts

GDOT spent $3.094 billion on 1271 highway projects between January 2009 and April 2013. Projects were implemented in each of Georgia's 159 counties. The average award was $2.435 million and the median (midpoint) award value was $.845 million. The median denotes the midpoint, i.e. one-half of the expenditures were greater than and one-half were less than that amount. During 2012, the most recent full year for which data was available, GDOT spent $.911 billion on highway projects. Between 2009 and 2010, GDOT received $.604 billion under the Federal Fiscal Stimulus Program.

Multiple highway projects were commissioned in every county of the State. The largest value of highway projects occurred in Chatham County ($212.1 million). Awards in Chatham accounted for 6.9% of the total value of all highway projects. The county ranking second in the amount of highway project awards was Fulton ($187.9 million). This represented 6.1% of all highway projects. Other large awards were made to the following counties: DeKalb County ($134.4 million or 4.3%), Cobb County ($116.9 million or 3.8%), Gwinnett County ($93.7 million or 3.0%), and Dooly County ($92.5 million or 3.0%).

For the statewide economy, the multiplier derived for total GDOT expenditures indicated that every new dollar of GDOT highway investment generated a total economic impact of $1.89. Therefore GDOT's $3.094 billion in direct highway expenditures (between January 2009 and April 2013) resulted in a combined statewide economic output of $5.859 billion. The total economic impact of the fiscal stimulus program, implemented between 2009 and 2010, was $1.143 billion.

Figure 24 records impacts that resulted from project expenditures awarded between January 2009 and April 2013. Figure 25 records the impact of project expenditures awarded during calendar year 2012. Figure 26 records impacts associated with the Federal Fiscal Stimulus Program, 2009 – 2010. The impacts that are reported include the number of new jobs created (employment), the total dollar

amount of new wages (wages), the total dollar amount of small business income (small business income), the total dollar amount of new tax revenue (taxes), the amount of total output (output), and the total new value added in production (value).

Figure 24: Statewide Impact of GDOT Expenditures, 2009 - 2013

Figure 24 displays statewide impacts of GDOT expenditures. This includes the impact on new value added in production, new tax revenue, new small business income, new output, new wages and new jobs created from January 2009 to April 2013.

Figure 25: Statewide Impact of GDOT Expenditures in 2012

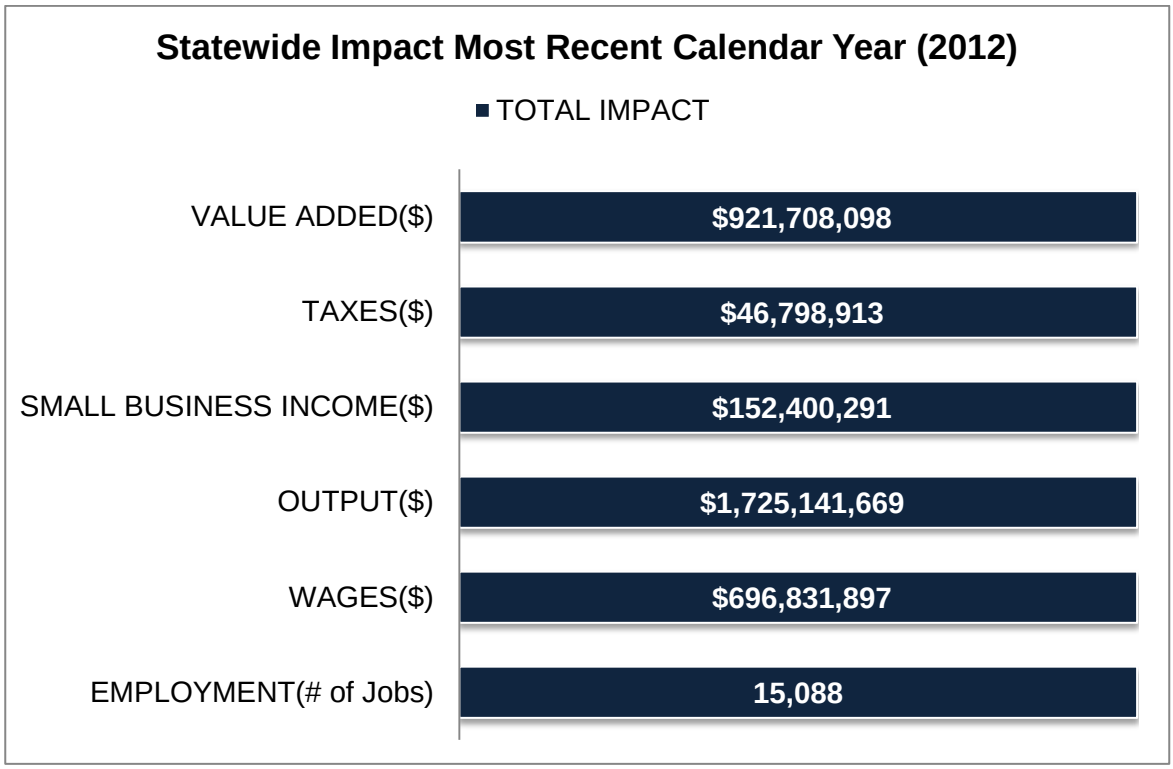
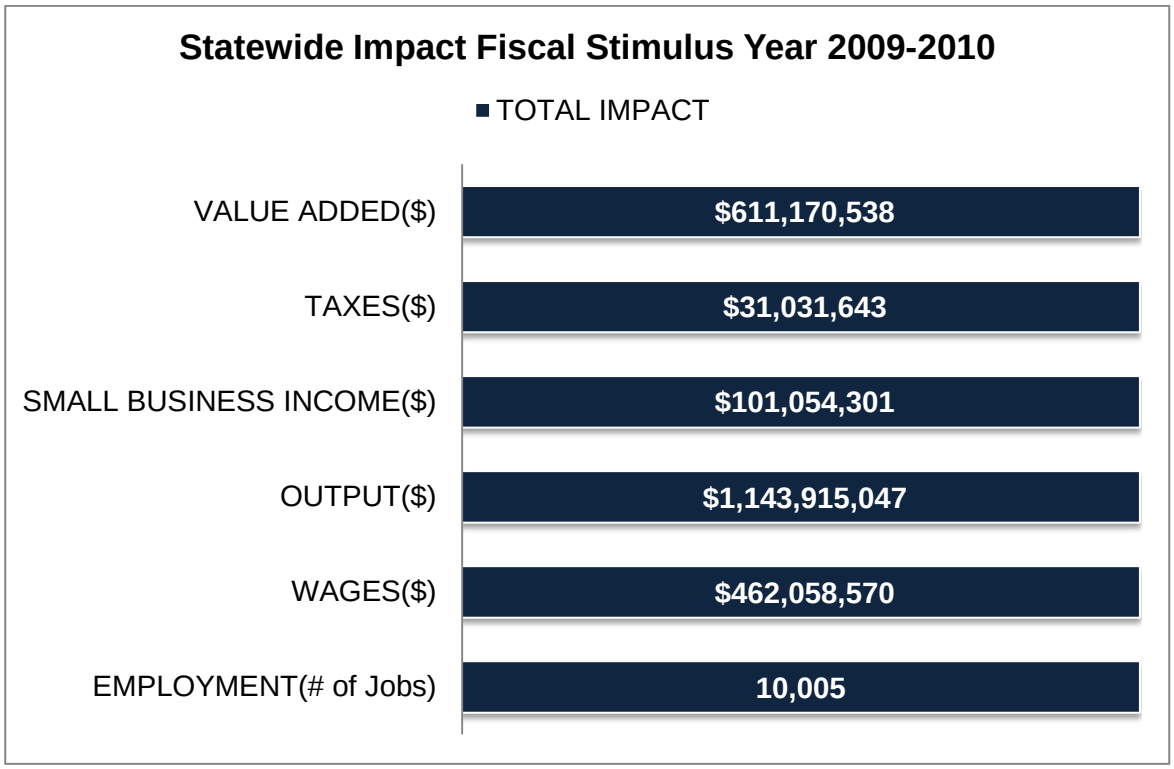


Figure 25 displays statewide impacts of expenditures made in fiscal year 2012. Again, the figure records total new value added to production, new tax revenue, new small business income, new output, new wages and new jobs created during the most recent full calendar year of 2012.

