Characterization of the Motor Vehicle Industry in the Greater Charlotte Region through Data Mining and an Industry Survey Analysis

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Executive Summary

This study is aimed at identifying the current circumstances, demographics and needs of the companies that are in the motor vehicle (MV) industry. Analysis of a related industry survey along with a data mining analysis of MV company databases is presented to derive recommendations for the local government agencies so that the MV industry can be sustained and further grow in the Carolinas region. The analysis presented in this report is conducted as part of a larger study named "Characterizing the Automotive and Motorsport Industry Supply Chain in the Greater Charlotte Region of the Carolinas" that is sponsored by Centralina Council of Governments.

The major findings and recommendations of this report can be summarized as follows:

The research identified that the MV industry can be characterized using 57 NAICS codes, which include both direct and indirect players in the MV supply chain. Further analysis indicates that only 27 of these NAICS codes characterize the MV industry in the Greater Charlotte Region. Top seven primary NAICS codes corresponding to wholesalers (new and used parts, and tube and tire) and manufacturers (MV Body, Parts and Tire) constitute 92% of the employment and 89% of the MV companies in the region.

The survey analysis has shown that the NC and the Greater Charlotte Region have several strengths but the analysis also revealed some opportunities for the local government to act upon. The strengths of the region include quality of life, labor cost and availability, location (specifically NASCAR base proximity to suppliers and customers) and transportation infrastructure (rails, interstates, bridges, airports). When asked why companies chose their specific location within the region, besides easy access to customers, interstates and labor cost and availability, some of the additional reasons were cost of land and facilities, availability of space and attractiveness to managers and professionals. Industry suppliers and customers are primarily located in the region or other parts of the Carolinas and their recruirtment to the region may benefit local businesses. A need for further basic and technical workforce development was indicated. It is recommended to continue development of programs in NC and the Greater Charlotte Region to preserve and enhance these regional strengths.

Some of the main opportunities include

- Building Strong Relationships with Major OEMs & Motor Vehicle Manufacturers
- Grants for Expansion Restoration and Improvement of Facilities
- More Government Incentives to Recruit Automotive Suppliers
- Industrial Property Tax Exemptions for new job creation or plant extensions
- Promote, Sponsor Programs to Help Individuals Develop Better Job & Career Skills
- Automotive and Motor Sports Industry Tax Credits

It is also recommended to do benchmarking and learning from other states and regions of the world. Some of specifc recommendations from the respondents were

- disseminating the “lean low cost high quality manufacturing” culture to the regional MV industry by learning from counties such as Japan and China,
- building buffer zones of industrial emphasis around the racing tracks, instead of housing,
- creating more education facilities such as ICAR in SC to increate much needed supply of advanced skilled and trained employees for the MV industry
- making the tax and reporting regulation NC less complicated
- adding different race tracks in the region
- focusing on R&D and new product innovation to stay ahead of the rest of the world

Based on the part of the survey that focused on the Mecklenburg County , the following are recommended

- Focus on crime prevention
- Bring in additional suppliers
- Focus on worker training

86% of the companies are unaware of the incentive programs. We recommend that the local government to invest in addition effort, such as information sessions, marketing campaings to inform the companies in the region about these programs.

We would like to note that the above recommendations might need further more detailed investigation. While a considerable amount of time and energy was spent on the surveys, unfortunately, the response rate was less than 5%. Just using the response rate, it is possible to deduce different conclusions. One conclusion is simply that many companies in the MV industry do not seem to care about the economic development of the region. The survey responses indicated that most of these companies are located in the region because of long term ties (non-business related reasons). Another conclusion may be that the companies in the MV industry has been surviving the tough economic times, thus they simply do not have time to respond. A third conclusion is that many of the companies do not believe that the local government will do anything about their needs, so it is not worth their time to complete the survey. Even though none of the respondents indicated this on the written surveys, the project team conducting phone-surveys indicated that they have heard this a few times over the phone. Perhaps, this might be another area that the local government can work on. By conducting information sessions and workshops on the MV related initiatives could help establishing an ongoing relationship with the industry and gradually increase the trust and interest from the indutry for collaborative projects. While the responses has been low, we believe some of these findings and recommendations can be a good starting point for the local government to help the MV industry in the Greater Charlotte Region.

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1 Introduction and Background

The landscape for motor vehicle (MV) industry, like many other industries, has been reshaping geographically, functionally, and operationally. Emerging MV industries in Asian, Central and Eastern European, and South American countries increases competition and forces the existing players to be more efficient. The more developed industries of the United States and Western Europe are relocating and migrating to regions where labor and resource costs are lower.

Across the United States the story is the same: steel mills and lumber mills gone bankrupt; North Carolina textile plants relocated to the Caribbean, Mexico, Central America, and the Far East; Midwestern auto plants and multi-tier suppliers closing and laying off hundreds of thousands of workers. The manufacturing sector lost more than three million jobs between 1998 and 2003, with 2.7 million lost since the immediate pre-recession year of 2000[1]. This is clear and simple motivation for Centralina to sustain and enhance the regional MV and motorsport industries, which are successful cornerstones in North Carolina (NC). There is no dispute that an effective supply chain through the collaboration of suppliers, manufacturers, distributors and customers will foster cost-savings, which will in turn support Centralina's growth expectations, to deal with competitive threats nationally and globally, and target and recruit supply chain players to this area.

1.1 Study Objectives

The objective of this study is to understand the current conditions and business needs of the companies that operate in the MV industry in the Greater Charlotte Region that are considered under the "Advanced Manufacturing Companies" category[2]. This data should help the local governments to adjust their economic development policies so the companies can prosper and the industry can grow in the region. The study has specific research questions to be addressed for the Greater Charlotte Region as well as some specific questions to understand the impact and needs related to the Mecklenburg County's Business Corridor Revitalization Program.

Research questions that apply to the entire Greater Charlotte Region are summarized as follows:

- What is the definition of the motor vehicle supply chain in the Greater Charlotte Region?
- What are the relationship-flows geographically within the Greater Charlotte Region?
    - How do the supply chain's players in the Motor Vehicle Industry supply chain interact with each other? Who do they buy from? Who do they sell to?

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[1] April 8, 2004 | EPI Briefing Paper #149 (http://www.epi.org/content.cfm/briefingpapers_bp149)

[2] Manufacturing Landscape Report by Angelou Economics, May 2006, Available at URL: http://www.4noboundaries.org/images/Manufacturing%20Landscape%20051506.pdf

- What is the competitive advantage of the Greater Charlotte Region for the Motor Vehicle companies?
    - What made the Players choose this region, and the specific location within the region?
- Within the Greater Charlotte Region, are there gaps, or missing pieces, in the automotive supply chain?
    - Which parts of the supply chain could be recruited to relocate to the Greater Charlotte Region?
- What are the needs of the Motor Vehicle Industry companies for future economic growth? Is there anything on public side to offer to support this economic growth?

Specific research questions related to the Mecklenburg County's Business Corridor Revitalization Program are as follows:

- What is the competitive advantage or disadvantage of these corridors for companies in the automotive supply chain?
- How many firms in the automotive supply chain are located in these corridors, located in and identified by the City of Charlotte?

1.2 Methodology

The following table (Table 1) summarizes the overall methodology in addressing the project research objectives and indicates how and where an industry survey fits into the overall methodology. To keep this report concise findings of the benchmarking and economic impact analysis are presented in separate reports that can be obtained from Centralina and CLLES.

No	Project Objectives	Methodology
1	Define Industry Supply Chain	NAICS Codes Analysis
2	Identify Industry Relationships and Flows	Industry Survey, GIS Mapping
3	Identify Regional Competitive Advantage	Industry Survey
4	Identify Supply Chain Missing Links	Economic Impact Analysis, Industry Surveys
5	Identify Industry Needs	Benchmarking, Economic Impact Analysis, Industry Survey

Table 1: Overall Methodology and how Industry Surveys fit into the overall methodology

1.3 Region of Study

The scope of this study is limited to the following nine counties located in the Greater Charlotte Region of North Carolina: Anson, Cabarrus, Gaston, Iredell, Lincoln, Mecklenburg, Rowan, Stanly, and Union (Figure 1). These nine counties are referred as the Greater Charlotte Region in the rest of this report.

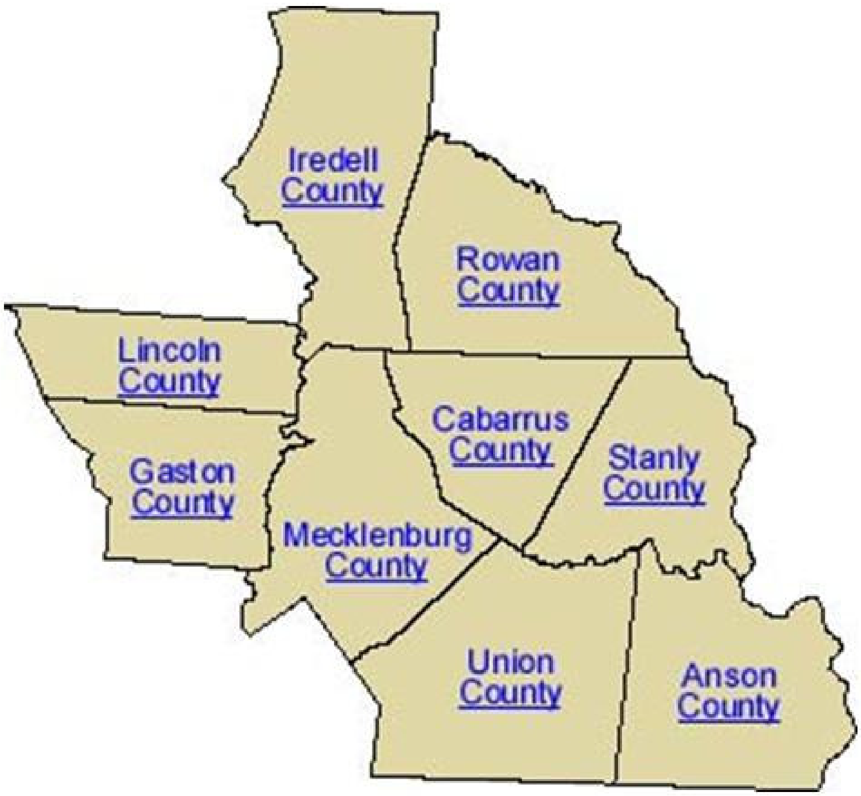

Figure 1: Greater Charlotte region and its nine counties

In addition to the general coverage of the above-mentioned counties, an additional focus is paid to the businesses located in the City of Charlotte Business Corridor Revitalization Program (Figure 2). The Business Corridor Revitalization Program was identified in the 1988 Transportation Bonds to strengthen economic vitality along business corridors and compliment the stabilization of neighborhoods. To date, $11 million has been allocated to this program providing public improvements along inner-city business corridors. Designated corridors include: Beatties Ford Road, Plaza/Central Avenue, North Tryon Street, South End, Wilkinson Boulevard, Historic North Charlotte, Freedom Drive, Graham Street, West Boulevard, and Elizabeth Avenue. In these five business corridors, the City of Charlotte has established a number of programs summarized briefly as follows:

- Brownfield Grant Program: provides 50% matching funds, up to $20,000 per site, to property owners for assessment activities at redevelopment sites suspected of contamination

- Business Corridor Revitalization Fund: provides assistance to redevelopment projects in the City's five targeted business corridors. (Purchasing land; Public Infrastructure; and Addressing Brownfield issues)
- Business Corridor Worker Training Grant: provides grants to businesses located within the City's Business Revitalization Corridor Geography for the purposes of funding job training to improve worker skills.
- Business District Organization Program: is a matching funds program to support the work of business organizations serving the City's distressed business districts.
- Business Equity Loan Program: is a loan program aimed to stimulate small business investments in targeted areas, create new service and retail business to support targeted neighborhoods, provide low-wealth person access to capital for business start-ups and expansions, and create jobs for low-to-moderate income people living in Communities-Within-A-City (CWAC) areas
- Façade Improvement Grant Program: Remove blight by assisting business and commercial property owners with improving building appearance and by bring signs, parking and landscaping into conformance with current codes.
- Small Business Enterprise (SBE) Loan Fund: is an innovative public/private fund established to assist small business with gaining access to capital for seasonal working capital support, permanent working capital and expansion capital
- Security Grant Program: is aimed to reduce opportunity for crime and create a safer environment for employees and customers.
- Synthetic Tax Increment Financing (TIF): is a public/private partnership tool for the City to advance Economic Development and land-use planning goals.

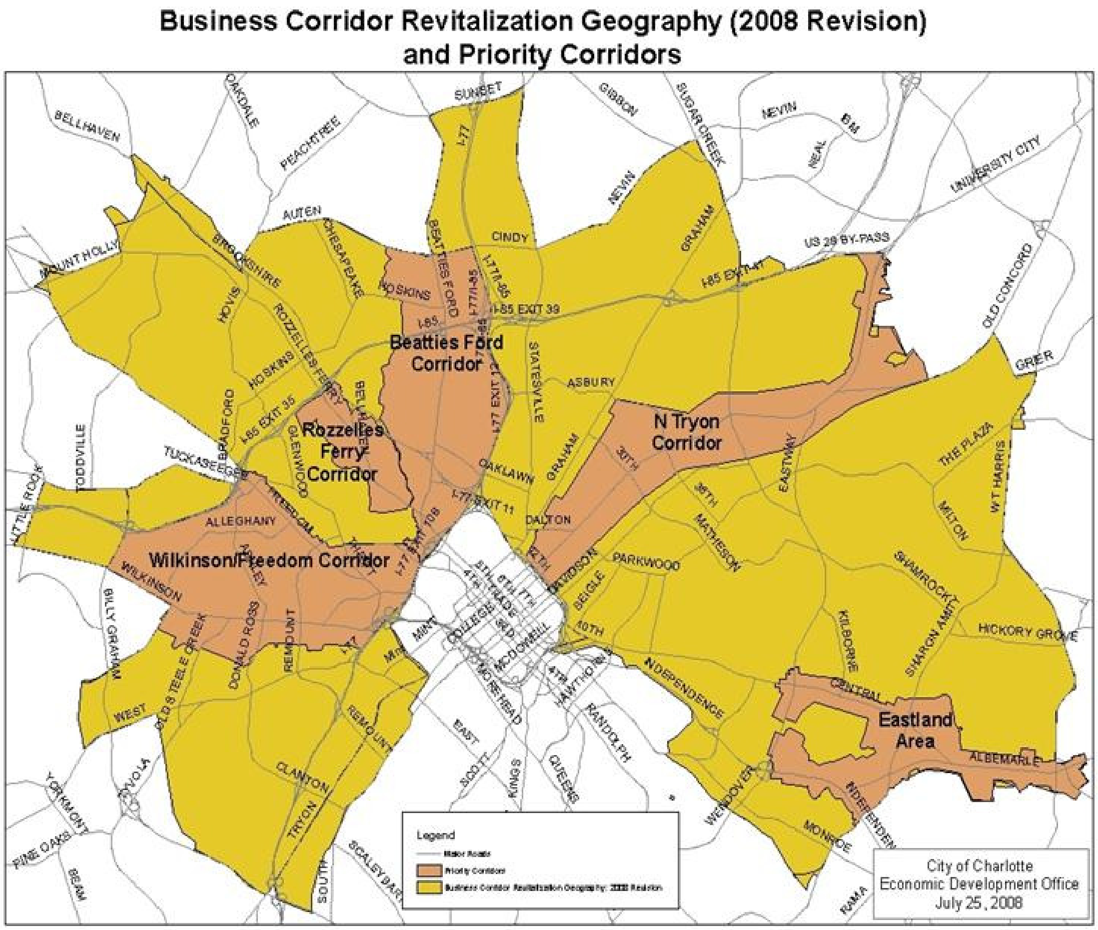

Figure 2: Business corridor revitalization geography and priority corridors

1.4 Industry Supply Chain Definition

In this study, we view the MV supply chain as an end-to-end and global network of organizations that are linked together directly or indirectly to fulfill end-customers' request profitably[3]. **Error! Reference source not found.** provides a simplified illustration of the supply chain players for the MV and Motorsports industries and their interactions.

[3] Ozelkan, E. C. and Rajamani, D., 5P Framework for Teaching and Characterizing Supply Chains Effectively, Proceedings of the IIE Research Conference (IERC), Paper No. 1757, Orlando, FL, May 20-24, 2006

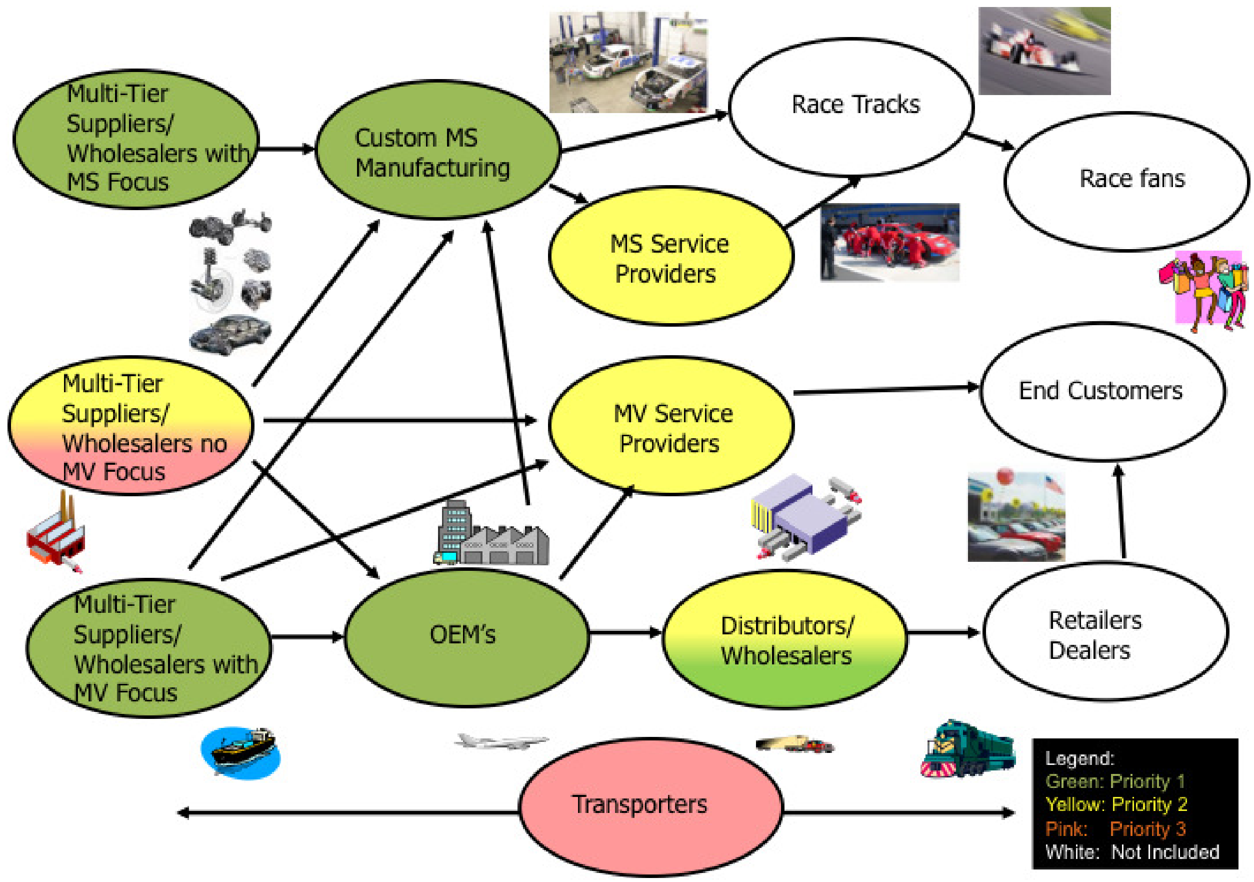

Figure 3:An illustration of the MV and Motorsports (MS) industry supply chain and the priority for the presented study

The MV industry encompasses all the companies and activities involved in the manufacturing of motor vehicles, including components, such as engines, bodies, tires, batteries, and all subcomponents. The principal products of this industry are end-products such passenger cars, trucks, buses and all the components and services involved in the manufacturing of these products. The motorsports industry encompasses all the companies and activities involved in the motorsport racing community. As shown in Figure 3, this industry has close relationship with the MV industry but also differs in that the racing cars require custom production for increased performance. The motorsports industry is expansive and includes business services, display merchandising, education and training, machine and part shops, motorsport media, race shops, racecar builders and preparers, racecar components, racecar systems, racing services, safety equipment, and transportation of all these products. Figure 4 shows the main players of the MV and motorsports industries in North Carolina. In the current study, the focus has been the upstream manufacturing part of the supply chain. The racetracks and car dealers are not included in this analysis.

