Chapter 1

INTRODUCTION

The proposed Greenville Southern Connector is part of an overall beltway system which would serve the greater Greenville area. Under previous studies conducted for the South Carolina Department of Transportation (SCDOT), three alternative project alignments were evaluated as part of an environmental impact study. As a result of the evaluation, the alignment designated as the South-North alignment was chosen for further analysis and evaluation.

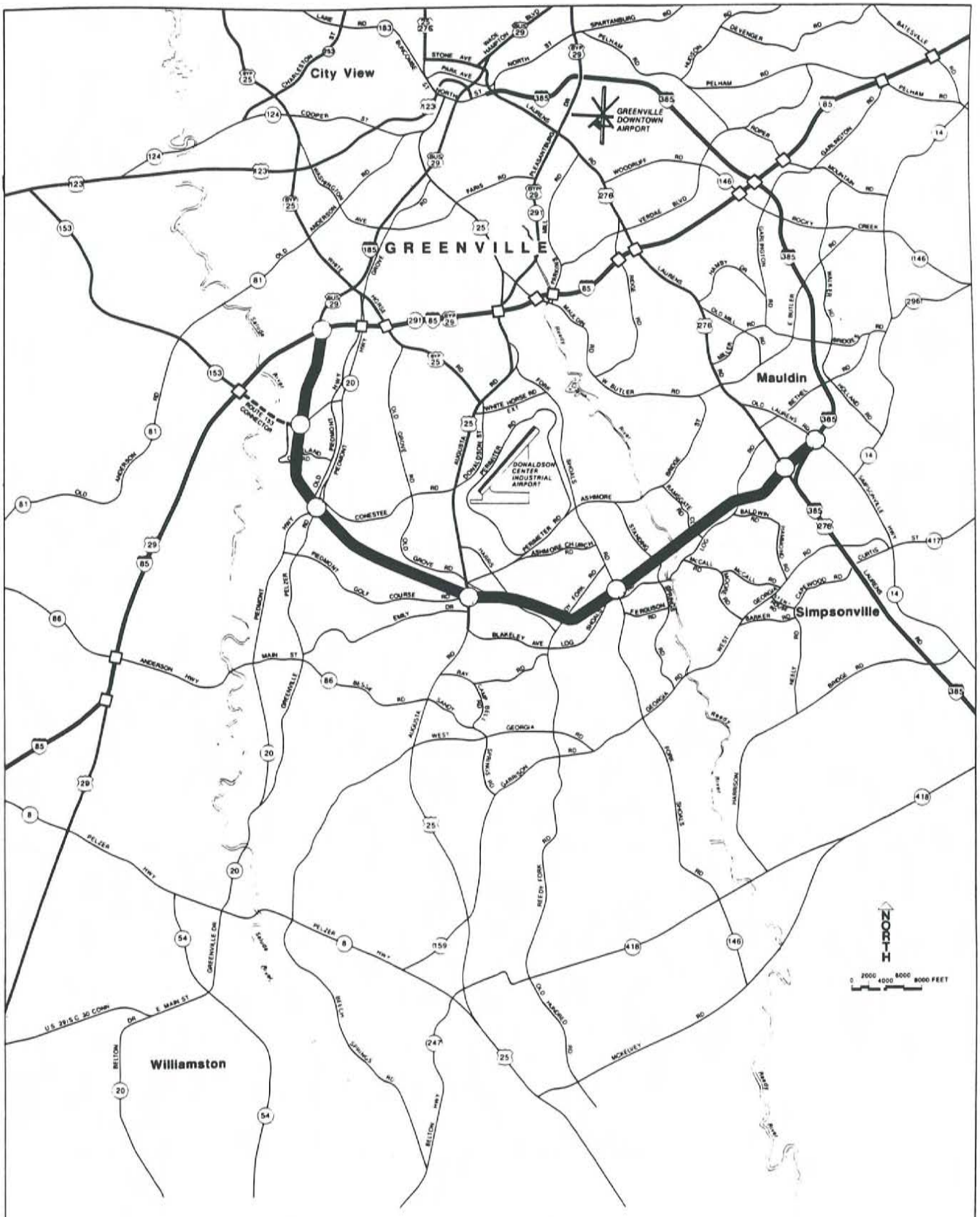
Corridor Description

The alignment for the proposed Southern Connector is shown in Figure 1. From the west, the Connector would interchange with I-85 and traverse southward, aligning as an extension of I-185 and paralleling S.C. 20. The Southern Connector would then interchange with the proposed S.C. 153 Connector and proceed southerly to an interchange with S.C. 20. It would then traverse southeasterly to an interchange with U.S. 25 (Augusta Road); then easterly to an interchange with Fork Shoals Road. The alignment would then traverse northeasterly to an interchange with I-385 and U.S. 276. The proposed Southern Connector would interchange with the following routes:

- I-85;
- S.C. 153 Extension;
- S.C. 20;
- U.S. 25;
- Fork Shoals Road (S.C. 146);
- Relocated Standing Springs Road;
- U.S. 276; and
- I-385.

The proposed Southern Connector would be built in one phase and is assumed to be open to traffic on November 1, 2001. The project would be built as an access-controlled toll facility, with two lanes per direction, with rights-of-way provision for future potential widening to three lanes per direction. The project length is approximately 15.8 miles.

The S.C. 153 Extension would include a new crossing of the Saluda River and an indirect connection with S.C. 20 via Brown Road. The S.C. 153 Extension itself would not be tolled. The Southern Connector would have two mainline toll plazas, one west of the S.C. 20 Interchange and one east of the Fork Shoals Road Interchange. Ramp toll collection facilities would be constructed



LOCATION MAP
GREENVILLE SOUTHERN CONNECTOR

WILBUR SMITH ASSOCIATES

FIGURE 1

to and from the east at S.C. 20 and to and from the west at Fork Shoals Road. No ramp tolls would be implemented at the U.S. 25 Interchange.

Given its overall orientation, the proposed Southern Connector would serve both north-south and east-west oriented traffic. There are major employment centers both in the downtown Greenville sector as well as in the immediate vicinity of the corridor, in and south of the Donaldson Center Industrial Park. The portion of the Southern Connector west of U.S. 25 would serve as a good alternative to that route for commuter access to and from downtown Greenville (via I-185) and access from residential areas of Greenville and to the southern portions of the Donaldson Center.

The Southern Connector would also provide important new through access in an east-west orientation. The existing roadway system is a combination of relatively circuitous and indirect local roads. There are currently no state highways passing entirely through the corridor between I-85 and Greenville, and the combination of S.C. 8 and 418 is far south of the corridor. The Southern Connector would provide significantly improved east-west access between S.C. 20 and 25 and the I-385/U.S. 276 corridor on the southeast side of Greenville.

I-85 is the primary east-west freeway passing along the southern edge of the heavily developed portions of the city of Greenville. I-85 is an important connection between Atlanta and Charlotte and points north and south. I-385 extends from a terminus in downtown Greenville around the east side of the city, past the city of Mauldin and then south easterly to a junction with I-26 well south of the study area. That corridor provides access between Greenville and Columbia/Charleston South Carolina. The Southern Connector would intersect with I-385 at the existing turning point where it joins U.S. 276 and head south toward Columbia. It would include a direct connection to I-385, in the vicinity of Old Laurens Road which would provide direct access into downtown Greenville via the easterly bypass routing.

There are a limited number of major north-south arterial routes passing through the corridor. S.C. 20 runs along the Saluda River and connects indirectly with I-185 feeding downtown Greenville. U.S. 25 passes through the center of the corridor, and passes just west of the Donaldson Industrial Park. S.C. 25 provides access to I-85 and ultimately into downtown Greenville using an arterial routing with numerous traffic signals.

As noted above, existing east-west routes in the immediate project corridor are all fairly low level local roadways, with no more than two travel lanes. Some of these local routes include West Georgia Road, Log Shoals Road, Ashmore Bridge Road, and Piedmont Golf Course Road.

A major trip attractor near the center of the corridor is the Donaldson Center, this former Air Force base has been very successfully developed by dozens of industrial-oriented businesses, primarily along the Perimeter Road around the airport. Those portions of the Donaldson Center businesses located in the southern half of the property would be well served by the new Southern Connector. Even closer to the Southern Connector are several other major employers, including Michelin Tires (just west of Fork Shoals Road in the immediate vicinity of the Southern Connector), and Magna Corporation, located just off S.C. 25 immediately adjacent to the interchange with the Southern Connector. Magna Corporation manufactures auto body parts for the BMW plant located off I-85 between Greenville and Spartanburg. The Southern Connector project would provide significantly improved access via the connector and I-385.

Scope of Study

Wilbur Smith Associates (WSA) was contracted by Interwest Carolina Transportation Group, LLC (Interwest) to conduct a detailed traffic and revenue study. This comprehensive study drew upon data collected, as well as the analyses and findings of the Preliminary Feasibility Study phase of work conducted for SCDOT. However, this phase of the work was significantly more in depth than in the preliminary study. Areas of expanded effort included motorist travel pattern and trip characteristic surveys, a detailed traffic count program, an expanded corridor growth analysis, and, most importantly, the use of a newly developed traffic model prepared by the Greenville County Planning Commission (GCPC).

The study work program was comprised of seven major tasks, including:

- Task 1 - Mobilization and Data Assembly;
- Task 2 - Travel Pattern Surveys;
- Task 3 - Corridor Growth Analysis;
- Task 4 - Transportation Model Refinement;
- Task 5 - Traffic and Revenue Analysis;
- Task 6 - Sensitivity Tests; and
- Task 7 - Documentation and Meetings.

Upon notice-to-proceed, a kick-off meeting was held with representatives of Interwest, the WSA team, and other appropriate project participants. This meeting included refinement of the work program, schedule and budget, identification of appropriate lines of communication, and a progress reporting schedule. Interim progress meetings were held during the course of the study.

A key element in the overall study process was the conduct of motorist travel pattern and trip characteristic surveys in the project travel corridor. Motorist interview surveys were conducted at 25 locations with drivers being questioned as to trip origin/destination, trip purpose, and trip frequency. Information regarding vehicle type and vehicle occupancy was also gathered. Route reconnaissance and travel-time investigations were made on all highways in the corridor which now serve traffic considered, in some measure, potential to the proposed Greenville Southern Connector.

The origin/destination data was coded to a geographic zone system developed by the Greenville County Planning Commission (GCPC) for use with their models for the Greenville County area. The GCPC zone system was further refined in terms of expanding the study area and zone disaggregation in the Donaldson Center area. The coded survey data was then entered into computer files for further processing. Based on the hourly and daily traffic counts obtained during the survey process, and monthly variation data obtained from SCDOT, the survey data was then factored to represent an average day in 1996. This served as the base year for the traffic analysis in the study corridor. Computer tabulations were then prepared representing the trip patterns and travel characteristics obtained at each of the survey station locations. Cross tabulations were then developed relating trip movements to trip purpose and frequency by vehicle class.

The latest socioeconomic data based on results of the 1990 Census was obtained from the GCPC, at 1990 and 2015 year levels. In addition, growth trends of selected primary economic activity indicators within the specific travel corridor were examined in detail, including but not limited to population and employment in the vicinity of the Greenville Southern Connector.

The most recent trip tables developed by GCPC were also obtained, as well as the latest Transportation Improvement Program (TIP). Updated calibrated traffic networks developed by GCPC were utilized in the traffic assignment process. These base-year and future-year networks were updated to reflect the proposed Greenville Southern Connector project.

The 1990 trip tables produced by GCPC were expanded to base year 1996 levels and the survey trips merged to create a final base year 1996 trip table. Additional trip tables were developed for years 2000, 2005, and 2010.

Traffic assignments for the proposed project were made based on the time-distance-cost relationships between existing highway routings and by way of the proposed Greenville Southern Connector. These assignments were run on a peak, off-peak, and average daily traffic basis under various toll rate scenarios to determine the relative sensitivity of varying toll levels on anticipated

project usage. Based on the results from the toll sensitivity tests, an optimum toll rate was determined and toll schedules developed for the proposed Connector.

Traffic assignments were then run in five year increments between 2000 and 2015. Toll revenues were then developed on the basis of periodic toll increases of $0.25.

Order of Presentation

Chapter 2 documents Traffic Trends in terms of current and historic traffic data, temporal variations, and results of travel time-distance studies. Economic and Corridor Growth Considerations are discussed in Chapter 3. Chapter 4, Travel Patterns and Characteristics, describes the results of the motorist surveys. Chapter 5 presents the Traffic and Toll Revenue Estimates.

Chapter 2

TRAFFIC STUDIES

Detailed analyses were made of the present traffic volumes, vehicle type composition and travel patterns and characteristics in the project corridor, considering that a major portion of the projected traffic on the proposed Greenville Southern Connector would likely be traffic which diverts from other highways and roads within the project area.

The analyses involved the conduct of 24-hour vehicle classification counts and motorist surveys, extensive route reconnaissance investigations, and a review of all the available traffic statistics on existing highways in the study area. WSA received the assistance and cooperation of the SCDOT, GCPC, and appropriate local governmental agencies to compile as much traffic trend data as were available.

Existing Highway System

As mentioned previously, the proposed Greenville Southern Connector is part of an overall beltway system which would serve the Greater Greenville area. A key function of the Connector would be to facilitate the movement of commuter-based traffic from east to west in the rapidly developing area south of the City of Greenville

The existing highway network that provides access to residents in the Greenville area is primarily dominated by highways that accommodate north - south movements. The major north-south thoroughfares through the project study area are S.C. 20 (Piedmont Highway), U.S. 25 (Augusta Road/White Horse Road) which serve the west side of Greenville, Fork Shoals Road, U.S. 276 (Laurens Road), and I-385 which allows access into eastern Greenville. These roadways provide the ability to move north - south through the project area

The only major east - west limited-access freeway through the project study area is I- 85 which interchanges with the project corridor on the northwest Other competing east-west routes in the study area include local, two-lane roadways which provide narrow travel lanes and winding roadway geometry. The addition of the Greenville Southern Connector to the transportation system of Greenville County will significantly enhance the motorist's ability to move east-west, south of the City of Greenville, an area of potential rapid development and expansion.

Current Traffic Volumes

A review was made of traffic trends in and around the project corridor as measured by data obtained from SCDOT and GCPC. Annual traffic trends obtained from permanent automatic traffic recorders on selected highways throughout the Greenville region and seasonal factors by roadway class on a statewide basis were reviewed. This information was supplemented by automatic and manual traffic counts taken in conjunction with the WSA field survey effort. The traffic trend data analyzed in this study served as important inputs to the overall project growth analysis.

Annual Traffic Trends - The GCPC in cooperation with SCDOT maintains a continuous count program throughout Greenville County to monitor traffic on key highways. As shown in Table 1, 14 of these count locations were selected for analysis of historical traffic growth between 1987 and 1994. All of these highways are considered to be carrying, in varying degrees, traffic potential to the proposed Greenville Southern Connector or have characteristics similar to other routes in the immediate corridor.

On S.C. 20, between Ponder Drive and Augusta Road, the average daily traffic in 1994 was 14,900 vehicles per day. Over the eight-year period between 1987 and 1994 traffic growth was approximately 3.5 percent per year. On Laurens Road (U.S. 276), between I-85 and Butler Road, the average daily traffic in 1994 was 24,300 vehicles per day, representing relatively minor change over 1987 conditions with an average annual growth of 0.4 percent per year.

On I-85, between Anderson County Line and I-185, average daily traffic in 1994 was 62,300 vehicles per day. Traffic growth since 1987 was approximately 4.3 percent per year. On U.S. 25, between White Horse Road and Pleasantburg Drive, average daily traffic in 1994 was 32,200 vehicles per day, representing an average annual growth of 1.5 percent per year since 1987.

The 1994 average daily traffic on I-385, between Georgia Road and Laurens Road was 34,400 vehicles per day. Over the eight-year period since 1987, the average annual growth was 5.6 percent per year. On I-385, between Laurens Road and the I-385 spur (count station #2485), the 1994 average daily traffic was 38,500 vehicles per day, representing an average annual increase of 1.9 percent per year since 1987.

Table 1

ANNUAL TRAFFIC TRENDS
Proposed Greenville Southern Connector
Selected GCPC Traffic Count Locations
1987-1994

LOCATION	1987 (1)	PERCENT CHANGE	1988 (1)	PERCENT CHANGE	1989 (1)	PERCENT CHANGE	1990 (1)	PERCENT CHANGE	1991 (1)	PERCENT CHANGE	1992 (1)	PERCENT CHANGE	1993 (1)	PERCENT CHANGE	1994 (1)	AVERAGE ANNUAL PERCENT CHANGE 1987-1994
Piedmont Highway (S.C.20) between Ponder Drive and Augusta Road	11,702	28.4	15,024	7.9	16,218	(22.2)	12,614	33.7	16,860	(18.1)	13,800	11.6	15,400	(3.2)	14,900	3.5
Old Grove Road (S.83) between White Horse Road and Rockvale Drive	3,363	(8.5)	3,076	(20.3)	3,699	(27.1)	2,695	42.0	3,826	(5.9)	3,600	5.6	3,800	(7.9)	3,500	0.6
Laurens Road (U.S.276) between Interstate 85 and Butler Road	23,614	4.5	24,669	0.0	24,669	2.0	25,171	2.5	25,802	0.0	25,800	(13.2)	22,400	8.5	24,300	0.4
West Butler Road (S.107) between Laurens Road and Ridge Road	16,208	17.9	19,116	16.8	22,324	(10.5)	19,970	(0.1)	19,950	6.3	21,200	12.3	23,800	(10.9)	21,200	3.9
Georgia Road (S.272) between Interstate 385 and Fork Shoals Road	5,768	11.6	6,439	(7.9)	5,931	(0.9)	5,876	2.5	6,022	(0.4)	6,000	8.3	6,500	0.0	6,500	1.7
Georgia Road (S.272) between Fort Shoals Road and Augusta Road	694	3.5	718	(5.2)	681	22.5	834	6.2	886	(9.7)	800	25.0	1,000	5.0	1,050	6.1
New Easley Highway (U.S.123) between Pickens County Line and Faris Road	7,874	115.8	16,989	(1.2)	16,779	(0.4)	16,711	4.4	17,453	4.3	18,200	1.6	18,500	2.7	19,000	13.4
Main Street Piedmont (S.C.86) between Anderson County Line and Augusta Road	2,957	0.0	2,957	22.0	3,607	3.6	3,737	(3.5)	3,607	2.6	3,700	21.6	4,500	13.3	5,100	8.1
Augusta Road (U.S.25) between Laurens County Line and S.C.418	5,144	(2.8)	4,998	11.7	5,584	13.9	6,359	(11.5)	5,629	8.4	6,100	18.0	7,200	(6.9)	6,700	3.8
White Horse Road (U.S.25) between Augusta Road and Interstate 85	----	----	16,293	24.3	20,249	(11.1)	18,009	1.7	18,312	(2.8)	17,800	(9.0)	16,200	2.5	16,600	0.3
Augusta Road (U.S.25 Business) between White Horse Road and Pleasantburg Drive	----	----	29,391	(6.0)	27,620	15.9	32,016	6.9	34,221	(1.2)	33,800	0.6	34,000	(5.3)	32,200	1.5
Interstate 85 between the Anderson County Line and Interstate 185	46,440	0.0	46,440	12.0	52,000	(2.1)	50,900	7.9	54,900	(11.7)	48,500	13.6	55,100	13.1	62,300	4.3
Interstate 385 between Georgia Road and Laurens Road	23,463	11.7	26,200	6.9	28,000	(2.9)	27,200	1.5	27,600	9.4	30,200	1.0	30,500	12.8	34,400	5.6
Interstate 385 between Laurens Road and the Interstate - 385 Spur	33,799	17.2	39,600	(11.4)	35,100	7.7	37,800	(1.1)	37,400	(4.0)	35,900	7.8	38,700	(0.5)	38,500	1.9

(1) Average Annual Daily Traffic
SOURCE: Greenville County Planning Commission Traffic Counts.

Daily Traffic Variations - Twenty-four hour, seven-day machine traffic counts were conducted at all survey locations. The daily variations indexing, for selected locations, is shown in Table 2 with an index of 100 being an average day. As shown, the peak day is typically on a Friday, with Thursday being the second highest day. Survey station traffic volumes on a Sunday typically exhibited the lowest traffic volumes.

Hourly Traffic Trends - Hourly traffic variations by direction for selected locations are shown in Table 3. As shown, S.C. 20 clearly demonstrates a peak period directional split, with the northbound direction peaking in the morning and the southbound direction peaking in the evening. During the hour beginning at 8 a.m. the peak hour percentage of daily traffic is approximately 10.7 percent in the northbound direction. During the hour beginning 6 p.m. the peak hour percentage of daily traffic is approximately 10.6 percent in the southbound direction.

On U.S. 25 the traffic counts do not exhibit a peak period directional split. During the hour beginning 8 a.m., both north and southbound directions peaked with an 8.5 and 9.2 peak hour percentage, respectively. During the evening, the northbound direction peaked at 5 p.m. with 8.5 percent of the daily traffic; in the southbound direction, the peak hour occurred at 6 p.m. with a peak hour percentage of daily traffic of 8.5 percent.

On Fork Shoals Road, north of Main Street, there was also a lack of a peak period directional split During the morning peak period, both directions peaked during the hour beginning 8:00 a.m. with peak hour percentages of daily traffic of 9.6 and 9.2 percent, respectively. During the evening, the peak hour occurred in the hour beginning 6 p.m., with peak hour percentages of daily traffic being 8.5 and 9.9 percent, respectively.

On West Butler Avenue, west of Ashmore Bridge Road, the eastbound peak hours occurred at 8 a.m. and 6 p.m., with peak hour percentages of daily traffic at 7.6 and 8.8 percent, respectively. In the westbound direction, the peak hours occurred at 9 and 10 a.m. and 6 p.m., with peak percentages of 8.4 and 7.9 percent, respectively.

On West Georgia Road, west of Standing Springs Road, the peak periods are very pronounced and directional. In the eastbound direction the morning peak occurred during the hour beginning 8:00 a.m., with approximately 15.6 percent of the daily directional traffic. In the westbound direction, the evening peak hour occurred during the hour beginning 6 p.m. with approximately 11.9 percent of the daily directional traffic.

Table 2

DAILY TRAFFIC VARIATIONS

SURVEY STATION	DAY OF THE WEEK							AVERAGE DAY
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
S.C. 20 North of Brown Road	107	105	112	110	109	89	68	100
U.S. 25 North of Bracken Road	105	107	107	110	116	88	67	100
Fork Shoals Road North of Main Street	108	104	108	109	110	82	79	100
West Butler Avenue West of Ashmore Bridge Road	114	103	109	106	113	83	72	100
West Georgia Road West of Standing Springs	108	104	113	107	109	85	74	100
Ashmore Bridge Road East of U.S. 25	112	108	110	121	116	74	59	100

Table 3

HOURLY TRAFFIC VARIATIONS AT SELECTED LOCATIONS

HOUR BEGINNING	S.C. 20 NORTH OF BROWN ROAD				U.S. 25 NORTH OF BRACKEN ROAD			
	Northbound		Southbound		Northbound		Southbound	
	Traffic	Percent	Traffic	Percent	Traffic	Percent	Traffic	Percent
1:00	43	0.7	68	1.1	124	1.0	141	1.2
2:00	19	0.3	33	0.5	65	0.5	86	0.7
3:00	14	0.2	29	0.5	62	0.5	56	0.5
4:00	20	0.3	22	0.4	46	0.4	77	0.6
5:00	29	0.4	16	0.3	71	0.6	95	0.8
6:00	101	1.5	42	0.7	148	1.2	153	1.3
7:00	415	6.3	155	2.5	516	4.3	623	5.2
8:00	701	10.7	312	5.1	1,011	8.5	1,099	9.2
9:00	535	8.2	254	4.1	827	6.9	621	5.2
10:00	371	5.7	281	4.5	644	5.4	498	4.1
11:00	334	5.1	268	4.3	578	4.8	514	4.3
12:00	394	6.0	321	5.2	667	5.6	552	4.6
13:00	343	5.2	354	5.7	687	5.8	651	5.4
14:00	304	4.6	271	4.4	545	4.6	624	5.2
15:00	404	6.2	354	5.7	679	5.7	647	5.4
16:00	357	5.5	454	7.4	973	8.1	850	7.1
17:00	363	5.6	546	8.8	1,010	8.5	849	7.1
18:00	411	6.3	657	10.6	875	7.3	1,014	8.5
19:00	385	5.9	584	9.5	674	5.6	738	6.2
20:00	392	6.0	385	6.2	549	4.6	613	5.1
21:00	218	3.3	296	4.8	448	3.8	474	3.9
22:00	184	2.8	226	3.7	309	2.6	424	3.5
23:00	132	2.0	138	2.2	224	1.9	320	2.7
24:00	76	1.2	111	1.8	219	1.8	269	2.2
TOTAL	6,545	100	6,177	100	11,951	100	11,988	100

(continued)

Table 3 (cont'd)

HOURLY TRAFFIC VARIATIONS AT SELECTED LOCATIONS

HOUR BEGINNING	FORK SHOALS ROAD NORTH OF MAIN STREET				WEST BUTLER AVENUE WEST OF ASHMORE BRIDGE ROAD			
	Northbound		Southbound		Eastbound		Westbound	
	Traffic	Percent	Traffic	Percent	Traffic	Percent	Traffic	Percent
1:00	12	0.5	13	0.5	145	1.0	259	1.8
2:00	4	0.2	8	0.3	86	0.6	228	1.6
3:00	1	0.0	3	0.1	63	0.4	67	0.5
4:00	6	0.2	7	0.3	65	0.5	50	0.3
5:00	8	0.3	7	0.3	72	0.5	37	0.3
6:00	38	1.6	25	1.0	155	1.1	81	0.6
7:00	125	5.2	163	6.8	640	4.4	138	1.0
8:00	233	9.6	221	9.2	1,099	7.6	557	3.9
9:00	201	8.3	121	5.0	836	5.8	1,202	8.4
10:00	106	4.4	94	3.9	711	4.9	1,208	8.4
11:00	98	4.1	107	4.5	660	4.6	740	5.2
12:00	138	5.7	110	4.6	791	5.5	710	5.0
13:00	125	5.2	142	5.9	730	5.1	695	4.8
14:00	105	4.3	141	5.9	728	5.0	816	5.7
15:00	141	5.8	139	5.8	859	6.0	713	5.0
16:00	181	7.5	128	5.3	1,011	7.0	774	5.4
17:00	183	7.6	202	8.4	1,036	7.2	994	6.9
18:00	206	8.5	238	9.9	1,270	8.8	1,128	7.9
19:00	156	6.4	158	6.6	865	6.0	1,114	7.8
20:00	130	5.4	129	5.4	659	4.6	875	6.1
21:00	82	3.4	82	3.4	641	4.4	653	4.5
22:00	70	2.9	72	3.0	511	3.5	564	3.9
23:00	39	1.6	56	2.3	422	2.9	425	3.0
24:00	31	1.3	39	1.6	382	2.6	295	2.0
TOTAL	2,419	100	2,405	100	14,437	100	14,323	100

(continued)

Table 3 (cont'd)

HOURLY TRAFFIC VARIATIONS AT SELECTED LOCATIONS

HOUR BEGINNING	WEST GEORGIA ROAD WEST OF STANDING SPRINGS				ASHMORE BRIDGE ROAD EAST OF U.S. 25			
	Eastbound		Westbound		Eastbound		Westbound	
	Traffic	Percent	Traffic	Percent	Traffic	Percent	Traffic	Percent
1:00	25	0.7	78	2.4	33	0.7	49	1.1
2:00	12	0.4	13	0.4	10	0.2	22	0.5
3:00	9	0.3	12	0.4	10	0.2	16	0.4
4:00	18	0.5	8	0.2	13	0.3	19	0.4
5:00	12	0.4	18	0.5	39	0.9	11	0.2
6:00	95	2.7	18	0.5	100	2.2	32	0.7
7:00	303	8.6	68	2.0	490	11.0	117	2.6
8:00	546	15.6	210	6.3	839	18.9	307	6.8
9:00	252	7.2	155	4.7	226	5.1	151	3.3
10:00	145	4.1	104	3.1	169	3.8	167	3.7
11:00	141	4.0	93	2.8	145	3.3	140	3.1
12:00	156	4.4	143	4.3	172	3.9	237	5.2
13:00	133	3.8	179	5.4	219	4.9	257	5.7
14:00	165	4.7	149	4.5	223	5.0	193	4.3
15:00	199	5.7	160	4.8	259	5.8	220	4.9
16:00	209	6.0	271	8.2	310	7.0	526	11.6
17:00	200	5.7	373	11.2	191	4.3	655	14.5
18:00	242	6.9	394	11.9	167	3.8	475	10.5
19:00	172	4.9	251	7.6	209	4.7	234	5.2
20:00	145	4.1	194	5.8	137	3.1	194	4.3
21:00	115	3.3	153	4.6	118	2.7	122	2.7
22:00	71	2.0	119	3.6	102	2.3	94	2.1
23:00	53	1.5	83	2.5	114	2.6	81	1.8
24:00	88	2.5	76	2.3	147	3.3	198	4.4
TOTAL	3,506	100	3,322	100	4,442	100	4,517	100

NOTE: All counts on Thursday, April 6, 1995.

