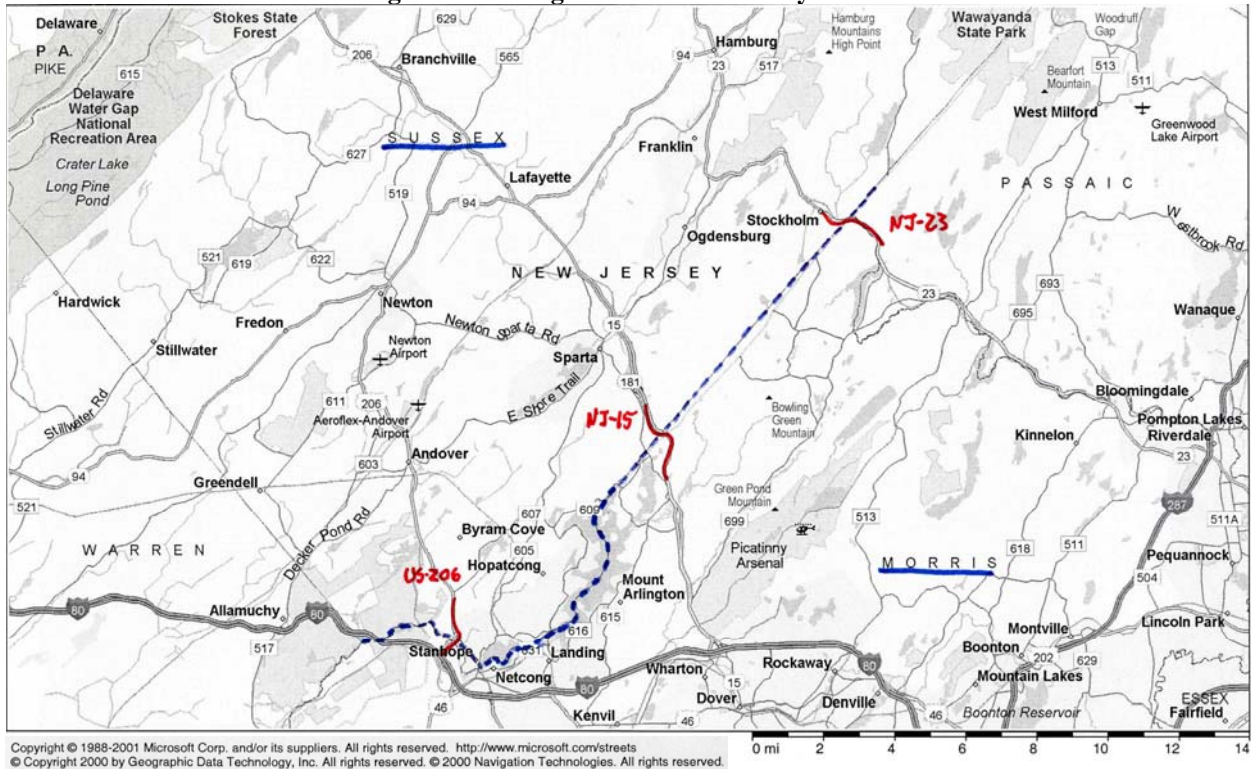


## Chapter 3: Origin/Destination Survey

In order to determine the transportation needs and appropriate solutions for an area it is important to have an understanding of the underlying characteristics of travel. The origins and destinations of traffic are among the most important of these characteristics. For the purposes of the Sussex County Ten Year Mobility Study, one particular subset of trips was the focus: those leaving the County for work. A roadside origin-destination study was undertaken to measure travel characteristics at the busiest locations where travelers exited Sussex County on weekday mornings between the hours of 6am and 9am. The locations were on Routes 15, 23 and 206, as they cross into Morris County (see Figure 3-22).

Figure 3-22: Origin/Destination Survey Routes



The survey was of the postcard mail-back type. Postcards were distributed to passing motorists, to be completed and returned by postage-paid, business reply mail. The four-by-six inch mail-back card, as shown in Figure 3-23, was the tear-off section of a larger six-by-ten inch card, both sides of which are shown in Figure 3-24. The mail-back card included basic questions as to the origin and destination address, including municipality, activity at the origin and destination, where the vehicle was parked at the end of the trip, the trip purpose, vehicle occupancy, and a selection of routes used during the trip. This general format has been used by the New Jersey Department of Transportation on many similar origin / destination studies. The other part of the card included the reasons for the survey, the rationale behind its distribution during the morning rush, as well as rudimentary instructions. These instructions included the option of responding to the survey by means of a special internet website linked from the Sussex County homepage.

Figure 3-23: Origin/Destination Survey Mail-back Card

**N<sup>o</sup> 15000**

**1. WHERE DID YOUR TRIP BEGIN?**  
 Address (or nearest intersection) \_\_\_\_\_  
 Municipality \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 CHECK ONE:  Home  Work Site  Store  School  Other

**2. WHERE DID YOUR TRIP END?**  
 Address (or nearest intersection) \_\_\_\_\_  
 Municipality \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 CHECK ONE:  Home  Work Site  Store  School  Other

**3. WHERE DID YOU PARK YOUR CAR?**  
 Your destination as described above in question #2  
 Park & Ride lot for carpooling  Park & Ride lot for bus service  
 Train station  Other  
 Which Park & Ride or station? \_\_\_\_\_


**4. WHAT WAS THE PRIMARY PURPOSE OF YOUR TRIP?**  
 Going to or coming from work  To or from school  
 To or from shopping  Social or recreational  
 Personal business (doctor, dentist, or other appointment)  Business-related  
 Other purpose

**5. INCLUDING YOURSELF, HOW MANY PEOPLE WERE IN YOUR VEHICLE?** \_\_\_\_\_

**6. WHICH ROUTES DID YOU USE ON YOUR TRIP?**

<input type="checkbox"/> Rte 3	<input type="checkbox"/> Rte 94	<input type="checkbox"/> Rte 605	<input type="checkbox"/> I-78
<input type="checkbox"/> Rte 97	<input type="checkbox"/> Rte 6	<input type="checkbox"/> Rte 607	<input type="checkbox"/> I-80
<input type="checkbox"/> Rte 10	<input type="checkbox"/> Rte 181	<input type="checkbox"/> Rte 616	<input type="checkbox"/> I-84
<input type="checkbox"/> Rte 15	<input type="checkbox"/> Rte 183	<input type="checkbox"/> Rte 653	<input type="checkbox"/> I-280
<input type="checkbox"/> Rte 23	<input type="checkbox"/> Rte 206	<input type="checkbox"/> Rte 669	<input type="checkbox"/> I-287
<input type="checkbox"/> Rte 24	<input type="checkbox"/> Rte 208	<input type="checkbox"/> Rte 739	<input type="checkbox"/> Millford Br
<input type="checkbox"/> Rte 46	<input type="checkbox"/> Rte 209	<input type="checkbox"/> Dingman's Ferry Br	

Figure 3-24: Origin/Destination Survey Card



**Routes 15, 23 & 206  
Motorist Survey**

Please support our efforts to serve you better by participating in this survey. The results will help Sussex County to develop and promote recommendations for improving our major commuter corridors.