Figure 26: Statewide Impact of Federal Fiscal Stimulus Expenditures, 2009 - 2010



Finally, Figure 26 records statewide impacts resulting from Federal Fiscal Stimulus Funds awarded to Georgia between 2009 and 2010.

Summary of District Economic Impacts

The total economic impact per dollar spent on highway projects varied significantly by county and district. This was a fundamental finding of the report. In short, $1.0 million spent on a highway project in County A may not yield the same economic impact or generate the same number of jobs that would occur if the same amount were spent in County B.

For example, Highway District 3: Thomaston experienced the largest number of jobs created per $1.0 million spent on highway projects (16.4 jobs per $1.0 million expenditure). This was followed by District

4: Tifton, 16.1. In comparison, District 7: Chamblee, which contains the main counties of Metro Atlanta, had the smallest employment multiplier: 12.9.

Future research should seek to understand more thoroughly why some districts such as District 7 had smaller employment multipliers. This may be caused by a higher percentage of consumers purchasing luxury goods from retailers located outside the metropolitan area. Whatever the cause may be, the policy implication is that a larger dollars investment is required to generate the same employment outcome in District 7 in comparison to other districts.

While District 7 had the lowest employment multiplier, the impact on small business revenue in District 7 ($21.40 per $100.00 spent on highway projects) was much larger than in all other districts. The next largest multipliers occurred in District 6: Cartersville ($15.70) and District 3: Thomaston ($13.20). These differences were probably caused by the stronger supply chain characteristics of the districts.

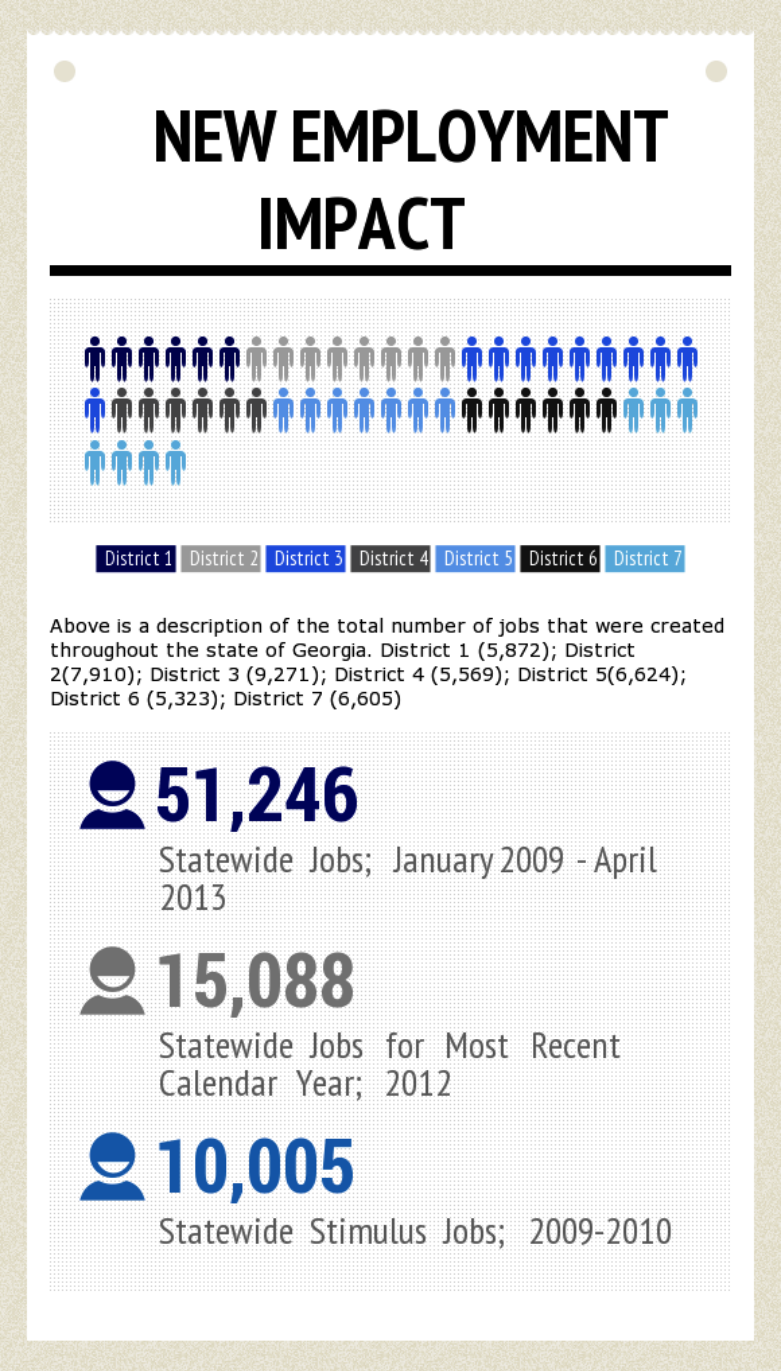
District 7 also had the largest household income multiplier ($.855 for each dollar of initial expenditures). The next largest impacts occurred in District 1: Gainesville ($.675) and District 3, Thomaston ($.576). The smallest impact was in District 6 Cartersville ($.473).