Ashmore Bridge Road, east of U.S. 25, also experienced pronounced peaking and a peak period directional split. In the eastbound direction, the morning peak hour occurred during the hour beginning 8:00 a.m., with approximately 18.9 percent of the daily directional traffic. In the westbound direction the peak hour occurred during the beginning 5 p.m., with approximately 14.5 percent of the daily directional traffic.

Travel Time - Distance Studies

A series of travel time - distance studies was conducted within the study area during June 1996 to determine current levels of congestion and average travel speeds. Highway travel speeds were observed and recorded during both peak and off-peak travel periods on all principal arterial and Interstate routes. While recording travel times and distances, an inventory of roadway geometry and traffic control was also recorded.

The process involved driving in the normal traffic stream during each trial run. Travel speeds were structured to keep pace with traffic flow in each lane. Travel time and observed mileage were recorded at critical check points along each route.

A summary of the travel time - distance study results for selected routes is shown in Table 4. Information is presented for peak periods, even though off-peak runs were also conducted. Travel speeds during off-peak periods were generally free-flow on the routes surveyed.

Along S.C. 20, north of Moonville Road to Lynn Road, travel speeds in the northbound direction averaged 40 miles per hour. Along the route, pockets of congestion occurred between I-85 and S.C. 20/25. In the northbound direction, evening peak period traffic was traveling at an average speed of 50 miles per hour. Along I-85, a.m. peak period travel times in the eastbound direction averaged approximately 53 miles per hour.

Peak period travel speeds along I-385, between U.S. 29 and Fairview Road were generally free-flow in the southbound direction during the morning peak period. During the evening peak hour travel speeds averaged 57 miles per hour in the southbound direction between S.C. 153 and U.S. 276 Pockets of congestion occurred at a section between S.C. 153 and the I-185 exit and between S.C. 146 and Woodruff Road.

Table 4

PEAK PERIOD TRAVEL TIME-DISTANCE SURVEY

ROUTE	SEGMENT From	SEGMENT To	MILES	DIRECTION	MINUTES	AVERAGE SPEED
S.C. 20						
PM Peak	Moonville Road	Junction with I-85	6.4	N	9.2	42
	Junction with I-85	S.C. 25	0.6	N	1.3	24
	S.C. 25	I-85	0.5	N	1.0	30
	I-185	Lynn	1.6	N	2.3	38
			9.1		13.8	40
PM Peak	U.S. 25	I-85	0.6	S	0.9	41
	I-85	S.C. 86	6.6	S	7.2	55
	S.C. 86	S.C. 8	4.7	S	6.1	46
			11.9		14.2	50
Interstate 85						
AM Peak	S.C. 8	I-85	2.5	E	2.5	53
	I-85	S.C. 143	4.8	E	4.2	66
	S.C. 143	S.C. 153	1.3	E	1.1	64
	S.C. 153	I-185	1.8	E	1.5	58
	I-185	U.S. 25	1.3	E	1.3	54
	U.S. 25	S.C. 478	5.2	E	5.2	58
	S.C. 478	S.C. 146	2.2	E	2.2	58
	S.C. 146	I-385	0.5	E	0.3	56
	I-385	Pelham Road	3.0	E	2.4	66
	Pelham Road	S.R. 14	2.1	E	7.2	17
			24.7		27.9	53
Interstate 385						
AM Peak	U.S. 29	S.C. 291	2.5	S	2.5	52
	S.C. 291	I-85	4.1	S	3.5	63
	I-85	Woodruff Road	0.8	S	0.4	67
	Woodruff Road	S.C.417	4.5	S	4.1	65
	S.C. 417	Fairview Road	3.9	S	3.4	63
			15.8		13.9	68
PM Peak	S.C. 153	I-185 exit	1.6	S	2.2	43
	I-185 exit	Interchange 25	1.6	S	1.5	55
	Interchange 25	Junction 276	4.9	S	4.8	61
	Junction 276	Junction 146& 385	2.1	S	2.1	58
	Junction 146& 385	Junction with I-385	0.4	S	0.3	48
	Junction with I-385	Woodruff Road	0.7	S	1.0	42
	Woodruff Road	Mauldin Rd. & Butler Rd.	1.4	S	1.3	56
	Mauldin Rd. & Butler Rd.	Bridges Road	1.0	S	1.0	60
	Bridges Road	U.S. 276	2.9	S	3.3	50
			16.6		17.5	57
U.S. 25						
PM Peak	S.C. 253	S.C. 124	0.5	S	0.5	37
	S.C. 124	S.C. 123	0.9	S	2.0	26
	S.C. 123	S.C.81	0.9	S	2.3	21
	S.C. 81	I-185/29 South	1.9	S	2.5	42
	I-185/29 South	I-85	1.0	S	2.1	28
	I-85	U.S 25 Business	2.4	S	4.5	30
	U.S 25 Business	S.C. 86	5.3	S	6.4	47
			12.9		20.3	38

Evening peak travel speeds along U.S. 25, between S.C. 253 and S.C. 86, averaged approximately 38 miles per hour. Areas of congestion occurred between S.C. 24 and S.C. 81, as well as between I-185/29 and U.S. 25 Business.

Travel Patterns and Characteristics

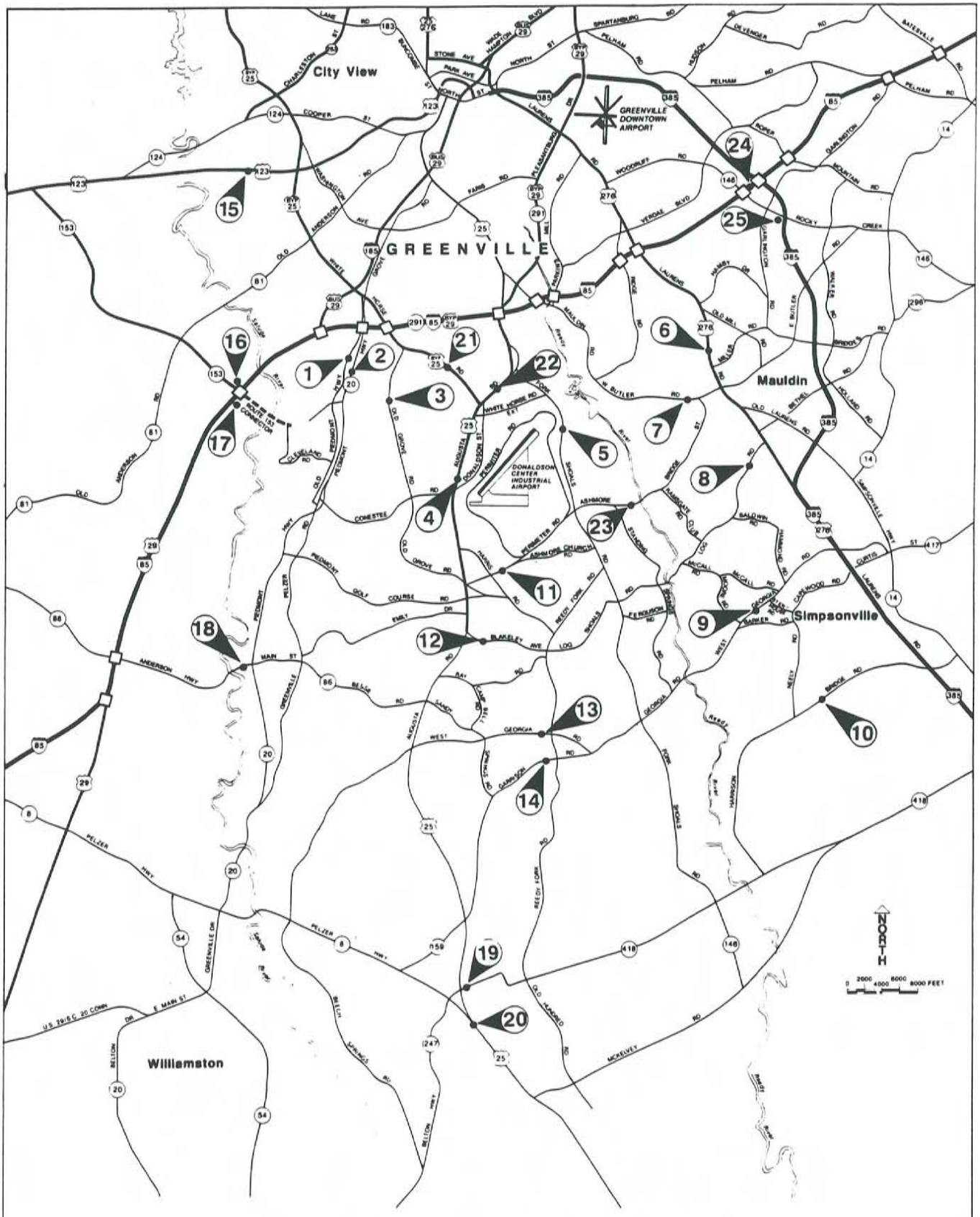
WSA conducted two motorist travel pattern and characteristics surveys during April 1995 and June 1996 as part of the study efforts. The primary objective of the survey was to obtain a "real world" measure of travel patterns and characteristics of motorists who would be potential users of the proposed Connector. The results of that survey, including information on survey operations, sample size, and travel characteristics, are summarized in this chapter. These surveys were augmented by an employer survey (conducted during 1996) which questioned employers on employment trends and trucking activity.

After extensive planning and preparation, the first motorist survey took place during the period April 4 through April 10, 1995. The second survey took place during the period June 6 through June 12, 1996. Two survey methods were used in conducting the motorist survey, including a mailback and a direct roadside survey, depending on the anticipated volume of passing traffic. For the most part, a mailback questionnaire approach was used.

As completed forms were returned, they were checked for completeness and coded into a geographic zone system. Information on travel patterns and characteristics for each survey response was then entered into computer files and tabulated by hour and survey station.

Concurrent with the survey process, a program of manual and machine counts was undertaken. These counts were then used to factor or expand survey information needed for the study. A process was then undertaken to remove duplicate trips, i.e., those origin-destination movements which would be expected to pass through more than one of the survey stations.

Survey Station Operations - A total of 25 survey stations were operated. Fourteen locations were surveyed during the 1995 survey and 11 locations were surveyed during the 1996 survey. All stations were operated over a 12-hour period, from 7 a.m. to 7 p.m. Figure 2 shows the



SURVEY STATION LOCATIONS
GREENVILLE SOUTHERN CONNECTOR

WILBUR SMITH ASSOCIATES

FIGURE 2

Table 5

MOTORIST SURVEY DISTRIBUTION AND SAMPLE SIZE

Greenville Southern Connector

STATION NUMBER	ROUTE	LOCATION	SURVEY DIRECTION	SURVEY TYPE	DATE OF SURVEY		PASSING TRAFFIC	CODED SURVEYS	SAMPLE SIZE
1	Old Piedmont Highway	North of Oakvale Road	Both	Direct Roadside	Tuesday	4/ 4/ 95	1,007	206	20.5
2	S.C. 20	North of Brown Road	Southbound	Mailback	Tuesday	4/ 4/ 95	4,092	704	17.2
3	Old Grove Road	North of Rockvale Drive	Southbound	Direct Roadside	Tuesday	4/ 4/ 95	1,342	400	29.8
4	U.S. 25	North of Bracken Road	Southbound	Mailback	Thursday	4/ 6/ 95	7,771	1,273	16.4
5	Fork Shoals Road	North of Main Street	Southbound	Mailback	Thursday	4/ 6/ 95	1,634	257	15.7
6	U.S. 276	South of Knollwood Drive	Southbound	Mailback	Thursday	4/ 6/ 95	9,201	1,392	15.1
7	West Butler Avenue	West of Ashmore Bridge Road	Southbound	Mailback	Wednesday	4/ 5/ 95	9,441	1,474	15.6
8	Log Shoals Road	West of Neely Ferry Road	Eastbound	Mailback	Wednesday	4/ 5/ 95	1,710	207	12.1
9	West Georgia Road	West of Standing Springs Road	Eastbound	Mailback	Wednesday	4/ 5/ 95	2,390	533	22.3
10	Harrison Bridge Road	West of Fairview Drive	Eastbound	Mailback	Friday	4/ 7/ 95	1,573	283	18.0
11	Ashmore Bridge Road	East of U.S. 25	Eastbound	Mailback	Friday	4/ 7/ 95	2,734	345	12.6
12	Blakely Avenue	West of Carr Road	Both	Direct Roadside	Friday	4/ 7/ 95	1,604	178	11.1
13	S.C. 541 (Georgia Road)	West of Reedy Fork Road	Eastbound	Direct Roadside	Monday	4/ 10/ 95	692	286	41.3
14	S.C. 272 (Garrison Road)	West of Reedy Fork Road	Both	Direct Roadside	Monday	4/ 10/ 95	897	132	14.7
15	U.S. 123	West of U.S. 25	Westbound	Mailback	Monday	6/ 10/ 96	8,557	1,393	16.3

(continued)

Table 5 (cont'd)

MOTORIST SURVEY DISTRIBUTION AND SAMPLE SIZE

Greenville Southern Connector

STATION NUMBER	ROUTE	LOCATION	SURVEY DIRECTION	SURVEY TYPE	DATE OF SURVEY		PASSING TRAFFIC	CODED SURVEYS	SAMPLE SIZE
16	Interstate 85	Southbound Off-Ramp at S.C. 153	Southbound	Mailback	Thursday	6/ 6/ 96	5,970	576	9.6
					Sunday	6/ 9/ 96	3,980	719	18.1
17	Interstate 85	Northbound Off-Ramp at S.C. 153	Northbound	Mailback	Monday	6/ 10/ 96	1,273	216	17.0
18	S.C. 86 (Anderson Hwy.)	West of S.C. 20	Eastbound	Mailback/ Direct Roadside	Monday	6/ 10/ 96	2,394	377	15.7
19	S.C. 418	East of U.S. 25	Eastbound	Mailback/ Direct Roadside	Tuesday	6/ 11/ 96	1,522	285	18.7
20	U.S. 25	South of S.C. 418	Southbound	Mailback	Tuesday	6/ 11/ 96	2,686	394	14.7
21	U.S. 25 (White Horse Rd.)	South of Whitmire Drive	Southbound	Mailback	Thursday	6/ 6/ 96	6,829	579	8.5
					Sunday	6/ 9/ 96	4,718	289	6.1
22	Business U.S. 25 (Augusta Rd.)	South of West Fairfield Road	Southbound	Mailback	Thursday	6/ 6/ 96	9,277	1,146	12.4
					Sunday	6/ 9/ 96	4,531	421	9.3
23	Ashmore Bridge Rd.	East of Standing Springs Road	Eastbound	Mailback/ Direct Roadside	Tuesday	6/ 11/ 96	2,201	459	20.9
24	Interstate 85	Eastbound Off-Ramp to Interstate 385 Southbound	Eastbound	Mailback	Wednesday	6/ 12/ 96	1,618	240	14.8
					Saturday	6/ 8/ 96	1,175	153	13.0
25	Interstate 385	Southbound On-Ramp from Woodruff Road	Southbound	Mailback	Wednesday	6/ 12/ 96	2,779	474	17.1
					Saturday	6/ 8/ 96	2,044	322	15.8
					TOTAL		107,642	15,713	14.6

survey station locations and Table 5 summarizes the survey station locations, direction of travel surveyed, survey type, date of survey, and sample size. Survey station locations were selected based on the relationship of existing highway network to the proposed Southern Connector. Specifically, survey stations were strategically located in order to intercept and interview motorists who would be potential users of the Connector.

All survey stations were operated on weekdays during the 1995 survey and on both weekdays and weekend days during the 1996 survey. Under the mailback survey approach, motorists were given a survey form as they passed through the survey station. They were requested to complete the form and return it, postage paid, as soon as possible. This approach was designed to minimize the impact on traffic operations during the conduct of the survey.

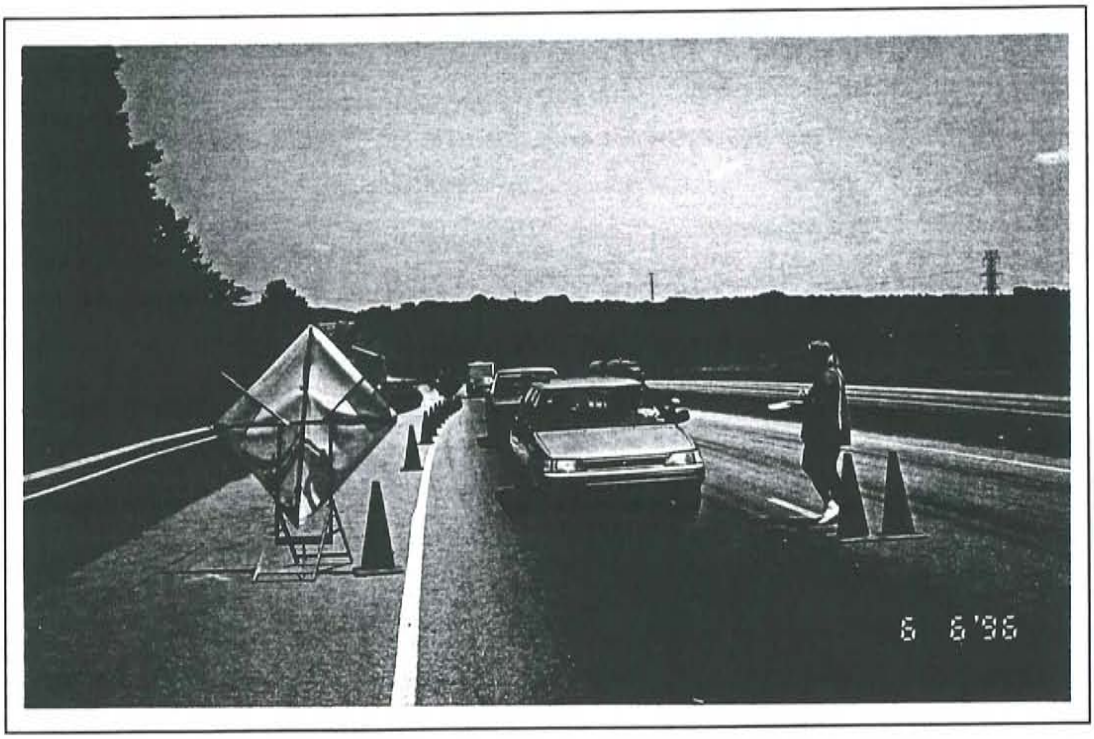
At the relatively low traffic volume survey stations, a direct roadside interview approach was used in order to assure an adequate survey sample size. Under this approach motorists were stopped and interrogated as they passed through the survey station with the survey form being completed by the survey crew members as shown in Figure 3.

The questionnaire used for the survey is shown in Figure 4. The same questionnaire was used for the mailback and direct roadside surveys, as well as weekday and weekend surveys. Weekend survey questionnaires were color coded in order to facilitate collation. As shown, motorists were requested to provide information on trip origin and destination, trip purpose and frequency, vehicle occupancy, vehicle type, and state of vehicle registration.

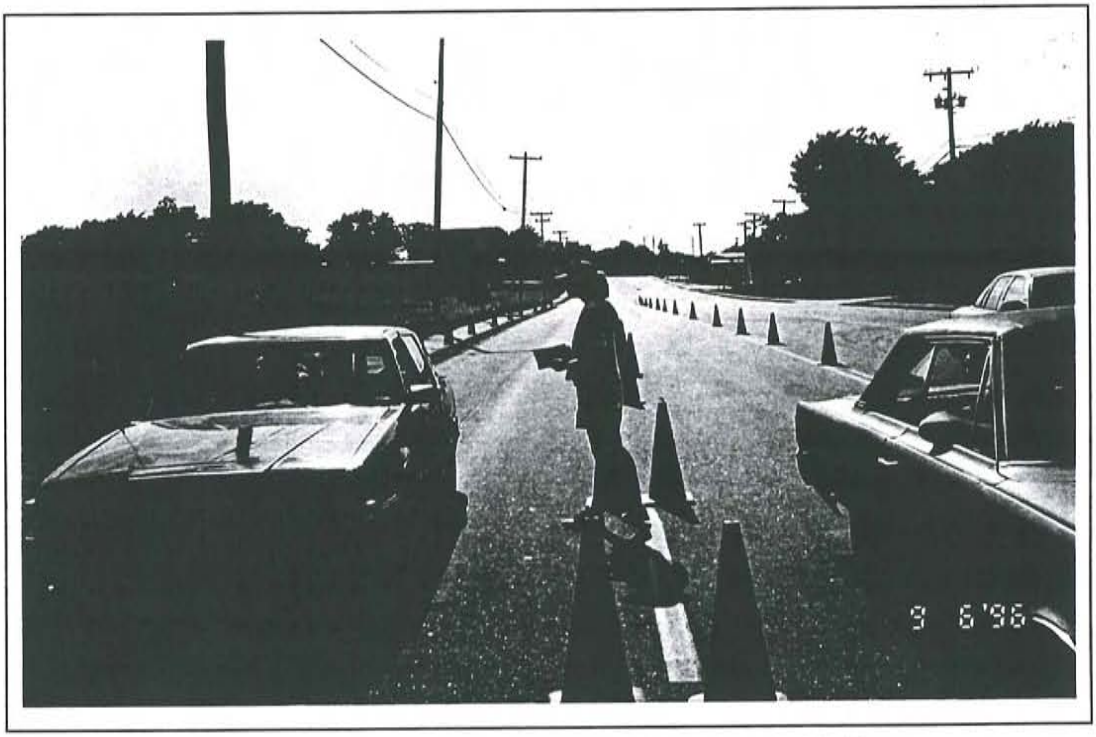
Survey Sample Size

A summary of motorist survey distribution results was presented previously in Table 5. A total of 107,642 motorists passed through the survey stations during the hours of survey operations. Of these, 15,713 motorists returned usable surveys, representing a survey sample size of 14.6 percent.

Vehicle Classification Counts - Vehicle classification counts were undertaken in conjunction with the travel pattern characteristics survey. The traffic counts were recorded by automatic traffic recorders (ATR) capable of differentiating the number of vehicle axles. The purpose of the vehicle classification counts was to provide a basis for expanding the travel pattern and characteristic survey data.