You can participate by filling out the attached card and returning it, by postage-free mail, as quickly as possible. Or, if you have internet access, please use our online survey form: go to [www.sussex.nj.us](http://www.sussex.nj.us) and click on "Respond to Motorist Survey" (under "News and Announcements")

Website responses are greatly appreciated, and offer you the opportunity to provide open-ended comments. Have this survey card handy, however, as you will need to enter the number that is printed on the front of it.

Please remember that *all* questions refer to the trip you were taking at the time you were handed this card.

↓ PLEASE DETACH HERE AND MAIL BACK ↓

**Why we are conducting this survey during rush hour**

We are handing out survey cards when traffic is heaviest, because, in order to reduce congestion, we need to find out why people are driving in congested conditions and where they are going. To do this, we need to contact motorists, such as yourself, who are actually on the road at these times.

While we have done our best to minimize inconvenience to you as we pass out the survey cards, we recognize that you may have experienced some additional delay. For this we apologize, thank you for your patience, and ask you to keep in mind that motorist surveys, such as this one, are very rare occurrences.

**THANK YOU  
FOR YOUR ASSISTANCE !**

*Sussex County Board of Chosen Freeholders*

↓ PLEASE DETACH HERE AND MAIL BACK ↓

---

**1. WHERE DID YOUR TRIP BEGIN?**  
 Address (or nearest intersection) \_\_\_\_\_  
 Municipality \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 CHECK ONE:  Home  Work Site  Store  School  Other

**2. WHERE DID YOUR TRIP END?**  
 Address (or nearest intersection) \_\_\_\_\_  
 Municipality \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 CHECK ONE:  Home  Work Site  Store  School  Other

**3. WHERE DID YOU PARK YOUR CAR?**  
 Your destination as described above in question #2  
 Park & Ride lot for carpooling  Park & Ride lot for bus service  
 Train station  Other  
 Which Park & Ride or station? \_\_\_\_\_

**4. WHAT WAS THE PRIMARY PURPOSE OF YOUR TRIP?**  
 Going to or coming from work  To or from school  
 To or from shopping  Social or recreational  
 Personal business (doctor, dentist, or other appointment)  Business-related  
 Other purpose

**5. INCLUDING YOURSELF, HOW MANY PEOPLE WERE IN YOUR VEHICLE?** \_\_\_\_\_

**6. WHICH ROUTES DID YOU USE ON YOUR TRIP?**

<input type="checkbox"/> Rte 3	<input type="checkbox"/> Rte 94	<input type="checkbox"/> Rte 605	<input type="checkbox"/> I-78
<input type="checkbox"/> Rte 97	<input type="checkbox"/> Rte 6	<input type="checkbox"/> Rte 607	<input type="checkbox"/> I-80
<input type="checkbox"/> Rte 10	<input type="checkbox"/> Rte 181	<input type="checkbox"/> Rte 616	<input type="checkbox"/> I-84
<input type="checkbox"/> Rte 15	<input type="checkbox"/> Rte 183	<input type="checkbox"/> Rte 653	<input type="checkbox"/> I-280
<input type="checkbox"/> Rte 23	<input type="checkbox"/> Rte 206	<input type="checkbox"/> Rte 669	<input type="checkbox"/> I-287
<input type="checkbox"/> Rte 24	<input type="checkbox"/> Rte 208	<input type="checkbox"/> Rte 739	<input type="checkbox"/> Millford Br
<input type="checkbox"/> Rte 46	<input type="checkbox"/> Rte 209	<input type="checkbox"/> Dingman's Ferry Br	

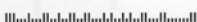
**N<sup>o</sup> 15000**

**BUSINESS REPLY MAIL**  
 FIRST-CLASS MAIL PERMIT NO. 48 NEWTON NJ

POSTAGE WILL BE PAID BY ADDRESSEE

COUNTY MOBILITY STUDY  
 SUSSEX COUNTY DIV OF PLANNING  
 COUNTY ADMIN CENTER  
 1 SPRING ST  
 NEWTON NJ 07860-9900

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

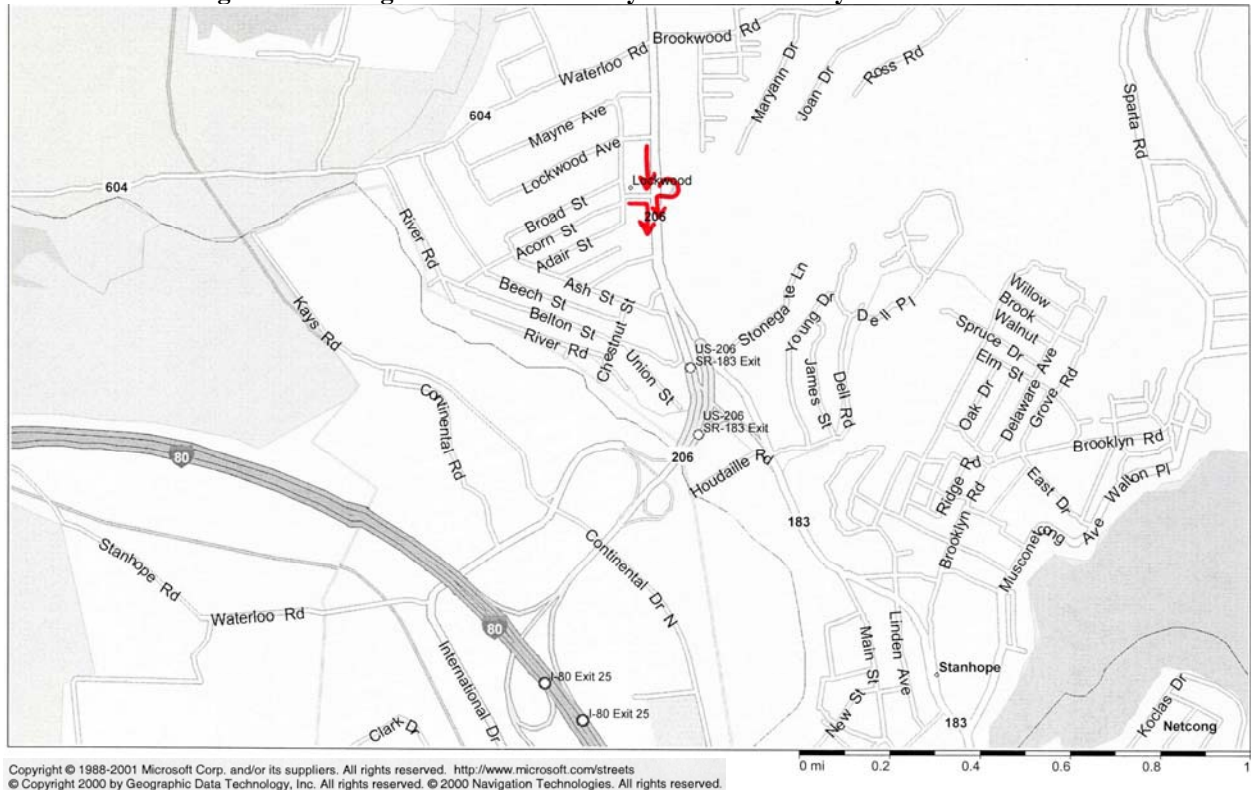


Because of the speed and volume of traffic at the County line, the actual survey sites were located at intersections and ramps. These were chosen on the basis of visibility, as well as maximizing the number of surveyed vehicles destined for the County line. The survey locations, grouped by primary route, and illustrated in Figures 3-25 – 3-27, were as follows:

US Route 206 (all at the Acorn Street signal in Byram Township / Stanhope):

- Route 206 southbound approach;
- Right turns from Acorn Street eastbound approach; and
- Left turns from the northbound Route 206 jughandle (westbound approach).