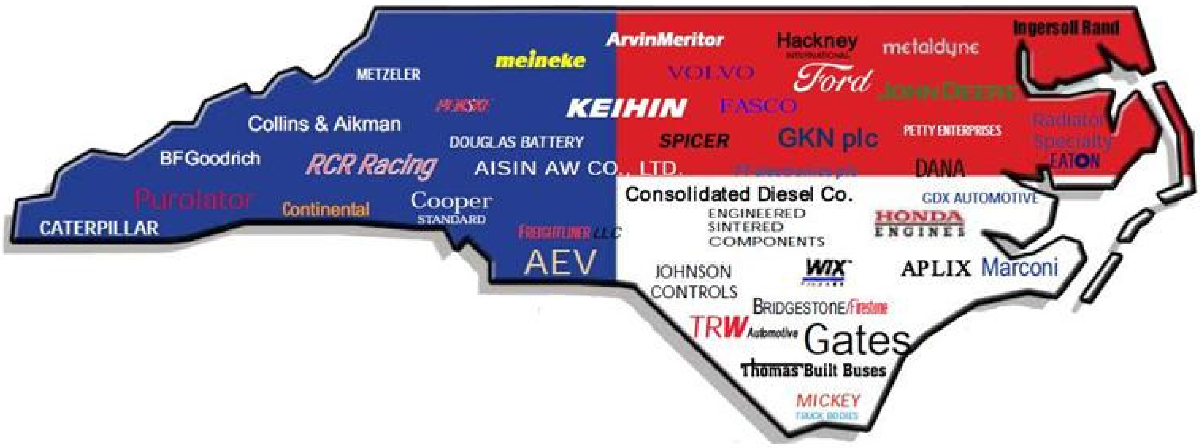

Figure 4: North Carolina MV and Motorsports Industry Players[4]

1.5 Industry Classification

Due to the variety of products and services in the motor vehicle industries, a method must be used in order to categorize these sectors. On April 9, 1997, the Office of Management and Budget announced its decision to adopt the North American Industry Classification System (NAICS) as the industry classification system used by the statistical agencies of the United States. NAICS replaces the 1987 Standard Industrial Classification (SIC).

NAICS is a unique, all-new system for classifying business establishments. It is the first economic classification system to be constructed based on a single economic concept. Economic units that use similar processes to produce goods or services are grouped together. This "production-oriented" system means that statistical agencies in the United States will produce data that can be used for measuring productivity, unit labor costs, and the capital intensity of production; constructing input-output relationships; and estimating employment-output relationships and other such statistics that require that inputs and outputs be used together[5].

In order to narrow the scope of this project, 57 NAICS codes (24 Primary, 17 Secondary and 16 Tertiary) were selected (see Table 2, Table 3, and Table 4). These codes were given priority based on the study objectives which emphasized the manufacturing and according to the way the corresponding industry sectors are related to the MV industry. For example, primary NAICS codes represent MV and motorsports manufacturers, suppliers and wholesalers that primarily focus on these industries, while

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[4] North Carolina Automotive Industry. Brochure taken from North Carolina Department of Commerce Business/Industry Development Division web page (http://www.nccommerce.com)
[5] U.S. Census Bureau, 2001

secondary codes include service providers and those component manufacturers which serve the industry but without the MV focus, and the tertiary NAICS codes represent those businesses such as the transportation companies, and second and third tier suppliers, that although connected to the MV industry in some way, their primary functions are not essentially to serve this industry. For the purpose of this study, NAICS codes corresponding to the racetracks and dealers are not considered. Also the primary focus has been those companies matching these codes in the Greater Charlotte Region as we will discuss in the next section.

Primary NAICS Code	Description
326211	Tire Manufacturing (except Retreading)
336111	Automobile Manufacturing
336112	Light Truck and Utility Vehicle Manufacturing
336120	Heavy Duty Truck Manufacturing
336211	Motor Vehicle Body Manufacturing
336212	Truck Trailer Manufacturing
336213	Motor Home Manufacturing
336214	Travel Trailer and Camper Manufacturing
336311	Carburetors, Pistons, Piston Rings, and Valves Manufacturing
336312	Gasoline Engine and Engine Parts Manufacturing
336321	Vehicular Lighting Equipment Manufacturing
336322	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing
336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing
336340	Motor Vehicle Brake System Manufacturing
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing
336360	Motor Vehicle Seating and Interior Trim Manufacturing
336370	Motor Vehicle Metal Stamping
336391	Motor Vehicle Air-Conditioning Manufacturing
336399	All Other Motor Vehicle Parts Manufacturing
336999	Other Transportation Equipment Manufacturing, which includes race car manufacturing
423110	Automobile and Other Motor Vehicle Merchant Wholesalers
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers
423130	Tire and Tube Merchant Wholesalers
423140	Motor Vehicle Parts (Used) Merchant Wholesalers

Table 2: Primary NAICS Codes

Secondary NAICS Code	Description
325510	Paint and Coating Manufacturing
326220	Rubber and Plastics Hoses and Belting Manufacturing
332510	Hardware Manufacturing
332611	Spring (Heavy Gauge) Manufacturing
333319	Other Commercial and Service Industry Machinery Manufacturing
334310	Audio and Video Equipment Manufacturing
334514	Totalizing Fluid Meter and Counting Device Manufacturing
335110	Electric Lamp Bulb and Part Manufacturing
441310	Automotive Parts and Accessories Stores
811111	General Automotive Repair
811112	Automotive Exhaust System Repair
811113	Automotive Transmission Repair
811118	Other Automotive Mechanical and Electrical Repair and Maintenance
811121	Automotive Body, Paint, and Interior Repair and Maintenance
811122	Automotive Glass Replacement Shops
811191	Automotive Oil Change and Lubrication Shops
811198	All Other Automotive Repair and Maintenance

Table 3: Secondary NAICS Codes

Tertiary NAICS Code	Description
327215	Glass Product Manufacturing Made of Purchased Glass
331319	Other Aluminum Rolling and Drawing
331422	Copper Wire (except Mechanical) Drawing
331491	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing
334290	Other Communications Equipment
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals
334519	Other Measuring and Controlling Device Manufacturing
335911	Storage Battery Manufacturing
335931	Current-Carrying Wiring Device Manufacturing
423730	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers
481112	Scheduled Freight Air Transportation
483111	Deep Sea Freight Transportation
483113	Coastal and Great Lakes Freight Transportation
484220	Specialized Freight (except Used Goods) Trucking, Local
484230	Specialized Freight (except Used Goods) Trucking, Long-Distance

Table 4: Tertiary NAICS Codes

1.6 Distribution of Motor Vehicle Companies in the Greater Charlotte Region

The distribution of motor vehicle companies in the Greater Charlotte Region is not uniform or even. From Table 5, it is apparent that the number of companies in each County varies widely from 401 in Mecklenburg County to 3 in Anson County. For this consultative analysis, as exhaustively as possible, there were 638 motor vehicle-related companies identified in the Greater Charlotte Region and 1187 identified in NC. The number of companies in each County by NAICS codes is spread throughout the Region and the industry. As shown in Table 6, the largest quantity of businesses are parts wholesalers with 258 “Motor Vehicle Supplies and New Parts Merchant Wholesalers” (NAICS 423120) and 103 “Motor Vehicle Parts (Used) Merchant Wholesalers” (NAICS 423140). The analysis indicates that many of the NAICS codes have no representative companies in the region; while the research project began with 57 codes (24 Primary, 17 Secondary and 16 Tertiary), only 27 codes (16 Primary, 5 Secondary and 6 Tertiary) are represented in the region. The geographic distribution of businesses based on the number of employees per County (Table 7) is similar to the number of companies per County with 18598 in Mecklenburg and 16 in Anson. Notable is the highest maximum number of employees in one business (Max column) is 4300 in Rowan County. Table 8 shows the number of employees in each County by NAICS code. Similar to the number of companies, parts’ wholesaling employs the most people in the region with 6495 employed in new parts and 6233 employed in used parts. It is notable that while these two codes represent half of the total companies, they are less than 1/3 of the employees. In mapping the location of motor vehicle businesses throughout the whole region (Figure 5), it is evident that the businesses are clustered proximate to major highways and the urban core of Charlotte. MV business locations corresponding to each county is further represented in the County maps in Appendix D: Distribution of MV Companies in the Greater Charlotte Region Counties. The geographic form of MV companies appears to be unique and further statistical analysis may be appropriate for increased understanding of the industry. Conclusions from this analysis should be considered limited for data was incomplete and generalized on some company records.

County	Quantity
Mecklenburg	401
Cabarrus	81
Gaston	79
Union	27
Rowan	14
Lincoln	12
Stanly	11
Iredell	10
Anson	3
Greater Charlotte Region Total	**638**
NC Total	**1187**

Table 5: Number of companies in each county corresponding to the selected NAICS codes (Source: Lexis-Nexis and ReferenceUSA databases)

NAICS Code	NAICS Level	Anson	Cabarrus	Gaston	Iredell	Lincoln	Mecklenburg	Rowan	Stanly	Union	Region
423120	Primary	3	28	29	4	2	176	5	3	8	258
423140	Primary	0	11	11	3	5	64	1	5	3	103
336399	Primary	0	7	13	1	1	37	0	2	8	69
423110	Primary	0	8	11	0	3	44	1	0	2	69
336211	Primary	0	13	8	2	1	14	3	0	1	42
336360	Primary	0	2	5	0	0	7	1	0	1	16
336322	Primary	0	0	3	0	1	8	0	0	0	12
326211	Primary	0	1	0	0	0	4	0	0	2	7
336370	Primary	0	1	0	0	0	2	0	0	1	4
423130	Primary	0	0	0	0	0	3	0	0	0	3
336212	Primary	0	0	0	0	0	2	0	0	0	2

NAICS Code	NAICS Level	Anson	Cabarrus	Gaston	Iredell	Lincoln	Mecklenburg	Rowan	Stanly	Union	Region
336311	Primary	0	0	0	0	0	1	1	0	0	2
336999	Primary	0	0	0	0	0	1	0	1	0	2
336111	Primary	0	1	0	0	0	0	0	0	0	1
336214	Primary	0	0	0	0	1	0	0	0	0	1
336340	Primary	0	1	0	0	0	0	0	0	0	1
336350	Primary	0	0	0	0	0	1	0	0	0	1
336112	Primary	0	0	0	0	0	0	0	0	0	0
336120	Primary	0	0	0	0	0	0	0	0	0	0
336213	Primary	0	0	0	0	0	0	0	0	0	0
336312	Primary	0	0	0	0	0	0	0	0	0	0
336321	Primary	0	0	0	0	0	0	0	0	0	0
336330	Primary	0	0	0	0	0	0	0	0	0	0
336391	Primary	0	0	0	0	0	0	0	0	0	0
441310	Secondary	0	1	1	0	0	3	0	0	1	6
811118	Secondary	0	0	0	0	0	3	0	0	0	3
811121	Secondary	0	0	0	0	0	2	0	0	0	2
811111	Secondary	0	1	0	0	0	0	0	0	0	1
811113	Secondary	0	0	0	0	0	1	0	0	0	1
325510	Secondary	0	0	0	0	0	0	0	0	0	0
326220	Secondary	0	0	0	0	0	0	0	0	0	0
332510	Secondary	0	0	0	0	0	0	0	0	0	0
332611	Secondary	0	0	0	0	0	0	0	0	0	0
333319	Secondary	0	0	0	0	0	0	0	0	0	0
334310	Secondary	0	0	0	0	0	0	0	0	0	0
334514	Secondary	0	0	0	0	0	0	0	0	0	0
335110	Secondary	0	0	0	0	0	0	0	0	0	0
811112	Secondary	0	0	0	0	0	0	0	0	0	0

NAICS Code	NAICS Level	Anson	Cabarrus	Gaston	Iredell	Lincoln	Mecklenburg	Rowan	Stanly	Union	Region
811122	Secondary	0	0	0	0	0	0	0	0	0	0
811191	Secondary	0	0	0	0	0	0	0	0	0	0
811198	Secondary	0	0	0	0	0	0	0	0	0	0
423730	Tertiary	0	4	0	0	0	11	0	0	0	15
327215	Tertiary	0	0	0	0	0	7	0	0	0	7
334220	Tertiary	0	0	0	0	0	4	0	0	0	4
334290	Tertiary	0	0	0	0	0	4	0	0	0	4
334515	Tertiary	0	0	0	0	0	1	0	0	0	1
335931	Tertiary	0	0	0	0	0	1	0	0	0	1
331319	Tertiary	0	0	0	0	0	0	0	0	0	0
331422	Tertiary	0	0	0	0	0	0	0	0	0	0
331491	Tertiary	0	0	0	0	0	0	0	0	0	0
334519	Tertiary	0	0	0	0	0	0	0	0	0	0
335911	Tertiary	0	0	0	0	0	0	0	0	0	0
481112	Tertiary	0	0	0	0	0	0	0	0	0	0
483111	Tertiary	0	0	0	0	0	0	0	0	0	0
483113	Tertiary	0	0	0	0	0	0	0	0	0	0
484220	Tertiary	0	0	0	0	0	0	0	0	0	0
484230	Tertiary	0	0	0	0	0	0	0	0	0	0
In Study		3	79	81	10	14	401	12	11	27	638

Table 6: Number of Companies in each County by NAICS code

County	Quantity	Average	Min	Max
Mecklenburg	16679	292.6	1	5020
Rowan	4452	78.1	1	4345
Gaston	2738	48.0	1	1275
Union	2378	41.7	1	861
Cabarrus	1639	28.8	1	639
Stanly	638	11.2	1	515
Iredell	166	2.9	1	131
Lincoln	83	1.5	1	29
Anson	16	0.3	4	16
Region	28789	505.1	1	6495

Table 7: Number of Employees (company size)

NAICS Code	NAICS Level	Anson	Cabarrus	Gaston	Iredell	Lincoln	Mecklenburg	Rowan	Stanly	Union	Region Total
423120	Primary	16	522	1275	14	23	3203	66	861	515	6495
423140	Primary	0	639	482	9	29	5020	3	14	37	6233
336211	Primary	0	33	42	131	6	148	4345	6	0	4711
336399	Primary	0	171	725	12	1	1931	0	711	85	3636
423130	Primary	0	0	0	0	0	2218	0	0	0	2218
326211	Primary	0	4	0	0	0	1814	0	3	0	1821
423110	Primary	0	133	188	0	10	1045	15	100	0	1491
336322	Primary	0	0	9	0	12	388	0	0	0	409
336360	Primary	0	36	15	0	0	87	10	63	0	211
336350	Primary	0	0	0	0	0	90	0	0	0	90
336370	Primary	0	10	0	0	0	14	0	20	0	44
336311	Primary	0	0	0	0	0	3	13	0	0	16
336212	Primary	0	0	0	0	0	3	0	0	0	3

NAICS Code	NAICS Level	Anson	Cabarrus	Gaston	Iredell	Lincoln	Mecklenburg	Rowan	Stanly	Union	Region Total
336111	Primary	0	2	0	0	0	0	0	0	0	2
336214	Primary	0	0	0	0	2	0	0	0	0	2
336340	Primary	0	2	0	0	0	0	0	0	0	2
336999	Primary	0	0	0	0	0	1	0	0	1	2
336112	Primary	0	0	0	0	0	0	0	0	0	0
336120	Primary	0	0	0	0	0	0	0	0	0	0
336213	Primary	0	0	0	0	0	0	0	0	0	0
336312	Primary	0	0	0	0	0	0	0	0	0	0
336321	Primary	0	0	0	0	0	0	0	0	0	0
336330	Primary	0	0	0	0	0	0	0	0	0	0
336391	Primary	0	0	0	0	0	0	0	0	0	0
441310	Secondary	0	6	2	0	0	38	0	600	0	646
811113	Secondary	0	0	0	0	0	300	0	0	0	300
811118	Secondary	0	0	0	0	0	11	0	0	0	11
811121	Secondary	0	0	0	0	0	6	0	0	0	6
811111	Secondary	0	1	0	0	0	0	0	0	0	1
325510	Secondary	0	0	0	0	0	0	0	0	0	0
326220	Secondary	0	0	0	0	0	0	0	0	0	0
332510	Secondary	0	0	0	0	0	0	0	0	0	0
332611	Secondary	0	0	0	0	0	0	0	0	0	0
333319	Secondary	0	0	0	0	0	0	0	0	0	0
334310	Secondary	0	0	0	0	0	0	0	0	0	0
334514	Secondary	0	0	0	0	0	0	0	0	0	0
335110	Secondary	0	0	0	0	0	0	0	0	0	0
811112	Secondary	0	0	0	0	0	0	0	0	0	0
811122	Secondary	0	0	0	0	0	0	0	0	0	0
811191	Secondary	0	0	0	0	0	0	0	0	0	0

NAICS Code	NAICS Level	Anson	Cabarrus	Gaston	Iredell	Lincoln	Mecklenburg	Rowan	Stanly	Union	Region Total
811198	Secondary	0	0	0	0	0	0	0	0	0	0
423730	Tertiary	0	80	0	0	0	228	0	0	0	308
334290	Tertiary	0	0	0	0	0	59	0	0	0	59
327215	Tertiary	0	0	0	0	0	33	0	0	0	33
334220	Tertiary	0	0	0	0	0	23	0	0	0	23
334515	Tertiary	0	0	0	0	0	16	0	0	0	16
331319	Tertiary	0	0	0	0	0	0	0	0	0	0
331422	Tertiary	0	0	0	0	0	0	0	0	0	0
331491	Tertiary	0	0	0	0	0	0	0	0	0	0
334519	Tertiary	0	0	0	0	0	0	0	0	0	0
335911	Tertiary	0	0	0	0	0	0	0	0	0	0
335931	Tertiary	0	0	0	0	0	0	0	0	0	0
481112	Tertiary	0	0	0	0	0	0	0	0	0	0
483111	Tertiary	0	0	0	0	0	0	0	0	0	0
483113	Tertiary	0	0	0	0	0	0	0	0	0	0
484220	Tertiary	0	0	0	0	0	0	0	0	0	0
484230	Tertiary	0	0	0	0	0	0	0	0	0	0
In Study		16	1639	2738	166	83	16679	4452	638	2378	28789