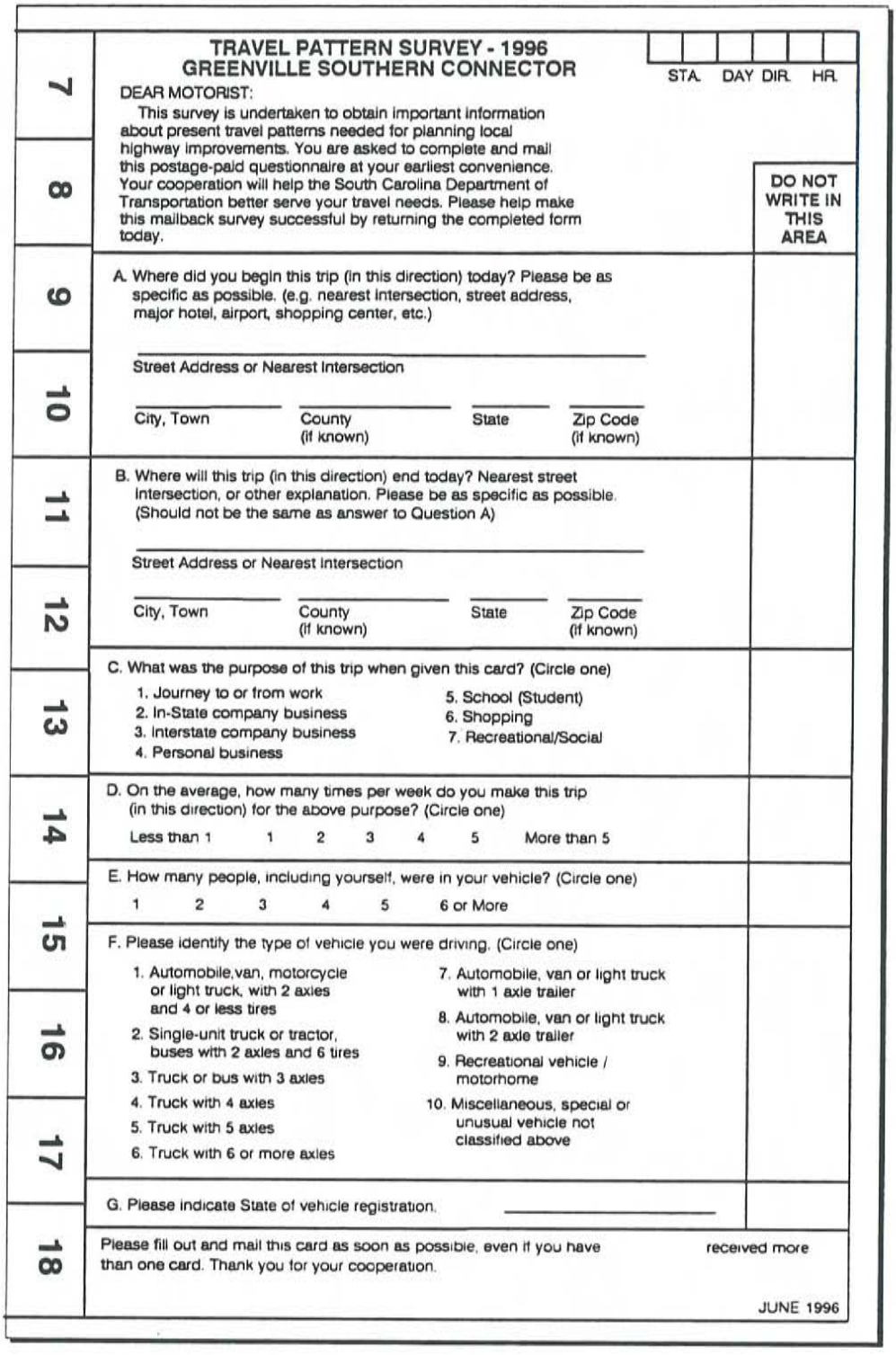


I-85 - SOUTHBOUND OFF-RAMP AT S.C. 153



U.S. 25 - SOUTH OF WHITMIRE DRIVE

MOTORIST SURVEY



TRAVEL PATTERN SURVEY - 1996
GREENVILLE SOUTHERN CONNECTOR

STA. DAY DIR. HR.

DEAR MOTORIST:

This survey is undertaken to obtain important information about present travel patterns needed for planning local highway improvements. You are asked to complete and mail this postage-paid questionnaire at your earliest convenience. Your cooperation will help the South Carolina Department of Transportation better serve your travel needs. Please help make this mailback survey successful by returning the completed form today.

DO NOT WRITE IN THIS AREA

A. Where did you begin this trip (in this direction) today? Please be as specific as possible. (e.g. nearest intersection, street address, major hotel, airport, shopping center, etc.)

Street Address or Nearest Intersection

City, Town | County (if known) | State | Zip Code (if known)

B. Where will this trip (in this direction) end today? Nearest street intersection, or other explanation. Please be as specific as possible. (Should not be the same as answer to Question A)

Street Address or Nearest Intersection

City, Town | County (if known) | State | Zip Code (if known)

C. What was the purpose of this trip when given this card? (Circle one)

1. Journey to or from work
2. In-State company business
3. Interstate company business
4. Personal business
5. School (Student)
6. Shopping
7. Recreational/Social

D. On the average, how many times per week do you make this trip (in this direction) for the above purpose? (Circle one)

Less than 1 1 2 3 4 5 More than 5

E. How many people, including yourself, were in your vehicle? (Circle one)

1 2 3 4 5 6 or More

F. Please identify the type of vehicle you were driving. (Circle one)

1. Automobile,van, motorcycle or light truck, with 2 axles and 4 or less tires
2. Single-unit truck or tractor, buses with 2 axles and 6 tires
3. Truck or bus with 3 axles
4. Truck with 4 axles
5. Truck with 5 axles
6. Truck with 6 or more axles
7. Automobile, van or light truck with 1 axle trailer
8. Automobile, van or light truck with 2 axle trailer
9. Recreational vehicle / motorhome
10. Miscellaneous, special or unusual vehicle not classified above

G. Please indicate State of vehicle registration. _____

Please fill out and mail this card as soon as possible, even if you have received more than one card. Thank you for your cooperation.

JUNE 1996

SURVEY FORM

PROPOSED GREENVILLE SOUTHERN CONNECTOR

WILBUR SMITH ASSOCIATES

FIGURE 4

The ATR counts were recorded at each survey station for a full seven-day period. Table 6 summarizes the count data for each survey station on the day of the survey. In total, there were over 224,000 vehicles passing through the 25 survey stations on the day of the survey. The distribution of traffic by vehicle class is as follows:

- Passenger cars - 87.8 percent;
- Two-axle truck or bus - 8.5 percent;
- Three-axle vehicle - 0.8 percent;
- Four-axle vehicle - 1.4 percent;
- Five-axle vehicle - 1.4 percent; and
- Six-or more-axle vehicle - 0.1 percent.

It should be noted that existing interstate routes in the Greenville area carry a considerably higher percentage of trucks than shown above. This reflects longer-distance truck movements served by the interstate system.

Data Reduction

Origin and destination data on each survey form were coded to a geographic zone system As a starting point, the zone system developed by the Greenville County Planning Commission (GCPC) for their regional traffic model was used in defining a zone system for this study. The GCPC zone system, was further disaggregated, particularly in the area of the Donaldson Center. Also, the zone system was expanded beyond the GCPC study area into Anderson County and into rural southern Greenville County.

Trip characteristic information was also coded. Coded survey forms were then entered into computer files, with each survey form being entered as an individual record. Upon completion of the data reduction process, survey data was factored in order to develop survey trip tables and travel characteristics.

Trip Characteristic Information

Trip characteristic information was obtained regarding trip purpose, trip frequency, vehicle occupancy, vehicle type, and state of vehicle registration. Survey results in each of these categories are presented in the several tables that follow.

Table 6

VEHICLE CLASSIFICATION COUNTS

Greenville Survey Stations

STATION(1)	DAY	DATE	VEHICLE CLASS						TOTAL
			Passenger Cars	Two-Axle Truck or Bus	Three-Axle Truck or Bus	Four-Axle Truck or Bus	Five-Axle Truck or Bus	Six-or-More-Axle Truck or Bus	
1	Tuesday	4-4-95	1,146	120	108	12	87	0	1,473
2	Tuesday	4-4-95	10,324	402	344	149	229	11	11,459
3	Tuesday	4-4-95	3,221	136	10	3	3	0	3,373
4	Thursday	4-6-95	17,778	655	195	98	801	20	19,547
5	Thursday	4-6-95	3,975	104	22	4	58	0	4,163
6	Thursday	4-6-95	23,501	573	249	100	473	25	24,921
7	Wednesday	4-5-95	26,934	948	229	143	430	0	28,684
8	Wednesday	4-5-95	1,843	45	2	2	2	0	1,894
9	Wednesday	4-5-95	5,858	155	62	37	68	0	6,180
10	Friday	4-7-95	3,806	166	40	12	16	0	4,040
11	Friday	4-7-95	6,640	158	86	43	237	7	7,171
12	Friday	4-7-95	2,089	37	4	6	13	0	2,149
13	Monday	4-10-95	1,487	62	17	3	13	2	1,584
14	Monday	4-10-95	951	17	0	0	4	0	972
15	Tuesday	6-11-96	19,590	2,943	6	225	12	0	22,776
16	Thursday	6-6-96	7,092	1,026	112	105	97	75	8,507
17	Monday	6-10-96	1,288	312	5	69	21	3	1,698
18	Monday	6-10-96	5,203	977	41	93	56	16	6,386
19	Tuesday	6-11-96	3,295	741	27	146	160	14	4,383
20	Tuesday	6-11-96	5,533	1,311	42	295	119	14	7,314
21	Tuesday	6-18-96	15,087	3,342	81	633	84	12	19,239
22	Wednesday	6-12-96	21,263	3,155	6	670	16	1	25,111
23	Wednesday	6-12-96	4,807	790	11	47	1	3	5,659
24	Wednesday	6-12-96	1,338	268	23	207	196	5	2,037
25	Wednesday	6-12-96	3,033	529	12	29	30	2	3,635
TOTAL			197,082	18,972	1,734	3,131	3,226	210	224,355
PERCENT OF TOTAL			87.8	8.5	0.8	1.4	1.4	0.1	100.0

(1) See Table 5 for survey station locations.

Trip Purpose Distribution - Figure 5 illustrates the distribution of trip purpose for all stations. Table 7 lists trip purpose distribution for each of the 25 survey stations. Travel to and from work accounted for a majority of the survey response. Approximately 43.8 percent of all survey respondents indicated they were traveling to or from work, and an additional 17.2 percent cited company business as their primary purpose of the trip. Approximately 19.9 percent of the respondents indicated that their purpose was personal business. The response for other trip purposes were: 4.2 for school; 6.8 for shopping; and 8.1 percent for recreational trips.

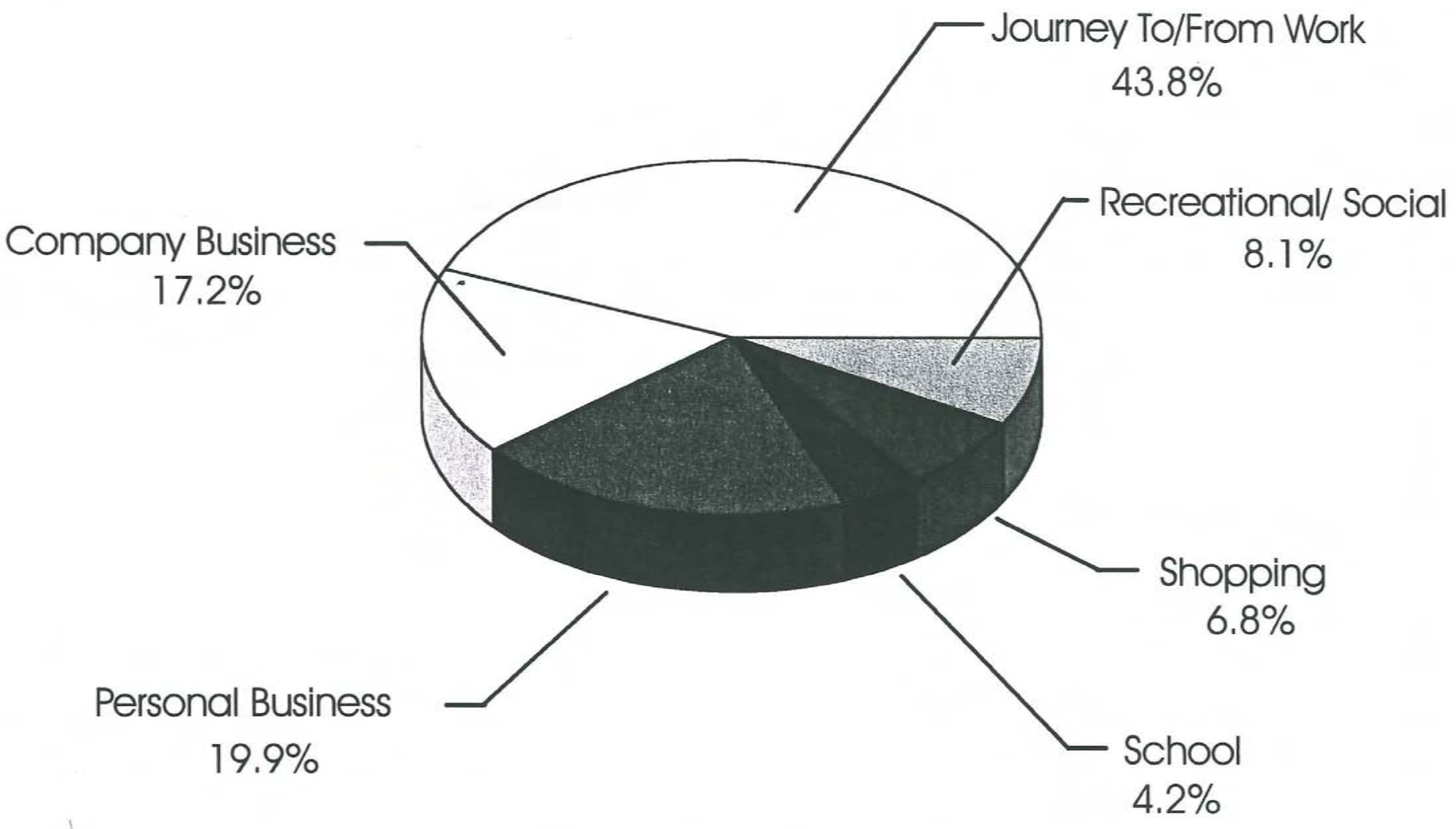
Trip Frequency Distribution - Figure 6 illustrates the trip frequency distribution for all stations. Table 8 shows trip frequency for each survey station. The majority of the trips were made five or more times per week. Over 51.0 percent of all trips were in this category, with approximately 28.2 percent of the trips being five times a week and approximately 22.9 percent of the trips being more than five times per week. Infrequent trips, less than one trip per week, accounted for approximately 19.3 percent of the trips. Occasional frequency categories, one to four trips per week, accounted for the remaining 29.6 percent of the trips.

Trip Frequency by Trip Purpose - Table 9 presents the trip frequency distribution by trip purpose for all survey stations combined. As might be expected, a vast majority of work trips, 85 percent, occur five or more times per week. School tripmakers also indicated a relatively high frequency of travel with 71 percent of the school trip respondents indicating that the trip was made five or more times per week.

Each of the other trip purpose category responses were in the lower trip frequency categories with well over half those respondents indicating trip frequencies of two trips or less per week.

Vehicle Occupancy Distribution - The vehicle occupancy distribution by station is shown in Table 10. Most of the survey respondents to the survey indicated that they were traveling alone. Approximately 72.7 percent of the survey respondents were in driver-only vehicles. An additional 19.0 percent indicated two persons per vehicle. Approximately 8.3 percent of the motorists responding to the survey indicated that they had a vehicle occupancy of three or more persons at the time of the survey as shown in Figure 7.

The overall average vehicle occupancy for all survey stations was calculated at 1.4 persons per vehicle. On an individual station basis, there was only minor variation from the average.



TRIP PURPOSE DISTRIBUTION

WILBUR SMITH ASSOCIATES

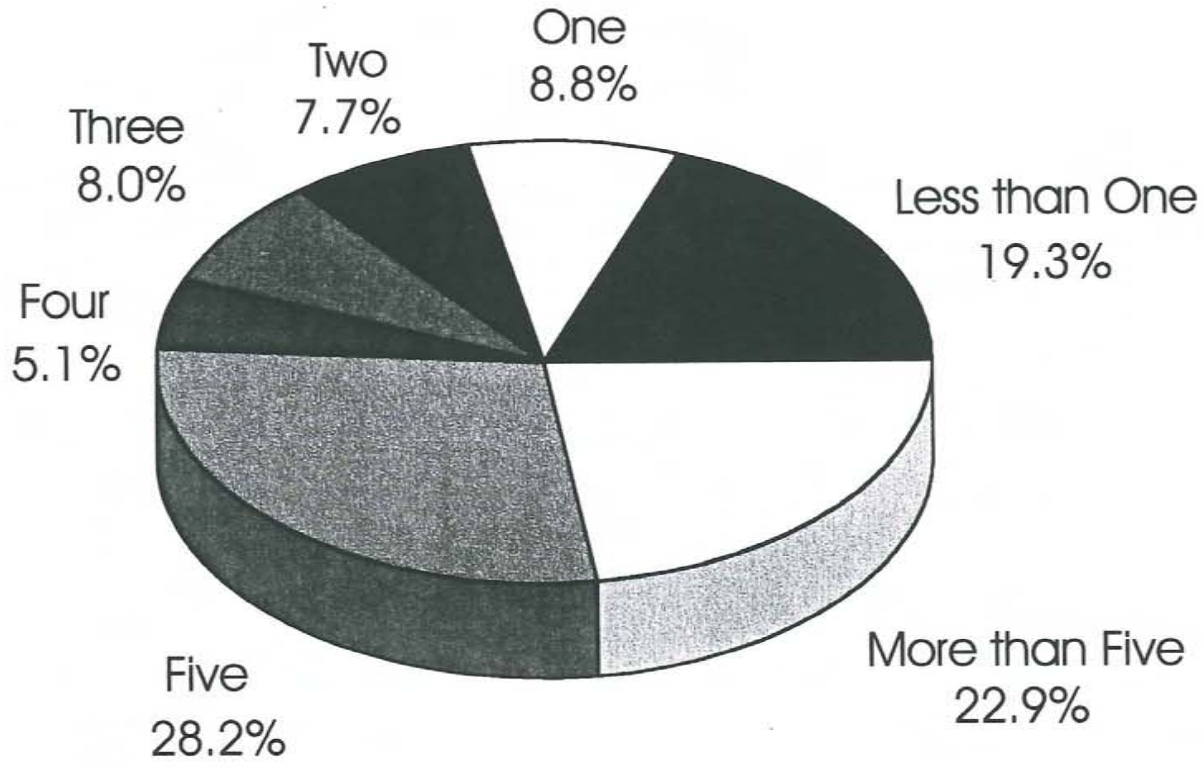
FIGURE 5

Table 7

TRIP PURPOSE DISTRIBUTION
Greenville Survey Stations

STATION(1)	TRIP PURPOSE CATEGORY						
	Journey To/From Work	Company Business	Personal Business	School	Shopping	Recreational/ Social	TOTAL
	(percent)						
1	49.4	17.8	14.1	5.6	4.6	8.5	100.0
2	45.2	19.3	19.8	5.7	5.0	5.0	100.0
3	36.2	10.9	27.3	14.3	4.9	6.4	100.0
4	43.6	23.0	16.5	4.7	4.7	7.5	100.0
5	60.5	12.3	14.8	4.8	1.4	6.2	100.0
6	39.6	16.3	21.4	3.9	13.1	5.7	100.0
7	45.2	17.2	20.9	7.4	4.3	5.0	100.0
8	30.8	4.5	21.6	18.8	17.7	6.6	100.0
9	54.0	12.0	15.3	8.0	6.0	4.7	100.0
10	32.8	9.6	19.2	7.1	23.3	8.0	100.0
11	62.0	16.6	8.9	1.7	4.8	6.0	100.0
12	54.2	6.7	22.8	2.2	9.0	5.1	100.0
13	46.8	6.9	24.5	13.6	2.4	5.8	100.0
14	63.5	7.0	18.2	1.0	5.7	4.6	100.0
15	49.3	12.4	24.7	4.3	4.7	4.6	100.0
16	38.1	17.4	21.6	2.7	6.7	13.5	100.0
17	34.8	26.6	24.5	1.0	1.9	11.2	100.0
18	51.7	10.8	23.4	0.7	6.8	6.6	100.0
19	35.2	29.5	13.5	3.3	3.4	15.1	100.0
20	30.3	30.8	21.9	3.8	4.3	8.9	100.0
21	41.2	17.0	23.5	1.3	2.3	14.7	100.0
22	44.8	17.0	18.2	2.4	7.2	10.4	100.0
23	52.5	13.2	16.5	0.9	8.5	8.4	100.0
24	21.6	38.5	11.5	1.1	5.6	21.7	100.0
25	41.4	12.7	18.0	0.9	19.1	7.9	100.0
TOTAL	43.8	17.2	19.9	4.2	6.8	8.1	100.0

(1) See Table 5 for survey station locations.



TRIP FREQUENCY DISTRIBUTION

WILBUR SMITH ASSOCIATES

FIGURE 6

Table 8

TRIP FREQUENCY DISTRIBUTION
Greenville Survey Stations

STATION(1)	TRIPS PER WEEK							
	Less than One	One	Two	Three	Four	Five	More than Five	TOTAL
	(percent)							
1	9.7	8.3	5.9	5.9	2.9	21.0	46.3	100.0
2	11.1	7.4	5.6	7.7	7.7	30.3	30.2	100.0
3	12.1	9.6	8.1	5.2	3.8	20.4	40.8	100.0
4	19.7	9.5	7.4	7.9	3.7	27.8	24.0	100.0
5	9.8	7.0	4.1	8.5	8.3	37.7	24.6	100.0
6	15.8	11.0	9.6	9.4	5.1	24.1	25.0	100.0
7	13.9	9.2	8.9	8.8	5.5	27.8	25.9	100.0
8	6.4	9.3	6.6	12.0	5.0	27.6	33.1	100.0
9	7.7	8.0	7.5	6.6	3.6	36.6	30.0	100.0
10	8.9	7.1	11.3	11.5	8.3	23.8	29.1	100.0
11	5.1	9.7	7.3	5.5	2.4	38.9	31.1	100.0
12	12.3	5.9	5.8	9.4	11.6	29.4	25.6	100.0
13	22.8	6.6	4.2	6.6	1.3	46.0	12.5	100.0
14	11.5	4.5	7.9	8.3	4.9	41.3	21.6	100.0
15	22.6	7.3	5.6	7.5	4.7	36.1	16.2	100.0
16	30.0	8.2	8.4	8.0	5.1	25.5	14.8	100.0
17	33.0	8.3	8.0	9.8	7.7	20.3	12.9	100.0
18	10.3	5.8	8.6	8.0	5.7	31.4	30.2	100.0
19	31.5	11.2	9.4	5.5	4.9	27.3	10.2	100.0
20	41.5	10.0	6.2	5.5	4.7	21.3	10.8	100.0
21	22.7	9.4	7.0	8.4	5.1	24.5	22.9	100.0
22	23.3	9.1	7.4	7.1	4.8	27.1	21.2	100.0
23	11.8	5.8	5.6	8.8	4.9	36.8	26.3	100.0
24	49.4	8.1	6.0	8.5	4.1	16.5	7.4	100.0
25	19.2	9.9	11.6	9.6	5.6	22.2	21.9	100.0
TOTAL	19.3	8.8	7.7	8.0	5.1	28.2	22.9	100.0

(1) See Table 5 for survey station locations.