**Figure 3-25: Origin/Destination Survey Route 206 Survey Locations**



NJ Route 15 (all in Sparta Township)

- Route 15 southbound approach at the NJ Route 181 signal (northern freeway terminus);
- Ramp from County Route 517 / Sparta Bypass to Route 15 southbound; and
- Ramp from Blue Heron Road eastbound (just east of Route 181) to Route 15 southbound.

NJ Route 23 (both in Hardyston Township)

- Route 23 southbound approach at the County Route 515 signal; and
- Route 515 southbound, 0.5 mile north of Route 23 (typical back of queue).

Figure 3-26: Origin/Destination Survey Route 15 Survey Locations

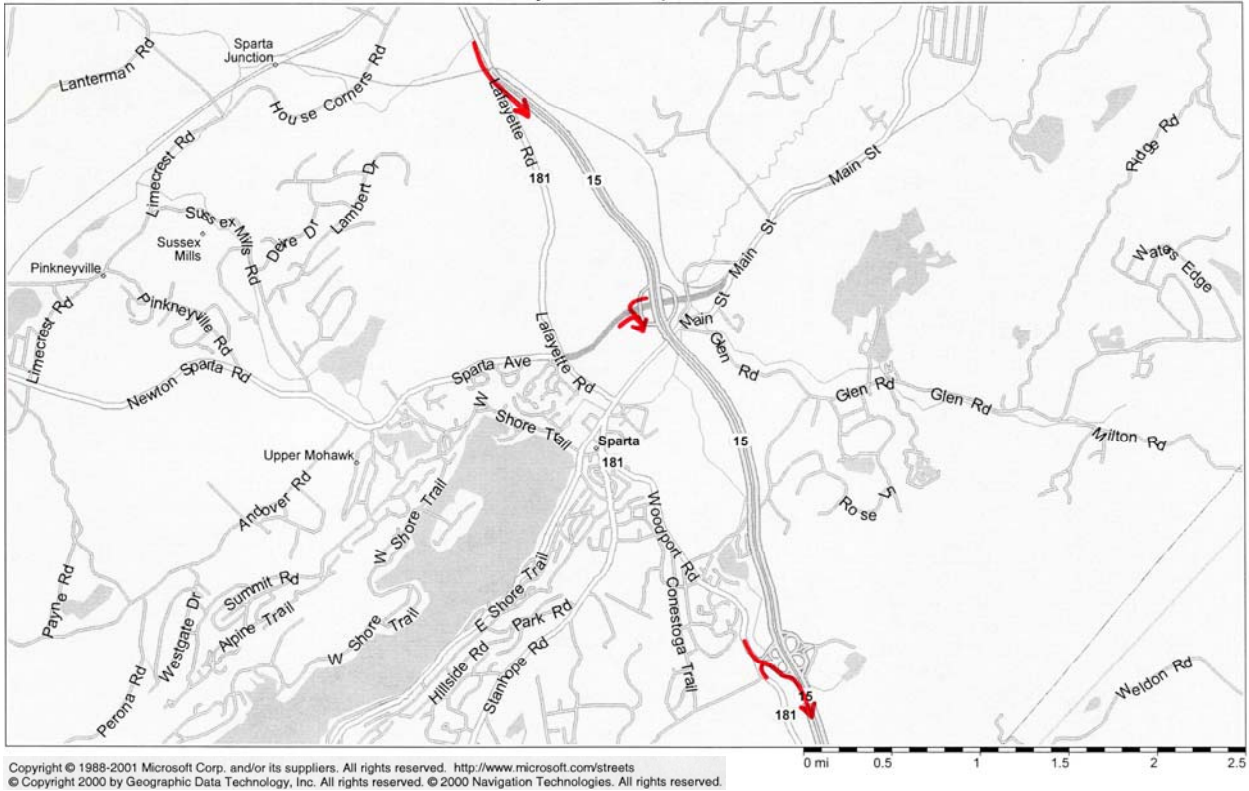
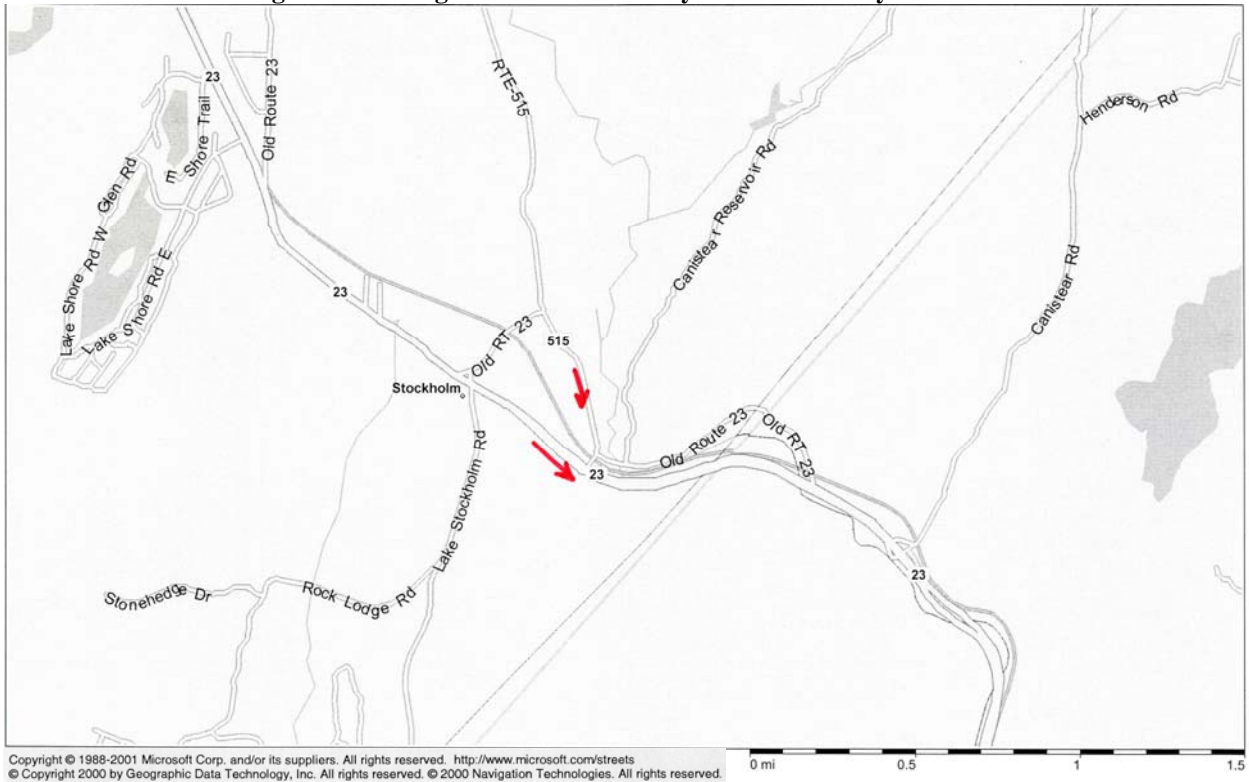