Table 8: Number of Employees in each County by NAICS code

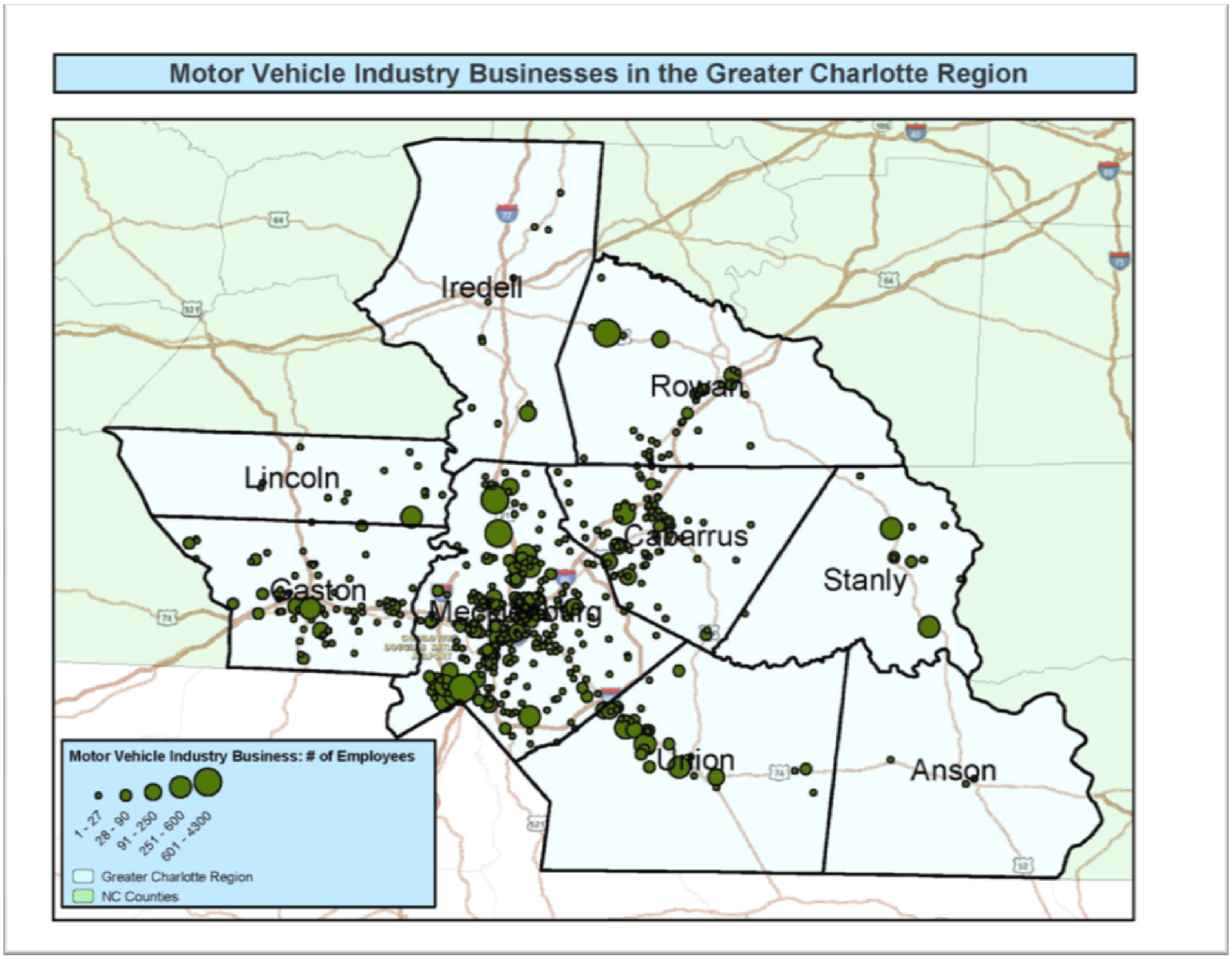


Figure 5: Distribution of Companies in the Greater Charlotte Region

2 Industry Survey Analysis

2.1 Survey Methodology

The details of the survey methodology are illustrated in Figure 6 and results in Table 9. The motor vehicle industry survey requirements were gathered primarily from Centralina and the City of Charlotte. We also asked feedback from the industry experts and economic development board representatives from the nine counties that are in the scope of this study. Based on the identified research objectives and requirements an MV industry survey was created (see Appendix A: Motor Vehicle Industry Needs Assessment Survey) and mailed out to the companies (see Appendix B: List of Motor Vehicle Companies) that operate in this industry both in the Greater Charlotte Region and in the remainder of NC. The surveyed were given the option to complete the surveys using the online version of the survey that was developed using surveyshare.com. The survey was conducted in three phases. During the first phase, the surveys were mailed out to 815 companies in the nine counties. The company addresses were retrieved from the ReferenceUSA and LexisNexis databases using the selected NAICS codes. The mailed out surveys also included a link where the participant can take the survey online if he/she preferred. Soon it was figured out that the company databases were not 100% accurate. 137 surveys were returned to sender because of incorrect contact information. To increase the participation, economic development boards in each of the counties were contacted. We would like to thank the Gaston County Economic Development Board, which helped by conducting surveys in their region. In the second phase a phone follow-up took place. 406 companies were called by phone. During these calls the company managers were encouraged to complete the survey either online or on hardcopy. These calls also helped to update some of the inaccurate data in the company database. During the third phase a focus group meeting was conducted with additional press visibility. Focus group invitations were mailed out to 550 companies and 15 people attended. In addition, a final mail-out to 751 companies[6] that did not respond during the first two phases as well as to those additional 610 Priority 1 Companies as identified in the NAICS Code Analysis (see section 1.4 for the definition of Priority 1 companies) that are outside the Greater Charlotte Region but within North Carolina. At the end of the survey, a price drawing was conducted among the survey participants. Table 9 summarizes the survey related facts.

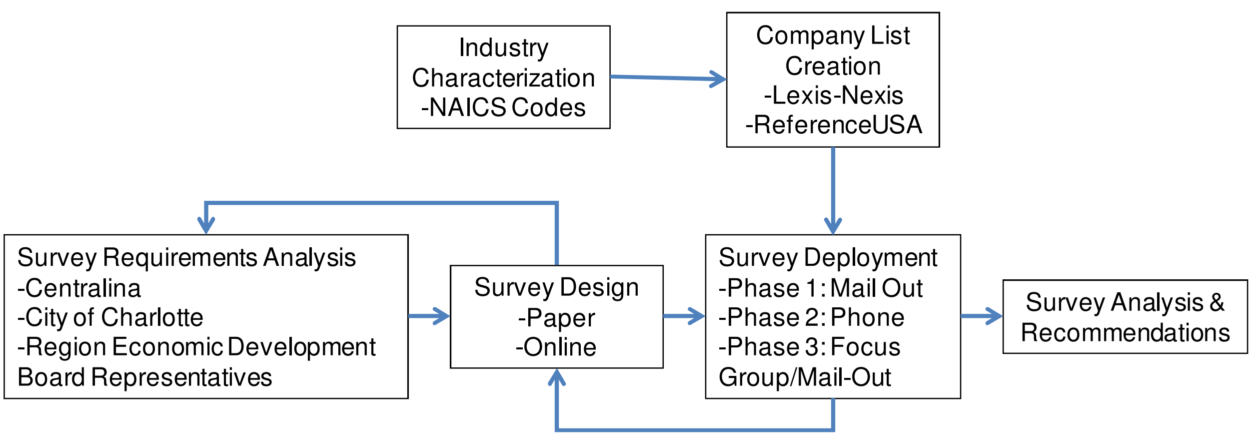


Figure 6: Survey Methodology

[6] Clarification: The number of companies reported here is larger than the total number of companies reported in Table 5, because initially several more NAICS codes were considered to characterize the MV industry. Table 5 shows the final number of companies considered after fine-tuning the company database.

Number of Surveys Sent out	Phase 1 (Aug-Nov 2008): 815 companies in the Greater Charlotte Region Phase 3 (Mar-Apr 2009): 751 companies in the Greater Charlotte Region and 610 companies in NC outside the Greater Charlotte Region
Number of Calls Made	Phase 2 (Dec 2008-Feb 2009) 406 companies in the Greater Charlotte Region
Number of Responses Received	64
Number of completed surveys received	45
Number of responses indicating the company does not belong to MV industry	19
Number of online responses	12
Number of returned surveys due to wrong addresses	83

Table 9: Summary of Survey Responses

2.2 Survey Analysis

The survey consists of a total of 20 questions to collect current information about the MV related businesses in the region. Some of the survey questions are aimed to better understand the interactions among the supply chain players in the Greater Charlotte Region. Some of the questions intend to establish the competitive advantage of this region. Finally, there is a set of questions that aims to identify existing gaps and needs of the MV industry in the area, including a question about possible policies changes at state or regional level that could enable the growth of these industries in the area. For companies located in Mecklenburg County, there are 7 additional questions aimed to identify the competitive advantages or disadvantages of the aforementioned business corridors of the City of Charlotte.

There were 2 types of questions in the survey. First type was multiple-choice questions. Respondents selected the best answer /answers from several options. The responses to these were gathered in a spreadsheet. Depending on the need, the responses were analyzed using ratio, count, median and frequency. Second type of questions was open ended. The surveyor was able to write his/her thoughts in the space provided. All of these were carefully read and grouped for presenting. Below, we will summarize and discuss the responses for each of the survey questions. The number in parenthesis next to each topic below indicates the corresponding question (Q) number on the survey.

2.2.1 Target Industry (Q1)

Total of 64 companies responded to the survey. 45 of these companies indicated that they are in our target industry. The information corresponding to Q1-Q7, provided below is gathered from these companies. As seen in Table 10 most of the respondents were manufacturers and wholesalers. We also had several service providers and retailers.

Response	Frequency	# Responses
Wholesalers (Automobile and Other Motor Vehicle Merchant, Motor Vehicle Supplies and New and Used Parts, Industrial Machinery and Equipment, Tire and Tube Merchant, Automotive Transmission Parts, Hydraulic Pneumatic Electronic Controls Lubrication and Connector Technologies)	29%	13
Manufacturing (Heavy Duty Truck, Motor Vehicle Transmission and Power Train Parts , Other Motor Vehicle Electrical and Electronic Equipment, Tire, Sheet Metal, Hardware, Truck Trailer, Metal Stamping, Totalizing Fluid Meter and Counting Device, Aluminum Racing Seats, Fueling and Lubrication Systems)	47%	21
Service Providers (Exhaust System Repair, Glass Replacement Shops, Heavy Duty Trucks Parts and Service, Transport Refrigiration, Salvage Auto Auction for Insurance Companies and Donations	11%	5
Retailer (Auto Parts, Accessories)	4%	2
Other	9%	4

Table 10: Summary of Responses for the Industry Description Question

2.2.2 Sale Percentages in Different Industries (Q2, Q3)

All 45 participants indicated that they have sales in the MV industry. The sales revenue of 47% of the participants (21 companies) comes mainly (91-100%) from this industry. 27% of the participants (12 companies) stated that only 1-10% of their sales results from the MV industry. 18% of the respondents (8 responses) do not have any sales in Motorsports industry. 64% of the companies (29 responses) specified that 1-10% of their revenue is created in Motorsports industry.

2.2.3 Impact of General Motors, Ford, and Daimler Chrysler (Q4, Q5)

23 companies responded to the question regarding a possible impact to their business from the Big 3 automotive companies. 43% of the companies (10 respondents) indicated that their business is not

dependent on the Big 3 at all. Less than 1% of the respondents (2 companies) said they are 90-100% dependent on the Big 3. 43% of the companies (10 participants) indicated that they are 1-50% dependent. The impact of a shutdown of Big 3 would be devastating for 13% of the respondents (3 replies), significant impact on 22% (5 companies), some but not much for 39% (9 companies), and no impact for 22% of the companies (6 respondents).

(Note: This question was included in the second phase of surveying thus initial respondents did not answer this question.)

2.2.4 Number of Employees (Q6)

The median of number of employees is 9 for the 20 respondents that replied to this question. The highest employee count is 1100 and lowest is 2. This shows that most of the companies that responded to the industry survey are relatively small companies.

(Note: This question was included in the second phase of surveying thus initial respondents did not answer this question.)

2.2.5 Top 3 Supplies (Q8)

Companies indicated the amount they spend to purchase their top 3 products / services. These can be raw materials, parts for resale or services. As seen in Figure 7 and Figure 8 below, 19% of the respondents (19 companies), spend less than $50K, 45% of the companies $250K or less, 73% of the companies spend $1M or less and 10% of the respondents (10 companies) spend more than $10 Million.

The 42 responses to the product name question (First Product's/Service's Name) illustrate the diversity of the industry. Responses were open-ended and each answer is unique including “tin plated steel”, “tire cord yarn”, “aluminum stamps” and “parts”. These responses impede quantitative analysis of the question but provide the varied nature of the industry within the region.

The primary supplier location questions had a total of 47 responses with 22 for the Carolina-based question (For the First Product/Service: Supplier's Primary Location in the Carolinas (City, County or Zip Code)) and 25 for the Outside the Carolinas-based question (For the First Product/Service: Supplier's Primary Location Outside the Carolinas (Other US States or Countries)) (Table 11 and Figure 9). Consistent with standard industrial geography theory, the suppliers are concentrated proximate to the production location with the largest number of suppliers (12) located in Charlotte region. The high percentage of foreign suppliers (13%) illustrates the importance of global trade to the local economy.

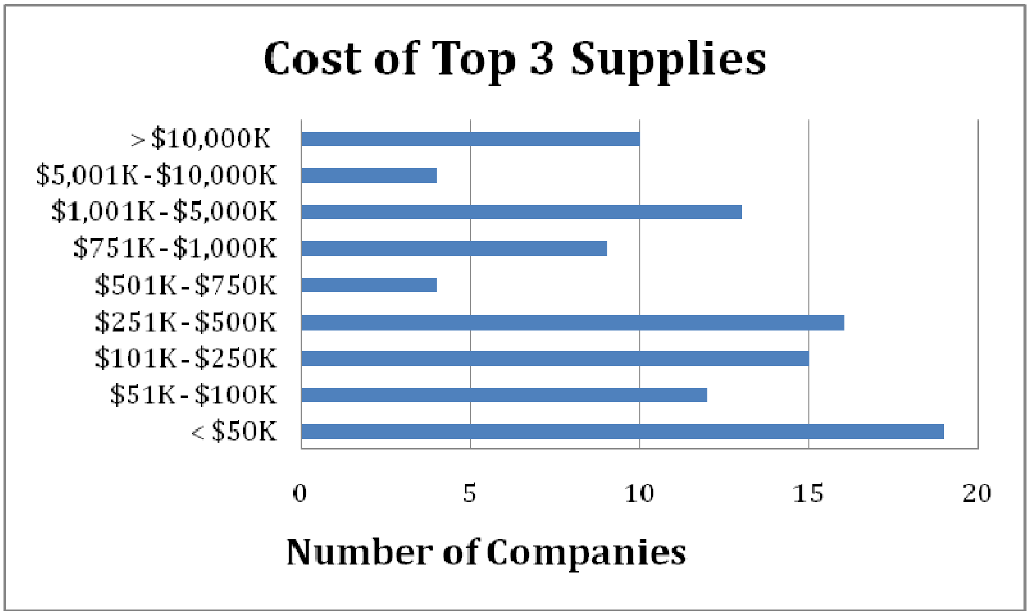


Figure 7: Cost of Top 3 Supplies

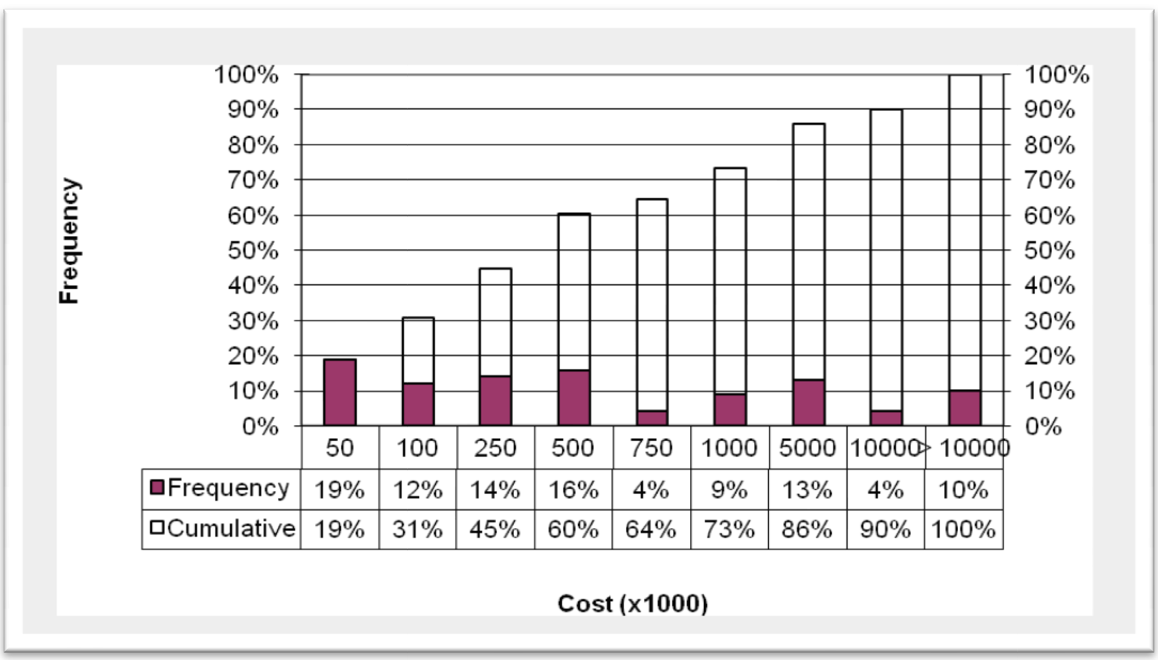


Figure 8: Distribution of the MV Company spending for their Top 3 Supplies

Response	Frequency	# of Responses
Charlotte Region	26%	12
Other Carolinas	17%	8
Southeast	17%	8
Midwest	13%	6
Northeast	6%	3
Foreign	13%	6
Other	9% 9%	4 4

Table 11: Summary of Supplier Location

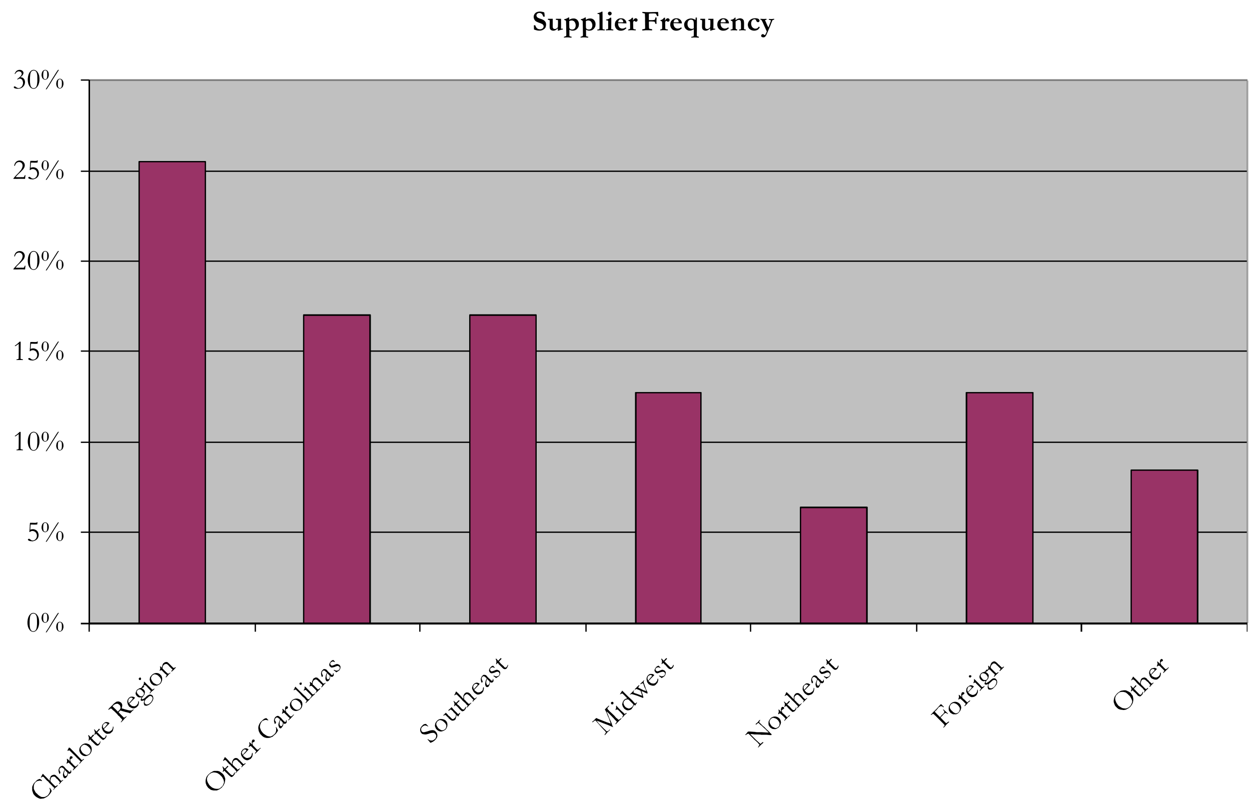


Figure 9: Supplier Location

2.2.6 Revenue of Top 3 Products (Q9)

The respondents pointed out the revenues they generate from their top 3 products / services. The results shown on Figure 10 and Figure 11 indicate that 5% of the respondents (4 companies), make less than $50K, 60% of the companies make less than $1M and only 10% of the respondents (8 companies), make more than $10 Million for their top three products.