Detailed Impact on Jobs Created: State, District and County Levels

As highway expenditures worked their way through the economy, the related supply chain purchases and household retail spending helped to sustain existing jobs and created new employment. GDOT's highway expenditures created 51,246 new jobs. This means each $1.0 million of direct Highway expenditures generated 16.6 new jobs. Figure 27 gives the employment multiplier for the seven GDOT Districts and the number of new jobs that were created within each District as a result of expenditures between 2009 and 2013. A summary of results is as follows:

- District 1 – Gainesville: 5,872: Employment multiplier, 15.2
- District 2 – Tennille: 7,910: Employment multiplier, 15.5
- District 3 – Thomaston: 9,271: Employment multiplier, 16.4
- District 4 – Tifton: 5,569: Employment multiplier, 16.1
- District 5 – Jesup: 6,624: Employment multiplier, 15.0
- District 6 – Cartersville: 5,323: Employment multiplier, 16.1
- District 7 – Chamblee: 6,605: Employment multiplier, 12.9

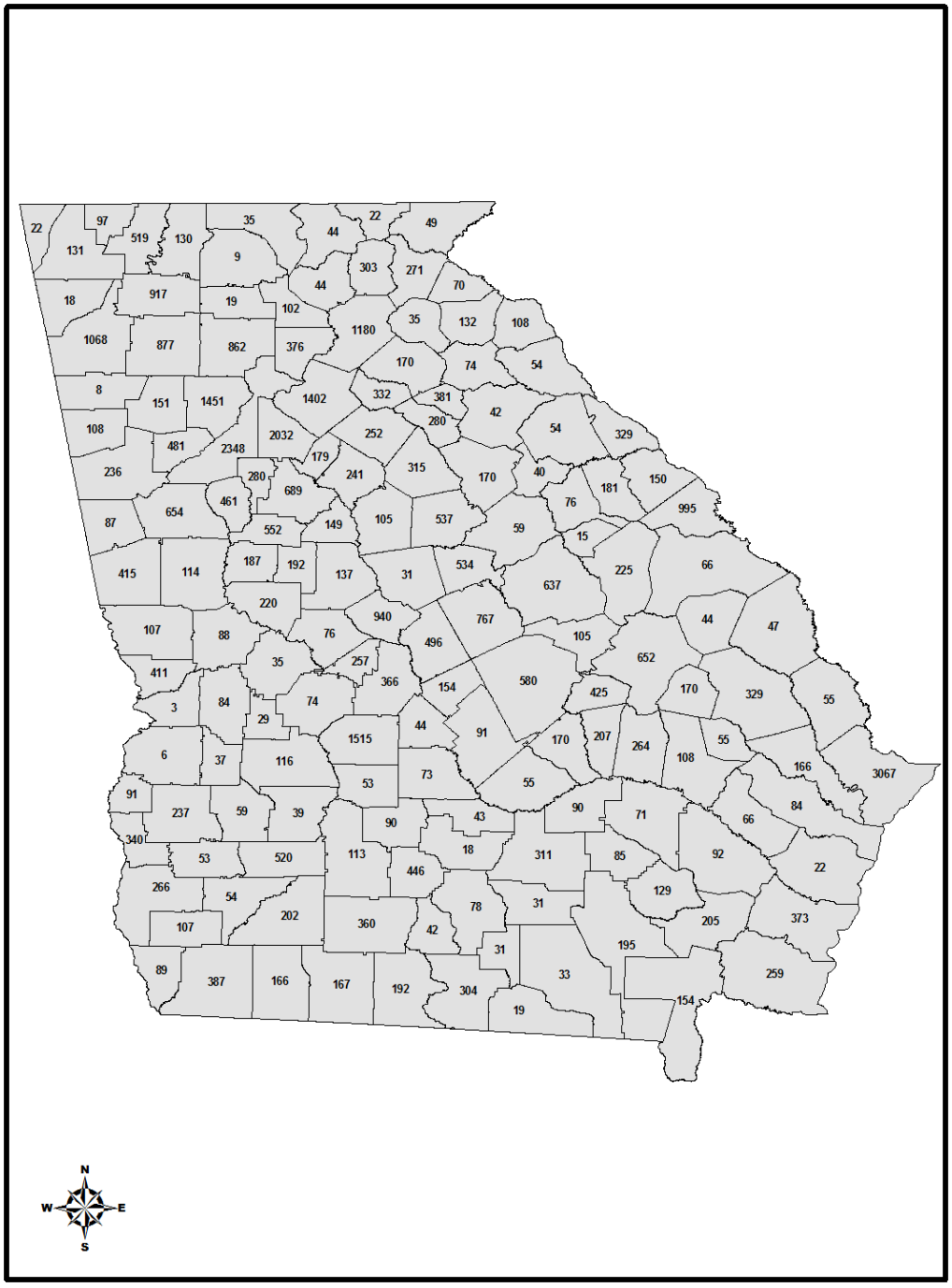
Figure 27: Impact of GDOT Expenditures on Jobs (State Level, District Level and for Stimulus Expenditures)



Figures 28 depicts the geographic boundaries of Georgia's Counties and Figure 29 spatially illustrates the number of jobs that were created within each county as a result of GDOT's highway expenditures.

Figure 28: Map of Georgia Counties

Figure 29: Map of Georgia Counties Showing Jobs Created by GDOT Expenditures, 2009 – 2013