Table 9

TRIP FREQUENCY DISTRIBUTION BY TRIP PURPOSE

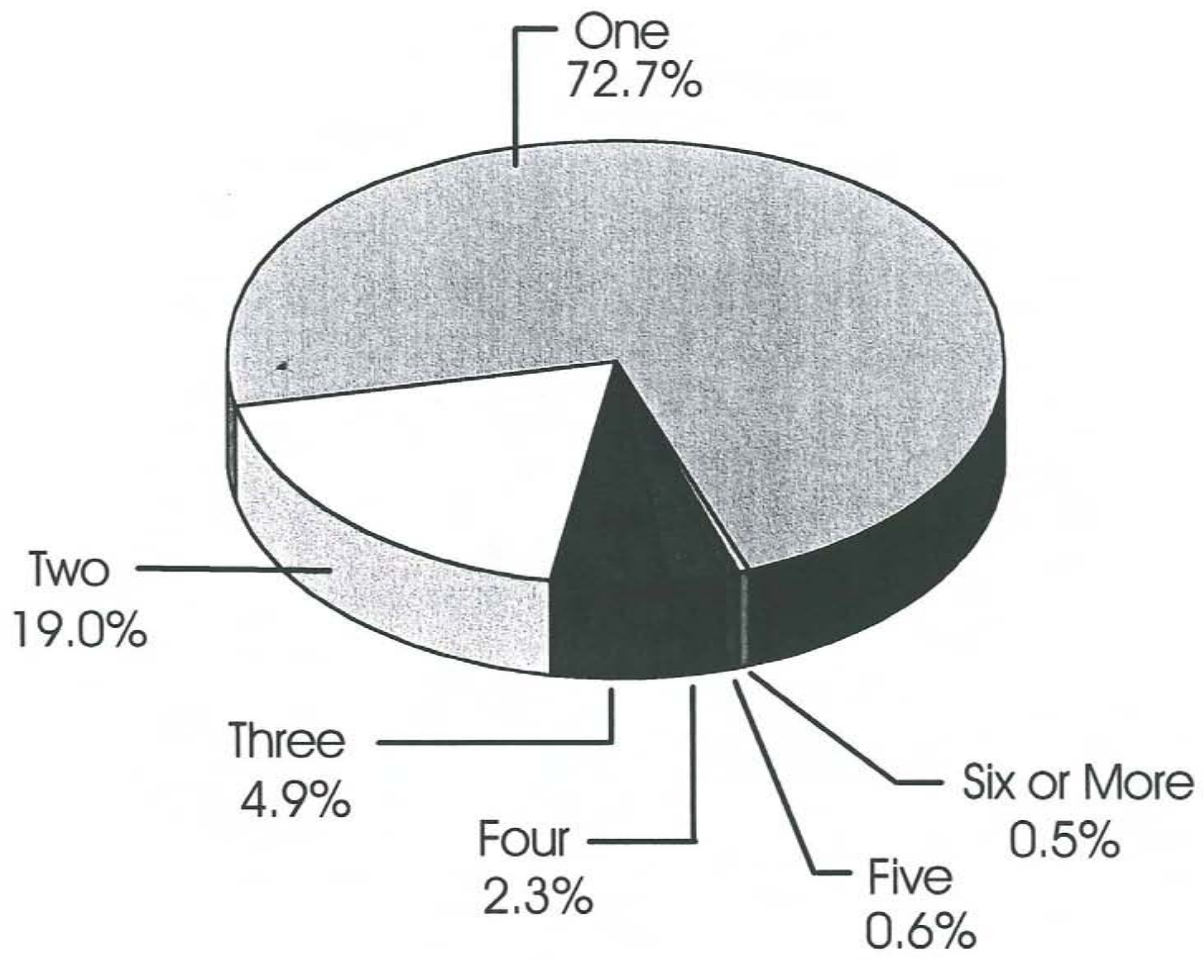
TRIP PURPOSE	TRIPS PER WEEK							
	Less than One	One	Two	Three	Four	Five	More than Five	TOTAL
	(----------percent of total----------)							
To/From Work	2.4	1.9	2.7	3.6	4.4	52.0	33.0	100.0
In-State Company Business	31.3	14.4	12.9	11.4	4.1	9.4	16.5	100.0
Interstate Company Business	43.6	12.0	8.5	11.3	3.4	5.0	16.2	100.0
Personal Business	35.4	15.2	10.8	11.5	6.7	6.8	13.6	100.0
School	5.0	3.1	5.8	8.6	6.6	41.5	29.4	100.0
Shopping	23.9	16.2	15.2	16.2	8.3	5.5	14.7	100.0
Recreational/Social	44.4	16.2	12.5	9.6	4.2	4.8	8.3	100.0
TOTAL	19.3	8.8	7.7	8.0	5.1	28.2	22.9	100.0

Table 10

VEHICLE OCCUPANCY DISTRIBUTION
Greenville Survey Stations

STATION(1)	VEHICLE OCCUPANCY							AVERAGE VEHICLE OCCUPANCY
	One	Two	Three	Four	Five	Six or More	TOTAL	
	(percent)							
1	73.4	18.3	3.8	1.3	1.6	1.6	100.0	1.4
2	71.7	17.7	7.5	1.9	0.8	0.4	100.0	1.4
3	68.3	22.5	7.5	0.8	0.7	0.2	100.0	1.4
4	74.1	17.1	5.6	1.7	0.6	0.9	100.0	1.4
5	78.4	16.0	3.5	1.2	0.5	0.4	100.0	1.3
6	74.3	19.4	3.9	1.7	0.4	0.3	100.0	1.4
7	77.3	17.1	3.5	1.0	0.3	0.8	100.0	1.3
8	53.1	32.2	11.6	3.1	0.0	0.0	100.0	1.6
9	71.8	19.5	6.0	1.9	0.3	0.5	100.0	1.4
10	58.1	24.5	9.7	6.3	0.8	0.6	100.0	1.7
11	79.1	15.1	3.7	1.3	0.0	0.8	100.0	1.3
12	69.9	19.4	7.4	2.9	0.0	0.4	100.0	1.4
13	70.9	19.2	5.1	1.7	1.3	1.8	100.0	1.5
14	67.9	20.6	6.7	2.9	0.0	1.9	100.0	1.5
15	77.9	16.3	3.1	1.6	0.6	0.5	100.0	1.3
16	67.9	20.8	6.0	4.5	0.6	0.2	100.0	1.5
17	69.8	22.3	6.5	1.3	0.0	0.1	100.0	1.4
18	79.6	13.4	3.6	1.7	0.5	1.2	100.0	1.3
19	70.7	17.5	5.0	5.7	0.4	0.7	100.0	1.5
20	65.8	26.0	3.2	3.7	0.5	0.8	100.0	1.5
21	67.5	22.1	6.0	2.8	1.0	0.6	100.0	1.5
22	70.4	20.1	5.6	2.5	1.2	0.2	100.0	1.4
23	76.8	18.5	2.6	1.9	0.1	0.1	100.0	1.3
24	68.2	21.0	4.0	4.6	1.2	1.0	100.0	1.5
25	70.7	20.4	5.1	3.4	0.3	0.1	100.0	1.4
TOTAL	72.7	19.0	4.9	2.3	0.6	0.5	100.0	1.4

(1) See Table 6 for survey station locations.



VEHICLE OCCUPANCY DISRTIBUTION

WILBUR SMITH ASSOCIATES

FIGURE 7

State of Registration - Table 11 summarizes the distribution of vehicle state of registration. As expected, South Carolina registrations dominate the distribution with approximately 95.7 percent of the motorist's vehicles surveyed. The only states with one percent or greater of the vehicles surveyed were vehicles registered in North Carolina (1.4 percent) and Georgia (1.0 percent).

Employer Survey

A survey of major employers within Southern Greenville County was conducted during 1996. Depending on the availability of relevant employer personnel, the surveys were conducted in person or by phone and fax. The form used for the survey (shown in Appendix B) was comprised of a three page questionnaire and a Southern Connector location map.

In summary, the questionnaire requested introductory information such as date of survey, company name, address, and business type. This was followed by 10 questions which requested information on current and projected number of employees, truck ownership and trucking activity, willingness to pay truck tolls, and the preference of electronic or cash tolls.

In total, 72 major employers were interviewed. A sample of these included: KEMET in Greenville with 3,415 employees; KEMET in Fountain Valley with 1,052 employees; Walmart Distribution Center with 1,500 employees; Cryovac with 1,600 employees; BI-LO with 1,575 employees; Lockheed Aeromod Center with 1,000 employees; Michelin North America with 1,000 employees; and Magna with 340 employees. Overall, the 72 employers interviewed currently employ over 20,000 persons in the region.

The survey questions regarding trucking activity at each employer's site were reviewed individually and used as input to the potential adjustment of the traffic model assignments. These questions included approximate distribution of truck activity during a typical day; truck trips to and from the site by truck type; percent of company owned trucks; and general geographic distribution of truck trips to and from the site.

Of those employers that responded to the question on the likelihood of authorizing truck trips to use the Southern Connector, approximately 44 percent of the respondents indicated that they were very or somewhat likely to authorize truck usage of the Connector; approximately 21 percent indicated that they were not sure; and approximately 35 percent indicated that they were somewhat or very unlikely to authorize truck usage of the Connector.

Table 11

VEHICLE STATE OF REGISTRATION BY STATE AND SURVEY STATION
Greenville Southern Connector

	PERCENT OF VEHICLES REGISTERED BY STATE				
STATION	Georgia	North Carolina	South Carolina	All Others	Total
1	2.0	0.0	96.9	1.1	100.0
2	0.0	1.1	96.9	2.0	100.0
3	0.7	0.3	98.8	0.2	100.0
4	1.2	2.6	94.0	2.2	100.0
5	0.2	0.0	99.3	0.5	100.0
6	0.5	0.5	97.6	1.4	100.0
7	0.8	0.3	97.4	1.5	100.0
8	0.3	0.0	99.0	0.7	100.0
9	0.1	2.9	95.1	1.9	100.0
10	0.2	0.7	96.2	2.9	100.0
11	0.0	0.3	99.1	0.6	100.0
12	0.0	0.0	98.1	1.9	100.0
13	0.0	1.4	98.6	0.0	100.0
14	0.0	0.0	100.0	0.0	100.0
15	0.1	0.3	98.2	1.1	100.0
16	1.3	3.7	91.8	3.2	100.0
17	7.7	8.8	80.0	3.5	100.0
18	0.6	0.2	98.9	0.3	100.0
19	3.0	1.2	93.6	2.2	100.0
20	2.3	4.9	89.1	3.7	100.0
21	1.6	1.2	94.3	2.9	100.0
22	1.1	1.3	96.4	1.2	100.0
23	0.0	1.1	97.2	1.7	100.0
24	8.3	6.8	73.1	11.8	100.0
25	0.8	0.7	97.3	1.2	100.0
TOTAL (1)	1.0	1.4	95.7	1.9	100.0

(1)States and areas outside of the United States with less than one tenth percent fraction of total surveys included in "All Others" column.

Responses to the question on toll payment by electronic or cash toll collection indicated that 64 percent would have a preference for electronic payment and 36 percent for cash payment.

Chapter 3

ECONOMIC AND CORRIDOR GROWTH CONSIDERATIONS

Economic and corridor growth considerations are important in the development of traffic and revenue estimates for a new toll facility such as the proposed Southern Connector. The orientation of the project suggests that most of the travel will be relatively short distance made up primarily of trips within Greenville County. To a lesser extent, some longer distance trips can also be expected to use the facility, including trips from nearby Anderson and Spartanburg. As such, the primary economic and corridor growth analysis was focused on Greenville County. A more general assessment of growth patterns and projections was made for neighboring counties.

There are four major regions in Greenville County: the North, Central, Southeastern Residential, and Southwestern Industrial regions. In the south, two different growth patterns are divided by the Reedy River, one to the east and one to the west. The region to the east is characterized as a bedroom community in Greenville County, made up of the communities of Simpsonville, Mauldin and Fountain Inn, where most residential development is concentrated, especially in the area to the west of I-385 and south of the Southern Connector. This region will be a major source of traffic.

To the west of Reedy River the predominant category of development is, and will continue to be, commercial and industrial in nature. Currently this area is anchored by major industrial growth in and around Donaldson Center and commercial development along U.S. 25. This area will be enhanced by the planned Southern Connector and other major road improvements in the area. A major waste water facility is planned on the Saluda River, as is an expansion of the facility on the Lower Reedy River, to serve development in this area. This dual growth and development pattern for the southern half of the County should act to generate increased east-west demand which would be well served by the planned Southern Connector.

Verification of GCPC Forecasts - Summary of Findings

A review of the corridor growth potential was undertaken for the purpose of estimating potential travel demand on the proposed Southern Connector. This review resulted in the estimation of likely annual traffic and revenue growth potential throughout the projection period. The Greenville County Planning Commission (GCPC) planning data was obtained and used for the estimation of

corridor growth. The specific data set used in the review was the GCPC 2015 socioeconomic projections for Greenville County based on the 1995 projection model (GCPC-95).

The following is a summary of key findings regarding GCPC 2015 socioeconomic projections for Greenville County based on the GCPC-95.

- Historical GCPC forecasts have been below actual growth rates due to an unpredictably fast growing economy centered around the I-85 industrial beltway;

- The GCPC's socioeconomic forecasts point to a development pattern for employment and population which indicates a high level of growth in the southern part of the county;

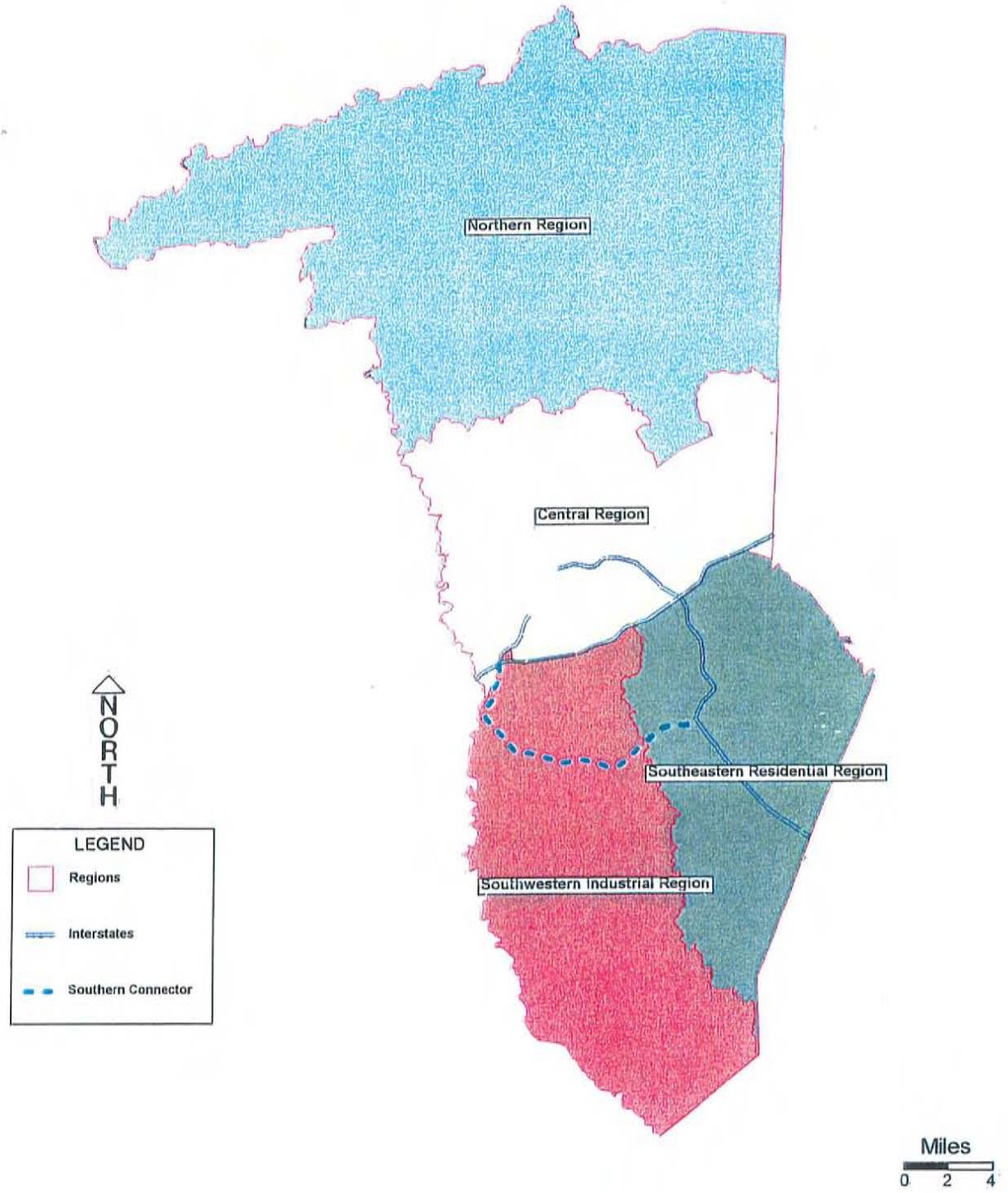
- GCPC socioeconomic forecasts seem to indicate the majority of residential growth will occur in the southeastern quadrant of the county, namely the southeastern "bedroom" region while industrial growth will occur in the southwestern section of the county; and

- It would appear that, based on the historical evidence of conservative forecasting procedures, as well as concurrent development patterns in the socioeconomic forecasts and the consultant's findings, that the 2015 socioeconomic forecasts for Greenville County are reasonable, if not somewhat conservative.

Statistical Areas

This report uses data organized at three different statistical levels. At the most detailed level is the traffic analysis zone (TAZ) which is a geographic area varying in size based on traffic levels, typically bounded by roadways. These TAZs fall within Census tracts, never cutting through Census tracts. TAZs are generally used by Metropolitan Planning Organizations (MPOs) for transportation planning purposes. More detail on these zones is provided in Appendix A. The next level of statistical areas are Census tracts, which include one or more TAZs and which are defined by the Bureau of the Census. The third statistical area is a Region, created specifically for this report, which is an aggregation of the Census tracts.

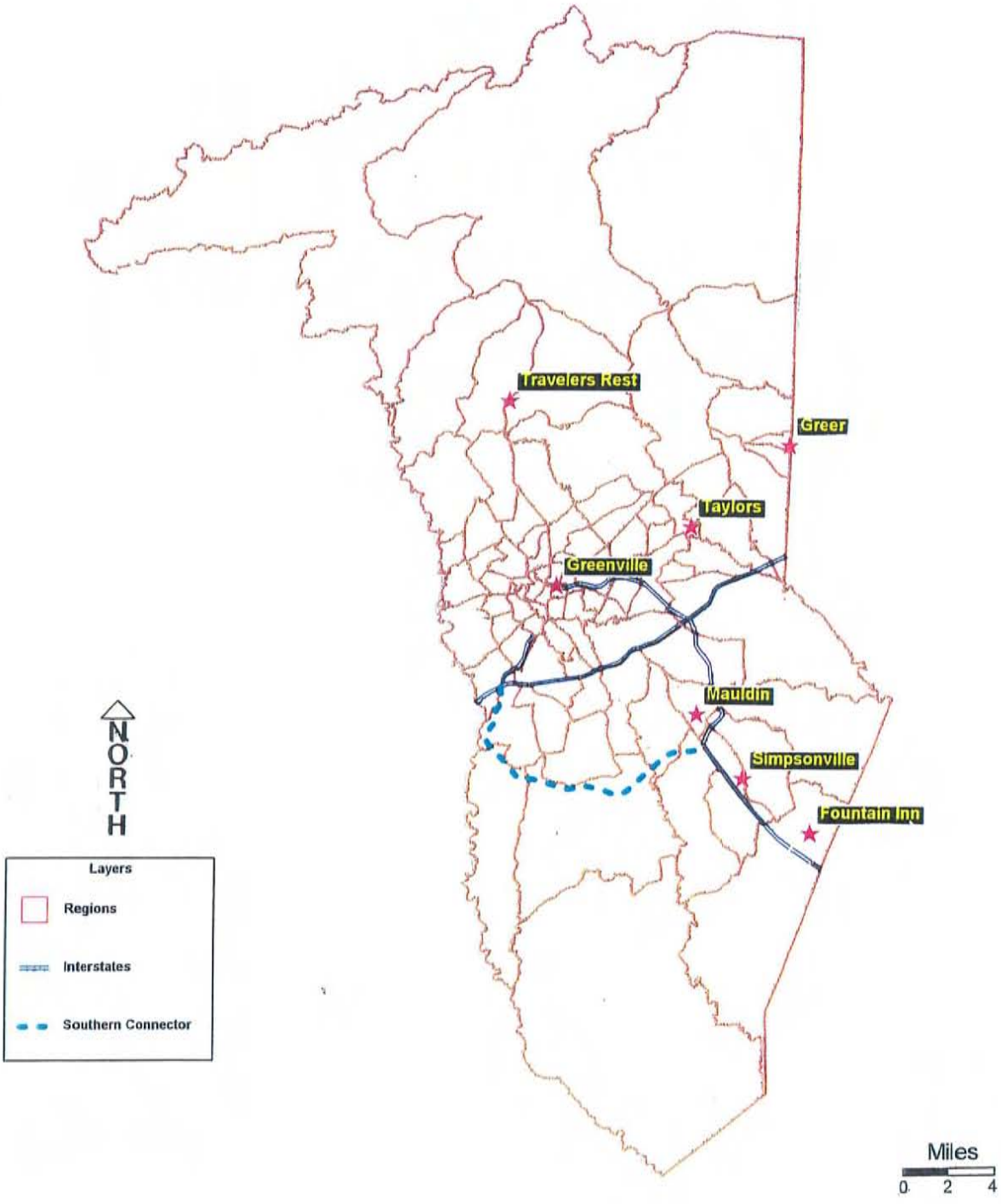
There are 486 TAZs, 85 Census tracts, and 4 Regions in Greenville County. Figures 8 through 10 illustrate the three different statistical areas.



FOUR REGION MAP
Greenville County

WILBUR SMITH ASSOCIATES

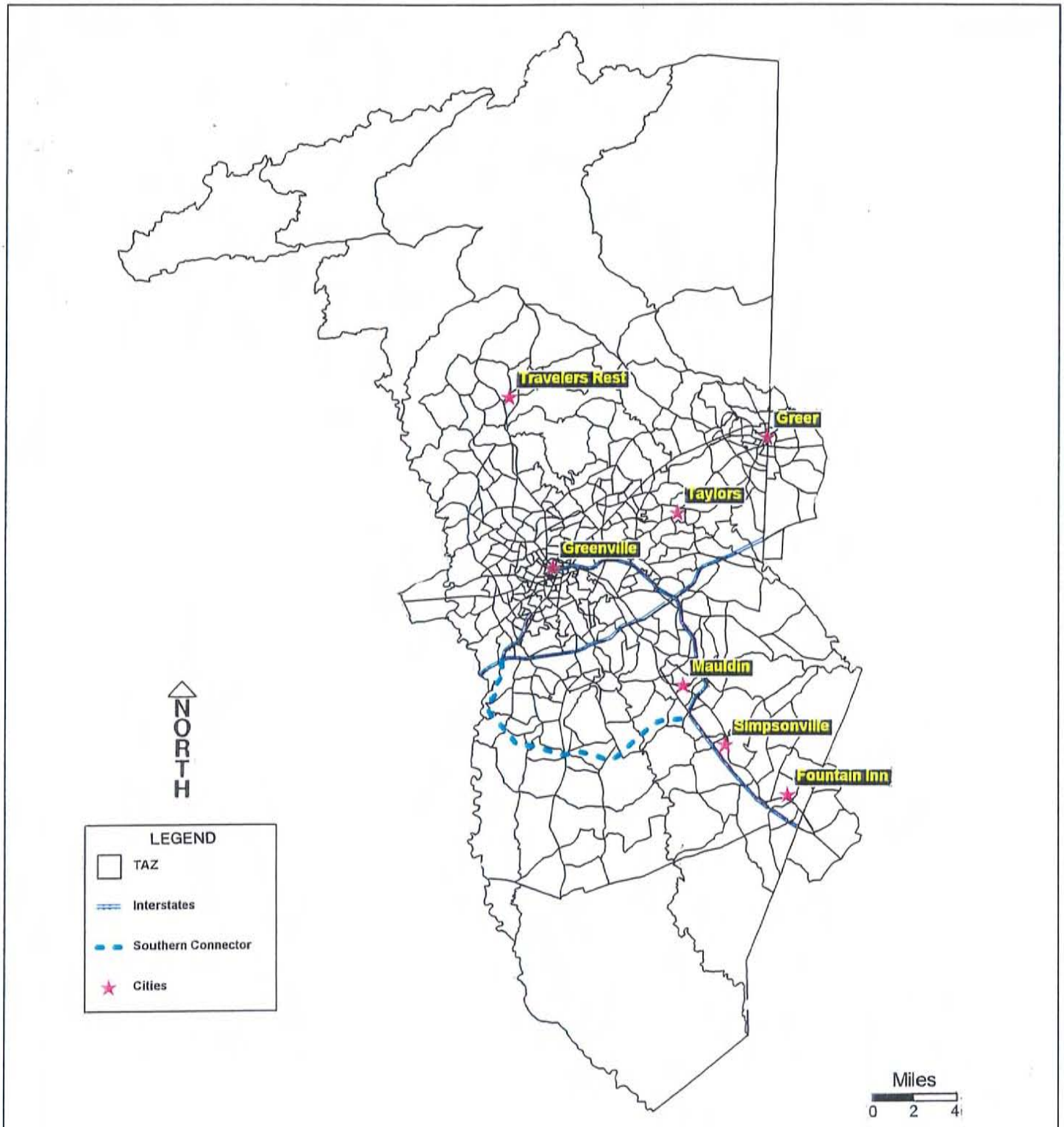
FIGURE 8



CENSUS TRACT MAP
Greenville County

WILBUR SMITH ASSOCIATES

FIGURE 9



TRAFFIC ANALYSIS ZONE MAP

Greenville County

WILBUR SMITH ASSOCIATES

FIGURE 10

Profile of Greenville County, SC - Located in northwestern South Carolina, and forming a segment of a state border with North Carolina, Greenville County is situated primarily in the Piedmont area of the state. The City of Greenville, located near the geographical center of the county, is situated astride the I-85 freeway corridor about 95 miles southwest of Charlotte, North Carolina, and 145 miles northeast of Atlanta, Georgia.

Greenville County, with the largest population among the 46 counties in South Carolina, grew by more than 11 percent during the last decade according to the 1990 Census. The County's 1994 per capita income, of $21,503 was 7 percent higher than the overall state of South Carolina's per capita income. The relatively high level of income, not surprisingly, is reflected in 1994 auto registration statistics showing Greenville County to have almost 276,400 autos, approximately 1.2 persons per auto, a rather high rate of auto accessability compared to national levels.

The county's highway system is dominated by the I-85 corridor, which is presently being upgraded throughout the county. In addition to I-85, the City of Greenville is served by two Interstate routes that together form part of a circumferential freeway around the urban area. I-185 extends southwesterly from the city center to an interchange with I-85, that interchange has also been identified as the western terminus of the planned Greenville Southern Connector. The other freeway segment, I-385, extends eastward from downtown Greenville and then southeastwardly and southerly to an interchange with U.S. 276, a major arterial highway extending southeastwardly from downtown Greenville. I-385 then turns southwardly through the county and beyond to an interchange with I-26 leading to Columbia and Charleston on the Atlantic Coast. The previously mentioned I-385 interchange with U.S. 276 would be modified to form the eastern terminus of the planned Southern Connector.

County Regions

This portion of the report presents a regional profile of Greenville County by dividing the county into four geographical areas, primarily defined by Census tract boundaries. This regional profile of the county sets the stage for a regional growth analysis to identify emerging development trends and to better gauge the economic development impact on the county to be derived from the proposed highway facility. After a thorough review of development parameters, including industrial and residential development, predominant topography, and existing and planned underground utilities, boundaries were established for a quartet of regions encompassing the entire county. Figure 11 shows the four regions in Greenville, designed to illustrate a development pattern for the county.

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Table 12
SYNOPSIS OF POPULATION AND LABOR FORCE

	County Statistics	15-Mile Radius	30-Mile Radius
Population 1995 Estimated	333,600	388,187	772,973
Persons Age 20-54 1995 Estimated (Civilian)	171,587	199,065	390,450
Persons Reaching Age 18 Between 1990 and 2000	47,330	54,756	110,023
Civilian Labor Force 1995 Estimated	179,740	207,933	408,397
Labor Force Change Labor Force Increase 1990-1995	7,660	9,529	19,881
Non-Agricultural Employment January 1995	205,100	220,959	387,159
Unemployed January 1995-(Percent)	2.9	3.1	4.0

* Source: Greenville Chamber of Commerce

The Central Region, including the cities of Greenville and Greer and adjacent suburban areas, was delineated on the south by the alignment of I-85 through the county. To the north the boundary is geopolitical, based on existing Census tract boundaries between the Pickens County line on the west, and the Spartanburg County line north of Greer to the east. This area is characterized primarily as the urban center of the county, both in terms of population and employment, together with the accompanying infrastructure of utilities and roadway network.