Figure 3-27: Origin/Destination Survey Route 23 Survey Locations



The survey was conducted on weekdays between October 29 and December 19, 2002, during the hours of 6:00 to 9:00 am. These hours were selected to encompass the peak periods of travel when traffic volumes are highest in the study area. They also took into account the overall expanded peak period attributable to attempts to avoid downstream congestion, as well as the longer trip lengths expected for residents of Sussex County and Pike County, Pennsylvania.

A summary of survey statistics, broken down by route and location, is presented in Table 3-16.

**Table 3-16: Origin/Destination Survey Statistics**

		Route											All
		US-206				NJ-15				NJ-23			
		206 Sb at Acorn	RT from Acorn Eb	LT from Jug Wh	Total	15 Sb at 181	Ramps to 15 Sb from 517	Eb Heron Eb	Total	23 Sb at 515	515 Sb N of 23	Total	
Traffic Volume	6-9 am	3,490	131	193	3,814	3,030	2,605	1,630	7,265	3,380	1,790	5,170	<b>16,249</b>
Distribution	Cards	2,753	108	156	3,017	2,035	2,282	1,347	5,664	2,217	1,448	3,665	<b>12,346</b>
	Pct of Traffic	78.9%	82.4%	80.8%	79.1%	67.2%	87.6%	82.6%	78.0%	65.6%	80.9%	70.9%	<b>76.0%</b>
Responses*	Number	1,146	49	52	1,247	869	950	604	2,423	884	632	1,516	<b>5,186</b>
	Pct of Dist'd	41.6%	45.4%	33.3%	41.3%	42.7%	41.6%	44.8%	42.8%	39.9%	43.6%	41.4%	<b>42.0%</b>
Percent Surveyed		32.8%	37.4%	26.9%	32.7%	28.7%	36.5%	37.1%	33.4%	26.2%	35.3%	29.3%	<b>31.9%</b>
Website Responses	Number	202	9	6	217	140	163	108	411	143	146	289	<b>917</b>
	Pct of Returns	17.6%	18.4%	11.5%	17.4%	16.1%	17.2%	17.9%	17.0%	16.2%	23.1%	19.1%	<b>17.7%</b>

\* - Usable responses only

As shown, a total of 12,346 cards were distributed to passing motorists, with 5,186 responses being received; an impressive 32%. Of these responses, almost 18 percent were submitted via the survey website – about 2 out of every 11. In order to avoid the safety problems of inadequate light, as well as to allow queuing caused by the set-up process to dissipate, some of the earlier 15-minute periods were not surveyed at some locations. Even so, about 32 percent of the total traffic passing through the survey locations between 6 and 9 am – the surveyed “population” – provided usable responses. At individual locations, the sample ranged from 26 to 37 percent – these numbers represent an outstanding rate of return.

Return rates as low as 10% are often expected and accepted for roadside surveys and this sample substantially exceeds that rate. A sample rate this high can be attributed, at least partially, to motorists perceiving a significant problem and believing that participation might help to bring about solutions. This is further borne out by the website responses. In addition to the required data, participants who responded to the survey using the website had the option of submitting comments along with their response. As a result, 722 out of 5,235 total responses - about 14 % - included comments regarding the survey itself, traffic conditions, and/or possible solutions. This equates to about 4.5 percent of the surveyed population – a sizeable sample for an optional, open-ended question. These comments were submitted separately from this report.

Survey postcards that were returned were encoded and entered into a database. While address information was entered, and retained for potential future use, analysis of origins and destinations was conducted at the municipality level.

In order to account for the fact that 100 percent of the surveyed population did not respond to the survey, expansion factors were developed. These factors essentially indicate how many members of the population are represented by each response, based on the sample size and traffic volume. They were computed for each survey station and 1/2-hour time period and then added to each response record. One instance, the absence of 30 minutes of data, required the use of an expansion factor covering an entire hour. Following thorough quality assurance checks, including removal of duplicate web-site responses and making data entries for equivalent answers uniform, tabulations of the data were prepared.

Table and charts, based on these tabulations, are presented in the remainder of this section. In all cases, the data represent the total 6 am to 9 am volume passing through the survey locations.

Note that the total number of trips / responses may vary slightly from table to table. This is because respondents did not necessarily answer all questions, and therefore the number of usable responses varied from question to question.

Before getting into the origins and destinations of the survey respondents, first we will look at how and why they are making their trips.

### **Travel Mode**

Respondents were asked how they were making their trip on the day of the survey. Respondents were asked where they parked their car to determine if a multi-mode trip was taken and were asked which routes they used to get to their destination. The following items must be noted:

- “Drive Only” mode trips include carpools that formed before reaching the survey location, and thus are not equivalent to “drive alone”.
- Given that about 10 percent of vehicles had two or more occupants, it is possible that some percentage of multi-mode trips were “Carpool / ... rather than “Drive / ...
- It was not possible to determine if “Drive / Carpool” mode trips utilized the vehicle that was surveyed upon reaching the park and ride (or equivalent) lot, or the occupant(s) became passengers of another vehicle.
- Top Park and Ride Lots includes top-ten or 11, depending on ties.

From the travel mode questions, the following general observations were made:

- At just under 3 percent, Route 15 had the largest share of multi-mode trips, and Route 206 with just over 2 percent had the smallest share of multi-mode trips.
- With almost 17 percent, the Newfoundland Park and Ride on Route 23 had the largest share of multi-mode trips; Dover had the highest share by rail station at about 11.5 percent.
- While unidentified carpool park and ride lots had just under a 5 percent share of multi-mode trips, the identified carpool lot at Blue Heron Road off the Route 15 freeway in Sparta had the highest share with about 3.5 percent.