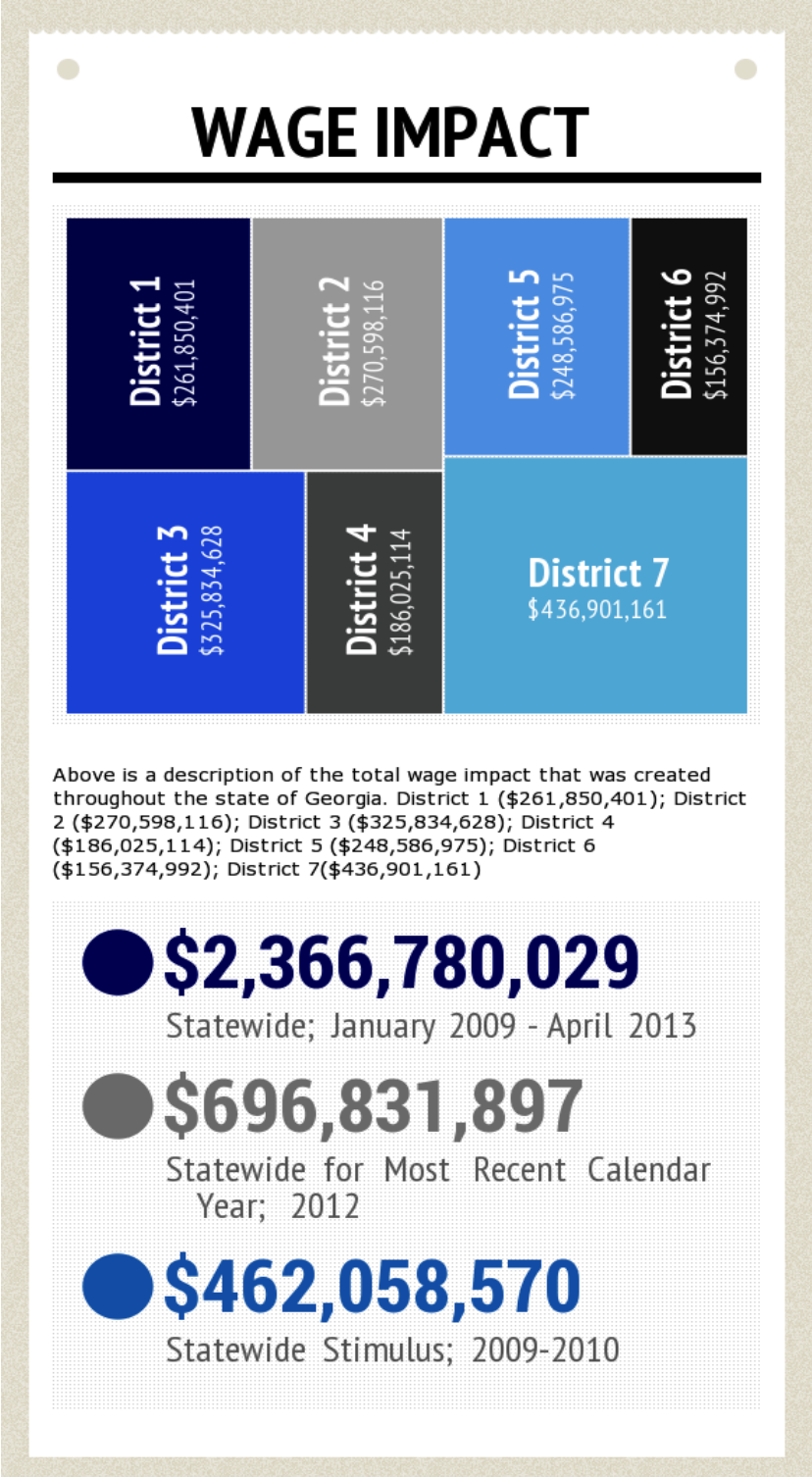


Detailed Impact on New Household Income: State and District Levels

GDOT's direct highway expenditures generated $2.367 billion in wages to employees, which represented new household income. The household income multiplier was .765. This indicates that every additional dollar of direct spending on highway projects generated approximately $.76 of new household income. The wages paid to employees and the associated household income multipliers are provided below and in Figure 30.

- District 1 – Gainesville: $261.9 million Household income multiplier, .675
- District 2 – Tennille: $270.6 million: Household income multiplier, .529
- District 3 – Thomaston: $325.8 million: Household income multiplier, .576
- District 4 – Tifton: $186.0 million: Household income multiplier, .538
- District 5 – Jesup: $248.6 million: Household income multiplier, .562
- District 6 – Cartersville: $156.4 million: Household income multiplier, .473
- District 7 – Chamblee: $436.9 million: Household income multiplier, .855

Figure 30: Impact of GDOT Expenditures on Wages (State Level, District Level and for Stimulus Expenditures)



Detailed Impact on Total Economic Output and Value Added: State and District Levels

GDOT's $3.094 billion in direct highway expenditures (between January 2009 and April 2013) resulted in a combined State economic output of $5.859 billion. That is, the total impact per dollar spent was $1.89. This total impact and the associated output multipliers for each highway district were as follows: (See Figure 31. Impact of GDOT Expenditures on Total Output):

- District 1 – Gainesville: $634.1 million: Output multiplier, 1.64
- District 2 – Tennille: $759.9 million: Output multiplier, 1.49
- District 3 – Thomaston: $910.3 million: Output multiplier, 1.61
- District 4 – Tifton: $530.5 million: Output multiplier, 1.54
- District 5 – Jesup: $664.0 million: Output multiplier, 1.50
- District 6 – Cartersville: $481.6 million: Output multiplier, 1.46
- District 7 – Chamblee: $880.0 million: Output multiplier, 1.72

The difference between an industry's total output and the cost of producing the output is defined as total value added. In other words, value added is total production less the cost of intermediate goods at each stage of production. For example, if a factory is producing a computer, it will need component parts such as microchips, motherboards, casings, etc. These components are typically supplied by different segments of the supply chain. Suppose the company assembling the computer receives the motherboard, microchips and casing from other companies and then completes the assembly. The value added is equivalent to the services required to assemble the computer, but not the cost of the components that went into the assembly. To include the cost of production at each stage would be equivalent to double counting. Figure 32 records the total value added resulting from GDOT's expenditures. The results are broken down for each of the three timeframes examined in the study.

Figure 31: Impact of GDOT Expenditures on Total Economic Output (State Level, District Level and for Stimulus Expenditures)

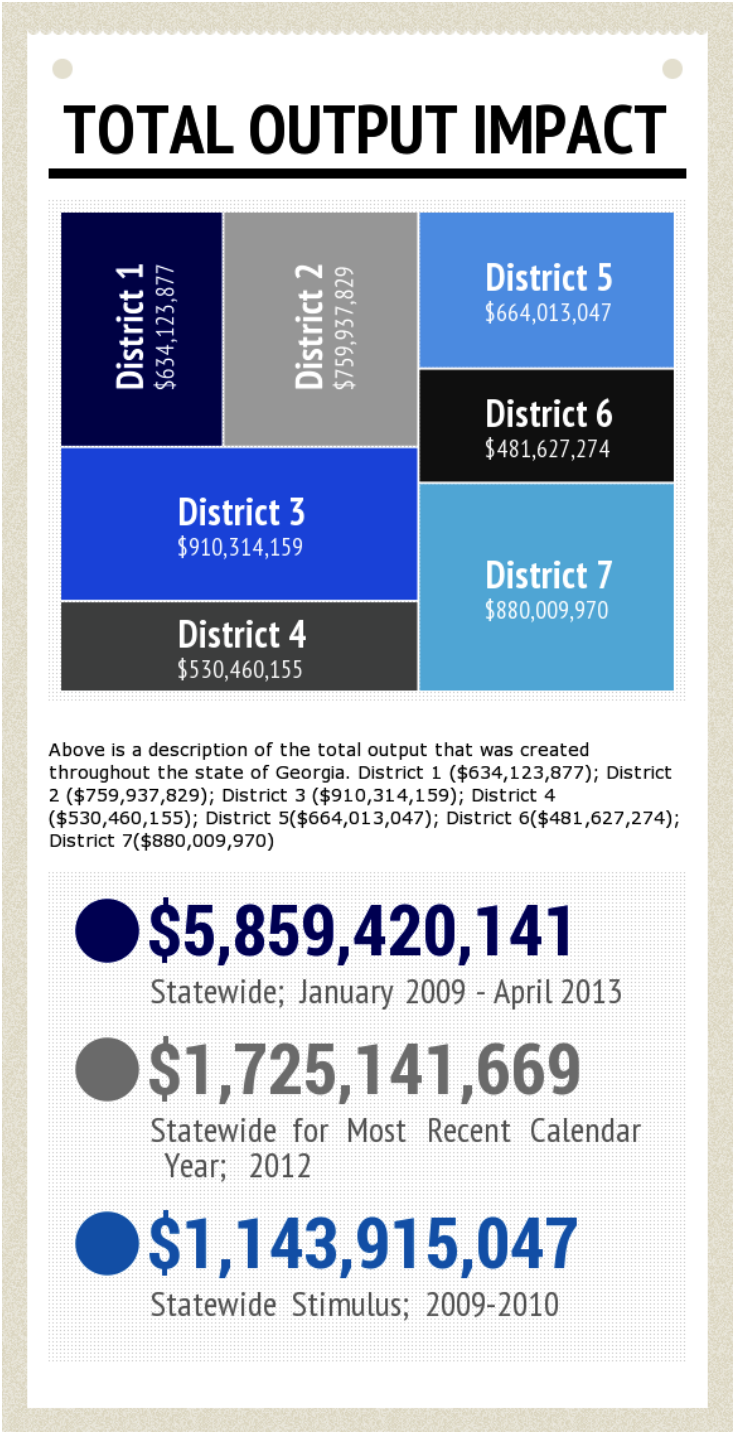
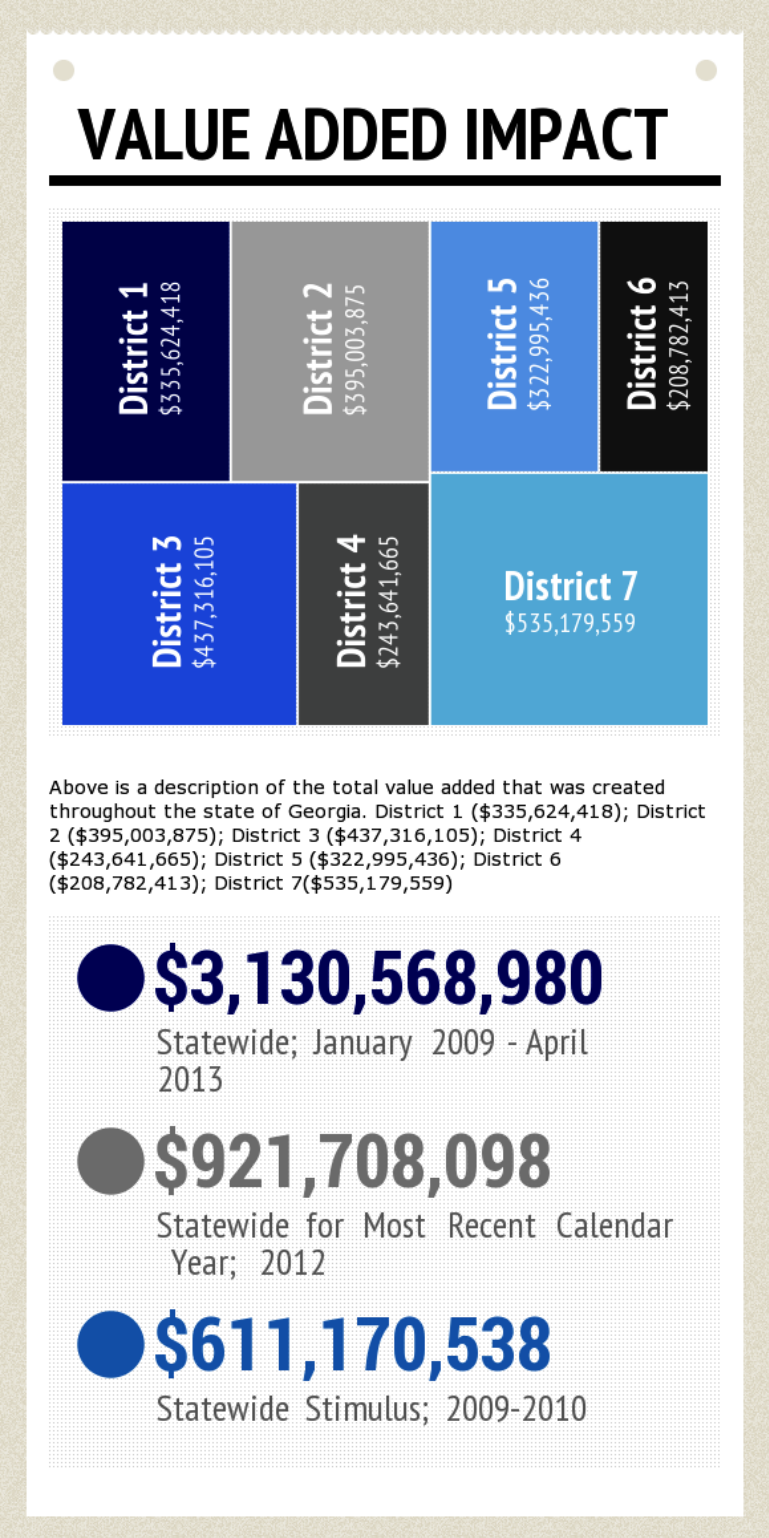