The Southeastern Residential Region is the area to southeast of the county below the I-85 alignment, bordered on the east by Spartanburg county and to the West by the Lower Reedy River, and is bisected by the recently constructed extension of I-385 freeway through the Greenville suburbs of Mauldin, Simpsonville, and Fountain Inn. This corridor has seen dramatic growth in predominantly

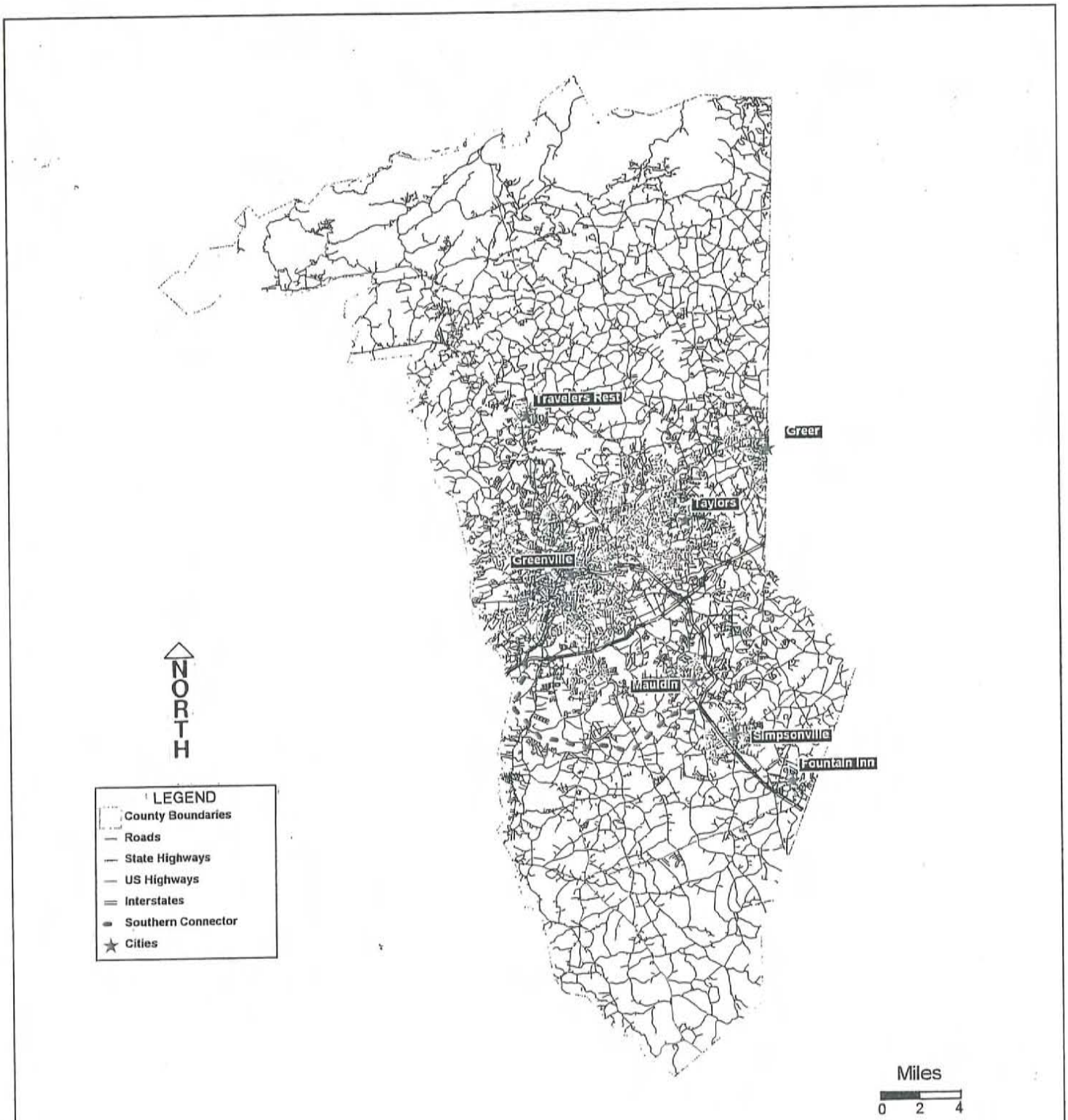
residential development and strong industrial activity in recent years as the Central Region became more densely developed and available land there became increasingly scarce. The extension of I-385 southward from I-85 to a junction with U.S. 276 near Simpsonville, as well as upgrading to freeway standards of the latter route southward to its interchange with I-26, contributed to the accelerated rate of growth of this area in recent years. The existing road network in the region, in addition to the I-385 freeway, includes S.C. 14 connecting Greer and the Greenville/Spartanburg Airport with Simpsonville, and coinciding with Main Street in both Simpsonville and Fountain Inn before joining the alignment of I-385 near the county line. State highways serving the region along alignments approximately parallel to I-85 are S.C. 296, S. C. 417, and S. C. 418, each ultimately penetrating Spartanburg County to the east. Of the three, only S. C. 418 continues westwardly through more rural areas of Greenville County.

This area is the emerging residential growth center for the County. Strong residential growth will continue, spreading westwardly to the area around the eastern terminus of the planned Southern Connector. The Southern Connector will further augment the westwardly spread of residential development.

The Southwestern Industrial Region of Greenville County, the area between the Saluda and Reedy Rivers lying to the south of I-85, is situated astride the U.S. 25 highway corridor. Although strip development along the Greenville County segment of the route south of I-85 generates a significant amount of daily traffic, the largest single trip attractor is the Donaldson Center lying just east of U.S. 25 Bus. and about three miles south of its interchange with I-85. Although the growth in this area has characteristically been industrial, this region appears to have a number of similarities to the Mauldin/Simpsonville region in the last decade prior to construction of I-385. These similar attributes include rather remote access to the freeway network, lack of infrastructure capacity, and tendency toward strip development resulting in increasing traffic congestion through the corridor.

However, this area is poised for industrial growth largely as a result of a planned sewer plant construction along the Saluda River toward the south, and is poised to benefit further from the planned Southern Connector.

The North Region takes in all areas lying to the north of the Central Region and bordering on North Carolina. With the exception of the community of Travelers Rest and the area adjacent to Lake Cunningham on the north, development of the region has been generally slow and of low density/small scale. The region's major highway network consists primarily of U.S. highways and



ROAD NETWORK
Greenville County

WILBUR SMITH ASSOCIATES

FIGURE 11

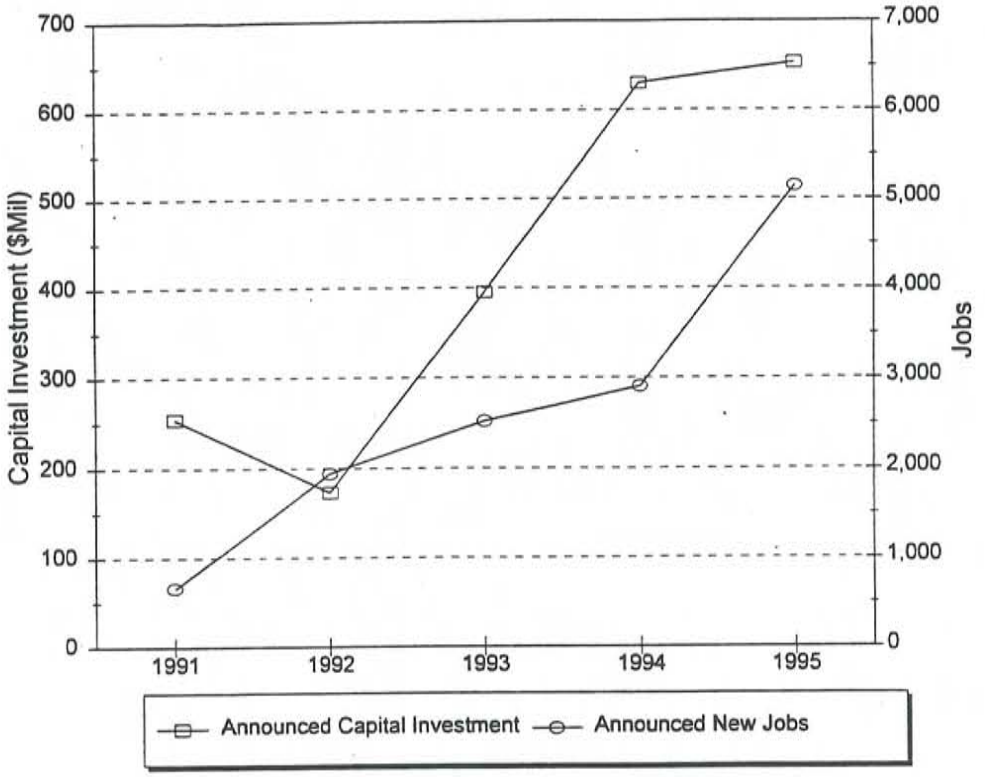
state routes extending northward from the cities of Greenville and Greer. U.S. 25 is the principal traffic route through the community of Travelers Rest and northward to Hendersonville and Asheville, North Carolina. South Carolina Route 11, named the Cherokee Foothills Scenic Highway, parallels the border with North Carolina as it serves primarily tourism traffic through the region.

Greenville County Economy

Greenville County's economic base has undergone a fundamental transformation over the past four decades which has culminated into consistent growth and vitality. Figure 12 shows new capital investment and jobs resulting from new manufacturing industries in the county, as well as expansion of existing manufacturing industries. Greenville County is part of the Greenville-Spartanburg-Anderson metropolitan area, which was ranked third nationally in construction of new manufacturing facilities during 1994.

Part of this growth is a result of fundamental changes in the county's industrial base, from largely textile to a more diverse manufacturing economy with a growing services sector. Greenville County was once the textile manufacturing hub of the world, but in light of the decline in the textile industry in the southeast, the county has gone through a successful transition from textiles to a more diversified economy including warehousing, manufacturing, and headquarters facilities, serving as worldwide corporate headquarters for such companies as Umbro and Comet Electronics, as well as divisional headquarters for Bi-Lo, Bell Atlantic Mobile, and Michelin North America. Part of Greenville County's success has been its ability to attract national and international businesses by guaranteeing a trained and ready labor force. With the help of the state's Special Schools technical training program, it has been able to retrain its labor force from traditional textile manufacturing skills to other industrial skills. Today, any industry which locates in the county is guaranteed a customized trained labor force at the start of production, at no cost to the company.

Another reason for the county's growth is its location in one of the nation's most robust regions, the southeast, and along the I-85 corridor between Charlotte and Atlanta. The southeast is the fourth largest economy in the world in terms of domestic product, has accounted for one in every three of new jobs created in the nation, and has out grown every major industrialized country except Japan over the past fifteen years. Greenville County is located in the upstate of South Carolina which is at the heart of the southeast. Greenville is in the center of the much acclaimed southeast I-85 industrial corridor which was recently labeled in a study by Ernest & Young as a mega growth corridor based on a study of corporate relocations.



	Announced Capital Investment	Announced New Jobs
1986	203	2,599
1987	365	2,946
1988	463	4,583
1989	601	1,866
1990	644	2,893
1991	254	658
1992	173	1,940
1993	395	2,517
1994	630	2,902
1995	653	5,143

SOURCE: Greenville Chamber of Commerce; 1995 Year-end Report.

ANNOUNCED NEW CAPITAL INVESTMENT & JOBS

Greenville County: 1991-1995

Measures of Economic Growth & Vitality in Greenville County

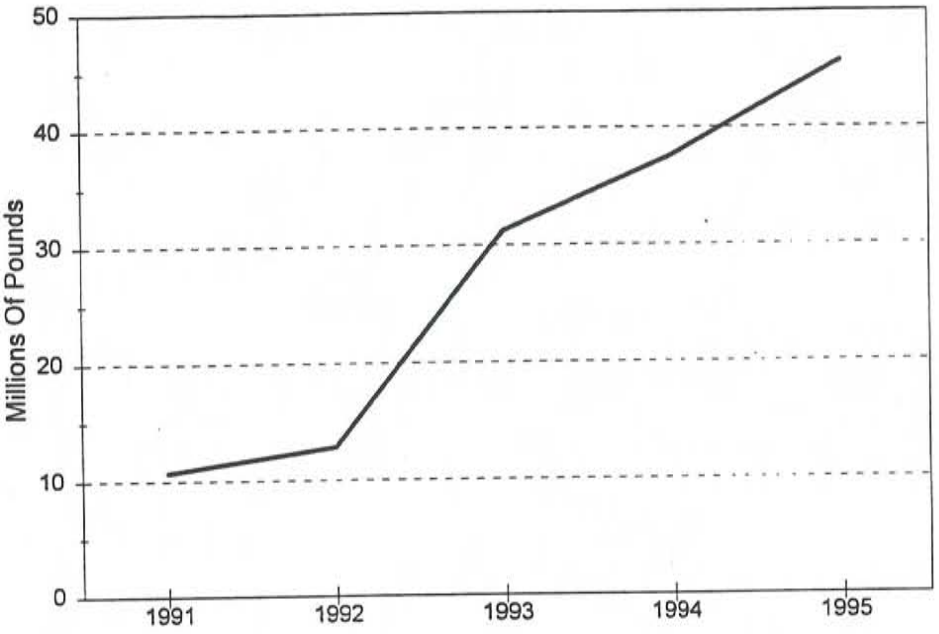
1995 was a strong year for capital investment in Greenville County, making it the best year in Greenville County's history for announced capital investment, as well as the best year for announced jobs created. Figure 12 indicated that as of 1992, which was the low for the decade with $173 million in new capital investment, capital investment announcements by 1994 were over $600 million, with 1995 reaching $653 million.

One of the more significant impacts to the region was the high profile BMW location in Spartanburg County, near the Greenville County border, and the Magna autobody stamping plant located near the proposed connector which not only invested over one-half billion dollars in the area but also has attracted other major companies into the area, especially automotive suppliers. Some of these automotive suppliers include Pierburg and Sodetal, both international companies, as well as existing automobile suppliers including Michelin and Sagem.

Air Cargo Activity - Air cargo traffic trends are another measure of economic vitality, as well as a region's underlying competitive advantage for business to compete in export markets. An increase in air cargo indicates that the exporting region provides competitive production efficiencies for business to compete in regional and international export markets. Also, an increase in air cargo traffic indicates that the respective export shipments are typically high value added products, offering strong enough margins to afford air freight costs. Figure 13 indicates that air cargo enplanements at Greenville/Spartanburg Airport grew from 10 million pounds in 1991 to over 45 million pounds in 1995, a 4.5 times increase over five years.

Income levels in Greenville County as measured by Median Family Income has increased from $28,100 in 1987 to $37,500 in 1995. This represents an average annual growth of 4.1 percent per year. For the State of South Carolina, as a whole, the Median Family Income was $26,400 in 1987, $32,057 in 1995, representing an average annual growth rate of approximately 2.2 percent.

Retail Sales Growth - Greenville County has led the state in retail sales for the last four years, out-pacing both the coastal tourist areas -- Myrtle Beach, Charleston, Hilton Head, and Beaufort -- as well as the state's traditional government intensive region around Columbia. Retail sales in Greenville County grew by 42 percent between 1990 and 1995, and by over 55 percent for the metropolitan area. See Figure 14.



Air Cargo Enplanements (Millions of Pounds)				
1991	1992	1993	1994	1995
10.7	12.8	31.2	37.6	45.7

SOURCE: Greenville Chamber of Commerce; 1990-1995 Diversification Report.

AIR CARGO ENPLANEMENTS

Greenville/Spartanburg Airport: 1991-1995

WILBUR SMITH ASSOCIATES

FIGURE 1

Greenville County Growth Analysis

Based on an evaluation of the county's historical growth patterns, there is evidence that:

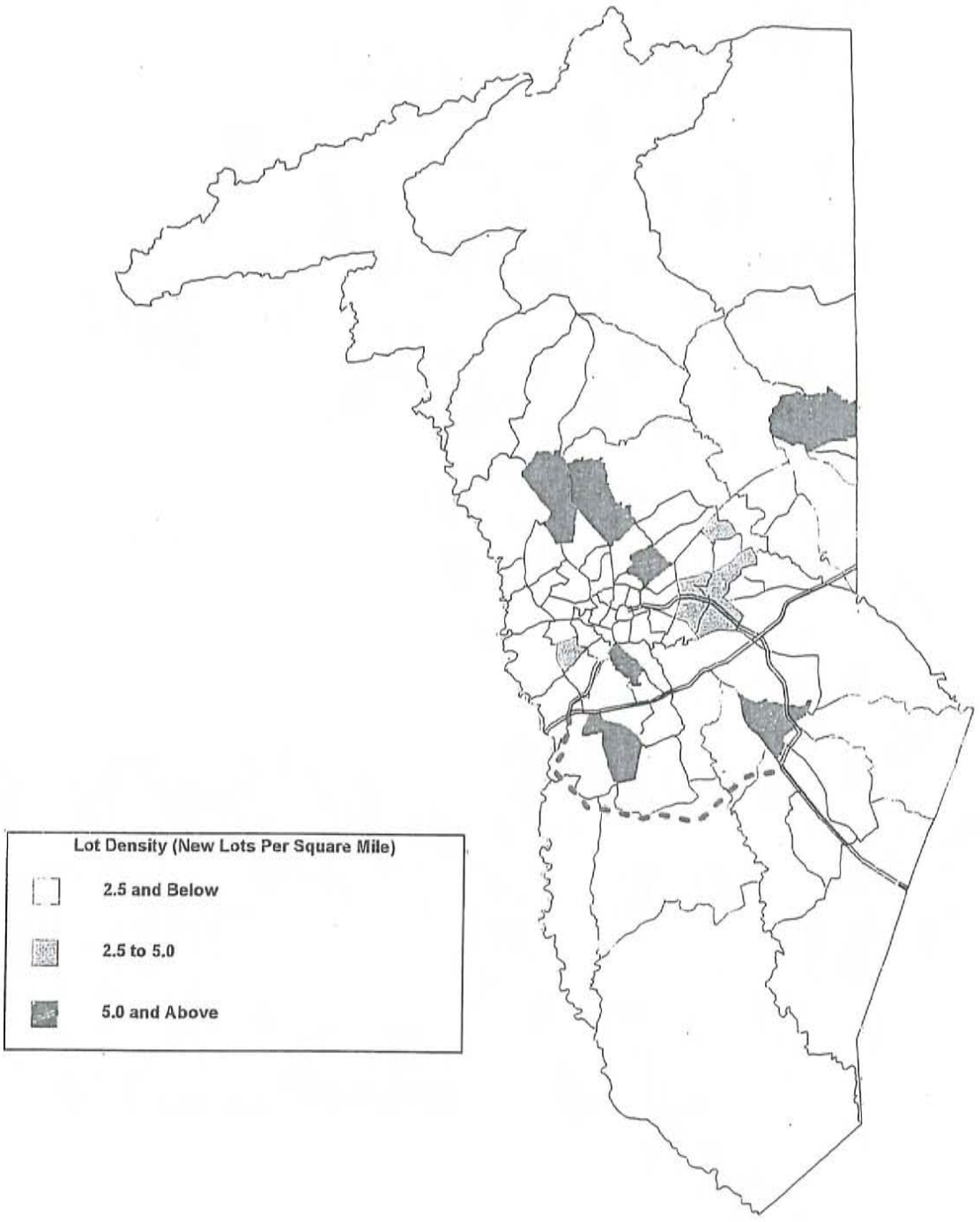
- Growth is concentrating in the southern half of the county.

- Greenville County has two distinct emerging development patterns in the southern half:
  1) Significant residential growth in the southeast quadrant (Southeastern Residential Region), around the eastern terminus of the Southern Connector highway; and
  2) Significant industrial and commercial growth in the southwest quadrant (Southwestern Industrial Region).

- These growth patterns are supported by:
  1) Existing and emerging residential and employment development patterns;
  2) Prospective county zoning and land use plans; and
  3) Long range infrastructure development plans.

Residential Development - An analysis of new residential permits issued in Greenville County for the period 1984-1996 indicates residential development is increasingly concentrating in the southeast quadrant of the county. Residential permitting data sourced from the Greenville County permitting office was plotted on a series of three GIS maps for three years - 1984, 1990, and 1996, and are included in this report as Figures 15, 16 and 17. Figure 15 shows that the southern half of the county had little substantial residential growth during 1984. By 1990 (Figure 16), new residential activity was high in areas north of the congested urban areas as well in the southeast quadrant of Greenville County. Presently (Figure 17), residential development is predominantly concentrated in the southeast quadrant.

Furthermore, a careful chronological analysis of Figures 15, 16 and 17, especially the southern half of the County, indicates that despite the concentration of development around the southeast "bedroom" communities of Simpsonville, Mauldin, and Fountain Inn, there is an emerging trend of development in the area immediately to the west of Simpsonville towards the Lower Reedy River - the area identified as "A" on Figure 17. Based on interviews with the largest residential developers in the county as well as preliminary residential permitting data from the GCPC, this area, because of its relative low population density, adequate capacity of sewer services due to an expansion at the



NEW RESIDENTIAL PERMITS 1984
Shown by Census Tracts

WILBUR SMITH ASSOCIATES

FIGURE 15

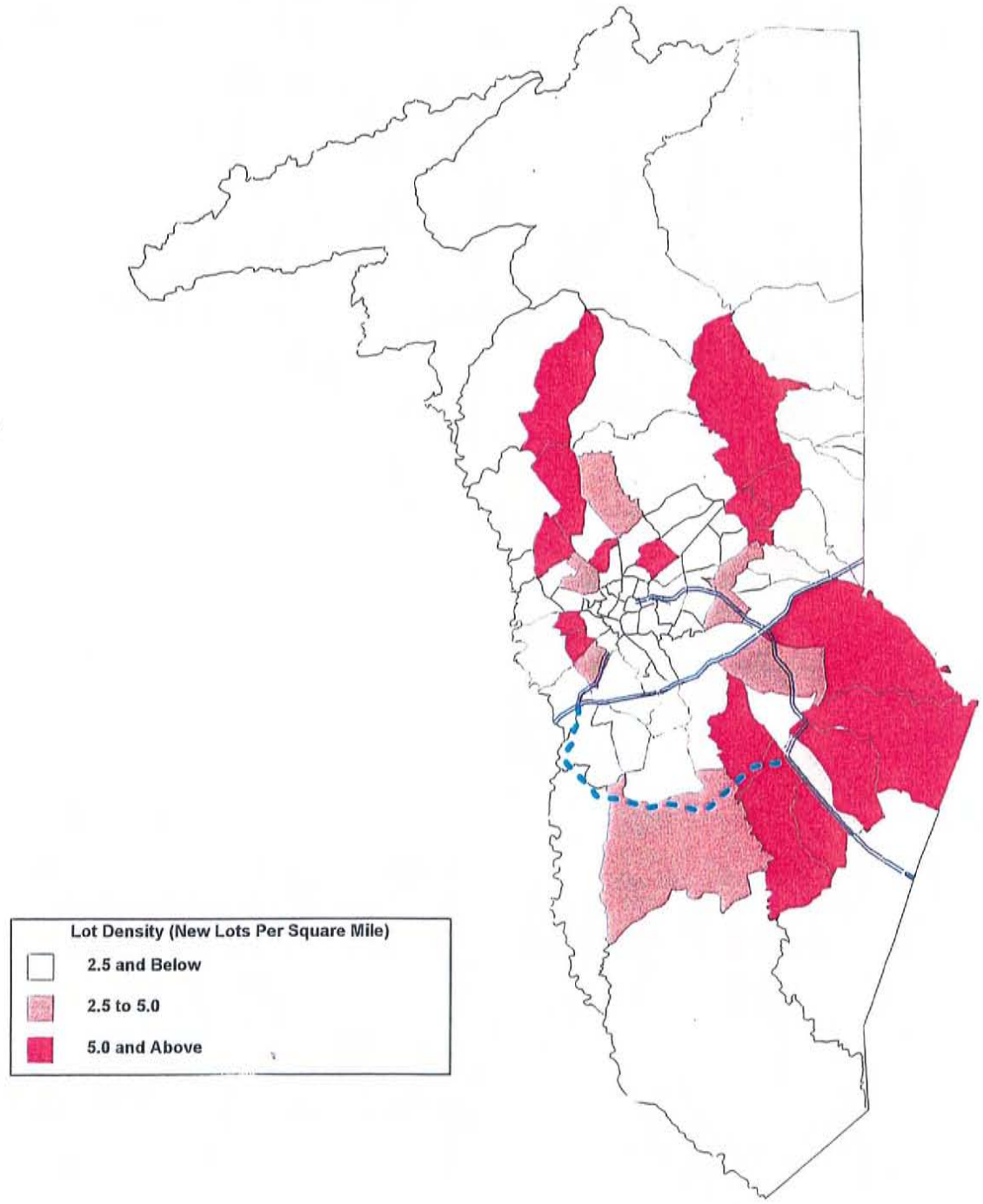
Lower Reedy River plant, low land costs per acre, and zoning which allows for residential development, is the emerging residential growth point over the next 10 to 15 years.

There is further evidence of this emerging development pattern in new residential construction as illustrated by the graph and table in Figure 18 showing the pattern of new housing permits issued over the period 1983-1995. These illustrations show the historical trend of housing development spreading toward the southern half of the county and concentrating around the traditional bedroom communities of Mauldin, Simpsonville, and Fountain Inn in the southern quadrant of the county. The two most significant areas of growth will be 1) East of Mauldin around the Woodruff Road areas and 2) between Fork Shoals Road and Simpsonville. This is supported further by a long-range infrastructure development and land use plan for the southern half of the county.

There are three pockets of residential growth along I-85 and I-385 (See Figure 19). The first is major residential growth which has occurred in the early 1990s along and around Lake Cunningham and in the Greer area. The second area of growth is what is identified as the North Mauldin area between I-85 and the City of Mauldin, and the third significant growth area is along I-385 southwest of Simpsonville, below the planned Southern Connector's eastern terminus.

Lake Cunningham Growth Pocket - Of the three growth pockets this is the least dynamic and is limited in the future due to relatively limited road, water, and sewer infrastructure capacity. As stated earlier, these three infrastructure components are important for residential development. Based on interviews with developers and utility service providers in the area, this area has no significant long range development plan in place. This area represents the only major growth pocket in the northern part of the county. The other two growth pockets are in the southern part of the county below I-85.