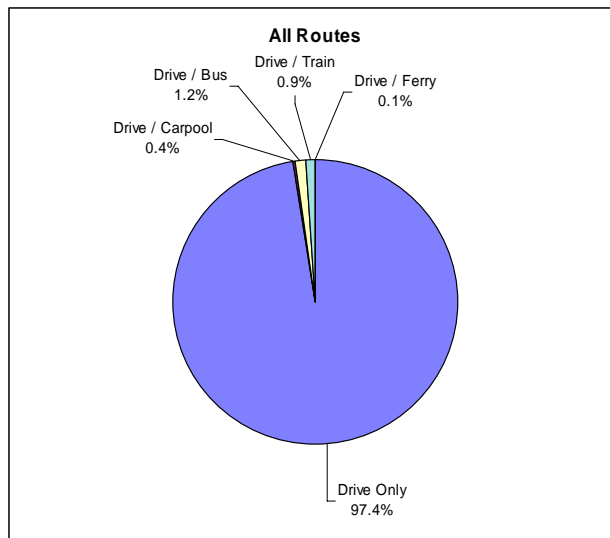
Tables 3-17 and 3-18 and Figures 3-29 describe the travel modes used by survey respondents. The charts show the travel mode information for the total of all surveyed routes (routes 15, 23, and 206).

**Table 3-17: Origin/Destination Survey Distribution of Travel Modes**

Travel Mode	Distribution of Travel Modes							
	US-206		NJ-15		NJ-23		All Routes	
	Trips	%	Trips	%	Trips	%	Trips	%
Drive Only*	3,732	97.9%	7,067	97.2%	5,034	97.4%	15,834	97.5%
Drive / Carpool	21	0.6%	35	0.5%	9	0.2%	65	0.4%
Drive / Bus	6	0.2%	79	1.1%	107	2.1%	192	1.2%
Drive / Train	54	1.4%	74	1.0%	16	0.3%	144	0.9%
Drive / Ferry	0	0.0%	12	0.2%	2	0.0%	14	0.1%
<i>Multi-Mode Total</i>	<i>81</i>	<i>2.1%</i>	<i>200</i>	<i>2.8%</i>	<i>134</i>	<i>2.6%</i>	<i>415</i>	<i>2.6%</i>
<b>TOTAL*</b>	<b>3,813</b>	<b>100.0%</b>	<b>7,267</b>	<b>100.0%</b>	<b>5,168</b>	<b>100.0%</b>	<b>16,248</b>	<b>100.0%</b>

\* Usable responses only

**Figure 3-28: Origin/Destination Survey Travel Mode for All Surveyed Routes**



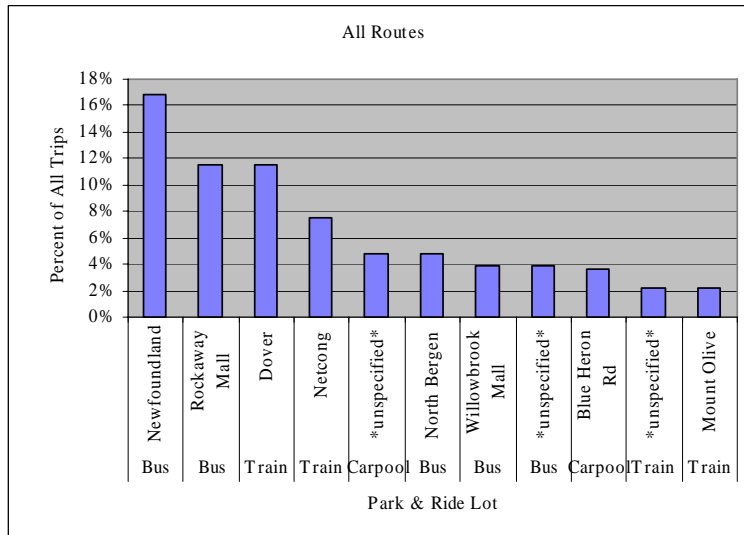
**Table 3-18: Distribution of Top Park & Ride Lots for Multimode Trips for All Surveyed Routes**

All Routes			
Mode	Park & Ride / Station	Trips	%
Bus	Newfoundland	70	16.9%
Bus	Rockaway Mall	48	11.6%
Train	Dover	48	11.6%
Train	Netcong	31	7.5%
Carpool	*unspecified*	20	4.8%
Bus	North Bergen	20	4.8%
Bus	Willowbrook Mall	16	3.9%
Bus	*unspecified*	16	3.9%
Carpool	Blue Heron Rd	15	3.6%
Train	*unspecified*	9	2.2%
Train	Mount Olive	9	2.2%
<b>Total</b>		<b>302</b>	<b>72.8%</b>

Total of All Multi-Mode Trips

415

**Figure 29: Percent of Top Park & Ride Lots for Multimode Trips for All Surveyed Routes**



### Vehicle Occupancy

Respondents were asked how many occupants were in their vehicle including themselves. Please note that if the occupancy was listed as 12 or higher then the response was considered to be a bus and was excluded from the occupancy tabulations.

The following general observations were made about occupancy:

- Single occupant vehicles represent 90.6 percent of all trips, with up to 1 percent variation for individual routes.



- Vehicles with two occupants comprise 7.5 percent of all trips, while those with three or more occupants comprise just under 2 percent.
- The average auto/van occupancy for the surveyed routes was calculated at 1.14 – typical for a suburban area during a weekday, morning peak period.

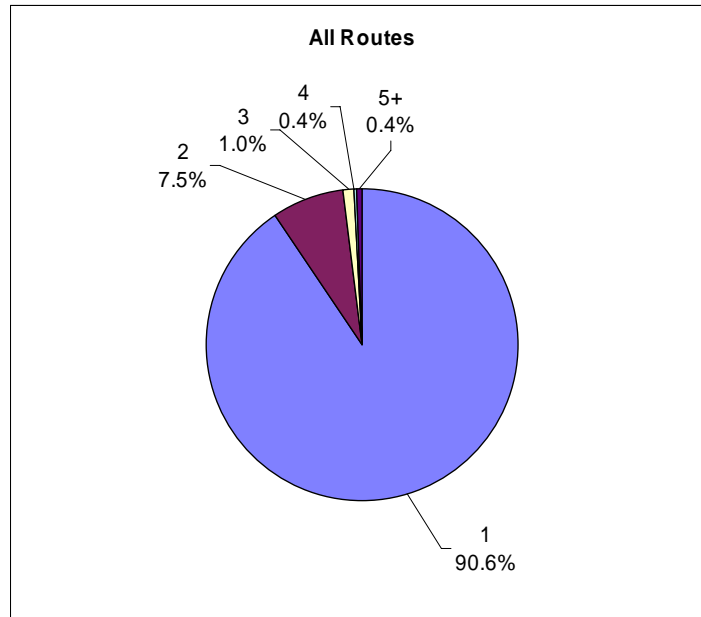
Table 3-19 and Figure 3-30 describe vehicle occupancy in detail.