The primary customer location questions had a total of 50 responses with 34 for the Carolina-based question (For the First Product/Service: Customer Primary Location in the Carolinas (City, County or Zip Code)) and 16 for the Outside the Carolinas-based question (For the First Product/Service: Customer Primary Location Outside the Carolinas (Other US States or Countries)) (Table 12 and

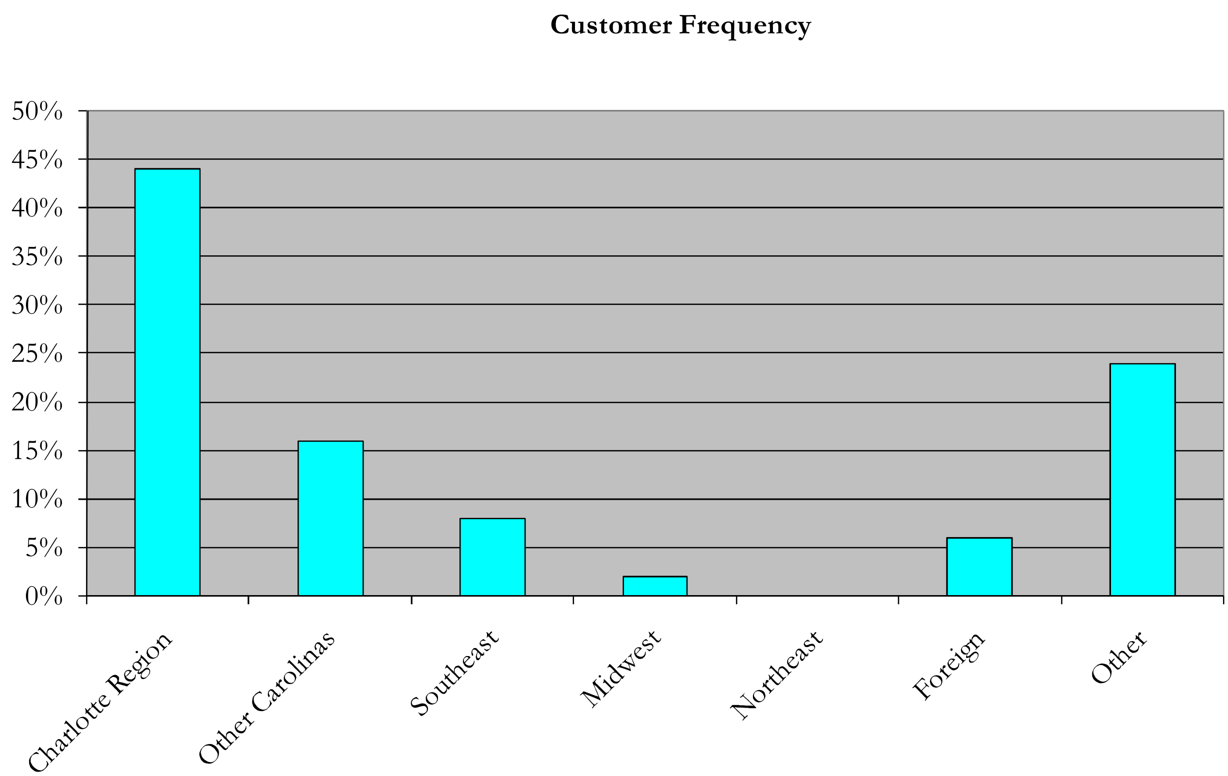


Figure 12). These findings are similar to the supplier location findings with customers concentrated proximate to the production location with the largest number of suppliers (22) located in Charlotte region. The high percentage of foreign and other located customers (30%) illustrates the importance of domestic and global trade to the local economy.

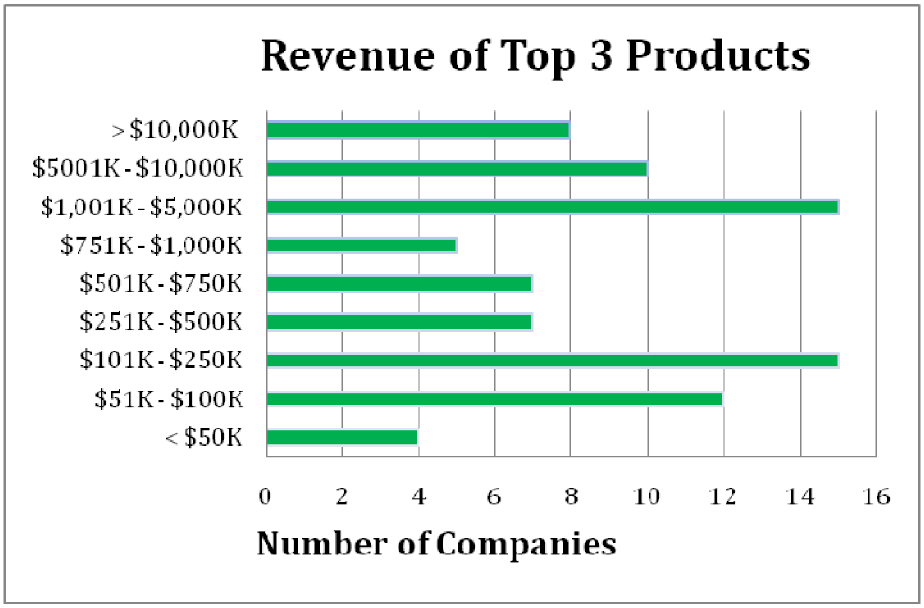


Figure 10: Revenue of Top 3 Products

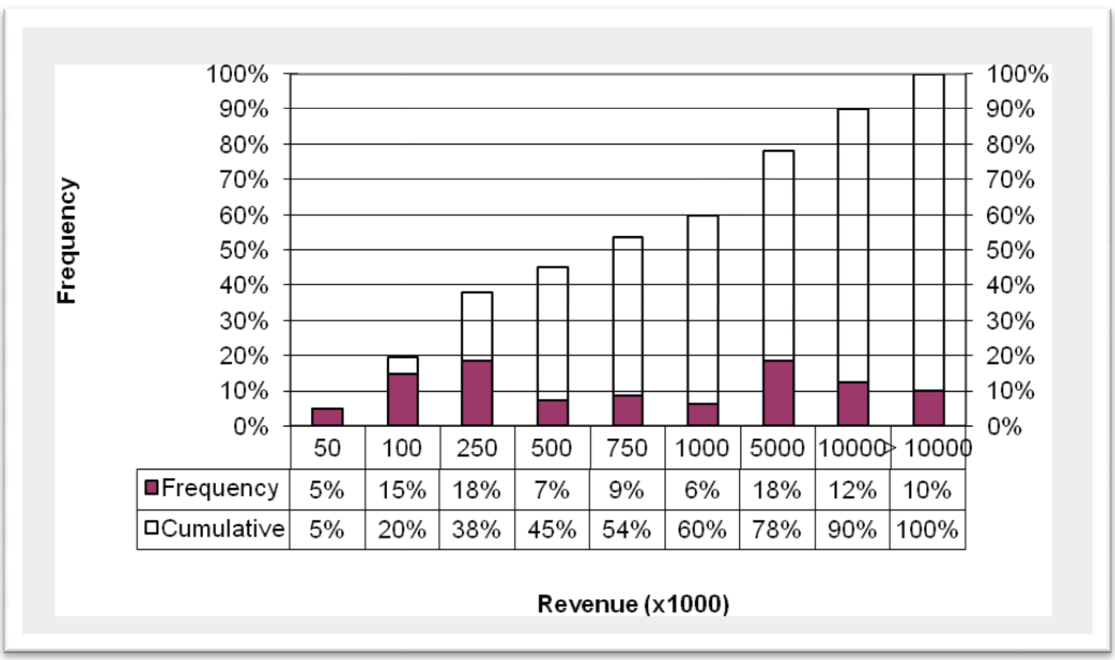


Figure 11: Distribution of the MV Company revenues for their Top 3 Products

Response	Frequency	# of Responses
Charlotte Region	44%	22
Other Carolinas	16%	8
Southeast	8%	4
Midwest	2%	1
Northeast	0%	0
Foreign	6%	3
Other	24%	12

Table 12: Summary of Customer Location

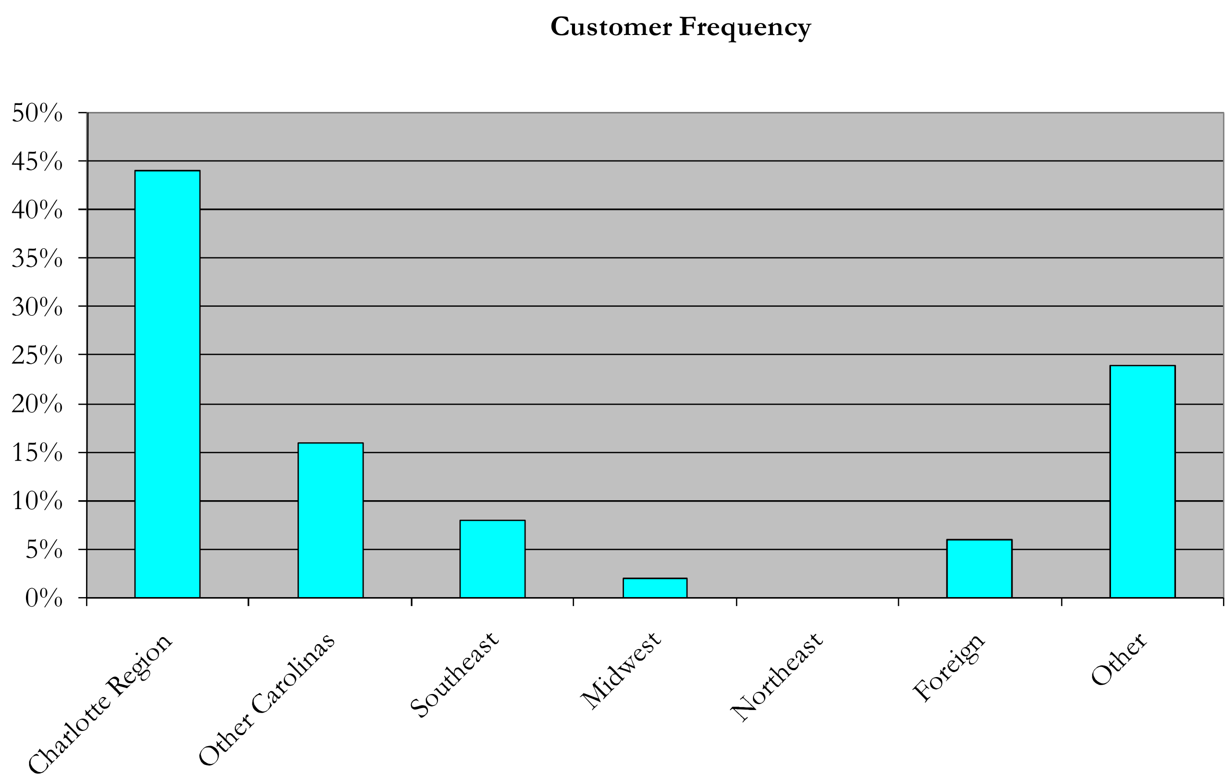


Figure 12: Customer Location

2.2.7 Top Three Reasons to Remain in Carolinas (Q10)

38 respondents replied to this question (Table 13 and Figure 14**Error! Reference source not found.**). 87% of the respondents remain in the Carolinas because of long-term ties in the region. Quality of life and cost of living follows with 66%. NASCAR related reasons are only 34%.

Priority	Reason	Frequency	# of Responses
1	Long-term ties to the Carolinas	87%	33
2	Quality of life and cost of living	66%	25
3	Labor cost and availability	37%	14
4	Location (NASCAR base proximity to suppliers and customers	34%	13
5	Transportation (rails, interstates, bridges, airports	26%	10

Table 13: Summary of Responses for Q10

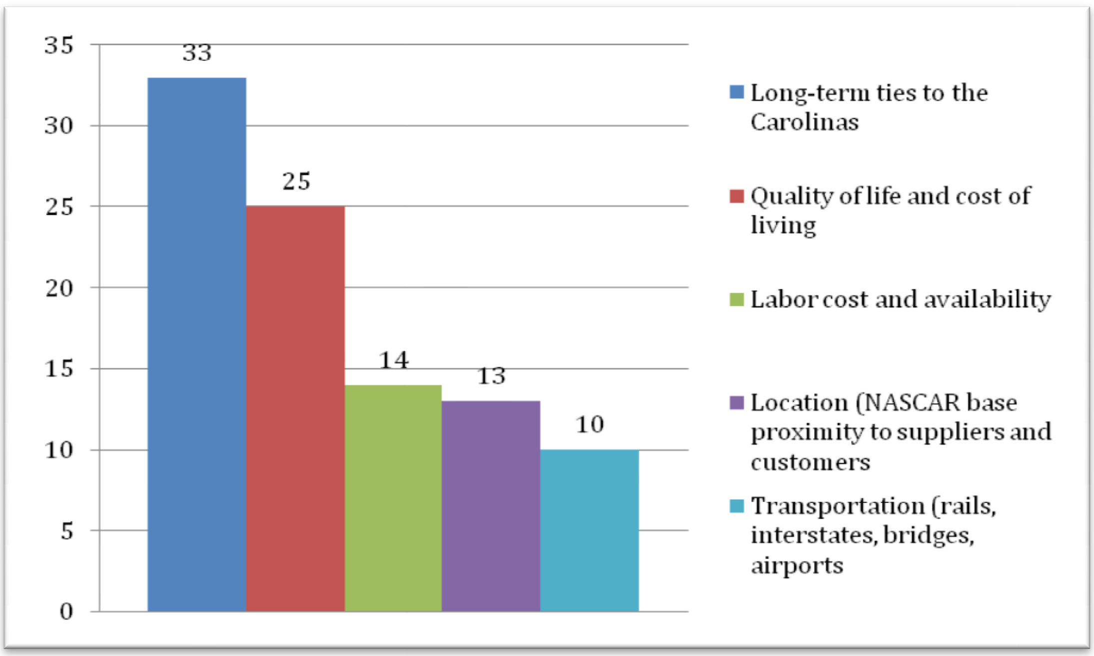


Figure 13: Reasons to Remain in Carolinas

2.2.8 Top Five Reasons to Remain in Your Specific Location (Q11)

38 respondents replied to this question (Table 14 and Figure 14). 79% of the respondents prefer to remain in their specific location to have quick and easy access to their major customers. Again, a long-term tie in the region is an important factor for these companies.

Priority	Reason	Frequency	# of Responses
1	Access to major customers	79%	30
2	Long-term ties	61%	23
3	Interstates and major highways	53%	20
4	Local cost of labor	37%	14
5	Availability of qualified workers	29%	11
6	Cost of land and facilities	26%	10
7	Availability of building space	24%	9
8	Attractiveness of the area to managers and professionals	21%	8

Table 14: Summary of Responses for Q11

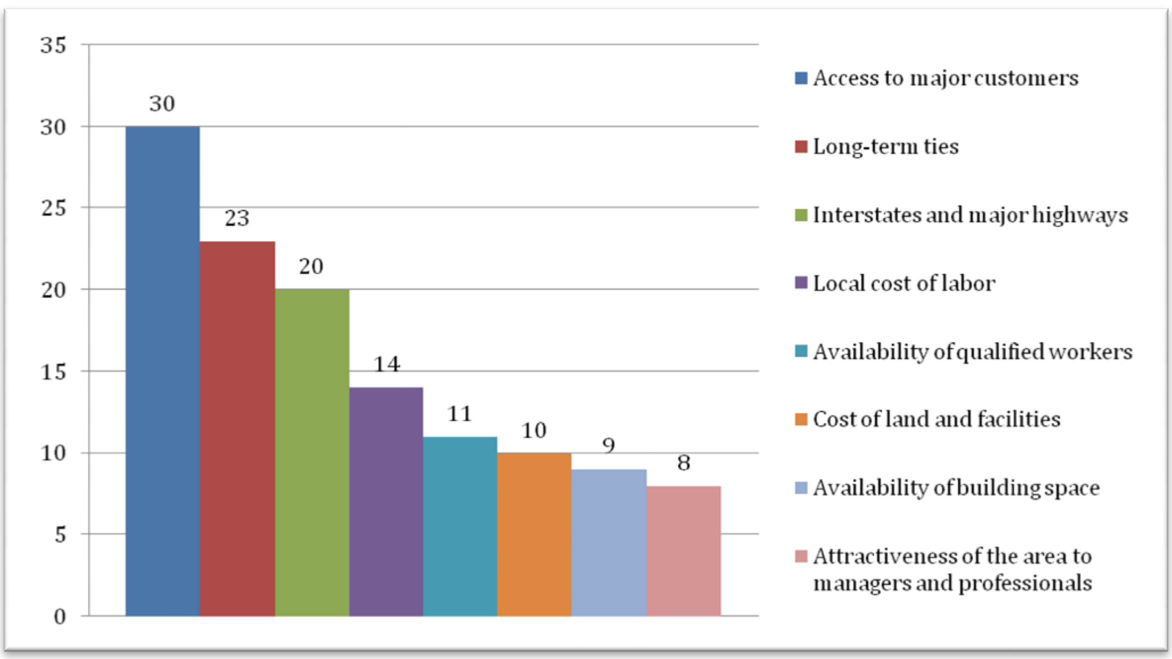


Figure 14: Reasons to Remain in Your Specific Location

2.2.9 Length of Time at Current Location (Q12)

The 44 responses to the Q12 (How long have you been located at your current location? (Please answer in terms of number of years) provides insight into the varied tenure of the regional businesses with an average response of 18.4 years (Table 15). Based on these responses, it is responsible to state that the industry has a long history in the region and continues to grow.

Quartile	Value
Minimum	1
1st	6.75
Median	16.5
3rd	27.25
Maximum	53

Table 15: Distribution of Responses to Q12

2.2.10 Suppliers needed in Proximity (Q13)

Response to the open-ended questions regarding the benefit of increased supplier proximity (Q13) was limited with 24 responses. While statistical analysis is constrained, the responses provided examples of opinions within the industry and the supplier names provided follow:

- Aluminum Stamps
- Aluminum bar
- Aluminum Die cast Part
- Arrowhead Supply MN
- Axles
- Dispensers
- Electrical harnesses
- Engines
- Freight changes from all across country.
- Good Plating Supplier
- Heavy Equip Parts
- Home offices have lawyer repair shops. Small terminals only do energy repair.
- Hydraulic
- Injection molding tool supplier
- Machine Shop
- PDC Dallas & Atlanta
- Pumps
- RCP Supply Canada
- Steel Processor
- Steel Suppliers
- They are all close enough
- Vinyl Supplier
- Wet Painter
- Yarn Suppliers

2.2.11 Customers needed in Proximity (Q14)

Similar to the response to the question regarding increased supplier proximity (Q13), the benefit of increased customer proximity (Q14) was not widely expressed with 3 responses. With analysis limited on unique responses, the responses following provide examples of industry opinions and some customer names:

- PDC Corp Dallas & Atlanta
- They are all close enough
- We wish the textile industry was still in operation

2.2.12 Experience in the Carolinas Business Environment and Revenues (Q15, Q16)

None of our participants indicated that the business environment is dissatisfying in the Carolinas (Figure 15), even though the revenues are declining for 23% of the respondents (10 companies). 30% of the companies (13 of the participants), find the business environment very satisfying, while 52% of the respondents (23 companies) find it satisfying. As displayed in Figure 17, revenues are improving for 57% of the participants (25 companies) and remained the same for 23% of the respondents (10 companies).