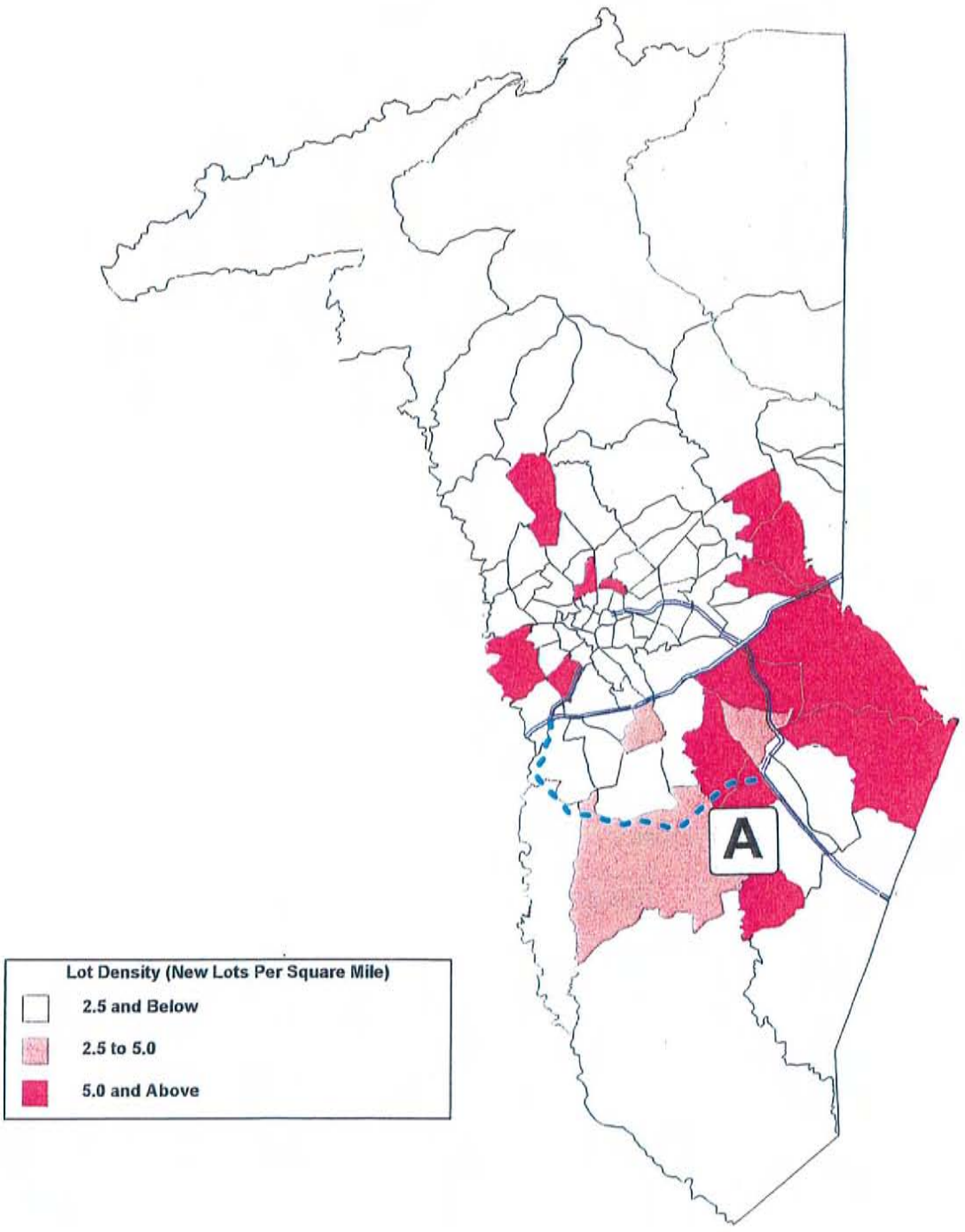
North Mauldin Growth Pocket - Of the three growth pockets this is the fastest growing in terms of residential permitting. The area's growth was spawned by major sewer infrastructure development in the area during the mid 1980s. A major sewer line was installed along Woodruff Road and this in combination with two major interstates on the west and northern parts of this pocket has encouraged tremendous growth. This area is served by a major regional sewer authority and based on long range plans this area will continue growing. There are plans to expand the waste water plants which serve this area. Moreover, the eastern terminus for the planned Southern Connector is adjacent to this growth pocket and will provide improved access to the west. This will include employees commuting to the emerging industrial areas towards the west, for example, the Donaldson Center and major employers along I-85 to the west of the county.



NEW RESIDENTIAL PERMITS 1990
Shown by Census Tracts

WILBUR SMITH ASSOCIATES

FIGURE 16



NEW RESIDENTIAL PERMITS 1996
Shown by Census Tracts

WILBUR SMITH ASSOCIATES

FIGURE 17

Lower Reedy River plant, low land costs per acre, and zoning which allows for residential development, is the emerging residential growth point over the next 10 to 15 years.

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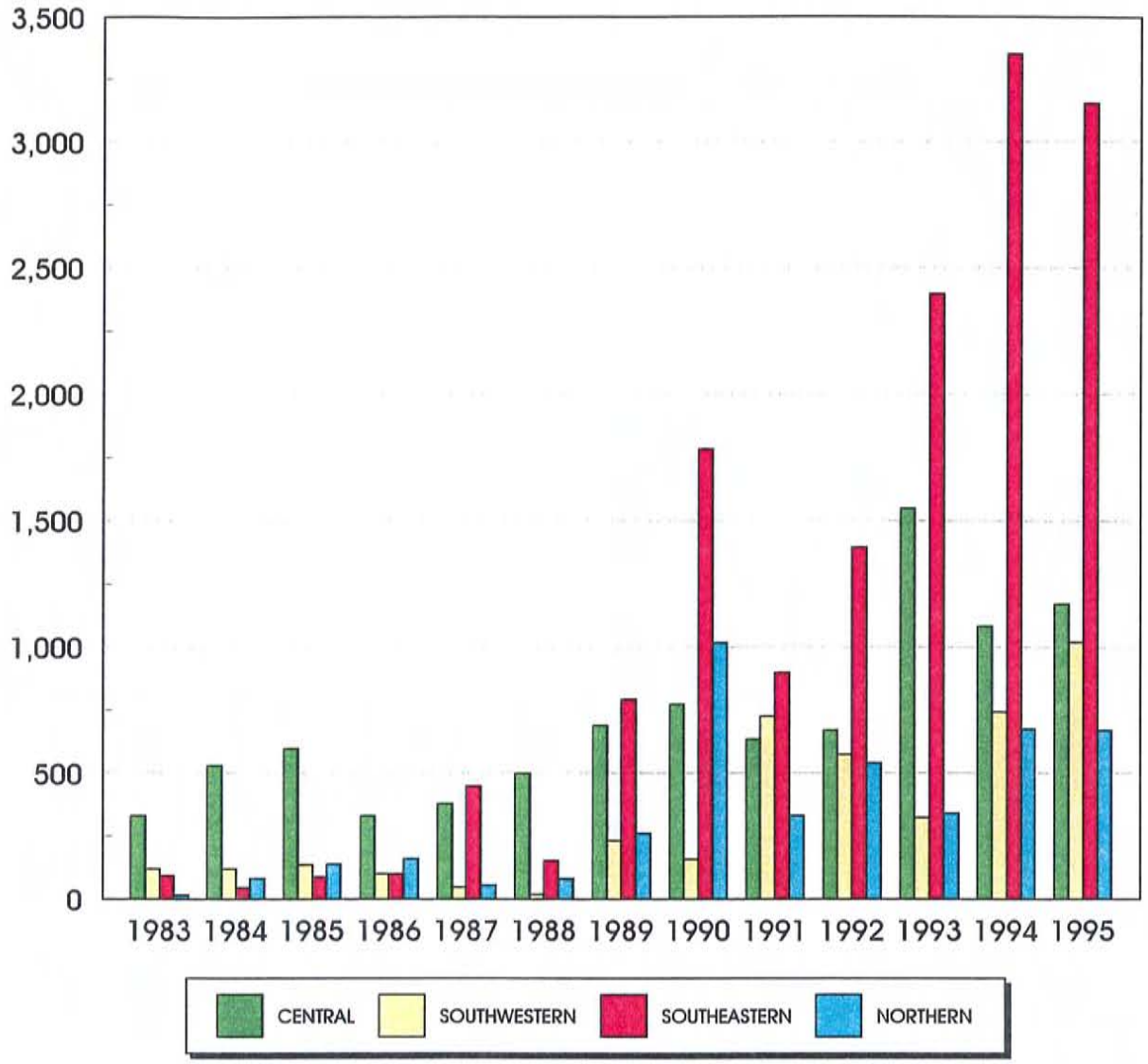
The West Simpsonville Growth Pocket - This growth pocket is between Simpsonville and Fork Shoals Road to the west. This area is provided with waste water service by the Lower Reedy Waste Water facility which has just begun expansion to handle an anticipated surge of future development. This area has been identified as a major growth region in the Western Carolina Sewer Authority long-range plan.

Industrial Employment

In terms of industrial employment, there are distinct development patterns which indicate that future employment will concentrate in the southwestern quadrant of the county along U.S. 25 and around the proposed Southern Connector. This is based on an analysis of past and emerging employment growth patterns. Using GIS-based industrial employment data supplied by the South Carolina Department of Commerce, employment by new industrial employers locating in each of the county's subregions was aggregated over two seperate time periods: 1983-1988 and 1989-1994. For the county as a whole, the latter period saw a cumulative drop in new industrial employment due to the impact of the recession during 1991-92 on new industrial investment and expansions. Nonetheless, the Southwestern Industrial region was the only region to experience a net increase in new industrial employment for the period 1989-1994, illustrating the region's role as the emerging industrial region for the county. Figure 20 is a series of graphs which illustrates the results of the analysis of industrial employment in the county.

One of the main reasons for the region's industrial stature is the Donaldson Industrial Center, which surrounds a former military airbase converted into an industrial park, which is host to a series of major industries including 3M and Lockheed. Total employment by industries at the Center is at over 4,000. The industrial park provides a critical mass of industrial employment and will continue creating a synergy for attracting new investment not only to the immediate area around the Center but also along the proposed Southern Connector which will run a curved route below the park.

There is substantial evidence that industrial employment tends to concentrate along major infrastructure corridors, like major water and sewer lines and four-lane divided highways/freeways. Figures 21-26 are GIS maps showing new industrial plant location between 1940 and 1996 and during five distinct periods: 1940-1950, 1950-1960, 1960-1970, 1970-1980, and 1980-1996. The maps focus on the southern half of the county, specifically U.S. 276, I-385, and I-85, and are designed to illustrate how the relationship between infrastructure development and industrial plant location influence long-term growth patterns. Only the new plants which located within each period are shown on each respective map, while the road infrastructure is as it exists today.



NEW RESIDENTIAL CONSTRUCTION PERMITS, 1983-1995

Regions	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Central	332	533	601	333	380	500	691	774	635	671	1,549	1,084	1,173
Southwestern	120	122	138	101	48	20	235	160	727	575	325	745	1,021
Southeastern	94	47	89	102	450	154	796	1,785	901	1,395	2,398	3,351	3,155
Northern	17	83	140	162	57	84	263	1,019	334	543	343	677	672
Total	563	785	968	698	935	758	1,985	3,738	2,597	3,184	4,615	5,857	6,021

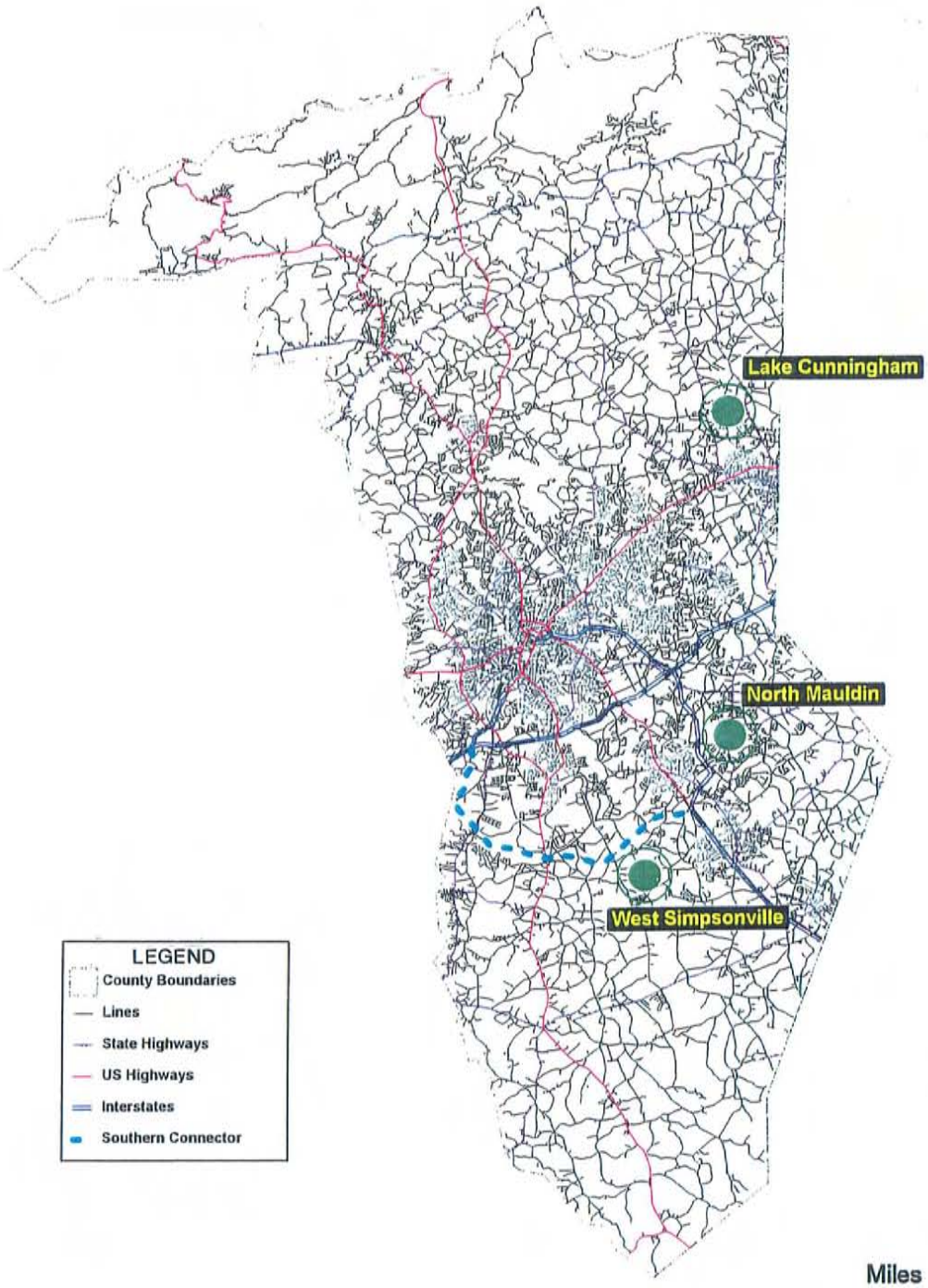
SOURCE: GREENVILLE COUNTY PLANNING COMMISSION

REGIONAL RESIDENTIAL GROWTH PATTERNS

GREENVILLE COUNTY RESIDENTIAL CONSTRUCTION PERMITS: 1983 - 1995

WILBUR SMITH ASSOCIATES

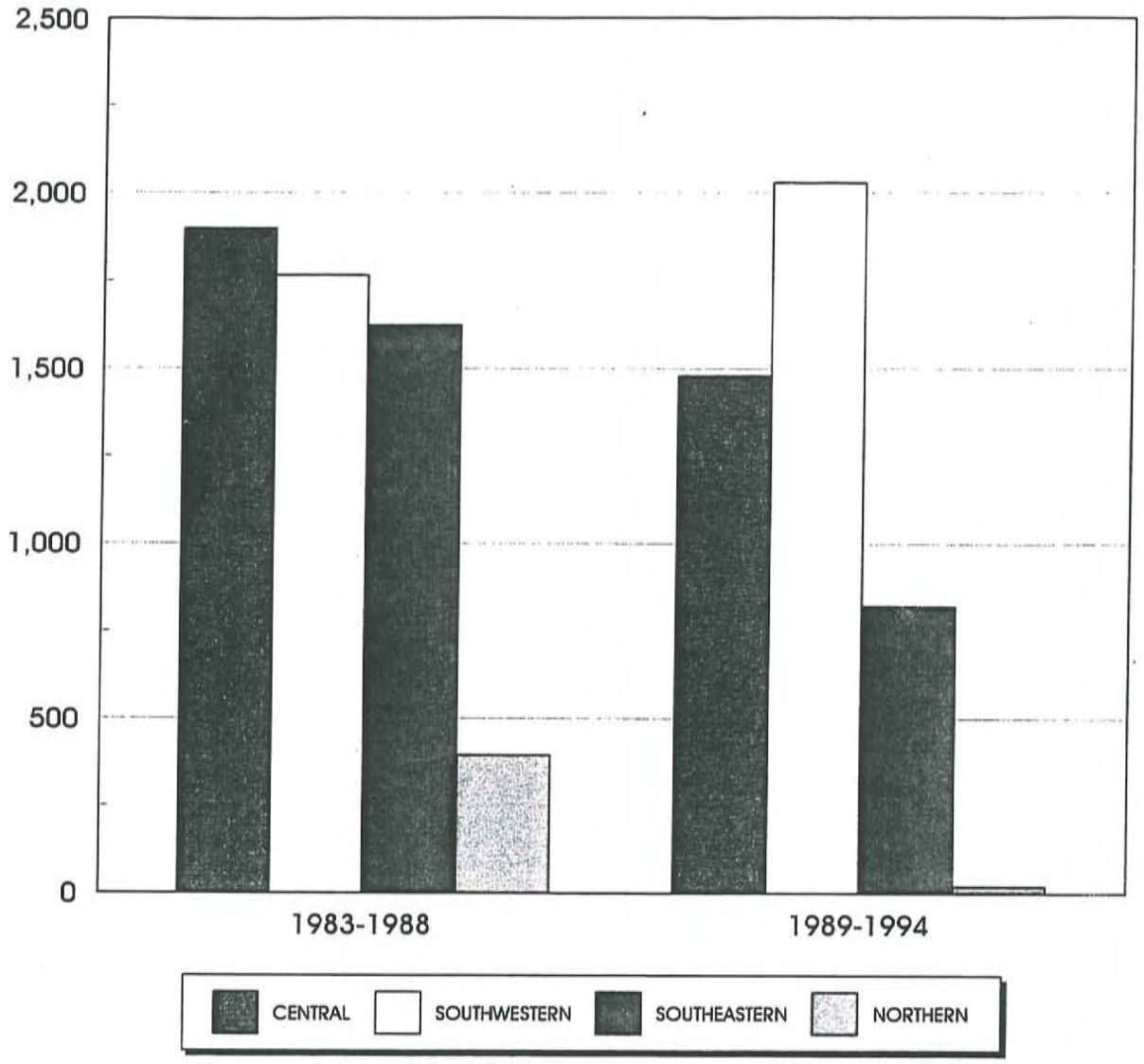
FIGURE 18



RESIDENTIAL GROWTH POCKETS
Greenville County

WILBUR SMITH ASSOCIATES

FIGURE 19

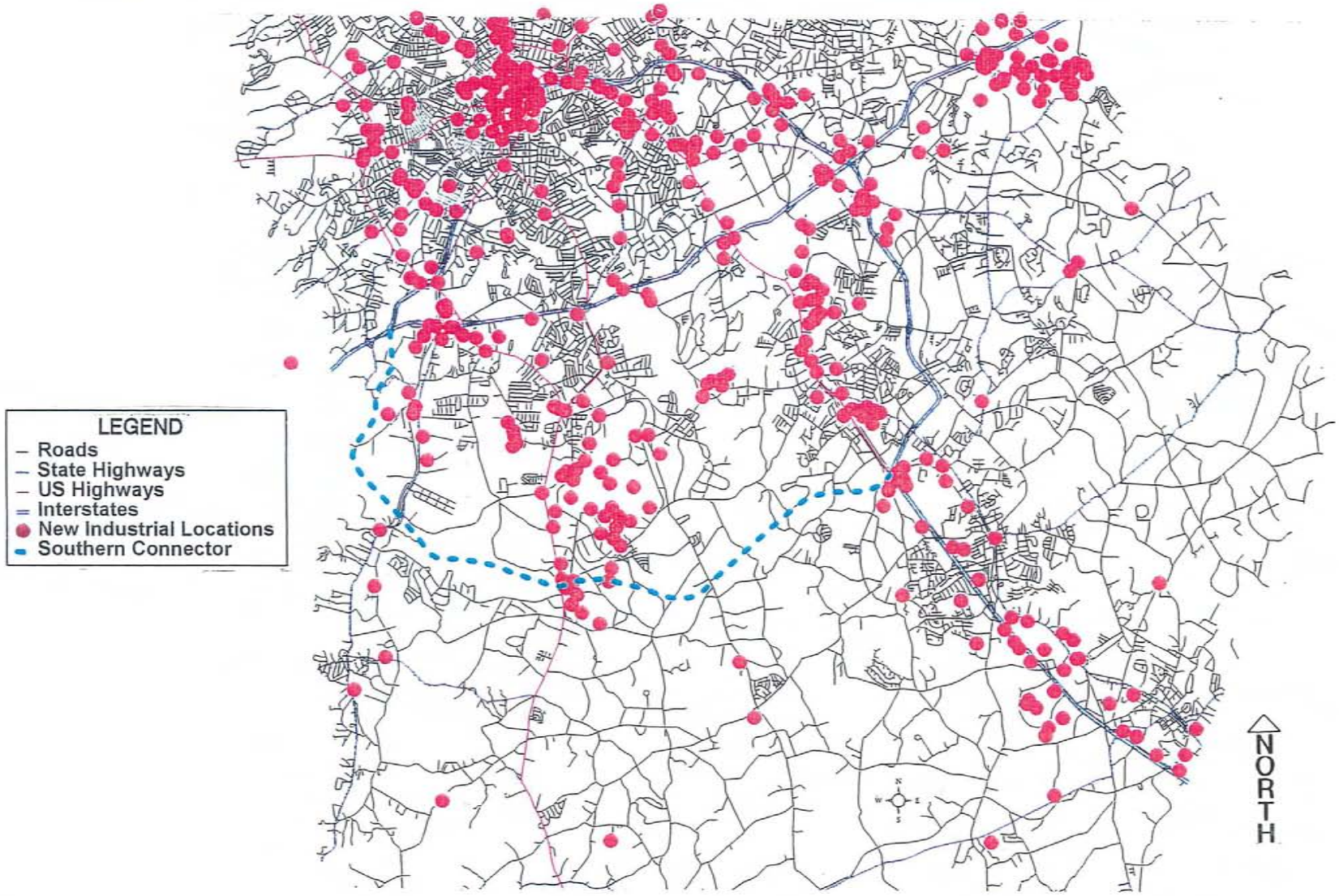


INDUSTRIAL EMPLOYMENT TRENDS

Regions	1983-1988	1989-1994	1983-1994
Central	1,901	1,481	3,382
Southeastern (Residential)	1,768	2,031	3,799
Southwestern (Industrial)	1,625	824	2,449
Northern	397	22	419
Total	5,691	4,358	10,049

SOURCE: 1995 SC INDUSTRIAL DIRECTORY; SC DEPARTMENT OF COMMERCE.