**Table 3-19: Origin/Destination Survey Distribution of Vehicle Occupancy**

Distribution of Vehicle Occupancy								
Occupancy*	US-206		NJ-15		NJ-23		All Routes	
	Trips	%	Trips	%	Trips	%	Trips	%
1	3,412	89.6%	6,618	91.1%	4,684	90.6%	14,714	90.6%
2	304	8.0%	517	7.1%	402	7.8%	1,223	7.5%
3	52	1.4%	83	1.1%	34	0.7%	169	1.0%
4	22	0.6%	21	0.3%	18	0.3%	61	0.4%
5	0	0.0%	4	0.1%	6	0.1%	10	0.1%
6	5	0.1%	0	0.0%	5	0.1%	10	0.1%
7	0	0.0%	6	0.1%	4	0.1%	10	0.1%
8	3	0.1%	0	0.0%	0	0.0%	3	0.0%
10	6	0.2%	10	0.1%	18	0.3%	34	0.2%
12	3	0.1%	3	0.0%	0	0.0%	6	0.0%
<b>Total *</b>	<b>3,807</b>	<b>100.0%</b>	<b>7,262</b>	<b>100.0%</b>	<b>5,171</b>	<b>100.0%</b>	<b>16,240</b>	<b>100.0%</b>
<b>Avg. Occupancy</b>	<b>1.16</b>		<b>1.13</b>		<b>1.15</b>		<b>1.14</b>	

\* Usable responses only

Figure 3-30: Origin/Destination Survey Vehicle Occupancy for all Surveyed Routes



### Trip Purpose

Respondents were asked their trip purpose on the day of the survey and were given several choices of which they could check one. Figure 3-31 and Table 3-20 present the trip purpose information in detail. Figure 3-31 shows the trip purpose for the total of all surveyed routes. The following Trip purpose were made:

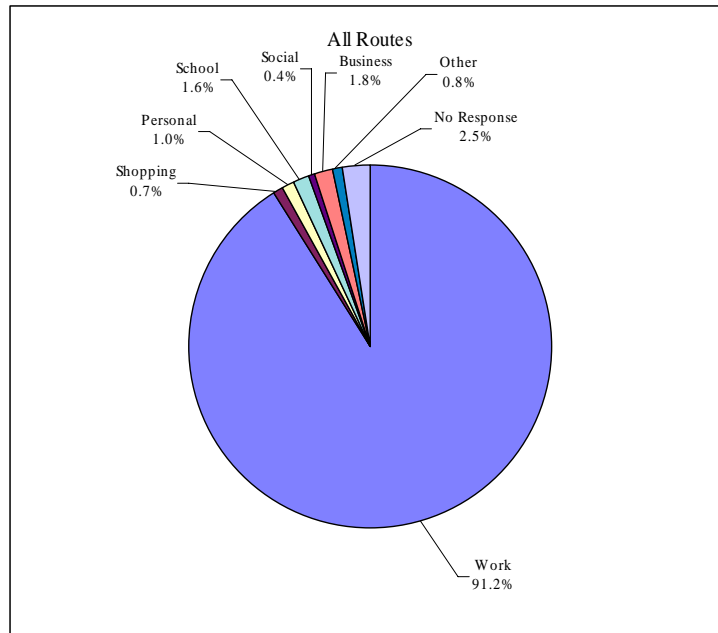
- As expected with morning peak period traffic, an overwhelming majority of trips are destined for the workplace – just over 91 percent; with 3 percent variation for individual routes.
- The next highest trip purposes were business and school, with 1.5 to 2 percent each.
- If “no responses” were apportioned among the specific trip purposes; work trips would increase to about 93.5 percent.

**Table 3-20: Origin/Destination Survey Distribution of Trip Purposes**

Purpose	Distribution of Trip Purposes							
	US-206		NJ-15		NJ-23		All Routes	
	Trips	%	Trips	%	Trips	%	Trips	%
Work	3,386	88.8%	6,617	91.1%	4,818	93.2%	14,821	91.2%
Shopping	57	1.5%	50	0.7%	12	0.2%	119	0.7%
Personal Business	31	0.8%	89	1.2%	41	0.8%	161	1.0%
School	89	2.3%	140	1.9%	26	0.5%	255	1.6%
Social	22	0.6%	39	0.5%	12	0.2%	73	0.4%
Business	71	1.9%	167	2.3%	59	1.1%	297	1.8%
Other	50	1.3%	31	0.4%	43	0.8%	124	0.8%
No Response	108	2.8%	133	1.8%	159	3.1%	400	2.5%
<b>TOTAL *</b>	<b>3,814</b>	<b>100.0%</b>	<b>7,266</b>	<b>100.0%</b>	<b>5,170</b>	<b>100.0%</b>	<b>16,250</b>	<b>100.0%</b>

\* Usable responses only

**Figure 3-31: Origin/Destination Survey Trip Purpose for All Surveyed Routes**



**Origin of Trips**

When asked the origin of their trip, respondents had the option of designating the nearest intersection, the actual address, the municipality, the state, and the zip code. The following general observations were made from the survey results:

- Approximately 95 percent of all trips originate in Sussex County, with about 3 percent difference between the individual routes.
- Approximately 4 percent of all trips originate in Pennsylvania; this figure reaches 7 percent on Route 15; approximately 20 percent of all trips on Route 15, at the Route 181 survey location, originate in Pennsylvania. (A general observation was made that a number of Pennsylvania residents may have traveled through the checkpoints earlier than 6:00 a.m.)
- Only about 1 percent of all trips on Route 23 originated in New York State.
- Dingman’s Ferry is the only Pennsylvania origin among a top ten grouping: Route 15; at 275 trips, it is about one-ninth of the total trips originating in Sparta, the largest single origin.
- Byram and Vernon are the largest contributors of traffic to individual routes, accounting for the origins of 37 percent of Route 206 and 38 percent of Route 23 trips, respectively. Sparta contributes almost 32 percent to Route 15 trips.
- While the top ten origins comprise 91 percent of the Route 206 trips and 96 percent of the Route 23 trips, only 77 percent of the Route 15 trips are generated from the top ten origins. Therefore it can be inferred that Route 15 trips originate from a wider area than either Routes 206 or 23.

Table 3-21 lists each municipality in Sussex County and describes its use as a trip origin.