Figure 32: Impact of GDOT Expenditures on Value Added (State Level, District Level and for Stimulus Expenditures)

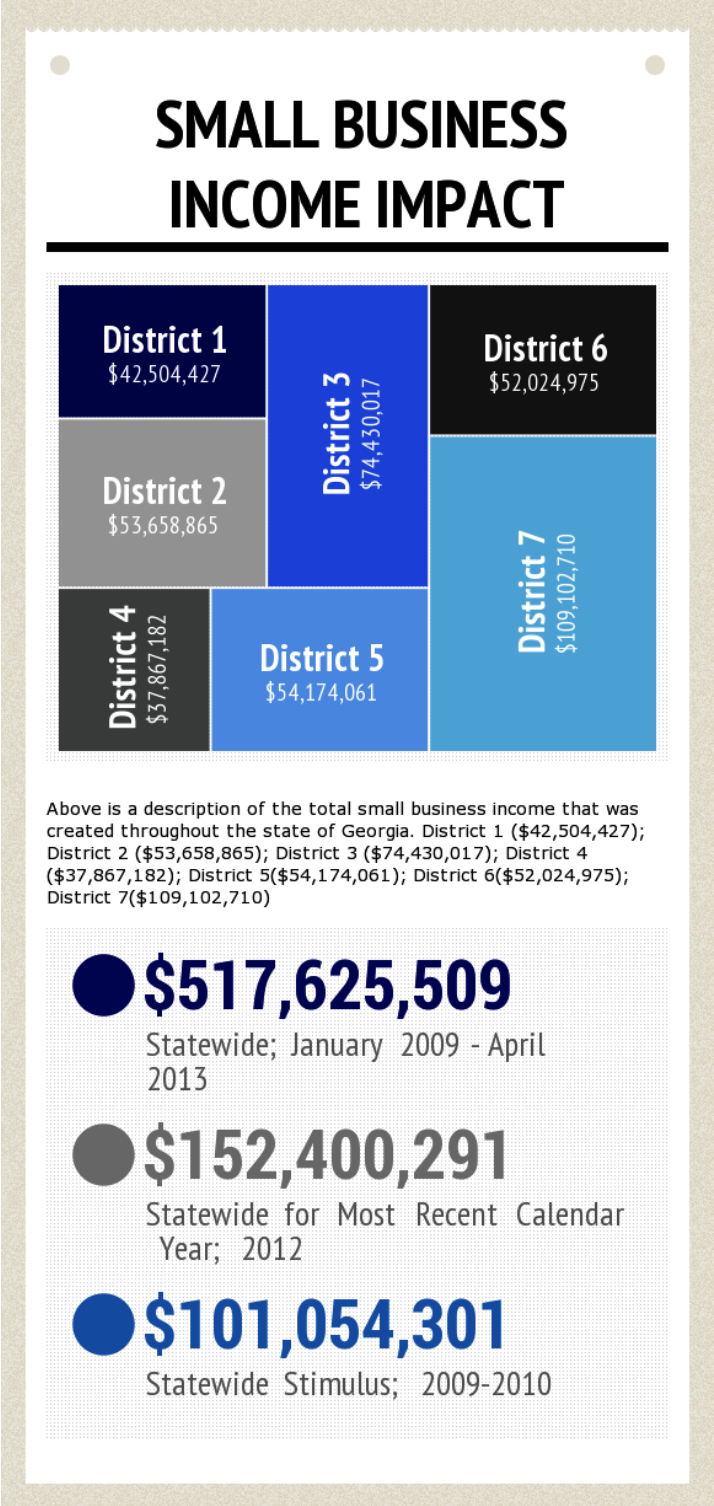


Detailed Impact on New Small Business Revenue: State and District Levels

The rounds of spending initiated by GDOT's expenditures generated revenue to small business owners and self-employed proprietors. Overall, each $100 of direct spending by GDOT created $16.72 of revenue to small businesses. The revenue came from retail expenditures of households, supply chain purchases, procurement of large corporations, subcontracting opportunities on highway projects provided by prime contractors, and business-to-business purchases among small and large businesses. Total new small business revenue created by GDOT's highway expenditures amounted to $517.6 million. Figure 33 indicates the amount of small business revenue by district, which is summarized below.