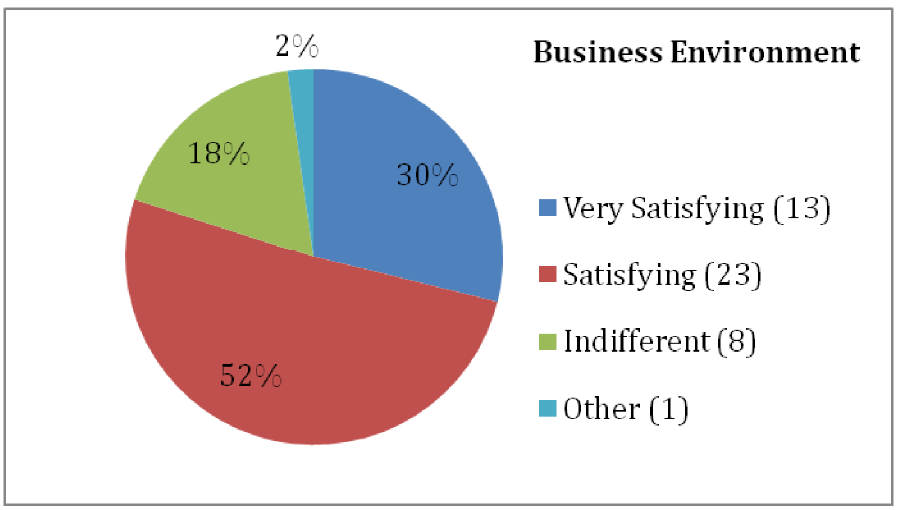


Figure 15: Experience in the Carolinas Business Environment

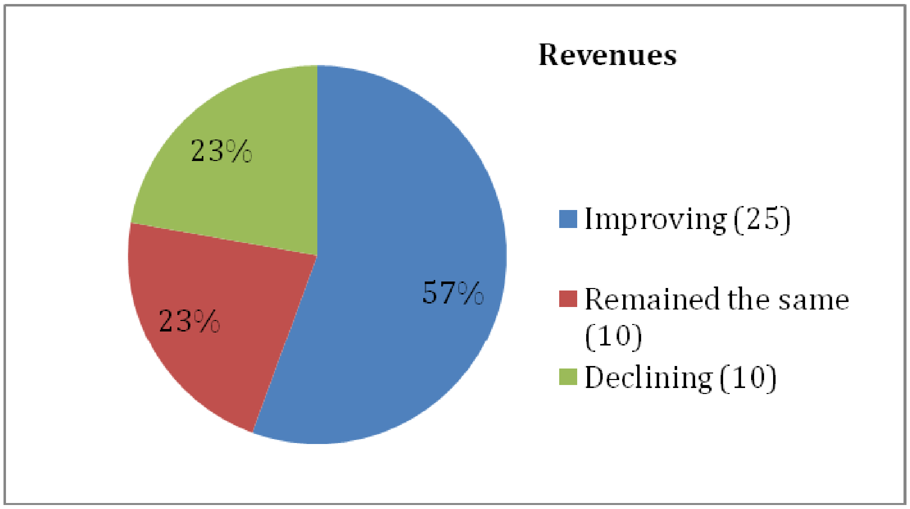


Figure 16: Revenue Growth over the Past 5 Years

2.2.13 Training Needs (Q18)

The 8 responses to Q18 (What are the training needs of the motor vehicle companies for future growth in the Carolinas?) follow and demonstrate a need for technical training and workforce development:

- A more educated workforce. We need trained CNC machine programmers and operators. Also better trained manufacturing supervisors.
- Availability of skilled workers. Continued population growth.
- Motorsports management degrees
- I see the need for more 'motion control' training. What technologies can I use to build a faster race car and do it repeatedly?
- Retaining employees long. To do so multi task job training is necessary.
- Basic labor force work ethic
- CNC Equipment (machinist & programming) & Lean Manufacturing
- Better Exposure

2.2.14 Top Three Policy Change Suggestions (Q19)

38 respondents replied to this question (Table 16). The companies requested the below policy change suggestions at the state, county, and city level. 34% of our respondents want the government to build stronger relationships with them. 26% of the companies indicated the need for industrial property tax exemptions for new job creation or plant extensions as well as automotive and motor sports industry tax credits.

Priority	Reason	Frequency	# of Responses
1	Build Strong Relationships with Major OEMs &Motor Vehicle Manufacturers	34%	13
2	Grants for Expansion Restoration and Improvement of Facilities More Government Incentives to Recruit Automotive Suppliers	29%	11
3	Industrial Property Tax Exemptions for new job creation or plant extensions	26%	10
4	Promote, Sponsor Programs to Help Individuals Develop Better Job & Career Skills	26%	10
5	Automotive and Motor Sports Industry Tax Credits	26%	10
6	Government Investment in Advanced Skills and Training	24%	9
7	Government Investment in Public Infrastructure	21%	8
8	Promote and Encourage More Regional Collaboration	21%	8
9	Support the Growth of New Ventures and Promote Entrepreneurship Activities	21%	8
10	Develop Transportation Distribution and Logistics Capabilities (ex. Access to interstate)	16%	6
11	Government Investment in Improved Energy Efficiencies	16%	6
12	Government Investment in New Environmental Technologies	11%	4
13	Wage Rebates for Creating Well-paid Jobs	11%	4
14	Government Investment in Corporate Innovation	5%	2

Table 16: Summary of responses for Q19

Other responses included “Lower the minimum investment for machinery and equipment from $1.5 million and lower the expansion or relocation incentive from 3 million. This will help the smaller business that supply to NASCAR.”

2.2.15 Needs of the MV companies for future growth in the Carolinas and How NC can Learn From Other States / Countries (Q17, Q20)

This was an open ended question for which the respondents wrote their thoughts. Below are compiled points:

- Toyota – Lean Manufacturing: Several of the respondents mentioned lean manufacturing. They are aware of the the benefits of this concept and they believe the Carolina region should embrace this concept.
- Mistakes of California: One surveyor mentioned that we should learn from the mistakes of California. The surveyor indicated that buffer zones with industrial emphasis should be build around the racing facilities (tracks), not housing.
- ICAR campus in Greenville: This education facility should be an example to several similar ones. This will increase the much needed supply of advanced skilled and trained employees for the motor vehicle industry.
- Few of our respondents complained about the complicated tax and reporting regulations in North Carolina. They argued that South Carolina has less complicated reporting and NC should learn from SC
- Atlantic: NASCAR and Road Course tracks. Some of our respondents mentioned the benefits of adding different race tracks in the region.
- China and Japan. Several of the respondents mentioned that we should learn from Asian countries. China was mentioned for low manufacturing costs and Japan for manufacturing techniques that emphasizes quality.

One surveyor argued that since auto manufacturing will increasingly move to low cost manufacturing locations, more R&D and new product innovation is needed from the US companies.

2.3 Mecklenburg County Companies

This part of the survey is aimed to address the research questions related to the Mecklenburg County with a specific focus on the shaded revitalization zoneand the five labeled business corridors in Figure 2. The responses of the 14 companies are summarized below.

2.3.1 Reasons to Chose Your Current Location (Q21, Q22)

6 companies indicated that they are located in the Priority Corridors as illustrated in the shaded areas on map in Figure 2. These companies indicated that they chose to be in this area because:

Priority	Reason	Frequency	# of Responses
1	Access to customers	67%	4
2	Access to highways	50%	3
3	Affordability of land	50%	3
4	Access to supply chain	17%	1

Table 17: Summary of responses for Q22

2.3.2 Future Plans (Q23)

2 of these companies are planning to expand, 5 of them will hire more employees, 4 of them are considering relocating.

2.3.3 Needs of Mecklenburg Companies (Q24)

14 companies answered this question. Most of the companies located in this region need help of the government with crime prevention. The needs they indicated are listed below.

Priority	Reason	Frequency	# of Responses
1	Assistance w/ crime prevention	50%	7
2	Additional Suppliers	36%	5
3	Assistance w/ worker training	36%	5
4	Assistance w/ environmental cleanup	7%	1
5	Assistance w/relocation	7%	1
6	Assistance w/renovation	7%	1

Table 18: Summary of responses for Q24

2.3.4 Awareness of the Available Programs (Q25)

The following programs are available only for businesses in the Priority Corridors. The results shown in Table 19 below indicate that most of the companies are not aware of these programs. The number at the end of each sentence indicates the number of companies that is aware of the specific program.

Priority	Reason	Frequency	# of Responses
1	Brownfield Grant Program	0	
2	Business Corridor Worker Training Grant	0	
3	Business Equity Loan Program	0	
4	Façade Improvement Grant Program	0	
5	Small Business Enterprise Loan Fund	14%	2

Priority	Reason	Frequency	# of Responses
6	Security Grant Program	0	
7	Synthetic Tax Increment Financing (TIF)	0	
8	No, I was unaware of these programs, but would like more information	86%	11

Table 19: Summary of responses for Q25

2.3.5 If your company is NOT located in the shaded area (Q26)

3 of the respondents indicated that they would consider relocating the company to this area. 2 of them would like to know more about the changes occurring in these areas. 2 companies think accessing to transit/light rail would be beneficial. 2 respondents think accessing to employees in this area would be beneficial.

2.3.6 How Can We Improve Your Conditions (Q27)

We have asked the respondents to write what they would like to see done to improve the conditions in their company's area. All of those that replied to this question requested help with **crime protection**.

3 Discussion of Survey Results

3.1.1 General Survey Findings

In this section, we will discuss the survey findings with respect to each of the research objectives. Research questions that apply to the entire Greater Charlotte region are summarized as follows:

- **What is the definition of the motor vehicle supply chain in the Greater Charlotte Region?**

To define the MV industry in the Greater Charlotte Region, we used the NAICS codes. Initially 57 NAICS codes were identified to represent the entire footprint of the industry including supply chain players who are directly and indirectly involved in this industry. These codes were categorized into 24 Primary, 17 Secondary and 16 Tertiary Codes. Further analysis of the existing companies in the Greater Charlotte Region indicates that only 27 codes (16 Primary, 5 Secondary and 6 Tertiary) are represented in the region and are listed below in Table 20. As seen in this table the top 7 primary NAICS codes corresponding to wholesalers (new and used parts, and tube and tire) and manufacturers (MV Body, Parts and Tire) constitute 92% of the employment and 86% of the MV companies in the region. Furthermore, it is worth mentioning that 99% of the employment corresponds to the top 12 NAICS codes in Table 20.

No.	NAICS Code	NAICS Priority	Description	Region Employment	Region Percentage Employment	Region Cumulative Employment	Region Company Count	Region Percentage Company Count	Region Cumulative Company Count
1	423120	Primary	Motor Vehicle Supplies and New Parts Merchant Wholesalers	**6495**	**23%**	**23%**	**258**	**40%**	**40%**
2	423140	Primary	Motor Vehicle Parts (Used) Merchant Wholesalers	**6233**	**22%**	**44%**	**103**	**16%**	**57%**
3	336211	Primary	Motor Vehicle Body Manufacturing	**4711**	**16%**	**61%**	**42**	**7%**	**63%**
4	336399	Primary	All Other Motor Vehicle Parts Manufacturing	**3636**	**13%**	**73%**	**69**	**11%**	**74%**
5	423130	Primary	Tire and Tube Merchant Wholesalers	**2218**	**8%**	**81%**	**3**	**0%**	**74%**
6	326211	Primary	Tire Manufacturing (except Retreading)	**1821**	**6%**	**87%**	**7**	**1%**	**76%**
7	423110	Primary	Automobile and Other Motor Vehicle Merchant Wholesalers	**1491**	**5%**	**92%**	**69**	**11%**	**86%**
8	441310	Secondary	Automotive Parts and Accessories Stores	**646**	**2%**	**95%**	**6**	**1%**	**87%**
9	336322	Primary	Other Motor Vehicle Electrical and Electronic Equipment Manufacturing	**409**	**1%**	**96%**	**12**	**2%**	**89%**
10	423730	Tertiary	Warm Air Heating and Air-Conditioning Equipment and Supplies Merchant Wholesalers	**308**	**1%**	**97%**	**15**	**2%**	**92%**
11	811113	Secondary	Automotive Transmission Repair	**300**	**1%**	**98%**	**1**	**0%**	**92%**
12	336360	Primary	Motor Vehicle Seating and Interior Trim Manufacturing	**211**	**1%**	**99%**	**16**	**3%**	**94%**
13	336350	Primary	Motor Vehicle Transmission and Power Train Parts Manufacturing	90	0%	99%	1	0%	94%
14	334290	Tertiary	Other Communications Equipment	59	0%	99%	4	1%	95%
15	336370	Primary	Motor Vehicle Metal Stamping	44	0%	100%	4	1%	96%
16	327215	Tertiary	Glass Product Manufacturing Made of Purchased Glass	33	0%	100%	7	1%	97%
17	334220	Tertiary	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	23	0%	100%	4	1%	97%
18	336311	Primary	Carburetors, Pistons, Piston Rings, and Valves Manufacturing	16	0%	100%	2	0%	98%

No.	NAICS Code	NAICS Priority	Description	Region Employment	Region Percentage Employment	Region Cumulative Employment	Region Company Count	Region Percentage Company Count	Region Cumulative Company Count
19	334515	Tertiary	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	16	0%	100%	1	0%	98%
20	811118	Secondary	Other Automotive Mechanical and Electrical Repair and Maintenance	11	0%	100%	3	0%	98%
21	811121	Secondary	Automotive Body, Paint, and Interior Repair and Maintenance	6	0%	100%	2	0%	99%
22	336212	Primary	Truck Trailer Manufacturing	3	0%	100%	2	0%	99%
23	336111	Primary	Automobile Manufacturing	2	0%	100%	1	0%	99%
24	336214	Primary	Travel Trailer and Camper Manufacturing	2	0%	100%	1	0%	99%
25	336340	Primary	Motor Vehicle Brake System Manufacturing	2	0%	100%	1	0%	99%
26	336999	Primary	Other Transportation Equipment Manufacturing, which includes race car manufacturing	2	0%	100%	2	0%	100%
27	811111	Secondary	General Automotive Repair	1	0%	100%	1	0%	100%

Table 20: MV NAICS codes represented in the Greater Charlotte Region

The survey responses validated the above characterization in Table 20. Majority of our respondents define their line of business as supplies and parts wholesalers for motor vehicles. They buy products such as tire, tube, transmission parts, steering components, suspension, lubrication systems and sell in the region. Few of our respondents work in heavy-duty truck manufacturing field.

- **What are the relationship-flows geographically within the Greater Charlotte Region? How do the supply chain's players in the Motor Vehicle Industry supply chain interact with each other? Who do they buy from? Who do they sell to?**

The companies in the region buy and sell both nationally and internationally. Several of our respondents have suppliers within the Carolinas. Some of them also buy from different states such as Tennessee, Georgia, Texas, Ohio, and Iowa. Some of the overseas suppliers are located in Japan, Mexico, China, Germany, Italy, Canada, and France. When we look at the customer side, most respondents have customers within the Carolinas. Only a couple of our respondents sell nationwide. Few of our participants sell to Canada, Australia, New Zealand, and Scotland.

- **What is the competitive advantage of the Greater Charlotte Region for the Motor Vehicle companies? What made the Players choose this region, and the specific location within the region?**

Our region has a competitive advantage since we have NASCAR in the region. However, it looks like our respondents did not relocate to or chose this region for NASCAR. 87% of the 38 respondents indicated that they are in this region because of long-term ties. 66% of them replied that they are here because of the quality of life and cost of living. Only 34% of the companies indicated that they prefer to remain in the region because of NASCAR. 79% of the participants prefer to remain in their specific location to access to their major customers.

- **Within the Greater Charlotte Region, are there gaps, or missing pieces, in the automotive supply chain? Which parts of the supply chain could be recruited to relocate to the Greater Charlotte Region?**

29% of the companies indicated the need for grants for expansion, restoration and improvement of facilities more government incentives to recruit automotive suppliers. From the 14 Mecklenburg companies, 36% of them agree that there is a need for additional suppliers. As some of our respondents indicated, the region can attract a lot more business if different types of racing courses are built besides NASCAR.

Based on the company database analysis, the NAICS codes that have no representation in the region are shown below, Table 21. The MV industry sectors corresponding to these codes indicate the potential gaps in our region.

NAICS Code	NAICS Priority	Description
336112	Primary	Light Truck and Utility Vehicle Manufacturing
336120*	Primary	Heavy Duty Truck Manufacturing
336213	Primary	Motor Home Manufacturing
336312*	Primary	Gasoline Engine and Engine Parts Manufacturing
336321*	Primary	Vehicular Lighting Equipment Manufacturing
336330*	Primary	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing

NAICS Code	NAICS Priority	Description
336391*	Primary	Motor Vehicle Air-Conditioning Manufacturing
325510	Secondary	Paint and Coating Manufacturing
326220	Secondary	Rubber and Plastics Hoses and Belting Manufacturing
332510	Secondary	Hardware Manufacturing
332611	Secondary	Spring (Heavy Gauge) Manufacturing
333319	Secondary	Other Commercial and Service Industry Machinery Manufacturing
334310	Secondary	Audio and Video Equipment Manufacturing
334514*	Secondary	Totalizing Fluid Meter and Counting Device Manufacturing
335110	Secondary	Electric Lamp Bulb and Part Manufacturing
811112*	Secondary	Automotive Exhaust System Repair
811122	Secondary	Automotive Glass Replacement Shops
811191*	Secondary	Automotive Oil Change and Lubrication Shops
811198*	Secondary	All Other Automotive Repair and Maintenance
331319	Tertiary	Other Aluminum Rolling and Drawing
331422*	Tertiary	Copper Wire (except Mechanical) Drawing
331491	Tertiary	Nonferrous Metal (except Copper and Aluminum) Rolling, Drawing, and Extruding
334519	Tertiary	Other Measuring and Controlling Device Manufacturing
335911	Tertiary	Storage Battery Manufacturing
481112*	Tertiary	Scheduled Freight Air Transportation
483111*	Tertiary	Deep Sea Freight Transportation
483113*	Tertiary	Coastal and Great Lakes Freight Transportation
484220*	Tertiary	Specialized Freight (except Used Goods) Trucking, Local
484230	Tertiary	Specialized Freight (except Used Goods) Trucking, Long-Distance

Table 21: NAICS Codes that do not have representation in the Greater Charlotte Region

Important Note: A further sensitivity analysis was performed on the identified gaps using the ReferenceUSA database, which is an Internet-based reference service from the Library Division of info USA containing information on more than 14 million U.S. Businesses.[7] Unlike the Lexis-Nexis, this database has multiple secondary NAICS codes associated with companies (besides their primary NAICS association) indicated as NAICS-1, NAICS-2, NAICS-3, and NAICS-4. This database indicated that some of the codes listed in Table 21 (marked with a "*") may have some associated companies in the Greater Charlotte Region that are indirectly involved in the MV industry. Based on this finding we recommend using the above table not as a firm conclusion but rather as a starting point for a more in depth gap analysis for recruiting companies into the region.