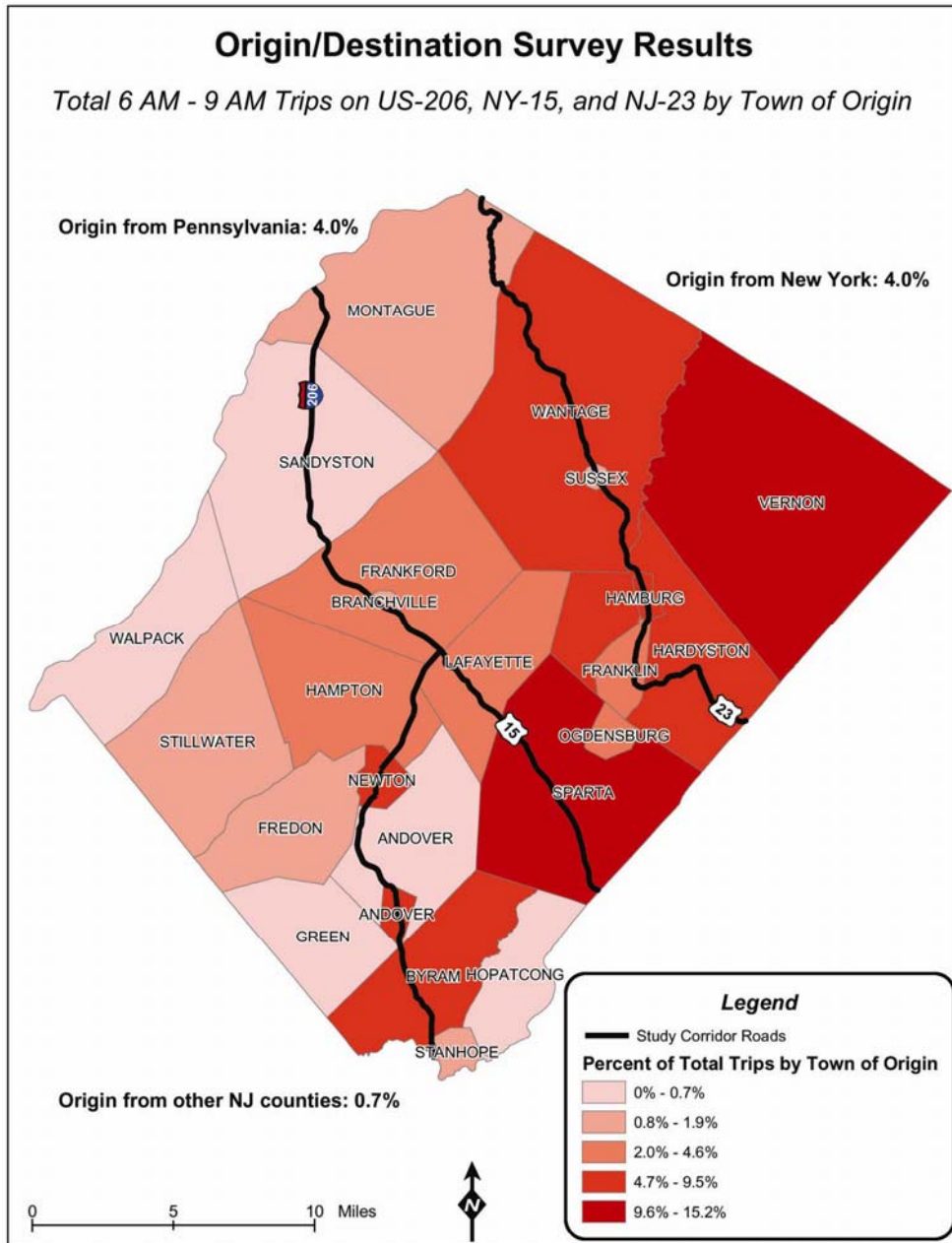
**Table 3-21: Origin/Destination Survey Distribution of Trip Origins**

Origin	Distribution of Trip Origins						All Routes	
	US-206		NJ-15		NJ-23		Trips	%
	Trips	%	Trips	%	Trips	%	Trips	%
Andover	661	17.7%	361	5.3%	3	0.1%	1,026	6.6%
Branchville	20	0.5%	206	3.0%	4	0.1%	230	1.5%
Byram	1,403	37.5%	83	1.2%	0	0.0%	1,485	9.5%
Frankford	16	0.4%	330	4.8%	38	0.8%	384	2.5%
Franklin	0	0.0%	210	3.1%	504	10.0%	714	4.6%
Fredon	173	4.6%	84	1.2%	0	0.0%	256	1.6%
Green	77	2.1%	2	0.0%	9	0.2%	89	0.6%
Hamburg	6	0.2%	275	4.0%	636	12.6%	918	5.9%
Hampton	93	2.5%	341	5.0%	28	0.6%	462	3.0%
Hardyston	12	0.3%	124	1.8%	908	18.0%	1,045	6.7%
Hopatcong	25	0.7%	8	0.1%	0	0.0%	34	0.2%
Lafayette	35	0.9%	435	6.3%	31	0.6%	501	3.2%
Montague	16	0.4%	144	2.1%	23	0.5%	184	1.2%
Newton	399	10.7%	592	8.6%	11	0.2%	1,001	6.4%
Ogdensburg	0	0.0%	233	3.4%	150	3.0%	383	2.4%
Sandyston	17	0.5%	75	1.1%	0	0.0%	92	0.6%
Sparta	101	2.7%	2,179	31.7%	93	1.8%	2,373	15.2%
Stanhope	264	7.0%	0	0.0%	0	0.0%	264	1.7%
Stillwater	180	4.8%	101	1.5%	10	0.2%	291	1.9%
Sussex	15	0.4%	33	0.5%	117	2.3%	165	1.1%
Vernon	9	0.2%	160	2.3%	1,787	35.5%	1,956	12.5%
Wantage	43	1.1%	353	5.1%	580	11.5%	976	6.2%
<i>Sussex County Total</i>	<i>3,565</i>	<i>95.2%</i>	<i>6,329</i>	<i>92.1%</i>	<i>4,932</i>	<i>97.9%</i>	<i>14,829</i>	<i>94.7%</i>
Other NJ Counties	82	2.2%	18	0.3%	14	0.3%	114	0.7%
Pennsylvania	89	2.4%	489	7.1%	42	0.8%	620	4.0%
New York	9	0.2%	33	0.5%	52	1.0%	94	0.6%
<b>Total *</b>	<b>3,745</b>	<b>100.0%</b>	<b>6,869</b>	<b>100.0%</b>	<b>5,040</b>	<b>100.0%</b>	<b>15,657</b>	<b>100.0%</b>

\* Usable responses only

Figure 3-22 shows where the survey respondents started their trips in Sussex County. The figure represents a total of all trips on all of the survey routes: NJ-15, NJ-23, and US-206. An additional 4% of respondents began their trips in each of New York and Pennsylvania. Also, less than 1% of survey respondents started their trips along the study corridor routes in other New Jersey counties.

Figure 3-32: Percent of Total Trips by Sussex Municipality of Origin



Figures 3-33 – 3-35 show the percentage of trips taken by county of origin for each of the surveyed routes.