- District 1 – Gainesville: $42.5 million: Small Business Income Multiplier: .109
- District 2 – Tennille: $53.7 million: Small Business Income Multiplier: .105
- District 3 – Thomaston: $74.4 million: Small Business Income Multiplier: .132
- District 4 – Tifton: $37.9 million: Small Business Income Multiplier: .109
- District 5 – Jesup: $54.2 million: Small Business Income Multiplier: .122
- District 6 – Cartersville: $52.0 million: Small Business Income Multiplier: .157
- District 7 – Chamblee: $109.1 million: Small Business Income Multiplier: .214

Figure 33: Impact of GDOT Expenditures on Small Business Revenue (State Level, District Level and for Stimulus Expenditures)

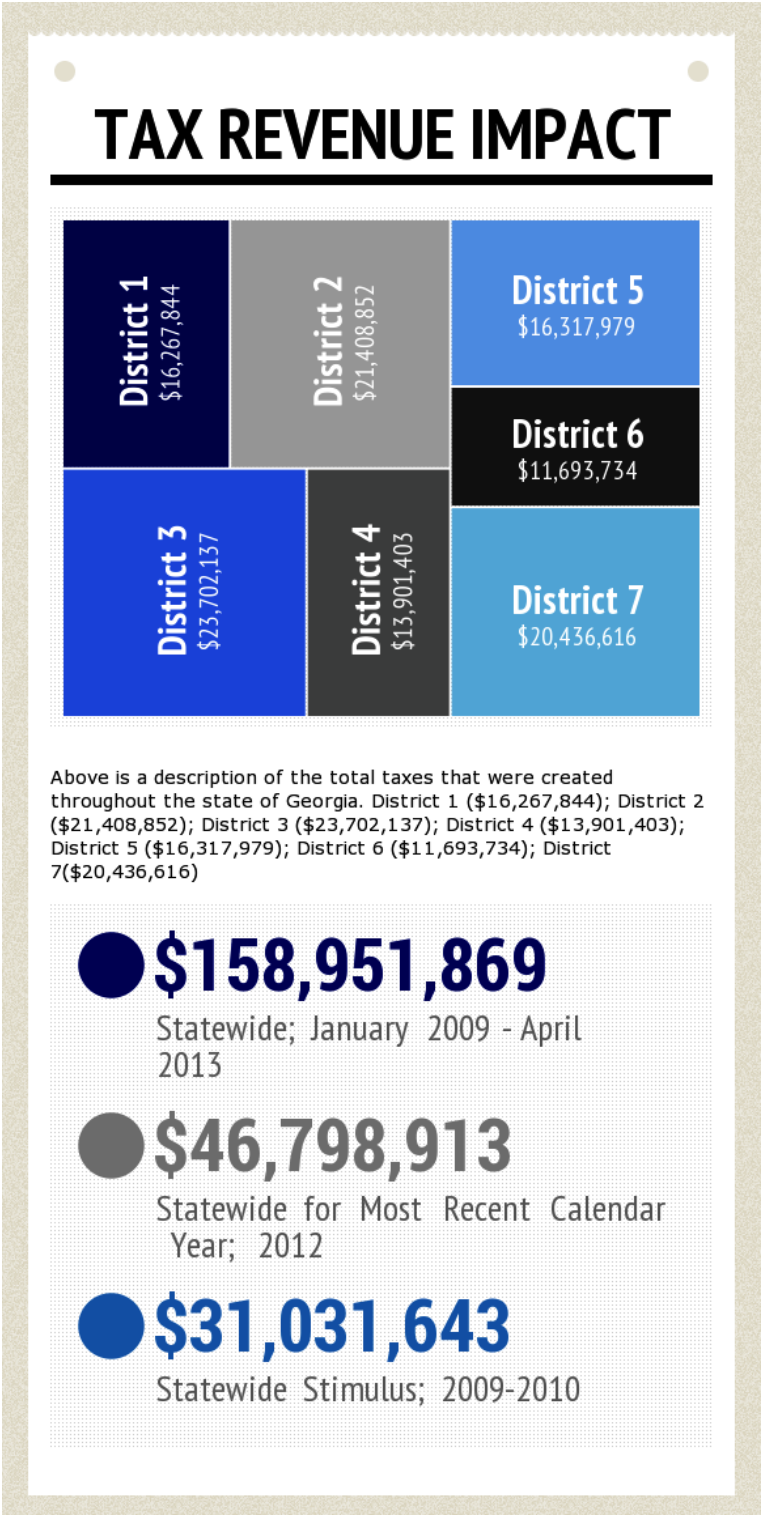


Detailed Impact on New Tax Revenue: State and District Levels

As businesses and households engaged in commercial and retail purchases, county and state taxes were paid. The total tax receipts generated from new economic activity associated with highway expenditures was $158.9 million. The tax revenue generated within each highway district is summarized below and in Figure 34:

- District 1 – Gainesville: $16.3 million
- District 2 – Tennille: $21.4 million
- District 3 – Thomaston: $23.7 million
- District 4 – Tifton: $13.9 million
- District 5 – Jesup: $16.3 million
- District 6 – Cartersville: $11.7 million
- District 7 – Chamblee: $20.4 million

Figure 34: Impact of GDOT Expenditures on Tax Receipts (State Level, District Level and for Stimulus Expenditures)



Top Three Districts Ranked by Size of Impacts

The following charts summarize the total impact of GDOT's expenditures within the 7 Districts of Georgia for the period January 2009 to April 2013. The impacts include the number of new jobs created (employment), the total dollar amount of new wages (wages), the total dollar amount of small business income (small business income), the total dollar amount of new tax revenue (taxes), the total dollar amount of total output (output), and the total new value added in production (value).

1. **Top 3 Districts (Number of New Jobs Created)**
    1. 9,271 District 3
    2. 7,910 District 2
    3. 6,624 District 5

2. **Top 3 Districts (New Wages)**
    1. $436,901,161 District 7
    2. $325,834,628 District 3
    3. $270,598,116 District 2

3. **Top 3 Districts (Total Output)**
    1. $910,314,159 District 3
    2. $880,009,970 District 7
    3. $759,937,829 District 2

4. **Top 3 Districts (Small Business Income)**
    1. $109,102,710 District 7
    2. $74,430,017 District 3
    3. $54,174,061 District 5

5. **Top 3 Districts (New Tax Revenue)**
    1. $23,702,137 District 3
    2. $21,408,852 District 2
    3. $20,436,616 District 7

6. **Top 3 Districts (New Value Added)**
    1. $535,179,559 District 7
    2. $437,316,105 District 3
    3. $395,003,875 District 2

CONCLUSIONS

This research measured the impact of the Georgia Department of Transportation's highway expenditures (made between 2009 and 2013) on job creation and economic activity at the county, highway district and statewide levels. Six (6) categories of economic impacts were estimated. The study is unique in that it not only estimated total economic impacts at the statewide level, but also for each of Georgia's 159 counties and seven Districts. Economic impacts were estimated for three different time intervals: (1) January 2009 through April 2013, (2) calendar year 2012 (the most recent full year for which data were available); and (3) 2009 through 2010 (the time during which GDOT's expenditures were supplemented by the Federal Fiscal Stimulus Program, ARRA).