- **What are the needs of the Motor Vehicle Industry companies for future economic growth? Is there anything on public side to offer to support this economic growth?**

34% of the respondents wanted the local government to build strong relationships with major OEMs and MV manufacturers. 26% of the companies indicated the need for industrial property tax exemptions for new job creation or plant extensions as well as automotive and motor sports industry tax credits. 26% of the respondents promote and sponsor programs to help individuals develop better job and career skills.

3.1.2 Mecklenburg County specific Survey Findings

Specific research questions related to the Mecklenburg County's Business Corridor Revitalization Program are as follows:

- **What is the competitive advantage or disadvantage of these corridors for companies in the automotive supply chain?**

There are several government programs such as loans and grants for the Mecklenburg companies. However, very few of the companies are aware of these. If the local government takes action to inform the companies about these programs, the area would have a strong competitive advantage.

- **How many firms in the automotive supply chain are located in these corridors, located in and identified by the City of Charlotte?**

[7] http://www.referenceusa.com/

There are 50 motor vehicle related companies located in Charlotte Economic Development Priority Corridors. Please see Appendix C: List of Motor Vehicle Companies in the Mecklenburg Business Corridors for a complete listing of these companies.

4 Recommendations and Conclusions

Examination of MV companies has revealed that 27 of the 57 NAICS codes are represented in the Greater Charlotte region. There are 30 possible NAICS codes which represent the missing links in the region. It is recommended to do further analysis of these missing industry sectors and initiate recruitment of companies to the region based on their potential economic impact.

The survey analysis has shown that the NC and the Greater Charlotte Region have several strengths but the analysis also revealed some opportunities for the local government to act upon. The strengths of the region include quality of life, labor cost and availability, location (specifically NASCAR base proximity to suppliers and customers) and transportation infrastructure (rails, interstates, bridges, airports). 82% of the respondents seem to be satisfied with the business environment in NC. When asked why companies chose their specific location within the region, besides easy access to customers, interstates and labor cost and availability, some of the additional reasons were cost of land and facilities, availability of space and attractiveness to managers and professionals. Industry suppliers and customers are primarily located in the region or other parts of the Carolinas and their recruitment to the region may benefit local businesses. A need for further basic and technical workforce development was indicated. It is recommended to continue development of programs in NC and the Greater Charlotte Region to preserve and enhance these regional strengths. Some of the main opportunities include

- Building Strong Relationships with Major OEMs & Motor Vehicle Manufacturers
- Grants for Expansion Restoration and Improvement of Facilities
- More Government Incentives to Recruit Automotive Suppliers
- Industrial Property Tax Exemptions for new job creation or plant extensions
- Promote, Sponsor Programs to Help Individuals Develop Better Job & Career Skills
- Automotive and Motor Sports Industry Tax Credits

It is also recommended to do benchmarking and learning from other states and regions of the world. Some of specific recommendations from the respondents were

- disseminating the “lean low cost high quality manufacturing” culture to the regional MV industry by learning from counties such as Japan and China,
- building buffer zones of industrial emphasis around the racing tracks, instead of housing,
- creating more education facilities such as ICAR in SC to increate much needed supply of advanced skilled and trained employees for the MV industry
- making the tax and reporting regulation NC less complicated

- adding different race tracks in the region
- focusing on R&D and new product innovation to stay ahead of the rest of the world

Based on the part of the survey that focused on the Mecklenburg County, the following are recommended

- Focus on crime prevention
- Bring in additional suppliers
- Focus on worker training

86% of the companies are unaware of the incentive programs. We recommend that the local government to invest in addition effort, such as information sessions, marketing campaings to inform the companies in the region about these programs.

We would like to note that the above recommendations might need further more detailed investigation. While a considerable amount of time and energy was spent on the surveys, unfortunately, the response rate was less than 5%. Just using the response rate, it is possible to deduce different conclusions. One conclusion is simply that many companies in the MV industry do not seem to care about the economic development of the region. The survey responses indicated that most of these companies are located in the region because of long term ties (non-business related reasons). Another conclusion may be that the companies in the MV industry has been surviving the tough economic times, thus they simply do not have time to respond. A third conclusion is that many of the companies do not believe that the local government will do anything about their needs, so it is not worth their time to complete the survey. Even though none of the respondents indicated this on the written surveys, the project team conducting phone-surveys indicated that they have heard this a few times over the phone. Perhaps, this might be another area that the local government can work on. By conducting information sessions and workshops on the MV related initiatives could help establishing an ongoing relationship with the industry and gradually increase the trust and interest from the industry for collaborative projects. While the responses has been low, we believe some of these findings and recommendations can be a good starting point for the local government to help the MV industry in the Greater Charlotte Region.

5 Appendix A: Motor Vehicle Industry Needs Assessment Survey

Welcome to the "Motor Vehicle Industry Needs Assessment Survey", which aims to identify existing gaps and needs of this manufacturing sector in the Carolinas. By completing this survey, you will be contributing to the economic development of Carolinas. If you choose, as a small token of our appreciation, your name will be included in a drawing where you can win an IPOD, NASCAR Tickets, or a subscription to the Automotive Industries magazine. Before taking part in this study, please read the consent form below for details. By completing the survey, you are indicating your consent to participate in this study. Be sure to keep this consent form for your information.

Consent Form

The study is being conducted by Centralina Council of Governments and Center for Lean Logistics and Engineered Systems, and it has been approved by the University Institutional Review Board. No deception is involved.

Participation in the study typically takes 15-20 minutes. All responses are treated as confidential. In no case will responses from individual participants be identified in the analysis and reporting. All data will be pooled and published in aggregate form only. A report of the finding will be sent to participants if requested. To ensure data reliability and quality, we will collect information about the person providing answers.

Participants will receive no monetary compensation. Instead they will be entered into a prize drawing if they choose to do so. The three winners of the drawing will receive either an IPOD Nano, Two Nascar Tickets, or a one year subscription to the Automotive Industries magazine. While there is no deadline to complete the survey, it would be appreciated if you can return the survey within two weeks of receipt. Also, to be eligible for the prize drawing, the completed survey should be received before the drawing date that will be scheduled at the end of this study. The project team may substitute the prizes with items of equivalent value in case of unavailability. To qualify for inclusion in the drawing, the survey needs to be filled out for a company located in North or South Carolina, and the surveyed company should be involved in the motor vehicle industry. Only one survey and one drawing entry per company location will be accepted. Participation is voluntary. Refusal to take part in the study involves no penalty or loss of benefits to which participants are otherwise entitled. Participants may withdraw from the study at any time without penalty or loss of benefits to which they are otherwise entitled.

If you have questions about your rights as a participant, contact the Compliance Office at (704) 687-2291.

If you have questions concerning the study, contact the principal investigator, Dr. Ertunga C. Ozelkan at (704) 687-4990 or CLLES@uncc.edu.

Name (print):____

Signature:____Date:___________________________

If you agree to participate, proceed to the survey on the next pages.

Please help us by directing this survey to the person in your organization most responsible for your business operations. To ensure the greatest degree of accuracy, we urge you to consult with others in your organization to provide all of the information requested. All questions should be answered for this location only. Do not include information about other establishments or plants your company may own. All individual answers will be kept confidential. Only aggregate information will be shared with other business service providers. If you would prefer to answer this survey online, please go to www.surveyshare.com/survey/take/?sid=84088. Your password for this survey is: motor

If you have any questions about this survey, contact Dr. Ertunga C. Ozelkan at (704) 687-4990 or by email at CLLES@uncc.edu.

Name: ____

Title: ____

Organization: ____

Address: ____

Email (optional): ____

Would you like to receive a report of the findings of this study?

- ☐ Yes
- ☐ No

Would you like to be included in the prize drawing to win an IPOD Nano, Two NASCAR Tickets, or a one year subscription to the Automotive Industries magazine as a small token of our appreciation (To be eligible for the prize drawing, the completed survey should be received before the drawing date that will be scheduled at the end of this study. Project team may substitute the prizes with items of equivalent value in case of unavailability)?

- ☐ Yes
- ☐ No

Q1. Does your company have any sales within the motor vehicle industries?

- ☐ Yes, we do sell within the motor vehicle industries.
- ☐ No, we do not sell within the motor vehicle industries.

IF YOU ANSWERED “No” FOR QUESTION Q1, YOU DO NOT NEED TO ANSWER THE REST OF THE SURVEY. THANK YOU FOR YOUR PARTICIPATION. PLEASE RETURN THE SURVEY IN THE POSTAGE-PAID ENVELOP.

Q2. According to your best estimate, what percentage of your sales is within the motor vehicle industry (car, bus, truck, etc)?

- ☐ 0%
- ☐ 1-10%
- ☐ 11-20%
- ☐ 21-30%
- ☐ 31-40%
- ☐ 41-50%
- ☐ 51-60%
- ☐ 61-70%
- ☐ 71-80%
- ☐ 81-90%
- ☐ 91-100%

Q3. According to your best estimate, what percentage of your sales is within the motorsports industry (NASCAR and related)?

- ☐ 0%
- ☐ 1-10%
- ☐ 11-20%
- ☐ 21-30%
- ☐ 31-40%
- ☐ 41-50%
- ☐ 51-60%
- ☐ 61-70%
- ☐ 71-80%
- ☐ 81-90%
- ☐ 91-100%

Q4. What portion of your operations is dependent on the Big 3 automotive companies (General Motors, Ford and Daimler Chrysler)?

- ☐ 0%
- ☐ 1-10%
- ☐ 11-20%
- ☐ 21-30%
- ☐ 31-40%
- ☐ 41-50%
- ☐ 51-60%
- ☐ 61-70%
- ☐ 71-80%
- ☐ 81-90%
- ☐ 91-100%

Q5. What would be the impact of a shutdown of the operations of the Big 3 automotive companies (General Motors, Ford and Daimler Chrysler) to your business?

- ☐ Not at all
- ☐ Some but not much
- ☐ Significant impact
- ☐ Devastating

Q6. How many employees are there in your company location?________________________

Q7. Which industry description(s) (NAICS group) best describe(s) your business?

- ☐ 336399 All Other Motor Vehicle Parts Manufacturing
- ☐ 423110 Automobile and Other Motor Vehicle Merchant Wholesalers
- ☐ 336111 Automobile Manufacturing
- ☐ 336311 Carburetors, Pistons, Piston Rings, and Valves Manufacturing
- ☐ 336312 Gasoline Engine and Engine Parts Manufacturing
- ☐ 336120 Heavy Duty Truck Manufacturing
- ☐ 336112 Light Truck and Utility Vehicle Manufacturing
- ☐ 336213 Motor Home Manufacturing
- ☐ 336391 Motor Vehicle Air-Conditioning Manufacturing
- ☐ 336211 Motor Vehicle Body Manufacturing
- ☐ 336340 Motor Vehicle Brake System Manufacturing
- ☐ 336370 Motor Vehicle Metal Stamping
- ☐ 423140 Motor Vehicle Parts (Used) Merchant Wholesalers
- ☐ 336360 Motor Vehicle Seating and Interior Trim Manufacturing
- ☐ 336330 Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing
- ☐ 423120 Motor Vehicle Supplies and New Parts Merchant Wholesalers
- ☐ 336350 Motor Vehicle Transmission and Power Train Parts Manufacturing
- ☐ 336322 Other Motor Vehicle Electrical and Electronic Equipment Manufacturing
- ☐ 423130 Tire and Tube Merchant Wholesalers
- ☐ 326211 Tire Manufacturing (except Retreading)
- ☐ 336214 Travel Trailer and Camper Manufacturing
- ☐ 336212 Truck Trailer Manufacturing
- ☐ 336321 Vehicular Lighting Equipment Manufacturing
- ☐ Other – Please indicate below

For the following two questions, please use the guidelines given below:

- For the NAICS codes use the NAICS Codes list provided earlier. If there are other codes that your suppliers correspond to, you can indicate those as well.
- For transaction volume you can select one of the following ranges:

  Level 1: < $50,000
  Level 2: $51,000 - $100,000
  Level 3: $101,000 - $250,000
  Level 4: $251,000 - $500,000
  Level 5: $501,000 - $750,000
  Level 6: $751,000 - $1,000,000
  Level 7: $1,001,000 - $5,000,000
  Level 8: $5,001,000 - $10,000,000
  Level 9: > $10,000,000

Q8. What are the TOP three (in terms of dollars) products/services you purchase? Where are these suppliers located? What is the approximate dollar value of these purchases?

No	Products or Services	Supplier Primary Location in the Carolinas (City, County, or Zip Code)	Supplier Primary Location Outside the Carolinas (Other US States, Countries)	Insert the Transaction Volume Level (1, 2, 3,..,9)
1				
2				
3				

If you have any additional comments, please fill out the box below

Q9. (For business-to-business customers) What are the TOP three (in terms of dollars) products/services you sell? Where are these customers located? What is the approximate dollar value of these purchases?

No	Products or Services	Customer Primary Location in the Carolinas (City, County, or Zip Code)	Customer Primary Location Outside the Carolinas (Other US States, Countries)	Insert the Transaction Volume Level (1, 2, 3,..,9)
1				
2				
3				

If you have any additional comments, please fill out the box below

Q10. What are the TOP three reasons for your company to remain located in the Carolinas? (Please select only three)

- ☐ Attractiveness of the area to managers and professionals

- ☐ Construction and energy costs
- ☐ Education system (primary and higher education)
- ☐ Environmental regulations
- ☐ Government and community support
- ☐ Incentives and financing
- ☐ Infrastructure (water, sewer, power)
- ☐ Labor cost and availability
- ☐ Location (NASCAR base, proximity to suppliers and customers)
- ☐ Long-term ties to the Carolinas
- ☐ Prevailing local management-labor relations
- ☐ Quality of life and cost of living
- ☐ State tax rates
- ☐ Transportation (rails, interstates, bridges, airports)
- ☐ Unionization level
- ☐ Other –Please explain below

Q11. What are the TOP five reasons for your company to remain located in the specific location (address, county) within the Carolinas?

- ☐ Access to airport facilities and services
- ☐ Access to business lawyers, CPAs, consultants, etc
- ☐ Access to financial institutions
- ☐ Access to machinery and equipment supplies
- ☐ Access to major customers
- ☐ Access to raw material suppliers
- ☐ Access to training courses
- ☐ Attractiveness of the area to managers and professionals
- ☐ Availability of building space
- ☐ Availability of qualified workers
- ☐ Cost of land and facilities
- ☐ Community support
- ☐ County incentives
- ☐ Environmental regulations
- ☐ Interstates and major highways
- ☐ Local cost of labor
- ☐ Local public school system
- ☐ Local roads and bridges
- ☐ Long-term ties
- ☐ Motorsports/NASCAR base
- ☐ Prevailing local management-labor relations
- ☐ Quality of housing
- ☐ Railroad access
- ☐ Water and sewer systems
- ☐ Other –Please explain below

Q12. How long have you been located at your current location? years

Q13. Would you benefit if any of your existing supplier groups were located closer to you? If Yes, please list them below:

No	Type of Supplier (Product/Services)	NAICS code (Optional)	Additional Information (e.g. company name or further description)
1			
2			
3			

Q14. (For business-to-business customers) Would you benefit if any of your existing customer groups were located closer to you? If Yes, please list them below:

No	Type of Customer (Product/Services)	NAICS code (Optional)	Additional Information (e.g. company name or further description)
1			
2			
3			

Q15. What is your experience in the Carolinas business environment?

- ☐ very satisfying
- ☐ satisfying
- ☐ indifferent
- ☐ dissatisfying

Additional Comments:

Q16. Describe your company's revenue growth over the past 5 years.

- ☐ improving
- ☐ remained the same
- ☐ declining

Additional Comments:

Q17. What are the needs of the motor vehicle companies for future growth in the Carolinas?

Q18. What are the training needs of the motor vehicle companies for future growth in the Carolinas?

Q19. Please indicate the TOP three policy changes that the state, county, and/or city can introduce to enable the growth of the motor vehicle industry in the Carolinas? (Please select only three)

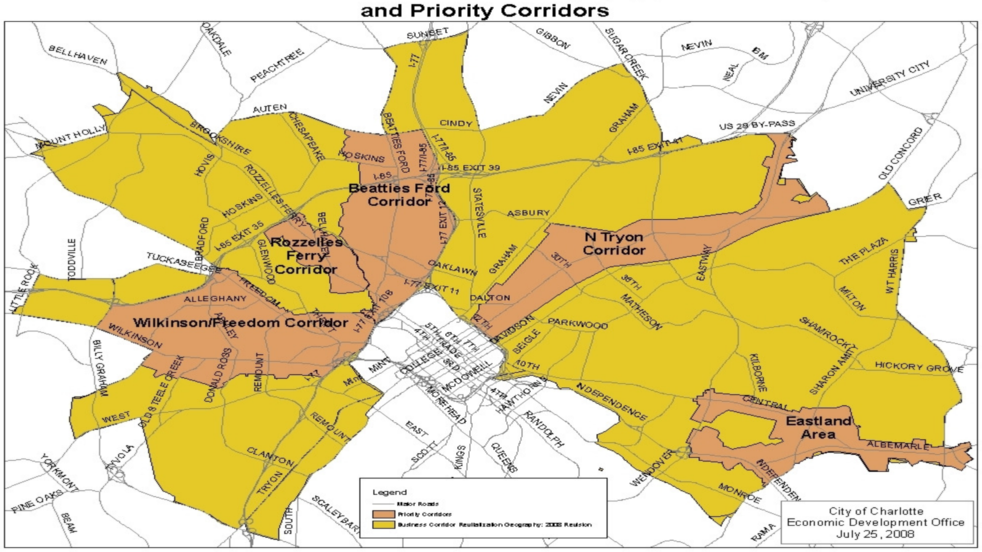
- ☐ Automotive and Motor Sports Industry Tax Credits
- ☐ Build Strong Relationships with the Major OEMs and Auto Manufacturers
- ☐ Develop Transportation, Distribution and Logistics Capabilities (ex. Access to interstate)
- ☐ Industrial Property Tax Exemptions for new job creation or plant extension
- ☐ Government Investment in Advanced Skills and Training
- ☐ Government Investment in Corporate Innovation
- ☐ Government Investment in Improved Energy Efficiencies
- ☐ Government Investment in Public Infrastructure
- ☐ Government Investment in New Environmental Technologies
- ☐ Grants for Expansion, Restoration and Improvement of Facilities More Government Incentives to Recruit Automotive Suppliers
- ☐ Promote and Encourage More Regional Collaboration
- ☐ Promote and Sponsor Programs to Help Individuals Develop Better Job and Career Skills.
- ☐ Support the Growth of New Ventures and Promote Entrepreneurship Activities
- ☐ Wage Rebates for Creating Well-paid New Jobs
- ☐ Other –Please explain below

Q20. Is there another US state or another country that we should learn best practices from in dealing with the challenges and growth of the motor vehicle industry in the Carolinas? Please explain why.

Questions Specific to the Mecklenburg County:

As you may know, the City of Charlotte is revitalizing the entire shaded area below, with specific focus on the five labeled business corridors:

Business Corridor Revitalization Geography (2008 Revision) and Priority Corridors



- Wilkinson/Freedom Area
- Rozzelles Ferry Corridor
- Beatties Ford Corridor
- North Tryon Corridor
- Eastland Mall Area

Q21. Is your company located in the shaded areas?

☐ Yes
☐ No (if no, skip to question 23)

Q22. If your company IS located in the shaded area, what made you choose this location as your company's home? Please check top two that apply.

☐ Access to customers
☐ Access to workforce
☐ Access to public transportation/light rail
☐ Access to highways
☐ Affordability of land
☐ Access to supply chain
☐ Other –Please explain

Q23. Do you plan to:

☐ Expand ☐ Hire more employees
☐ Relocate ☐ Other:

Q24. What would help your business?