REGIONAL INDUSTRIAL EMPLOYMENT PATTERNS

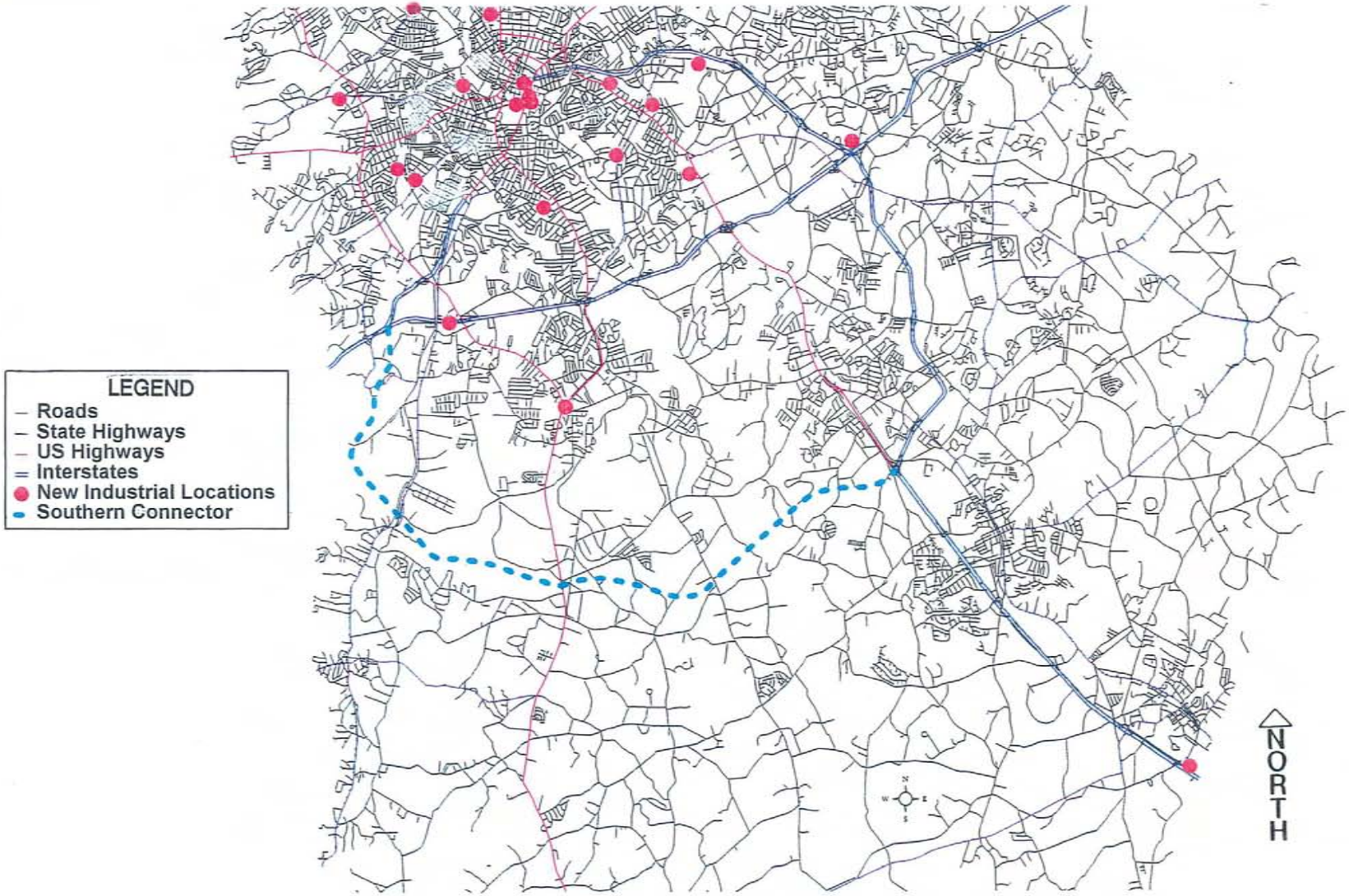


NEW INDUSTRIAL PLANT LOCATIONS

1940 to 1996

WILBUR SMITH ASSOCIATES

FIGURE 21

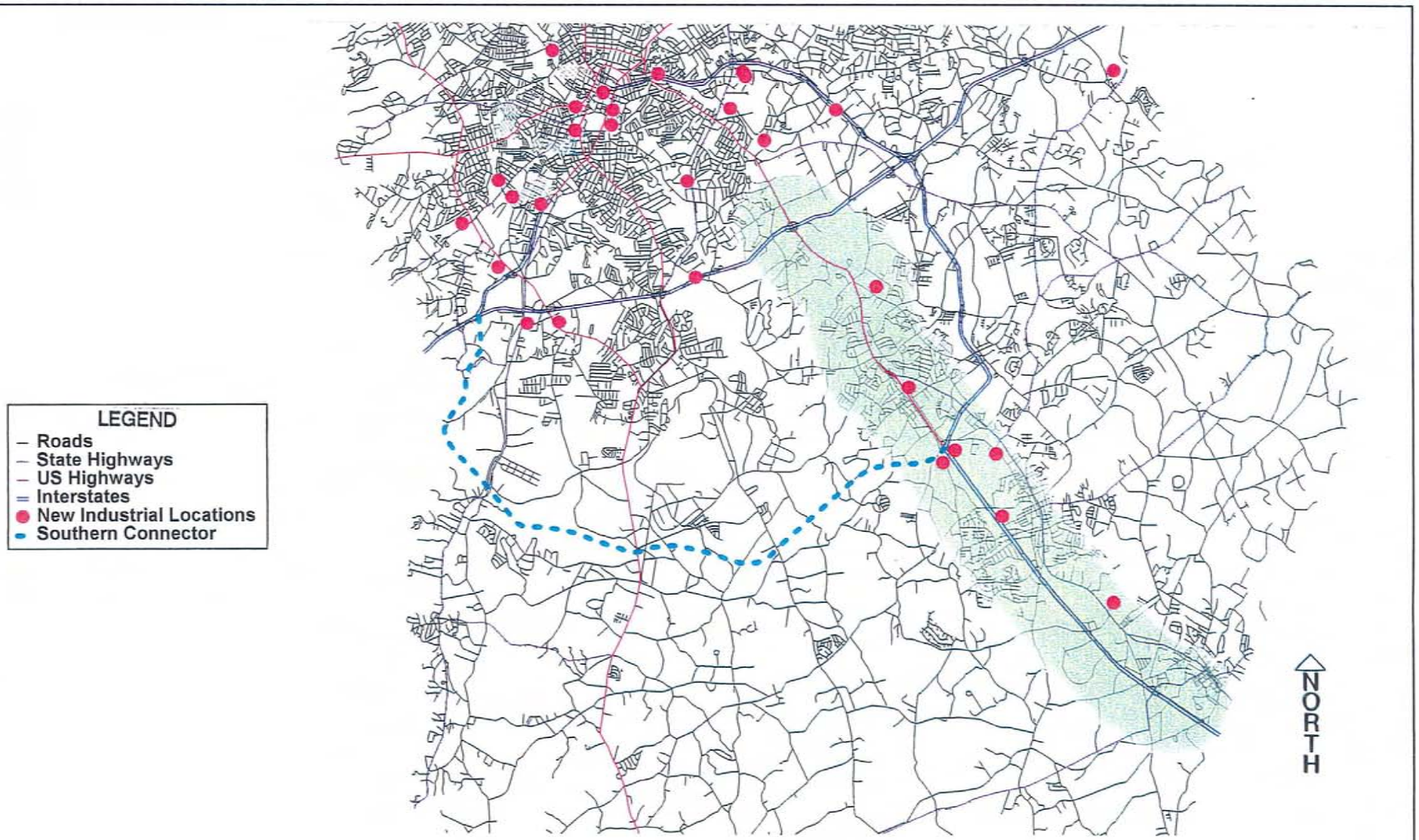


NEW INDUSTRIAL PLANT LOCATIONS

1940 to1950

WILBUR SMITH ASSOCIATES

FIGURE 22

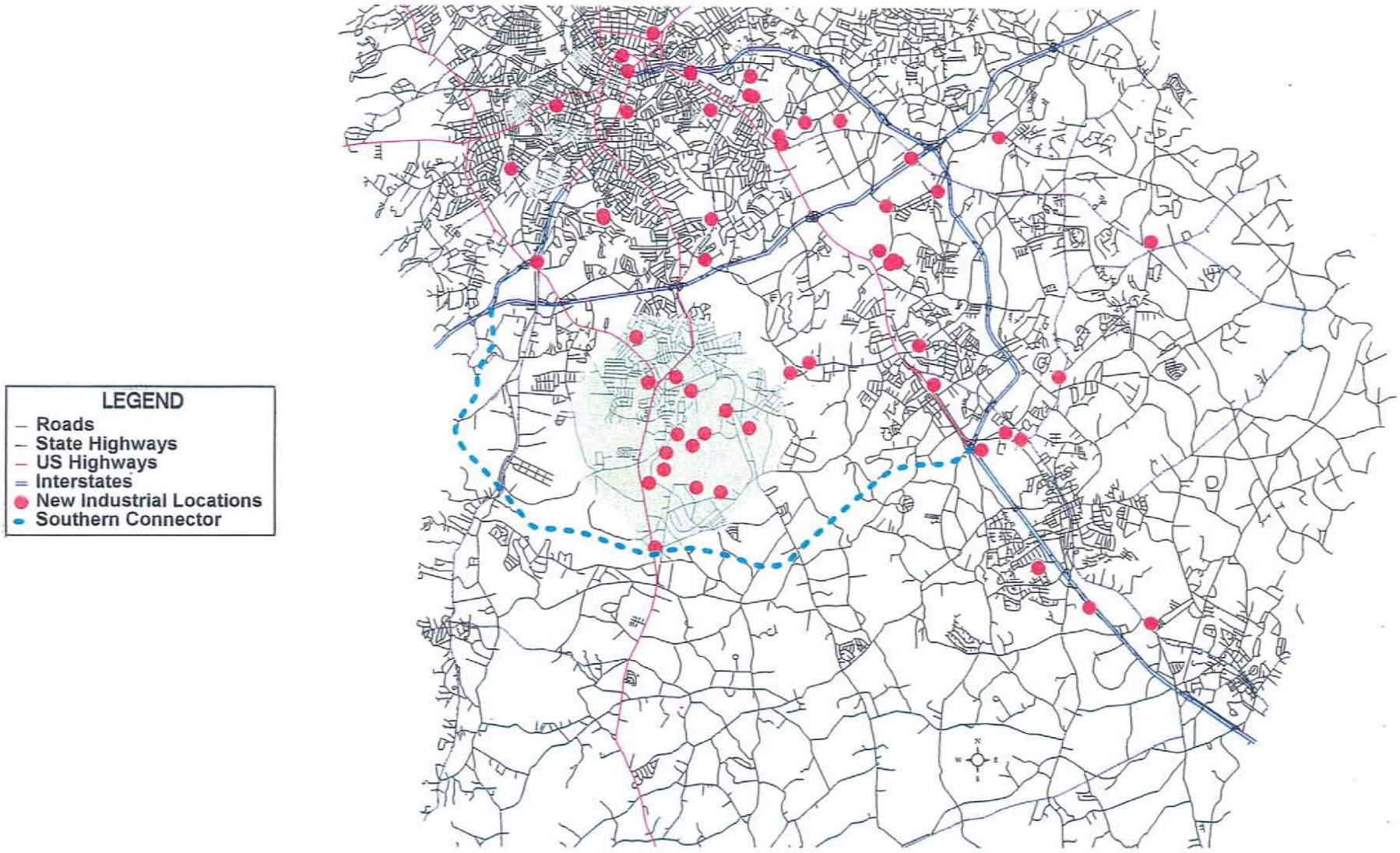


NEW INDUSTRIAL PLANT LOCATIONS

.1950 to 1960

WILBUR SMITH ASSOCIATES

FIGURE 23

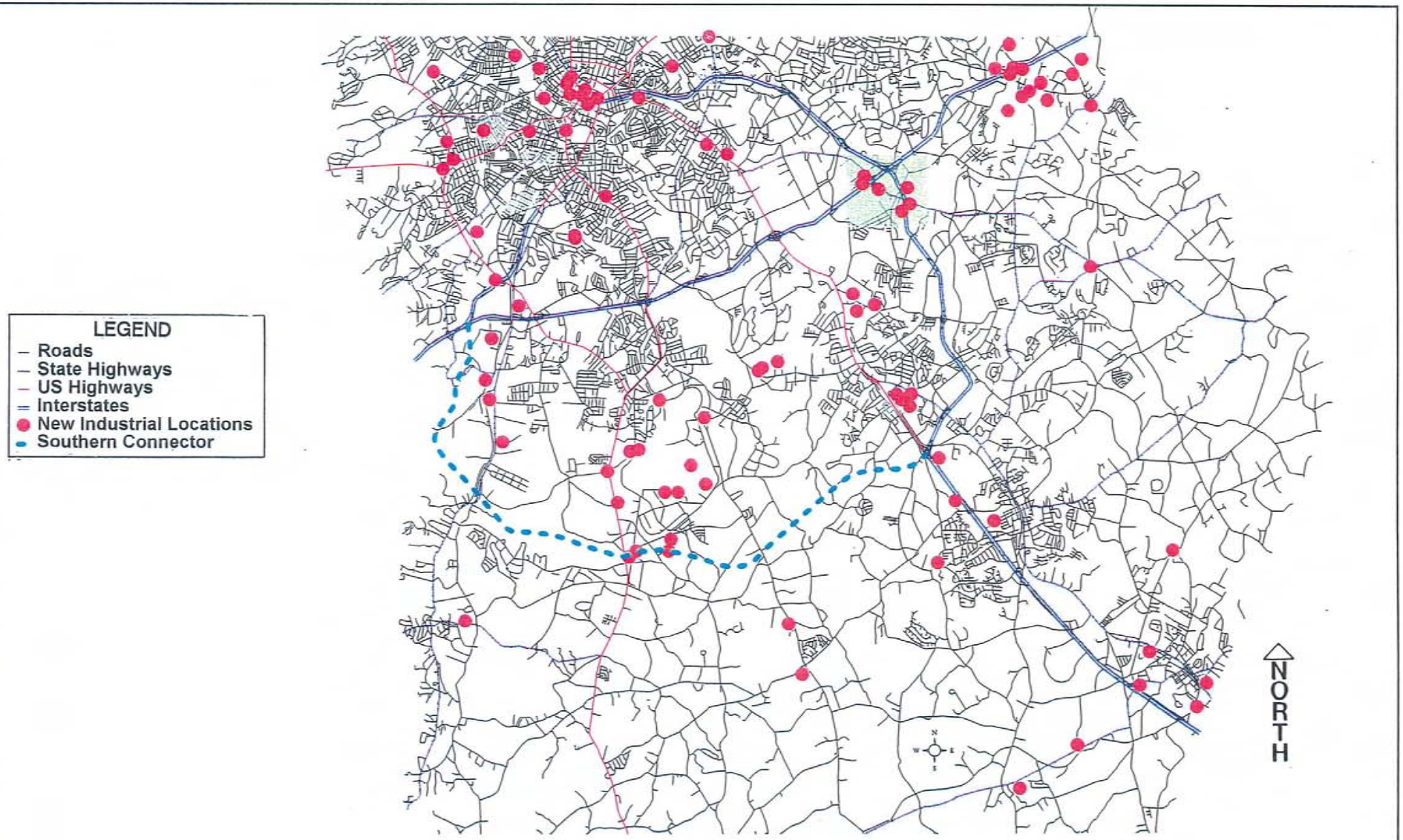


NEW INDUSTRIAL PLANT LOCATIONS

1960 to1970

WILBUR SMITH ASSOCIATES

FIGURE 24

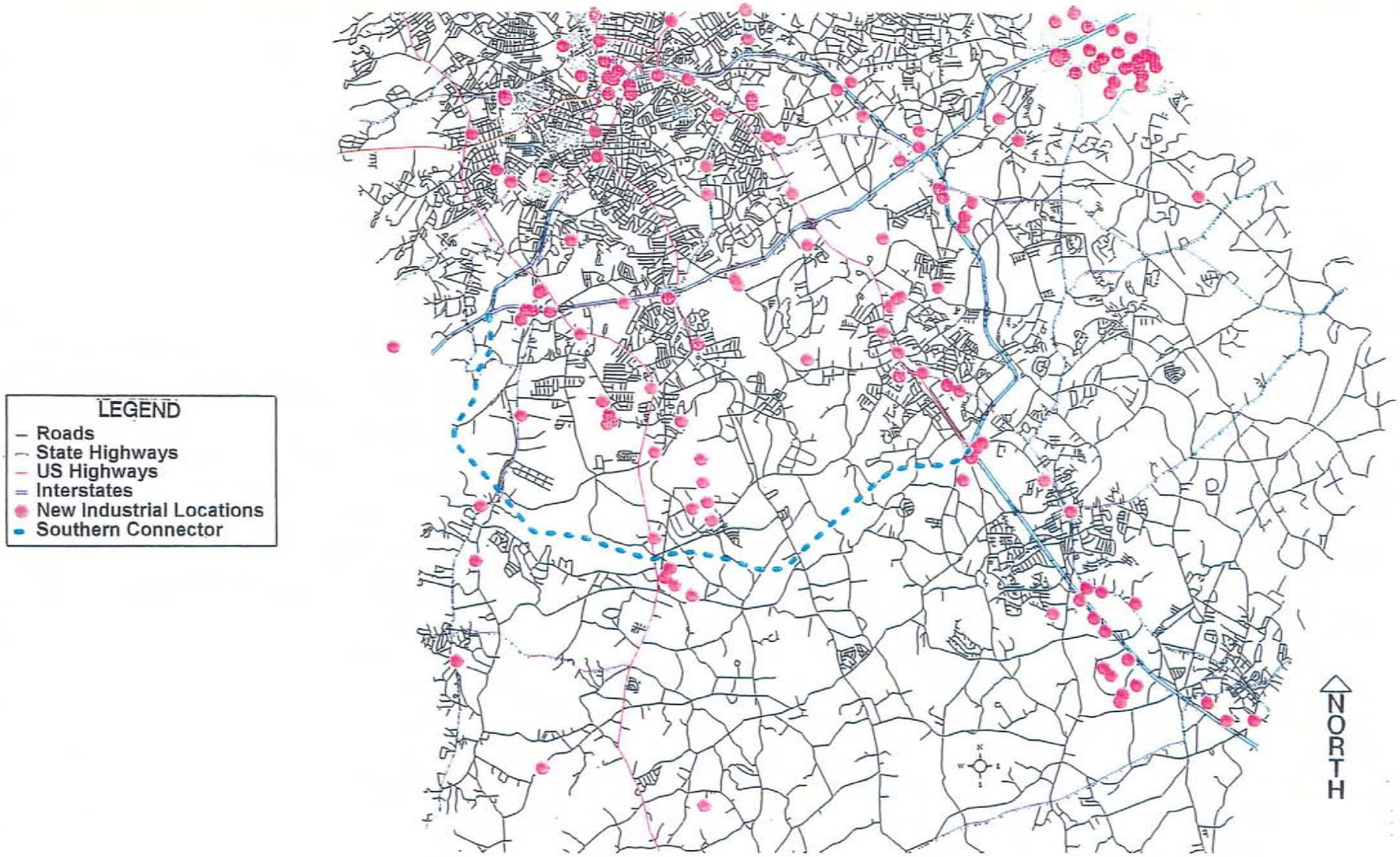


NEW INDUSTRIAL PLANT LOCATIONS

1970 to 1980

WILBUR SMITH ASSOCIATES

FIGURE 25



NEW INDUSTRIAL PLANT LOCATIONS

1980 to 1996

WILBUR SMITH ASSOCIATES

FIGURE 26

Figure 21 shows the cumulated number of new plant locations for the period 1940-1996, with easily identifiable growth patterns along major highways. In contrast, for the period 1940-1950 (Figure 22), most new plants located in and around the area of the City of Greenville before many of the major highways were constructed.

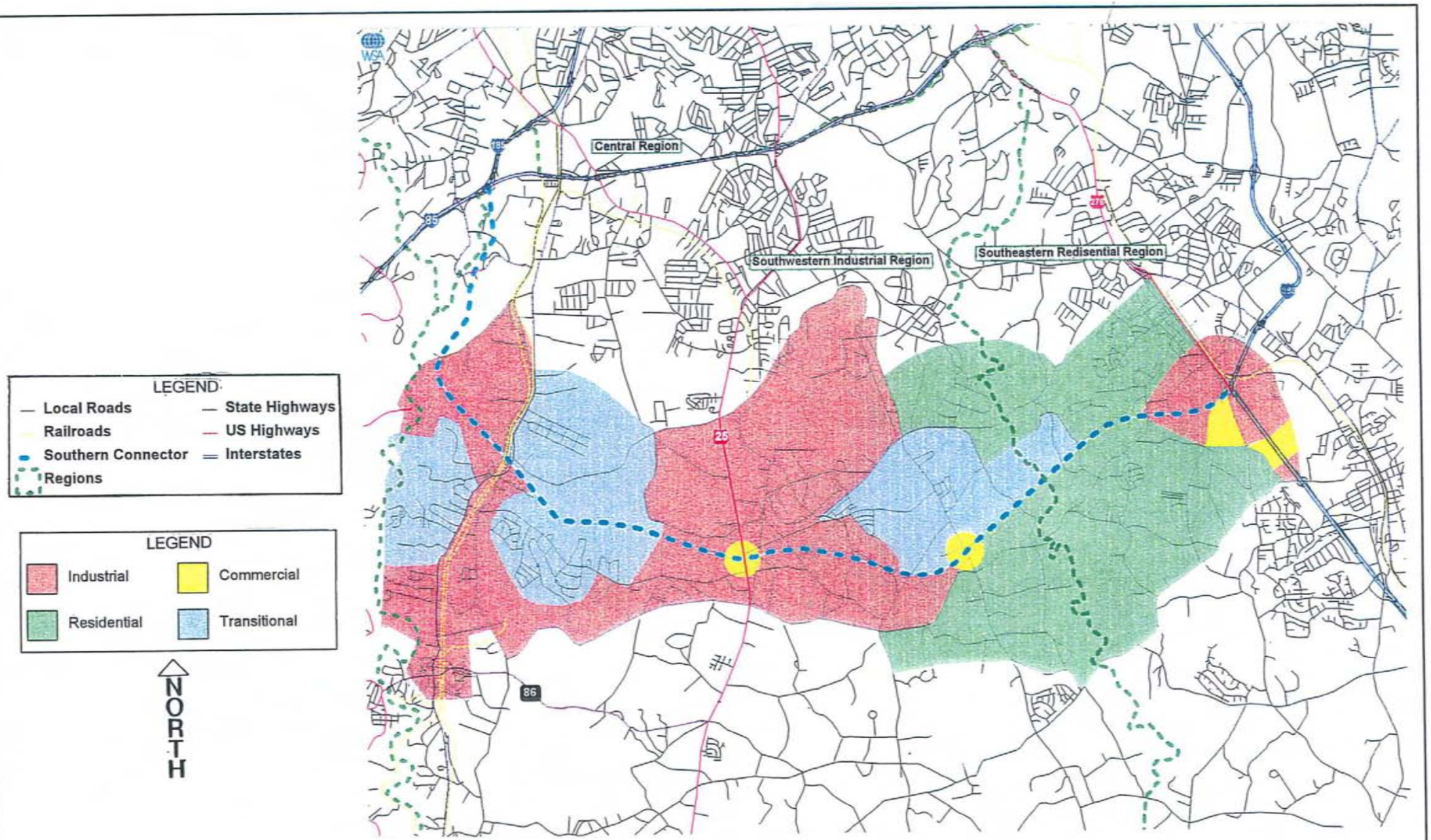
By 1960, U.S. 276 had been completed, hence resulting in a series of new plants along that route, as marked by the shaded area on Figure 23. By 1970, the Donaldson Center had been redeveloped as a business park along U.S. 25, resulting in the cluster of new plants in the shaded area on Figure 24. Note also the continued concentration of new plants along U.S. 276. By 1980, I-385 South had been completed, creating a major cluster of new plant activity in and around the intersection of I-85 and I-385, shown on Figure 25. New plants continued locating in and around the Donaldson Center and along U.S. 276. A major new industrial center emerged in the area along Pelham Road and I-85, the shaded area on Figure 26, largely due to an expansion in capacity at the Enoree sewer plant.

In the period since 1980, new plants have continued to concentrate around the major growth areas in the southern part of the county. Based on this strong evidence of predictable growth patterns centered around infrastructure development, there is evidence to suggest that the Southern Connector, in combination with progressive industrial zoning (see "Land Use Planning" section) and planned sewer plant construction on the Saluda River below the Connector will have a positive impact on the southern area in terms of employment growth.

Zoning & Land Use Plans

Growth and development patterns can be highly dependent on zoning and land use planning requirements set forth by local planning jurisdictions. Zoning is effective in guiding growth to areas which can accommodate increased congestion and utility service demand. Analysis of land use plans can provide important insight into emerging development trends. In cases where land use plans, infrastructure capacity, and suitable economic conditions come together to provide the optimal mix, economic development will likely occur. For the area around the planned Southern Connector, there is certainly evidence that all these factors are in place.

Figure 27 is a map showing the proposed zoning for the area around the proposed Southern Connector. The zoning is consistent with emerging development patterns discussed thus far. On the eastern side of the Connector is mostly residential zoning to accommodate the residential boom which is spreading toward the west from the Mauldin and Simpsonville areas. Moreover, sewer service



PROPOSED LAND USE PLAN

Southern Connector

WILBUR SMITH ASSOCIATES

FIGURE 27

capacity for this area was recently expanded. Toward the western terminus of the Southern Connector the zoning is for mostly industrial. This is consistent with the high growth in industrial development in this area, specifically around Donaldson Center. Moreover, sewer service capacity for the area will be expanded by a new plant on the Saluda River. In terms of the economic portion of the formula, the southern area is relatively less developed, rendering land prices at a discount.

Long Range Infrastructure Development

There is ample evidence that growth follows infrastructure. Infrastructure is vital to growth -- firms need roads to move goods, to provide services, and for their employees to get to and from work. Companies need water for their processes and waste water treatment to dispose of processed water. A recent study by the South Carolina Department of Commerce produced empirical evidence to show that in South Carolina, 94 percent of capital investment occurs within one mile of a major water and sewer line.[1] A 1991 Clemson University study of the economic impact of infrastructure investment in South Carolina showed that regions with large stocks of water, sewer, and four-lane roadways could expect firms with substantially more employees than areas with smaller stocks of infrastructure capital.[2]

One of the main reasons for developing the Southern Connector project is to link I-85 with I-385. This would allow traffic to move between these two main corridors without having to pass through the congested central region of the County. In fact, this road would create a corridor between I-85 and I-385, and provide for one part of the infrastructure puzzle required for growth.

However, it is also important when looking at economic development and growth to evaluate water and waste water infrastructure. This report evaluates the availability of waste water infrastructure in the southern part of the county and demonstrates that based on a long-range plan waste water infrastructure development is of high priority in the southern half of the county. Examining both topographic factors and infrastructure investment plans indicates that growth will continue concentrating toward the southern half of the county.

Sewer Infrastructure Development

Of the three major infrastructure components discussed (roads, water, and sewer), this report section focuses on sewer for two reasons:

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(1) *Investment Follows Infrastructure*; SC Department of Commerce.

(2) *The Economic Impact of infrastructure Investment:* A GIS-Based Approach; Clemson University, October 1991.

1. As stated earlier, the whole study is focused on the provision of a road through the southern part of the county and hence that infrastructure is conceivably in place.

2. Water service, as compared to sewer service, is inexpensive, and service providers typically make a profit from water provision. Hence, water can be provided in virtually any area regardless of geographic and topographic characteristics. On the other hand, waste water is an expensive commodity and service providers are typically extremely selective about the geographic regions where sewer is provided. The preferred method of distribution is by gravity, whereby waste water flows from users to processing plants in low basin areas along major rivers and streams. The southern half of the county has three major river basins: the Saluda Basin on the western border, the Lower Reedy basin which divides the southern section in half, and the Enoree Basin on the eastern border. This provides for exceptional sewer service coverage and development opportunities for waste water lines and sewer plants. Furthermore, another factor in determining where to locate a sewer plant is the size of the receiving body of water for effluent. The larger the water body the greater the potential effluent capacity -- a large river is able to handle a large water facility and is therefore conducive to a greater service delivery area. In comparison, the northern part has less potential for large service delivery areas -- rivers originate in the mountain areas to the north, and the further the rivers flow south the larger they become; hence the more effluent they are able to handle.

Due to these determining factors, it can be said that the southern half has a greater potential for development, in terms of sewer infrastructure. Current development demonstrates the viability of this hypothesis, as there has been a marked difference between development to the north and to the south. This hypothesis is further supported by a long-range sewer infrastructure plan which calls for future expansions in all three basins.