GDOT's Highway Expenditures: Between January 2009 and April 2013, GDOT awarded $3.094 billion in connection with 1,271 highway projects. Multiple awards occurred in each of the State's 159 counties. The average award was $2.435 million and the median (midpoint) award value was $.845 million. During 2012, the most recent full year for which data were available, GDOT spent $.911 billion on highway projects. Finally, between 2009 and 2010, GDOT spent $1.263 billion on highway projects, this included $.604 billion it received from the federal government under the Fiscal Stimulus Program.

GDOT's Impact on Total Output of Goods and Services: GDOT's Highway expenditures had a significant economic impact on the State's economy. At a time when the State and nation were struggling to recover from the "Great Recession", GDOT's $3.094 billion in direct highway expenditures resulted in a combined statewide economic impact of $5.859 billion. This means that every dollar of highway investment expenditures generated a statewide total economic impact of $1.89. The total economic impact was spread across GDOT's seven Districts as follows: District 1 – Gainesville: $634.1 million; District 2 – Tennille: $759.9 million; District 3 – Thomaston: $910.3 million; District 4 – Tifton: $530.5

million; District 5 – Jesup: $664.0 million; District 6 – Cartersville: $481.6 million; and District 7 – Chamblee: $880.0 million.

GDOT's Impact on Jobs Created: GDOT's highway expenditures created 51,246 new jobs. Each $1.0 million of direct highway expenditures generated 16.6 new jobs. Job gains occurred across Highway Districts as follows: District 1 – Gainesville: 5,872; District 2 – Tennille: 7,910; District 3 – Thomaston: 9,271; District 4 – Tifton: 5,569; District 5 – Jesup: 6,624; District 6 – Cartersville: 5,323; District 7 – Chamblee: 6,605.

RECOMMENDATIONS

This study revealed that significant policy insights can be gained by analyzing impacts at the district and county levels, and not just at the statewide level, as most studies do. County differences in industry composition, supply chain characteristics and patterns of consumer expenditures cause notable differences in the number of jobs created (and other measures of economic impact) per dollar of highway expenditures. GDOT must continue to measure county level impacts because leveraging these impacts is an effective way of improving overall statewide economic development.

Understanding how highway project expenditures impact local areas allows policy makers to improve the efficiency of resource allocation, be more responsive to stakeholders and target investments so as to optimize local economic development. Along with this, future research should document the characteristics of local market areas, including industry characteristics, supply chain characteristics and consumer expenditure patterns.

GDOT may attempt to maximize awards to contractors who are headquartered in counties where projects are located and to Georgia resident contractors. Greater economic development occurs when the share of purchases made in the state are maximized (i.e. leakages in spending are reduced).

Research should be undertaken to identify the extent of leakages caused by awards to out-of-state contractors. For example, this study found that 14% of the $3.094 billion in construction expenditures was awarded to prime contractors whose businesses were headquartered outside of the State of Georgia. Additionally, it was found that 11% of the $.322 billion in subcontracting awards went to non-Georgia firms. It is important to know the extent to which non-Georgia recipients use subcontractors who are located in the State.

Finally, this report did not include GDOT expenditures for consulting services such as civil and environmental engineering awards, as well awards for architectural, planning and design services. To understand the full economic impact of GDOT's highway expenditures, future research must include consulting services.

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Figure 35: Appendix - GDOT Highway Expenditures by County, 2009 - 2013

GDOT HIGHWAY EXPENDITURES BY COUNTY JANUARY 2009 - APRIL 2013			
COUNTY	TOTAL EXPENDITURE	% OF ALL AWARDS	NUMBER OF PROJECTS IN COUNTY
APPLING	$ 5,471,750	0.2%	**9**
ATKINSON	$ 2,947,658	0.1%	**7**
BACON	$ 4,888,284	0.2%	**11**
BAKER	$ 4,314,857	0.1%	**7**
BALDWIN	$ 33,483,783	1.1%	**11**
BANKS	$ 2,076,103	0.1%	**6**
BARROW	$ 20,562,906	0.7%	**14**
BARTOW	$ 55,368,844	1.8%	**15**
BEN HILL	$ 2,635,505	0.1%	**7**
BERRIEN	$ 4,868,820	0.2%	**7**
BIBB	$ 57,428,370	1.9%	**17**
BLECKLEY	$ 9,846,241	0.3%	**6**
BRANTLEY	$ 13,982,124	0.5%	**17**
BROOKS	$ 12,074,953	0.4%	**10**
BRYAN	$ 11,487,266	0.4%	**12**
BULLOCH	$ 21,446,316	0.7%	**19**
BURKE	$ 4,415,152	0.1%	**5**
BUTTS	$ 12,148,335	0.4%	**10**
CALHOUN	$ 4,350,563	0.1%	**6**
CAMDEN	$ 16,266,943	0.5%	**11**
CANDLER	$ 10,818,662	0.3%	**15**
CARROLL	$ 15,932,884	0.5%	**14**
CATOOSA	$ 6,029,280	0.2%	**9**
CHARLTON	$ 10,391,925	0.3%	**12**
CHATHAM	$ 212,097,628	6.9%	**29**
CHATTAHOOCHEE	$ 288,727	0.0%	**3**
CHATTOOGA	$ 1,179,660	0.0%	**4**

FIGURE 35 CONTINUED: GDOT HIGHWAY EXPENDITURES BY COUNTY JANUARY 2009 - APRIL 2013				
	COUNTY	**TOTAL EXPENDITURE**	**% OF ALL AWARDS**	**NUMBER OF PROJECTS IN COUNTY**
	CHEROKEE	$ 59,180,921	1.9%	19
	CLARKE	$ 26,259,554	0.8%	14
	CLAY	$ 28,726,447	0.9%	9
	CLAYTON	$ 22,297,560	0.7%	17
	CLINCH	$ 2,228,901	0.1%	6
	COBB	$ 116,860,880	3.8%	36
	COFFEE	$ 19,534,692	0.6%	13
	COLQUITT	$ 21,970,891	0.7%	12
	COLUMBIA	$ 9,721,661	0.3%	9
	COOK	$ 2,852,099	0.1%	5
	COWETA	$ 46,022,395	1.5%	20
	CRAWFORD	$ 4,486,468	0.1%	8
	CRISP	$ 3,575,726	0.1%	6
	DADE	$ 1,516,067	0.0%	4
	DAWSON	$ 7,443,037	0.2%	9
	DECATUR	$ 26,184,782	0.8%	12
	DEKALB	$ 134,363,239	4.3%	53
	DODGE	$ 6,313,838	0.2%	9
	DOOLY	$ 92,486,465	3.0%	13
	DOUGHERTY	$ 33,407,336	1.1%	12
	DOUGLAS	$ 34,166,827	1.1%	20
	EARLY	$ 15,466,783	0.5%	9
	ECHOLS	$ 1,671,780	0.1%	4
	EFFINGHAM	$ 4,957,193	0.2%	10
	ELBERT	$ 3,785,741	0.1%	7
	EMANUEL	$ 39,371,339	1.3%	8
	EVANS	$ 2,976,007	0.1%	9