- ☐ Assistance w/ worker training
- ☐ Assistance w/ crime prevention
- ☐ Assistance w/ environmental cleanup
- ☐ Assistance w/relocation
- ☐ Assistance w/renovation
- ☐ Additional Suppliers

Q25. The following programs are available only for businesses in the shaded areas. Which ones were you already aware of?

- ☐ Brownfield Grant Program
- ☐ Business Corridor Worker Training Grant
- ☐ Business Equity Loan Program
- ☐ Façade Improvement Grant Program
- ☐ Small Business Enterprise Loan Fund
- ☐ Security Grant Program
- ☐ Synthetic Tax Increment Financing (TIF)
- ☐ No, I was unaware of these programs, but would like more information about them

Q26. If your company is NOT located in the shaded area:

- ☐ Would consider relocating the company to this area.
- ☐ Would like to know more about the changes occurring in these areas.
- ☐ Think accessing to transit/light rail would be beneficial.
- ☐ Think accessing to employees in this area would be beneficial.

Q27. What would you like to see done to improve the conditions in your company's area?

Thank you for your response. Please return this survey in the enclosed, postage-paid envelope.
Your response will be most valuable to us if it is received within two weeks.

Systems Engineering and Engineering Management Program
Center for Lean Logistics and Engineered Systems,
University of North Carolina at Charlotte,
Attn: Motor Vehicle Industry Survey,
9201 University City Blvd., Charlotte, NC 28223

6 Appendix B: List of Motor Vehicle Companies

The list of companies is provided in the spreadsheet attached on this page. Simply click on the data link to see the data.

List of Motor Vehicle Companies.xlsx

Note: If you are reviewing a PDF version of this report, you will not be able to use the above link. In that case, you may request the MS Excel file from CLLES by sending an e-mail to CLLES@uncc.edu.

7 Appendix C: List of Motor Vehicle Companies in the Mecklenburg Business Corridors

D_	Name	Address
1523	Fun City Pools & Spas	4635 E Independence Blvd
1246	Action Crash Parts	1700 Parker Dr # B
1180	Can-Am Custom Trucks	1622 Parker Dr
1645	Southern Precision Spring Co	2200 Old Steele Creek Rd
1672	Seeco-Southern Electrical Co	4045 Hargrove Ave
1251	Napa Paint Specialty Dept	4101 Wilkinson Blvd
1441	American Tire Distributors Inc	12200 Herbert Wayne Ct
1684	Paragon Mop Co	4401 Wilkinson Blvd
1769	Victory Trophy Shop Inc	1518 Bryant St
1148	Carolina Houdaille Co	1914 W Morehead St
1607	Covalence Plastics	1921 Freedom Dr
1741	Summerour Lamps	2220 Thrift Rd
1762	Mobility Concepts Inc	2700 Westport Rd
1330	Plasti-Vac Inc	214 Dalton Ave
1654	Zagora Gear Products Inc	1801 N Tryon St # B197
1515	First Restoration Svc	1517 N Graham St
1670	Gardner Machinery Corp	700 N Summit Ave
1576	Abe-Mor Inc	230 W 24th St
1172	Longwear Rubber Co	401 W 24th St
1289	Discount Tire & Wheel	401 W 24th St
1757	Vitro Amarica Corporation, Binswanger Glass Co	3330 N Tryon St
1624	W M Plastics Inc	4237 Raleigh St
1284	National Textile Supply	4237 Raleigh St
1680	Golfcraft Co Inc	415 Enterprise Dr
1469	Carolina Diesel Svc-Charlotte	3620 N Tryon St
1642	Duke Vinyl Products	401 W 32nd St
1215	Beal's Auto	3105 Rozzelles Ferry Rd
1662	Perfecting Coupling Co	332 Atando Ave
1443	Gerrard Tire Co	279 Atando Ave, Po Box 790010

D_	Name	Address
1241	Salvage Auto Supplies	3301 Robinson Cir
1147	Armstrong Auto Parts Co	3508 Robinson Cir
1547	Escobar Truck Equipment	620 Atando Ave
1041	United Parts Supply	635 Atando Ave # F
1465	Truck Parts Inc	707 Kennedy St
1758	Triumph Auto Glass	1301 Carrier Dr. Ste A
10093	Axiom Automotive Technologies Inc	2000 Freedom Dr
10055	Appalachian Auto Accessories	1315 Rollins Ave
10507	Jack Stone Radiator Co Inc	2835 Temple Ln
10700	Pull-A-Part	6024 N Tryon St
10890	Value Auto Sales, Inc	4050 N Tryon St
10196	Carolina Gear And Axle Acquisitions Inc	707 Kennedy St
10667	Parts Depot, Inc.	700 W 28th St
10828	Templin And Associates Inc	3701 N Davidson St
10626	Mirror Image Plating & Polishing	518 Atando Ave
10366	Finishmaster, Inc	2732 Interstate St # B
10792	Specmo Enterprises Inc	1301 Carrier Dr Ste F
10058	Armstrong Auto Parts Co Inc	3508 Robinson Cir
10827	Technology Inetwork Inc	125 W 24th St
10872	Truck Parts, Inc	707 Kennedy St
10644	National Oak Distributors Inc	2801 Interstate St