The Saluda River Basin - "The western sector of the Southern Connector, coupled with the availability of prime property at I-85 interchanges and highway improvements on U.S. 25 and S.C. 20, will spur industrial and commercial growth.[3] The cited plan calls for expansions at various locations in the basin.

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(3) SOURCE: *Sewer Services In The Upstate: Meeting The Challenge*; Upstate Roundtable, November 1994.

(4) Ibid.

The Reedy River Basin - "The Southern Connector corridor will spur industrial and commercial growth and facilitate (the) Donaldson Center's growth, widening of U.S. 25 to the south will increase commercial growth along its length...Similar increase will occur along I-385 in both the Reedy and Enoree Basins...zoning boundaries will extend southward...promoting...residential development."[4] The plan calls for expansions at existing facilities in the basin as well as a new site further down river.

The Enoree River Basin - "The GSP airport expansion, BMW and highway improvements in the area...will stimulate continued industrial growth...Future industrial growth will be the norm along I-385 within the Enoree watershed."[5] The plan calls for a major regional plant at one of the existing plants in the basin.

Verification of Socioeconomic Forecasts

Since this data was used by GCPC to develop the original model trip tables needed in the analysis, it was necessary to evaluate the socioeconomic forecasts produced by GCPC for the Southern Connector project. Three approaches were employed to evaluate the GCPC forecasts which are used to project traffic and toll revenue.

Approach One: Verification of Growth Trends - The first approach analyzed historical trends for population and employment in Greenville County and compared these trends with the projected trends. The GCPC-95 data covers two periods - 1990 (base year) and 2015 (forecast year). The objective was to determine whether the GCPC's projected trends were consistent with historical trends.

Approach Two: Analysis of Historical Forecasts - The second approach was to evaluate previous forecasts and compare them with actual numbers as well as to evaluate the methodology used in forecasting socioeconomic data. The objective of this approach was to evaluate and determine the level of historic accuracy in forecasts by the GCPC. This study evaludated population forecasts produced by the GCPC in 1992 (GCPC-92). These forecasts were then compared with actual data for 1992 through 1995.

Approach Three: Development Pattern Analysis - The third approach compared the growth patterns identified earlier with growth patterns evident from GCPC's latest forecasts (GCPC-

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(5) Ibid.

95). The objective of this approach was to evaluate and compare growth and development patterns identified by the socioeconomic forecasts for 2015 produced by the GCPC with growth and development patterns identified by WSA. The approach compared growth patterns evident in GCPC's 2015 socioeconomic forecasts with emerging residential and industrial growth patterns identified earlier.

GCPC Socioeconomic Projections (GCPC - 95)

The socioeconomic forecasts used in the traffic and revenue analysis for the planned Southern Connector are based on projections developed by the GCPC during 1994-1995 (GCPC-95). The GCPC-95 socioeconomic forecasts are for population, employment, school enrollment, retail square footage, work force, vehicle registrations, and domestic housing units. These socioeconomic forecasts are used to plan for adequate infrastructure and public facilities to accommodate economic growth in Greenville County. Aside from the ancillary planning uses for this data, the more specific use is in TRANPLAN modeling. TRANPLAN is a transportation planning tool used to assist state, local, and regional transportation planners in forecasting socioeconomic changes and in planning for and accommodating growth.

During the course of 1994 and 1995, GCPC went through a major process of updating the existing TRANPLAN model to produce forecasts for the year 2015 for countywide planning purposes. These are the control forecasts on which all planning is based, and make up the core of socioeconomic data used for traffic and revenue analysis for the planned Southern Connector project. To accurately simulate the effects of the planned Southern Connector on the region, the 1994-1995 control forecasts were modified for the Year 2015 for those TAZs in and around the path of the planned Southern Connector project. The GCPC undertook an in-depth micro and macro analysis of the TAZs along the corridor which were identified as potentially impacted by the proposed Southern Connector project. The socioeconomic forecasts for the target TAZs along the corridor were analyzed and adjusted to reflect the impact, from the Southern Connector project. A detailed description of the methodology used by GCPC for updating these data is provided in Appendix A.

TAZ Data Variables - There are seven types of socioeconomic data used in the TRANPLAN model,namely population; employment; school enrollment; retail square footage; workforce; vehicle registrations; and single, occupied dwelling units.

- Population - Population is the measure of total number of individuals residing in each TAZ. This is otherwise known as resident population.

- Employment - Employment is measured in terms of the number of employees at a place of employment by TAZ. This variable indicates the level of employment and is a good measure of economic activity at the TAZ level. It is important to measure employment at the TAZ level in order to indicate potential traffic variations at earlier and later parts of the day as well as variations over weekends.

- School Enrollment - This is a measure of the number of school students per TAZ and is basically an indication of whether there is a school within a TAZ. It is important to identify schools based on their potential for generating high levels of traffic, especially at certain times of the day.

- Retail Square Footage - This is the measure of square footage of retail space at the TAZ level. Retail centers are a generator of traffic and hence are important to measure for transportation planning purposes.

- Workforce - This is a measure of employment by place of residence. For transportation planning purposes, this is an important variable which indicates where people reside and where they work. High variations between employment and workforce within TAZs indicate that people are likely to live in one TAZ (high workforce/low employment) and commute to another TAZ (low workforce/high employment).

- Vehicle Registrations - This measure is important in that it is able to indicate the number of vehicles per housing unit so as to help indicate the number of daily trips from housing units.

- Dwelling Units - This is a measure of the number of occupied dwelling units within a TAZ, and includes multiple and single-family units.

The process of compiling the socioeconomic data and forecasting for year 2015 was done in three stages. The first stage collected and updated the 1990 population and population-related variables like occupied dwelling units, registered vehicles, and work force, as well as 1990 data for square footage, and school attendance.

The next stage was to develop year 2015 projections for population. The population-related variables were then modified according to the population forecasts. Finally, the other data was

adjusted based on the various data sources including Chamber of Commerce databases and the County's school planners. The control year 2015 forecasts were developed despite the Southern Connector project; that is, the 2015 control data does not include potential impacts from the Southern Connector project.

The third phase in this process was to update the 2015 projections assuming the Southern Connector would be completed by the year 2005 and would be a catalyst for growth in the southern part of the county. It was further assumed that the Southern Connector's impact on the southern half of the county would cause the 2005 - 2015 increase in population to increase from 6.0 percent over the decade in the base to 8.5 percent over the decade with the Southern Connector in place.

In estimating the Southern Connector's impact on the county, GCPC identified only those TAZs which would potentially be impacted by the Southern Connector. This micro approach to measuring the potential impact as opposed to a countywide approach provides more detail and accuracy and appears to be more sound. The increase in the 10 year percentage growth by a mere 2.5 percentage points over the entire 10-year period appears to be conservative since it is merely consistent with previous growth over similar time periods.

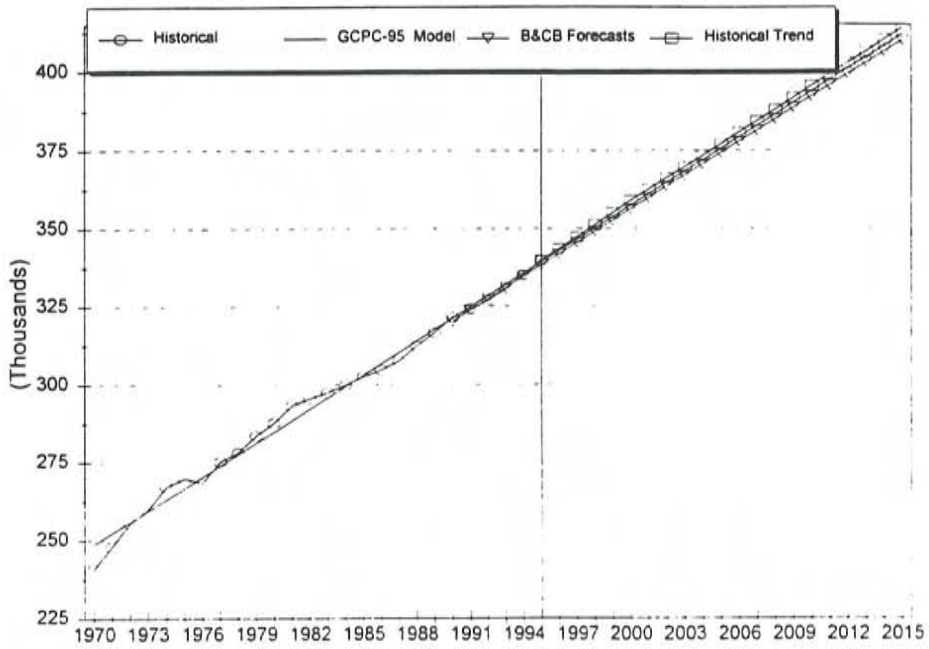
Growth Trend Analysis

This section compares the employment and population trends for the GCPC projections with growth trends over the past 25 years. Figure 28 shows "historical trend" lines which are linear regressions of historical population and employment estimates for the period 1970-1994 sourced from the U.S. Census Bureau and South Carolina Employment Security Commission.

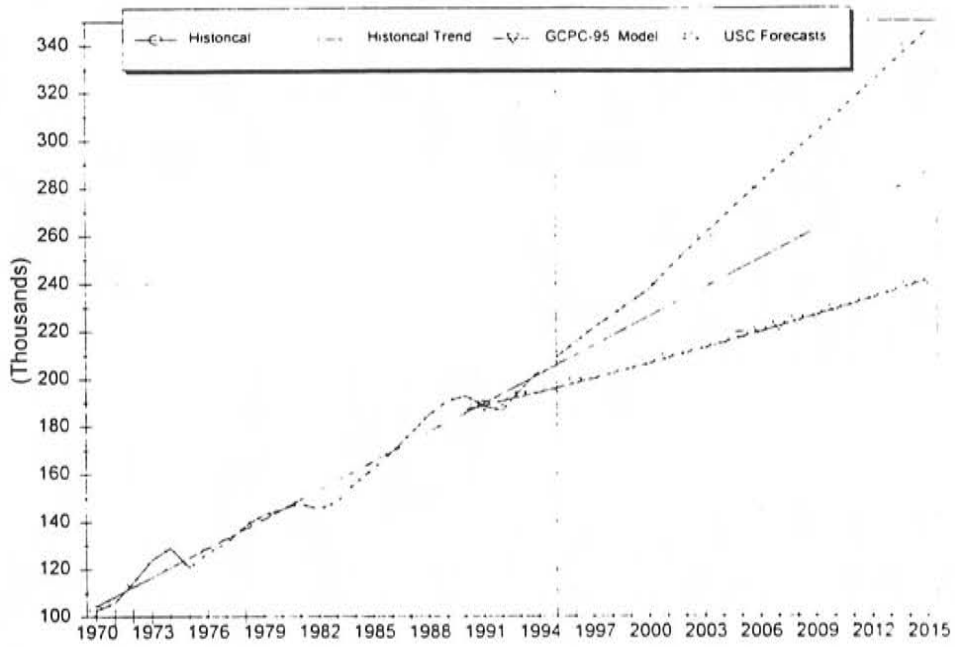
The graph in Figure 28 indicates that the GCPC's population projections are in line with historic trends. The "historic trend" line is a linear regression of Census population estimates for the period 1970-1994. The trend line for the 2015 projections appear to be slightly conservative, but consistent with historical growth trends.

The second graph shows employment forecasts and illustrates an important point: the historic trend line is steeper than the GCPC projected trend line, and hence the 2015 employment projections are inherently low and are not consistent with the county's historical growth trends, or the county's current robust economy. Not only are the GCPC forecasts below the historical trend line, but there is at least one other forecast that future employment growth will exceed the historical trend. The

Population



Employment



SOURCES (Employment): GCPC (Greenville County Planning Commission), SC Employment Security Commission
USC (University Of South Carolina, Division of Research)
SOURCES (Population): GCPC (Greenville County Planning Commission), U S Census Bureau, U S Census Bureau,
B&CB (SC State Budget & Control Board)

EMPLOYMENT & POPULATION GROWTH TRENDS

Comparing The GCPC Model Forecasts With Other Benchmarks

WILBUR SMITH ASSOCIATES

FIGURE 28

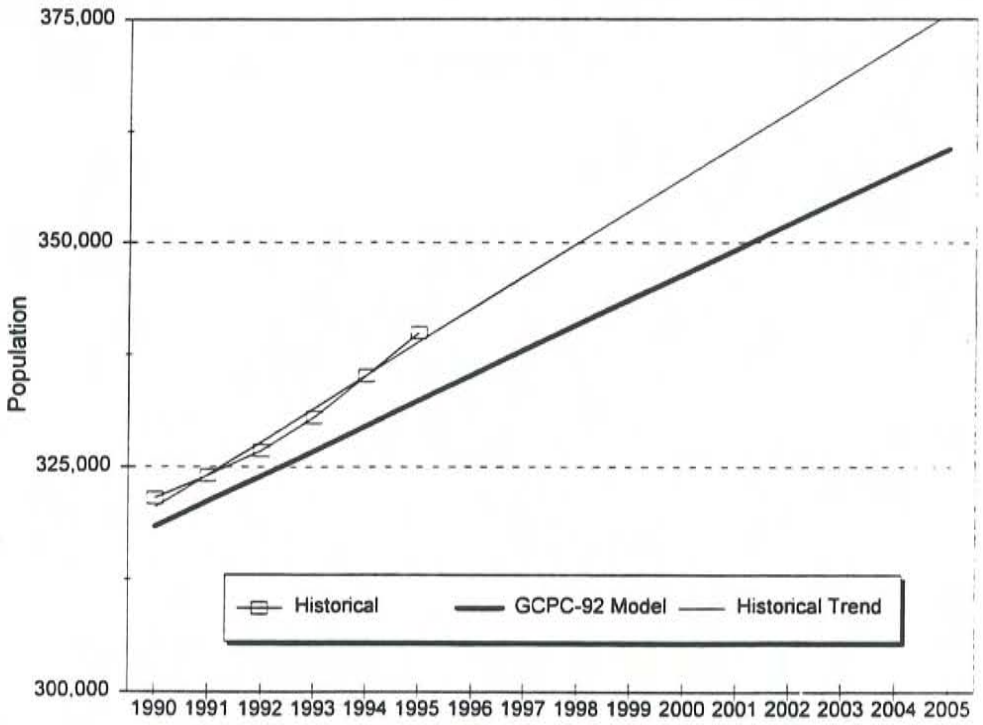
graph shows forecasts provided by the University of South Carolina which are significantly higher than the GCPC forecasts and the historical growth trend.

Historical Forecasts by the Greenville County Planning Commission - Another approach in analyzing and verifying the current TRANPLAN socioeconomic forecasts is to evaluate previous forecasts performed by GCPC. The goal is to identify and compare the forecasts with actual estimates for past periods. In 1992, the GCPC produced a series of forecasts by Census tract for population for year 2005. Figure 29 indicates that these 1992 forecasts were below actual growth trends. The forecasts were interpolated to produce a 1995 forecast which was compared with the actual estimate for 1995 based on interim Census estimates provided by the Bureau of the Census. The Figure illustrates that the 1995 forecast of the 1992 GCPC projections is lower than the actual estimate sourced from the Census. This indicates that the GCPC has historically underestimated population growth.

Analysis of Development Patterns - The previous report section (Greenville County Growth Analysis) identified two key development patterns for Greenville County: 1) most of the growth is occurring in the southern half of the county; and 2) the southwestern quadrant is emerging as the industrial corridor while the southeastern quadrant is emerging as a residential growth area. The objective was to verify whether the development patterns for GCPC forecasts are consistent with these emerging growth patterns.

Regional growth patterns in the GCPC forecasts appear to be consistent with existing growth development patterns. Figure 30 illustrates that according to the GCPC 2015 projections, the Southwestern Industrial Region will experience the highest growth in employment while the Southeastern Residential Region is predicted to experience the highest population growth. These two development trends as predicted by the GCPC 2015 forecasts are consistent with the growth analysis results discussed earlier.

Based on this review of the socioeconomic forecasts for 2015, the projections for Greenville County are reasonable, and possibly somewhat conservative. The methodology of allocating growth and predicting development patterns within the county is reasonable since the growth patterns indicated by the 2015 forecasts are consistent with evidence of emerging growth and development patterns in Greenville County. The socioeconomic forecasts used to compute and estimate traffic and revenue forecasts for the Southern Connector are based on solid and reasonable socioeconomic data.



	(A)	(B)	(C)	(D)	(E)
	Historical	GCPC-92 Model	Historical Trend	(B)/(A)	(B)/(C)
1990	321,524	318,684	320,467	99%	99%
1991	324,046	321,379	324,151	99%	99%
1992	326,880	324,075	327,834	99%	99%
1993	330,536	326,770	331,518	99%	99%
1994	335,161	329,466	335,201	98%	98%
1995	339,908	332,161	338,884	98%	98%
1996		334,970	342,568	-	98%
1997		337,780	346,251	-	98%
1998		340,589	349,935	-	97%
1999		343,399	353,618	-	97%
2000		346,208	357,302	-	97%
2001		349,136	360,985	-	97%
2002		352,064	364,669	-	97%
2003		354,993	368,352	-	96%
2004		357,921	372,036	-	96%
2005		360,849	375,719	-	96%

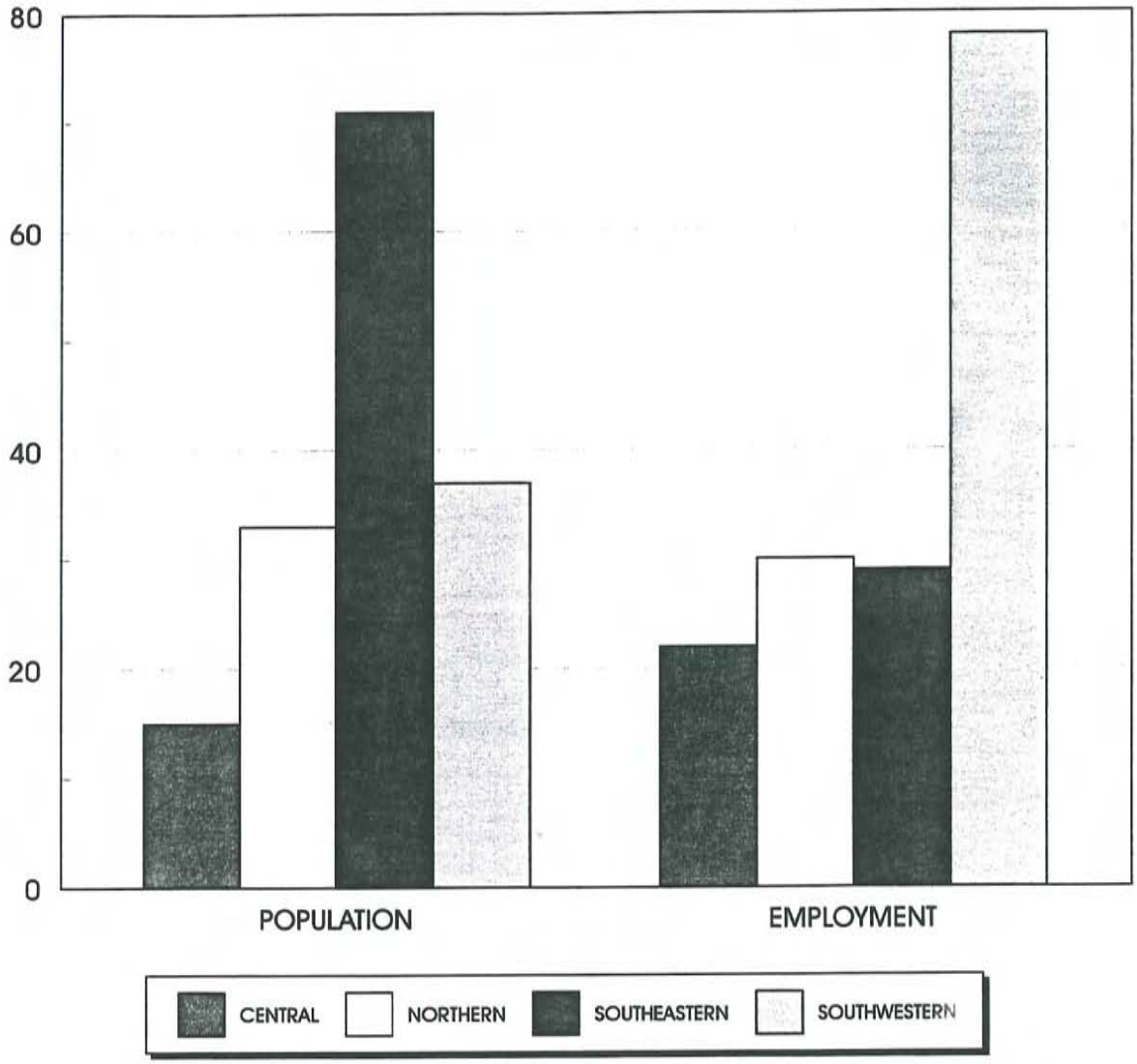
SOURCES: Greenville County Planning Commission; U.S. Census Bureau.

EXAMINING PREVIOUS POPULATION FORECASTS

GCPC-92 Model Projections vs Historical Data

WILBUR SMITH ASSOCIATES

FIGURE 29



	POPULATION			EMPLOYMENT		
Regions	1990	2015	Percent Change	1990	2015	Percent Change
Central	199,274	228,454	15	126,727	155,009	22
Northern	36,298	48,438	33	8,043	10,481	30
Southeastern (Residential)	51,029	87,346	71	34,777	44,838	29
Southwestern (Industrial)	33,462	45,790	37	17,440	31,025	78
County	320,063	410,028	28	186,987	241,353	29

SOURCE: GREENVILLE COUNTY PLANNING COMMISSION (GCPC-95 MODEL)

GCPC-95 MODEL REGIONAL GROWTH TRENDS

CONSISTENT WITH EXISTING AND EMERGING GROWTH TRENDS

WILBUR SMITH ASSOCIATES

FIGURE 30

Anderson and Spartanburg Counties

While the majority of trips using the proposed Southern Connector would be within Greenville County, a more general review was also made of growth trends and projections in neighboring Anderson and Spartanburg Counties. Anderson County is located west of Greenville, along the I-85 corridor. Spartanburg County is located to the east. Given the close proximity of the two larger cities in each County, there is considerable interchange of travel between Greenville and Spartanburg. The two cities share a regional airport and various major employers such as BMW in Greer. Both Anderson and Spartanburg counties have the potential for population and employment growth, in part due to their location along the Atlanta to Charlotte I-85 corridor.

Population - The 1995 population of Anderson County, as shown in Table 13, was approximately 152,600 and 238,447 for Spartanburg County compared to Greenville County's population of 339,908. Anderson county has seen steady, but moderate population growth and this trend is predicted to continue although slighlty lower than the state's predicted growth. The population is predicted to grow by an average annual rate of less than 1.0 percent for both counties bringing Anderson County's population to 181,000 and Spartanburg County's population to 282,275 in the year 2015. Greenville County's population is expected to be 410,028 in the year 2015 according to the Greenville County Planning Commision's GCPC-95 Model, and average growth of 0.9 percent per year.

Employment - As shown in Table 14, the labor force in both counties has continued to grow over the past 15 years but at a decreasing rate. The labor force grew by 19.5 percent in Anderson County and 19.8 percent in Spartanburg county during the period of 1980 to 1990 while the state employment grew by 24.0 percent. This rate slowed in Anderson and Spartanburg counties to 8.5 percent and 7.6 percent respectively during the period of 1990 to 1994 as the state slowed to 9.1 percent.

Throughout the region the percentage of employment in manufacturing has dropped while employment in the service and retail sectors continues to grow as is typical in many regions of the country. In the period 1980 to 1992 the manufacturing employment sector dropped from 40.5 to 28.5 percent in Anderson County and from 37.7 to 29.8 percent in Spartanburg county. Counteracting this decline, retail and service employment increased in Anderson County from 15.8 to 20.4 percent and 12.8 to 18.9 percent, respectively. In Spartanburg County, retail increased from 13.9 to 17.2 percent and services increased from 15.2 to 21.4 percent during the period of 1980 to 1994.

Table 13

POPULATION TRENDS AND PROJECTIONS
Anderson and Spartanburg Counties

YEAR	ANDERSON COUNTY	SPARTANBURG COUNTY	SOUTH CAROLINA
1980	133,235	203,023	3,121,820
1990	145,177	226,800	3,486,703
1995	152,600	238,447	3,741,700
2000	160,400	250,100	3,976,800
2010	174,900	272,796	4,486,700
2015	181,200	282,300	4,672,500
Average Annual Percent Changes			
1980-1990	0.8	1.1	1.1
1990-1995	1.0	1.0	1.4
1995-2015	0.9	0.8	1.1

Source: 1982, 1994 and 1996 South Carolina Statistical Abstracts

Table 14

EMPLOYMENT

COUNTY	1980	DIFFERENCE	AVERAGE ANNUAL PERCENT CHANGE	1990	DIFFERENCE	AVERAGE ANNUAL PERCENT CHANGE	1994
Anderson	49,210	4,890	1.0	54,100	4,900	2.2	59,000
Spartanburg	89,000	17,600	1.8	106,600	8,100	1.8	114,700
State	1,187,400	285,330	2.2	1,472,730	134,570	2.2	1,607,300

Source: 1982, 1994, and 1996 South Carolina Statistical Abstracts

Per Capita Income - Per capita income has increased in both Anderson and Spartanburg counties but not keeping pace with the rest of the state. In Anderson County the per capita income rose from $6,705 in 1979 to $12,027 in 1989 and to $17,299 in 1994. The period 1989 to 1994 was a change of 43.8 percent while the state experienced a slightly higher increase of 48.9 percent. In Spartanburg County the per capita income rose from $6,312 in 1980 to $12,218 in 1990 and to $16,887 in 1994. The period 1990 to 1994 represents an increase of 38.2 percent.

Commerce - Anderson County has maintained steady growth in retail sales during the last 15 years, but has not kept pace with either the region or the state. Anderson County increased sales by 27 percent from 1990 to 1995 while the region and state experienced growths of 36 and 35 percent, respectively, during the same time period. In 1990, Anderson County represented 13.2 percent of the regional retail market and currently maintains 11.8 percent. Spartanburg County has followed a similar pattern in retails sales. Retail sales increased by 28 percent from 1990 to 1995.