FIGURE 35 CONTINUED: GDOT HIGHWAY EXPENDITURES BY COUNTY JANUARY 2009 - APRIL 2013				
	COUNTY	TOTAL EXPENDITURE	% OF ALL AWARDS	NUMBER OF PROJECTS IN COUNTY
	FANNIN	$ 2,448,637	0.1%	6
	FAYETTE	$ 28,128,421	0.9%	13
	FLOYD	$ 62,369,901	2.0%	10
	FORSYTH	$ 22,671,499	0.7%	13
	FRANKLIN	$ 8,431,138	0.3%	11
	FULTON	$ 187,887,067	6.1%	90
	GILMER	$ 728,910	0.0%	4
	GLASCOCK	$ 1,465,841	0.0%	5
	GLYNN	$ 22,185,223	0.7%	10
	GORDON	$ 53,192,023	1.7%	13
	GRADY	$ 10,306,366	0.3%	13
	GREENE	$ 12,336,531	0.4%	11
	GWINNETT	$ 93,704,343	3.0%	35
	HABERSHAM	$ 17,019,236	0.6%	14
	HALL	$ 83,899,932	2.7%	25
	HANCOCK	$ 4,116,731	0.1%	6
	HARALSON	$ 6,790,533	0.2%	9
	HARRIS	$ 7,322,984	0.2%	8
	HART	$ 7,037,709	0.2%	9
	HEARD	$ 7,018,028	0.2%	6
	HENRY	$ 47,332,059	1.5%	26
	HOUSTON	$ 23,103,687	0.7%	13
	IRWIN	$ 1,711,860	0.1%	6
	JACKSON	$ 10,760,022	0.3%	16
	JASPER	$ 7,141,674	0.2%	9
	JEFF DAVIS	$ 5,983,259	0.2%	7
	JEFFERSON	$ 14,942,435	0.5%	13
	JENKINS	$ 2,655,523	0.1%	6
	JOHNSON	$ 5,944,588	0.2%	8
	JONES	$ 2,134,348	0.1%	7
	LAMAR	$ 14,234,145	0.5%	12
	LANIER	$ 2,480,282	0.1%	6
	LAURENS	$ 42,054,737	1.4%	15
	LEE	$ 2,432,497	0.1%	7

FIGURE 35 CONTINUED: GDOT HIGHWAY EXPENDITURES BY COUNTY JANUARY 2009 - APRIL 2013				
	COUNTY	TOTAL EXPENDITURE	% OF ALL AWARDS	NUMBER OF PROJECTS IN COUNTY
	LIBERTY	$ 5,706,708	0.2%	8
	LINCOLN	$ 22,626,498	0.7%	7
	LONG	$ 4,667,821	0.2%	7
	LOWNDES	$ 28,008,600	0.9%	13
	LUMPKIN	$ 3,307,278	0.1%	7
	MACON	$ 4,590,307	0.1%	9
	MADISON	$ 5,407,368	0.2%	8
	MARION	$ 5,163,148	0.2%	8
	MCDUFFIE	$ 12,053,601	0.4%	9
	MCINTOSH	$ 1,391,475	0.0%	6
	MERIWETHER	$ 8,756,890	0.3%	10
	MILLER	$ 6,661,060	0.2%	10
	MITCHELL	$ 13,228,862	0.4%	9
	MONROE	$ 9,103,107	0.3%	11
	MONTGOMERY	$ 13,584,665	0.4%	14
	MORGAN	$ 19,475,692	0.6%	12
	MURRAY	$ 8,324,474	0.3%	10
	MUSCOGEE	$ 35,374,497	1.1%	11
	NEWTON	$ 15,118,954	0.5%	13
	OCONEE	$ 18,639,427	0.6%	10
	OGLETHORPE	$ 2,619,862	0.1%	5
	PAULDING	$ 10,110,957	0.3%	11
	PEACH	$ 17,285,591	0.6%	12
	PICKENS	$ 1,244,032	0.0%	5
	PIERCE	$ 9,202,822	0.3%	12
	PIKE	$ 11,119,161	0.4%	9
	POLK	$ 648,948	0.0%	4
	PULASKI	$ 2,778,228	0.1%	6
	PUTNAM	$ 38,881,056	1.3%	6
	QUITMAN	$ 6,101,287	0.2%	4
	RABUN	$ 3,108,453	0.1%	9
	RANDOLPH	$ 17,175,978	0.6%	10
	RICHMOND	$ 69,943,119	2.3%	20

GDOT HIGHWAY EXPENDITURES BY DISTRICTS AND COUNTIES JANUARY 2009 - APRIL 2013				
		PROJECT_AMOUNT		
		TOTAL EXPENDITURE	Column Sum %	NO. OF PROJECTS
Project County Location	ROCKDALE	$ 15,173,821	0.50%	14
	SCHLEY	$ 1,863,785	0.10%	5
	SCREVEN	$ 3,465,672	0.10%	7
	SEMINOLE	$ 6,782,461	0.20%	8
	SPALDING	$ 36,764,891	1.20%	15
	STEPHENS	$ 5,627,418	0.20%	10
	STEWART	$ 418,512	0.00%	3
	SUMTER	$ 8,710,152	0.30%	8
	TALBOT	$ 5,223,934	0.20%	5
	TALIAFERRO	$ 2,855,122	0.10%	5
	TATTNALL	$ 10,305,271	0.30%	14
	TAYLOR	$ 2,234,895	0.10%	5
	TELFAIR	$ 4,434,232	0.10%	11
	TERRELL	$ 5,285,953	0.20%	9
	THOMAS	$ 10,701,909	0.30%	8
	TIFT	$ 30,042,507	1.00%	17
	TOOMBS	$ 18,568,863	0.60%	10
	TOWNS	$ 1,512,585	0.00%	6
	TREUTLEN	$ 29,497,299	1.00%	5
	TROUP	$ 27,195,295	0.90%	8
	TURNER	$ 5,879,284	0.20%	9
	TWIGGS	$ 28,831,375	0.90%	10
	UNION	$ 2,846,866	0.10%	7
	UPSON	$ 15,835,552	0.50%	9
	WALKER	$ 7,743,894	0.30%	11
	WALTON	$ 22,254,613	0.70%	8
	WARE	$ 10,832,383	0.40%	8
	WARREN	$ 5,347,758	0.20%	8
	WASHINGTON	$ 41,175,219	1.30%	9
	WAYNE	$ 7,128,190	0.20%	15
	WEBSTER	$ 2,529,306	0.10%	5
	WHEELER	$ 13,758,447	0.40%	11
	WHITE	$ 21,186,620	0.70%	8
	WHITFIELD	$ 38,026,171	1.20%	5
	WILCOX	$ 4,173,519	0.10%	8
	WILKES	$ 4,564,144	0.10%	6
	WILKINSON	$ 49,724,444	1.60%	9
	WORTH	$ 7,738,184	0.30%	8
	Total	**$ 3,094,254,806**	**100.00%**	**1271**