Table 22: List of Motor Vehicle Companies in the Mecklenburg Business Corridors

8 Appendix D: Distribution of MV Companies in the Greater Charlotte Region Counties

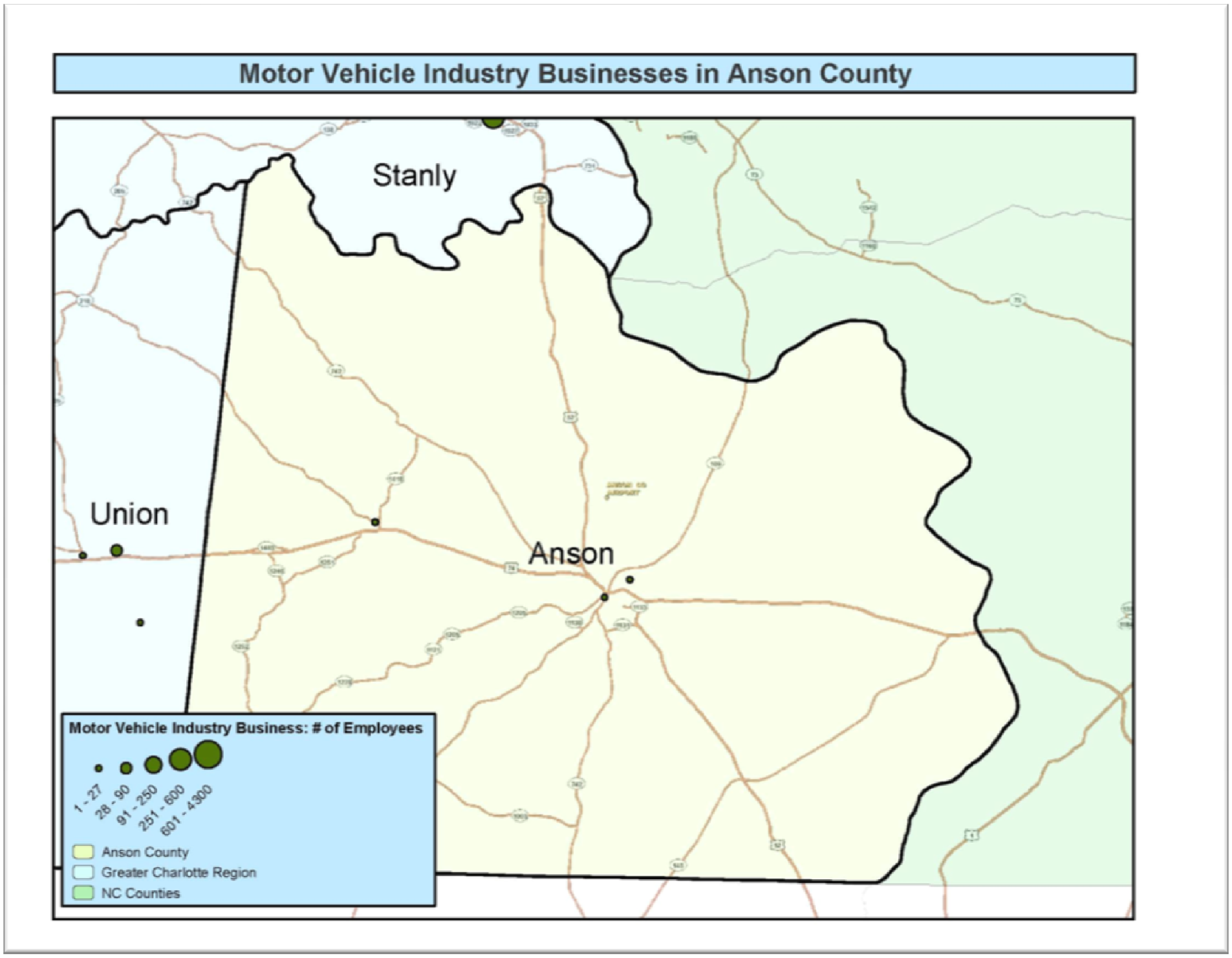


Figure 17: Motor Vehicle Industry Businesses in Anson County

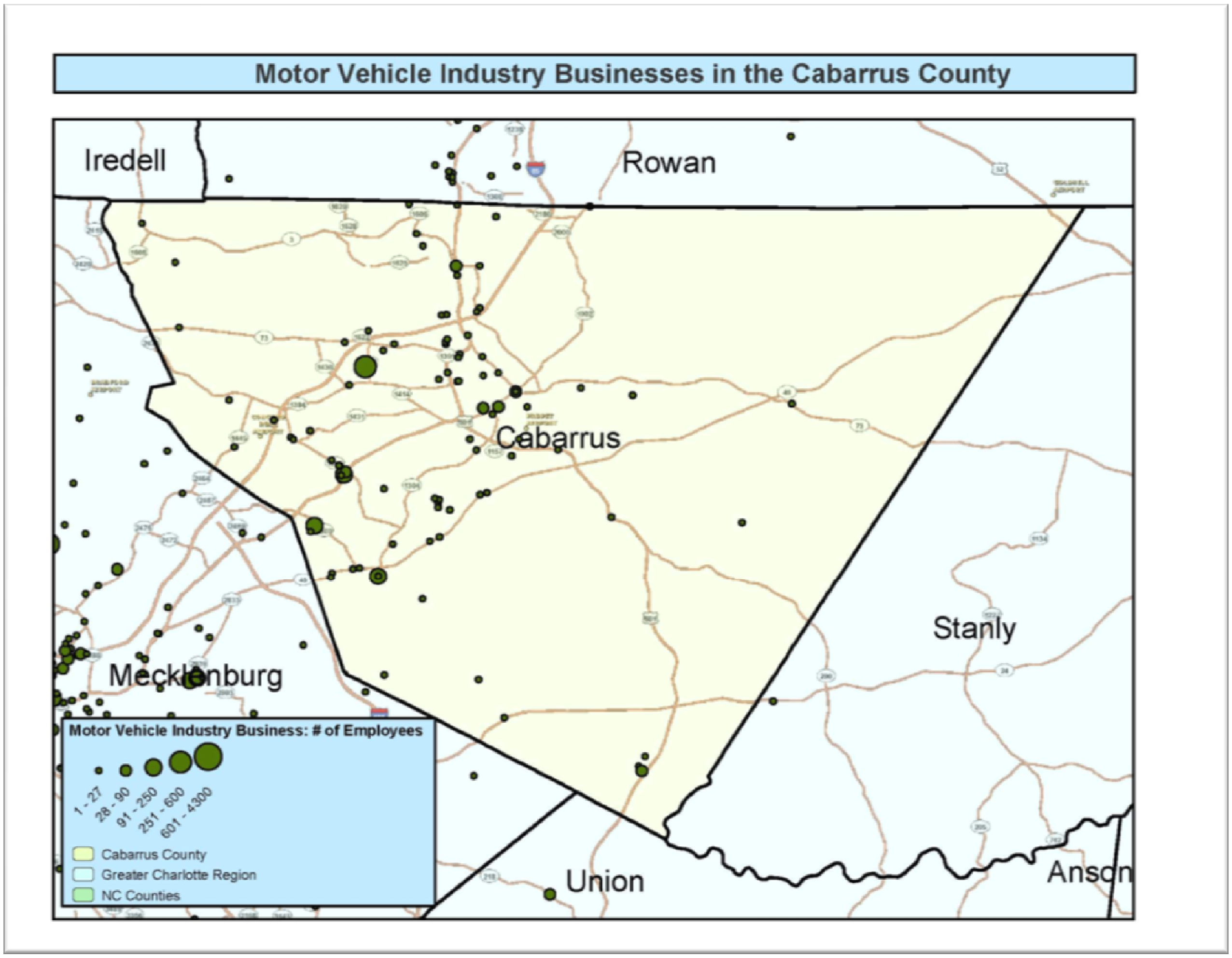


Figure 18: Motor Vehicle Industry Businesses in Cabarrus County

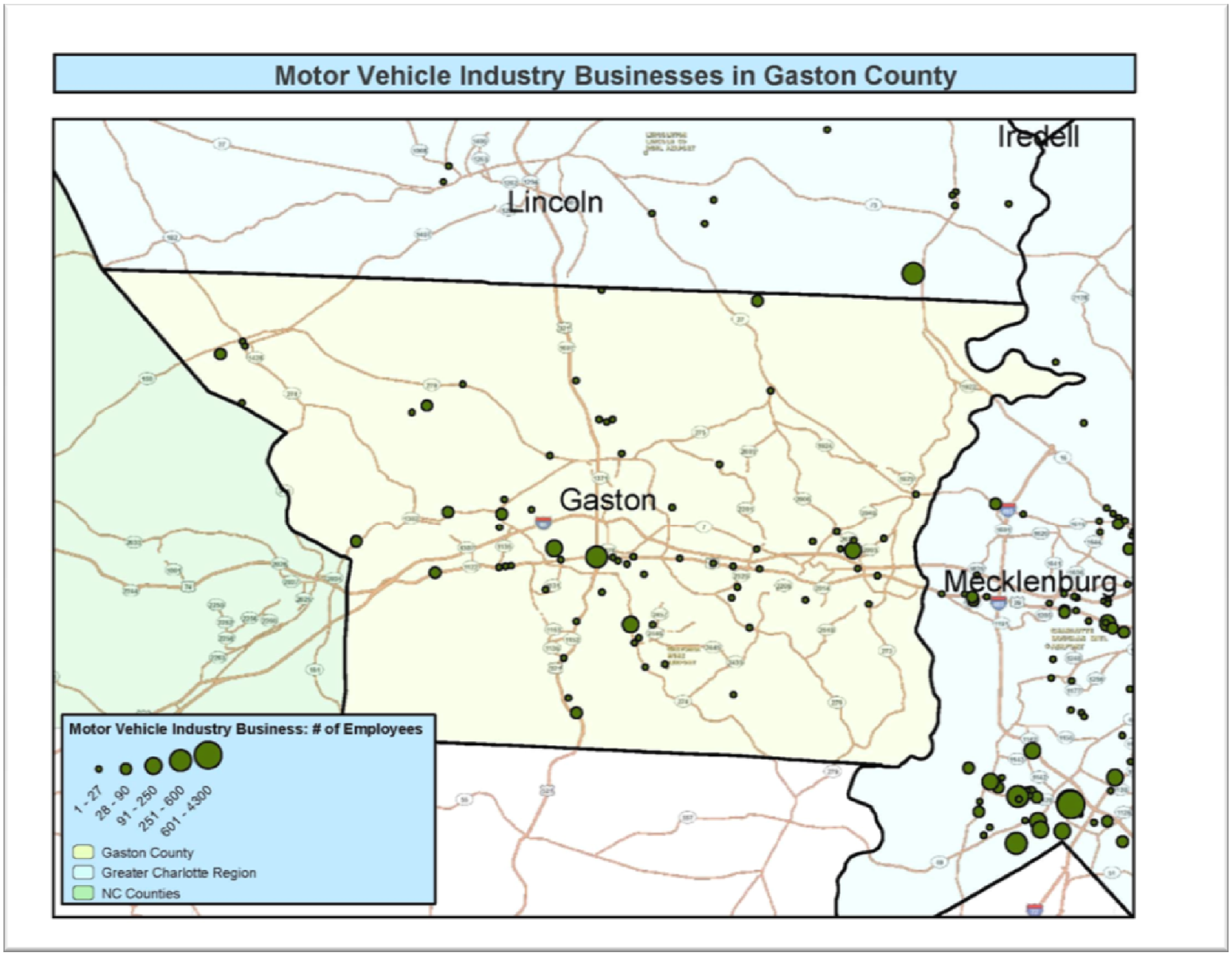


Figure 19: Motor Vehicle Industry Businesses in Gaston County

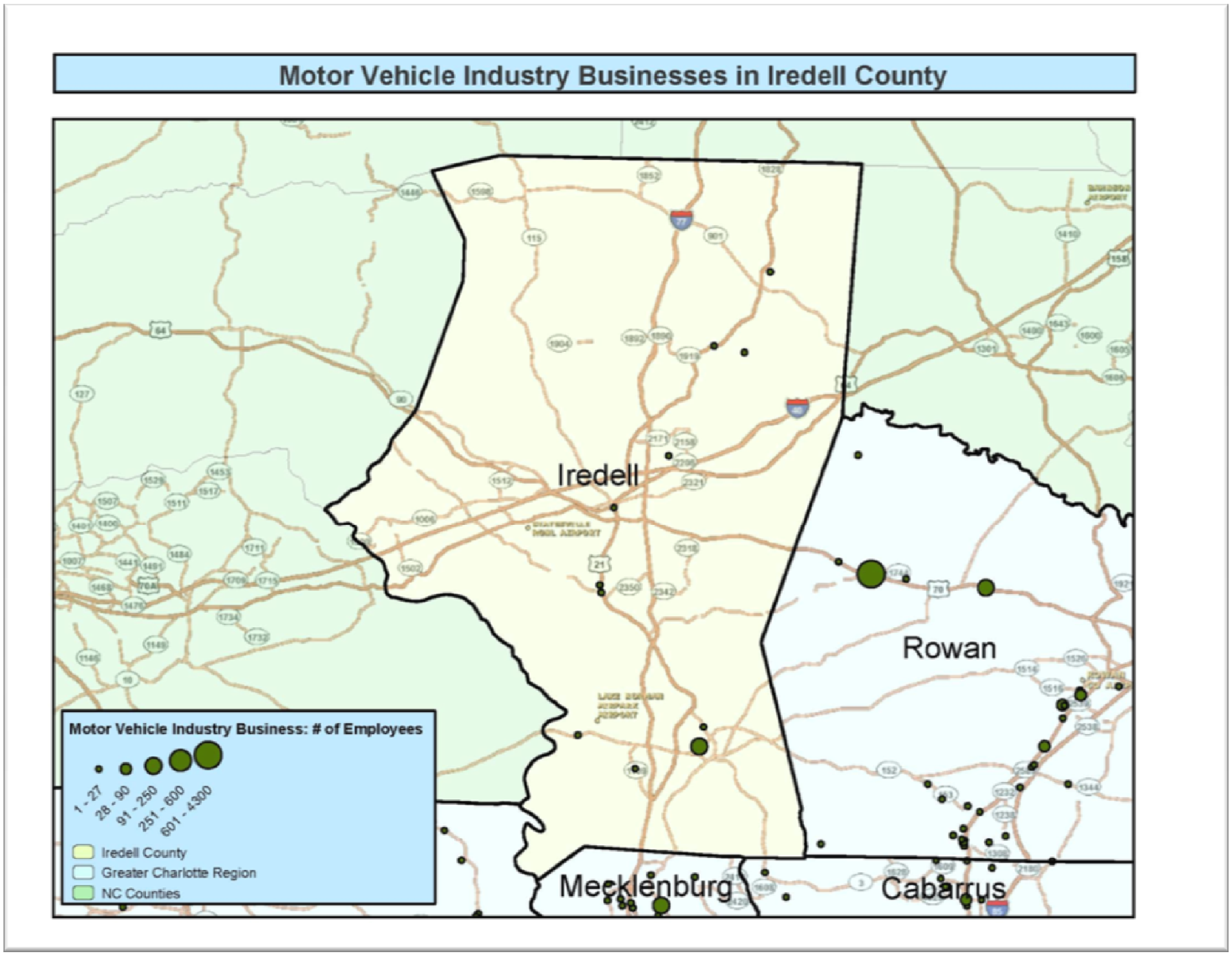


Figure 20: Motor Vehicle Industry Businesses in Iredell County

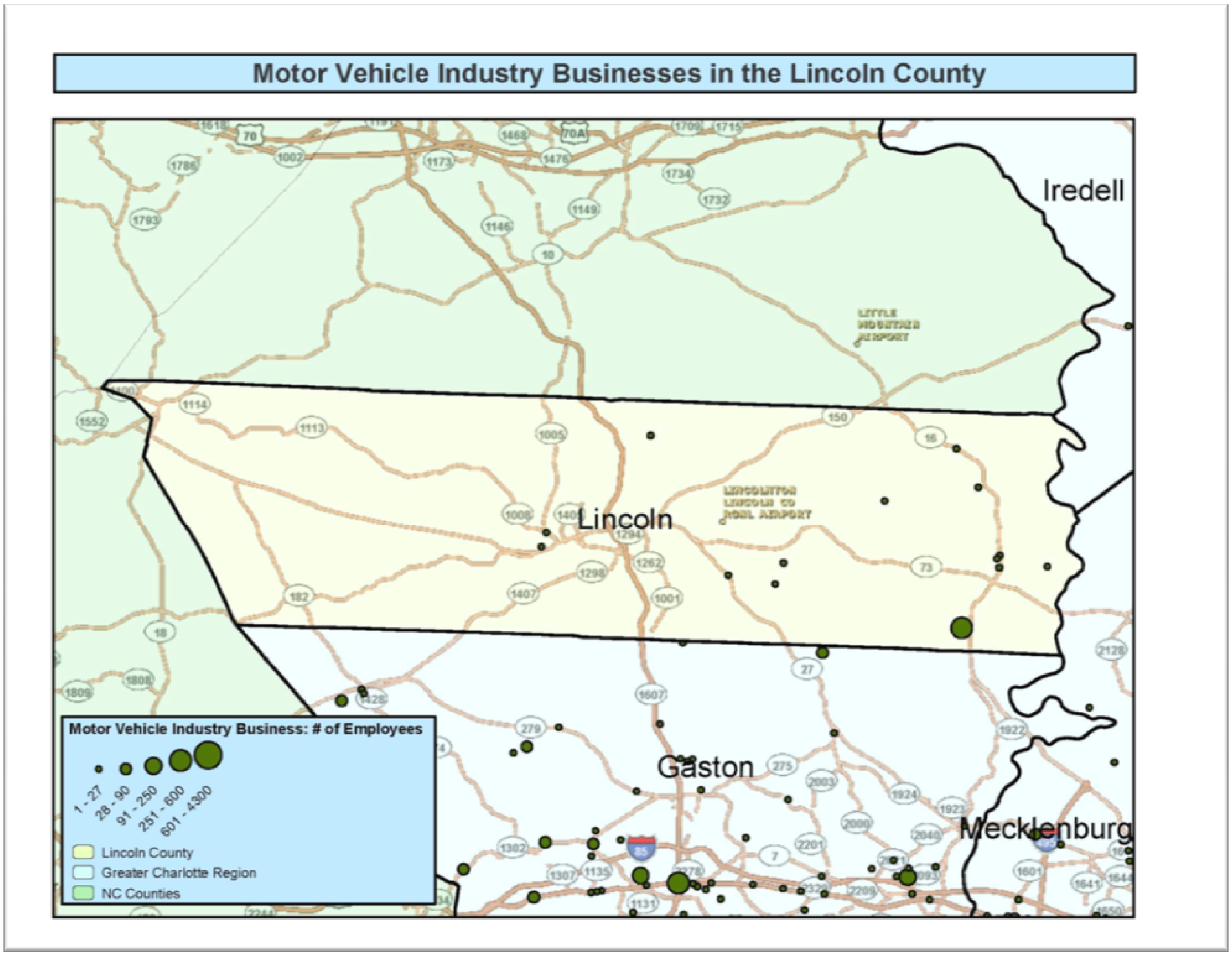


Figure 21: Motor Vehicle Industry Businesses in Lincoln County

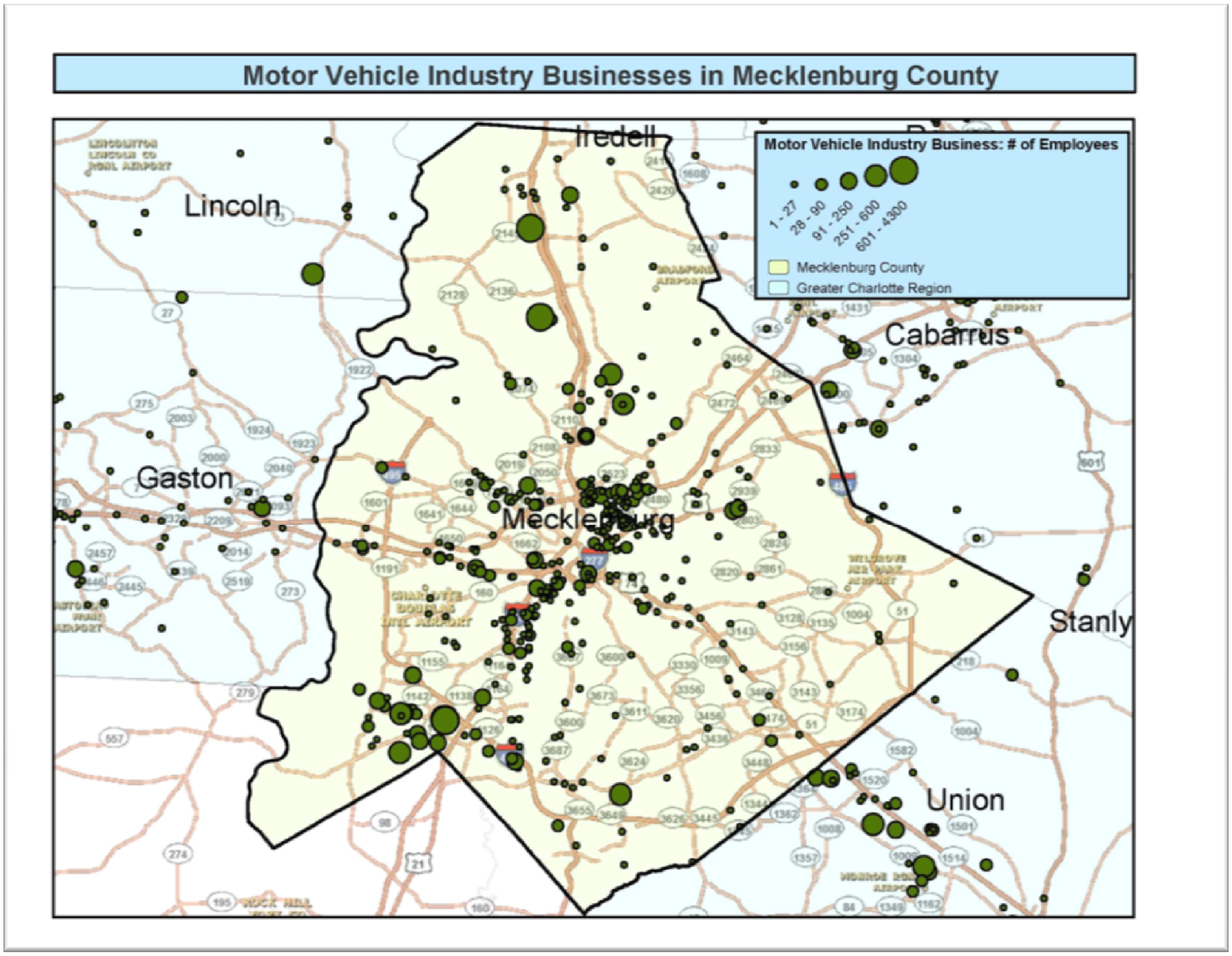


Figure 22: Motor Vehicle Industry Businesses in Mecklenburg County

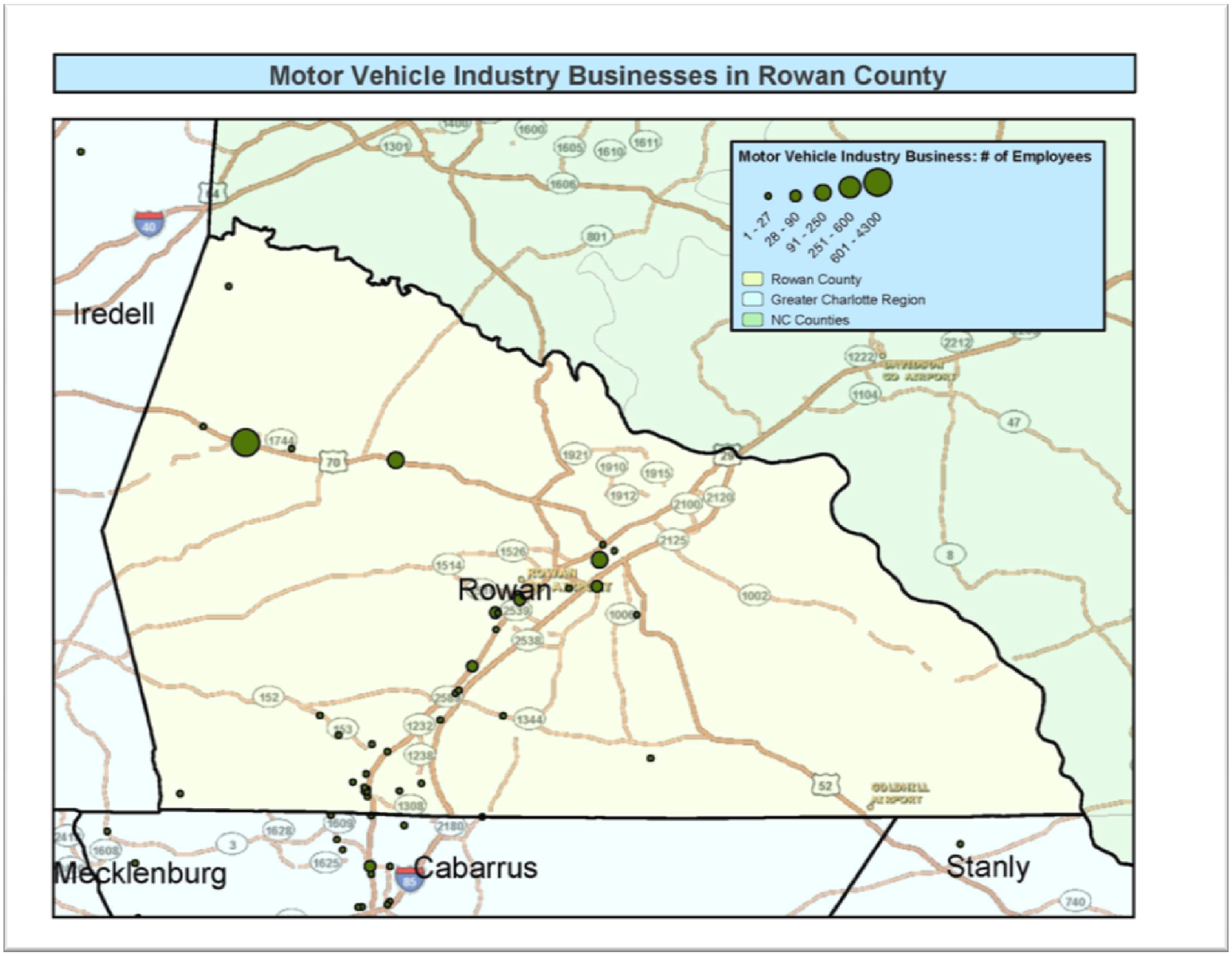


Figure 23: Motor Vehicle Industry Businesses in Rowan County

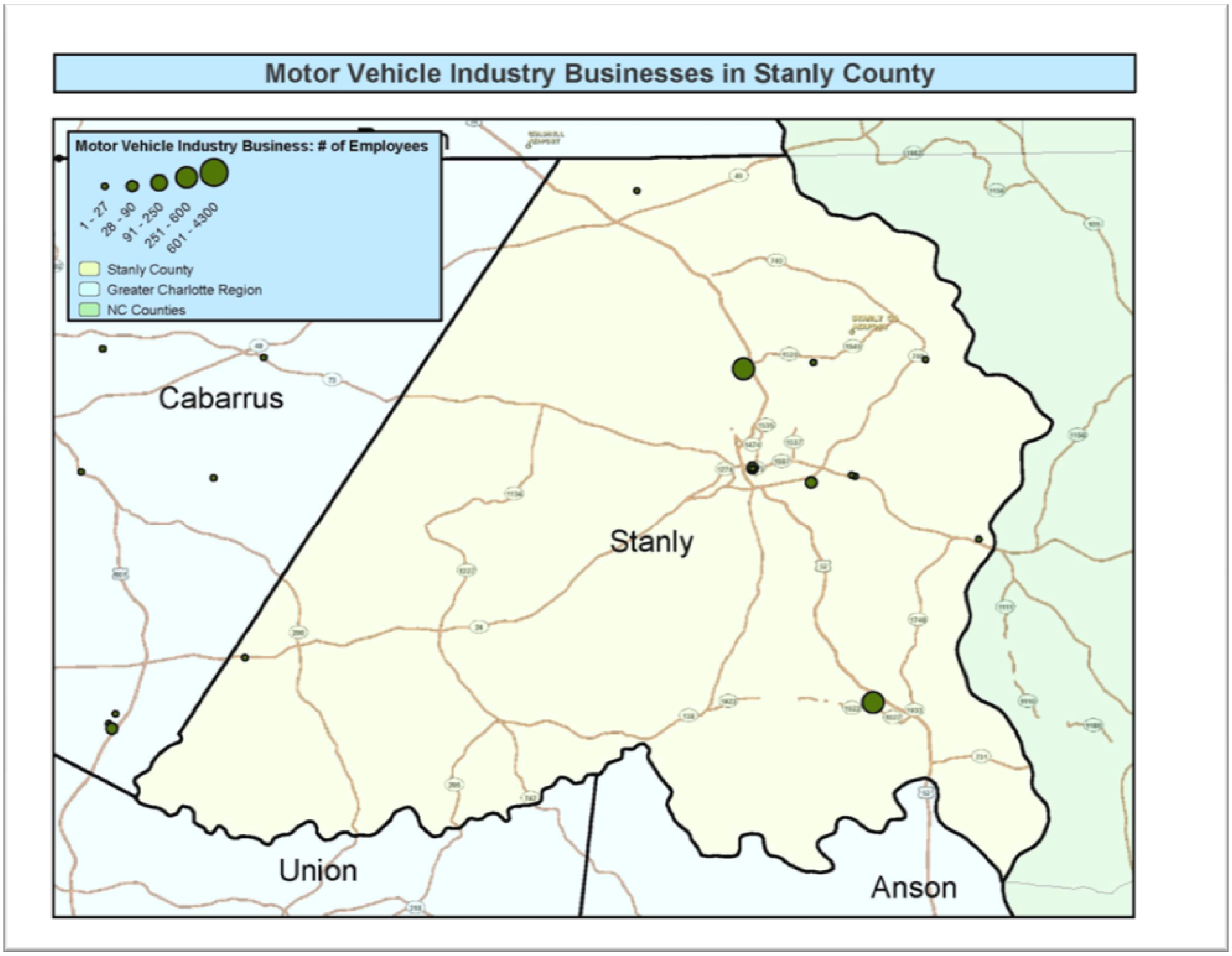


Figure 24: Motor Vehicle Industry Businesses in Stanly County

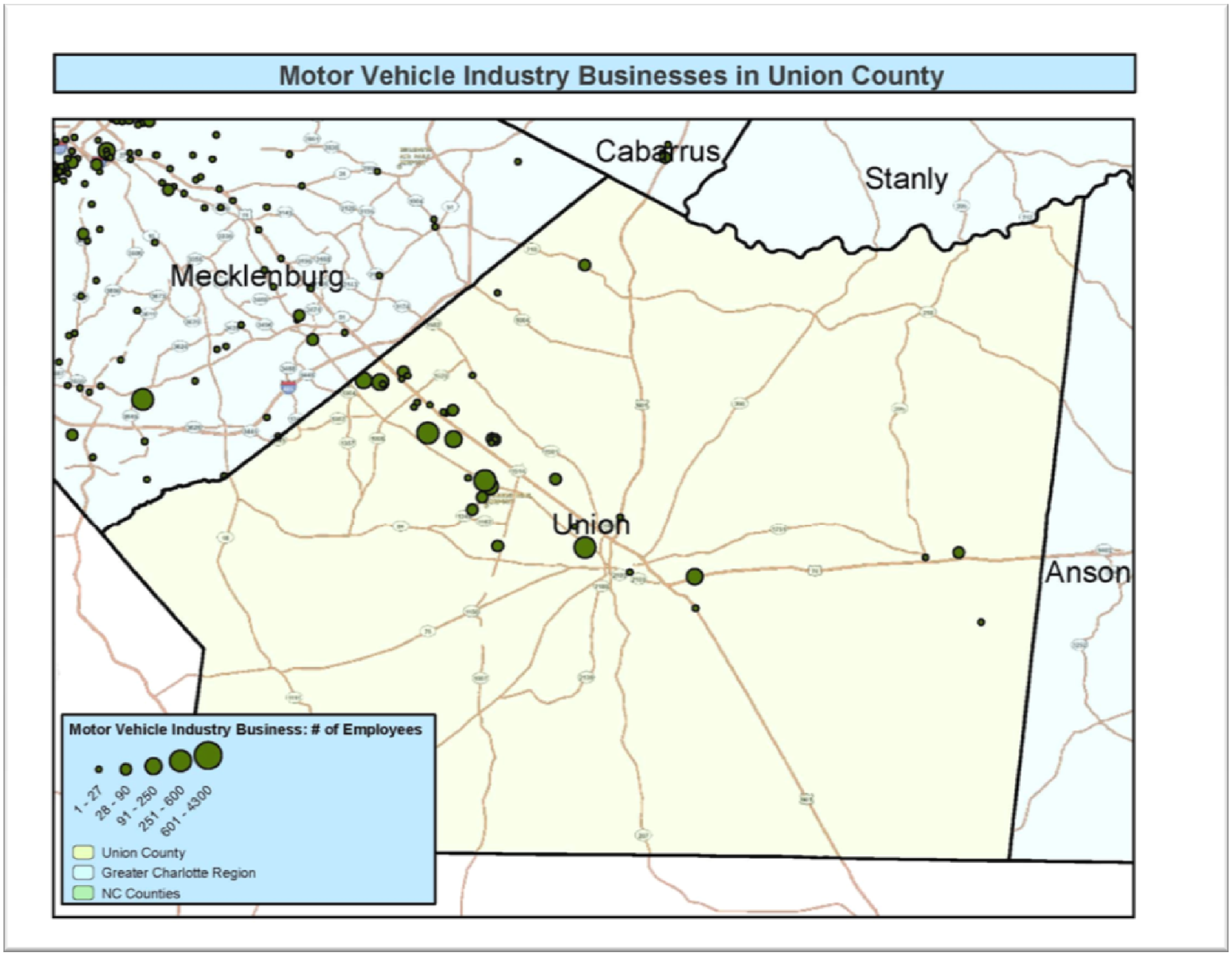


Figure 25: Motor Vehicle Industry Businesses in Union County