Figure 3-33: Percent of NJ-15 Trips by County of Origin

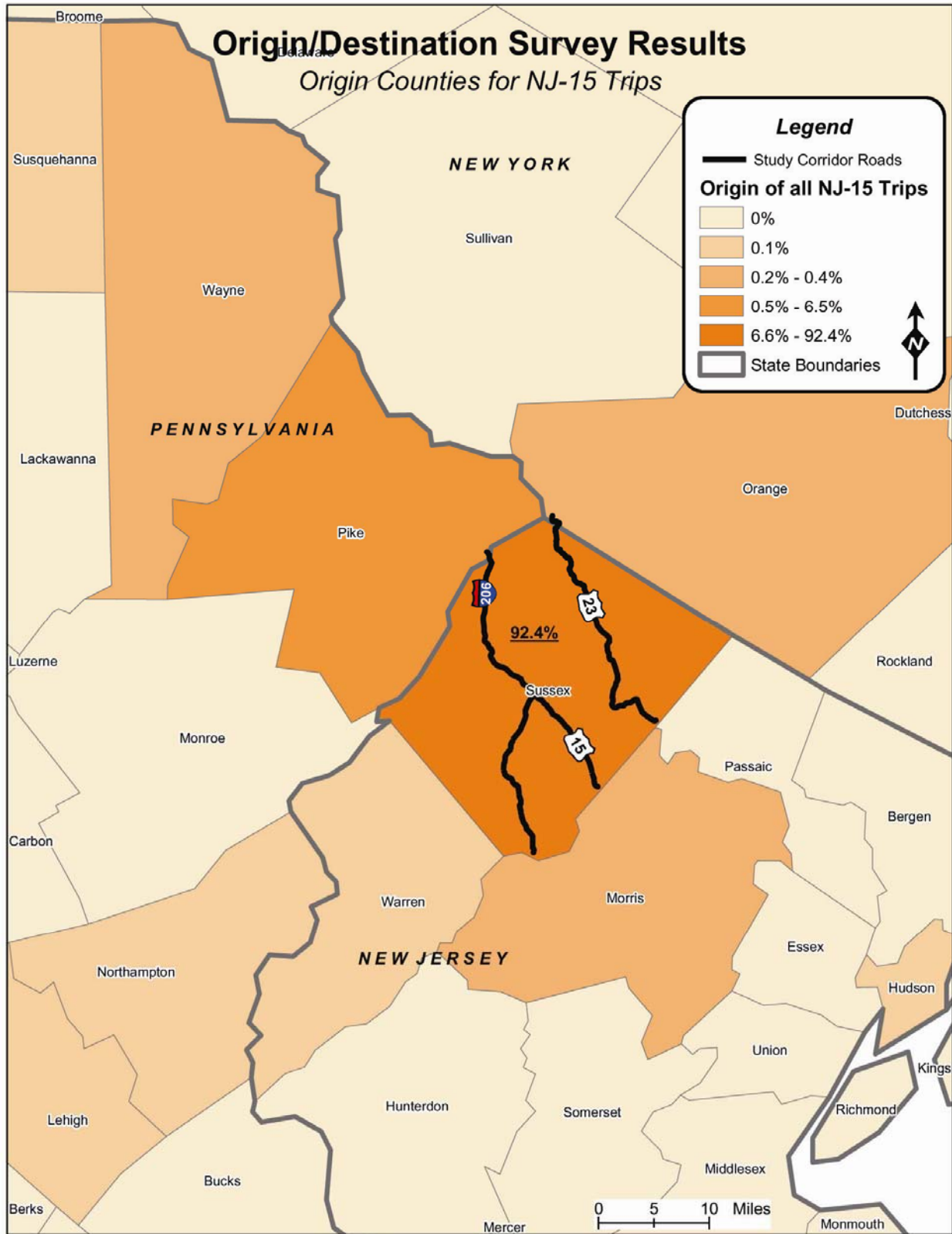


Figure 3-34: Percent of NJ-23 Trips by County of Origin

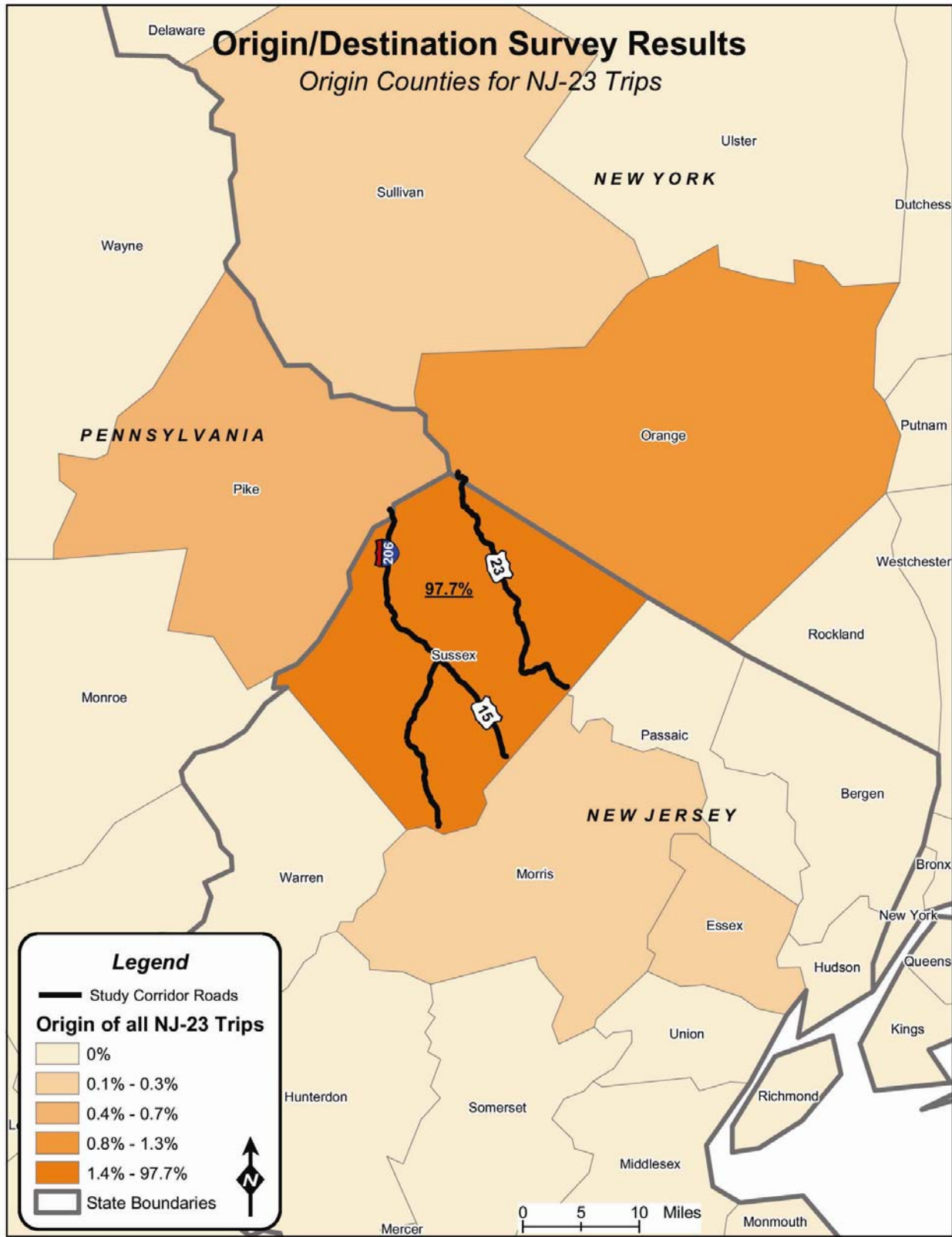


Figure 3-35: Percent of US-206 Trips by County of Origin

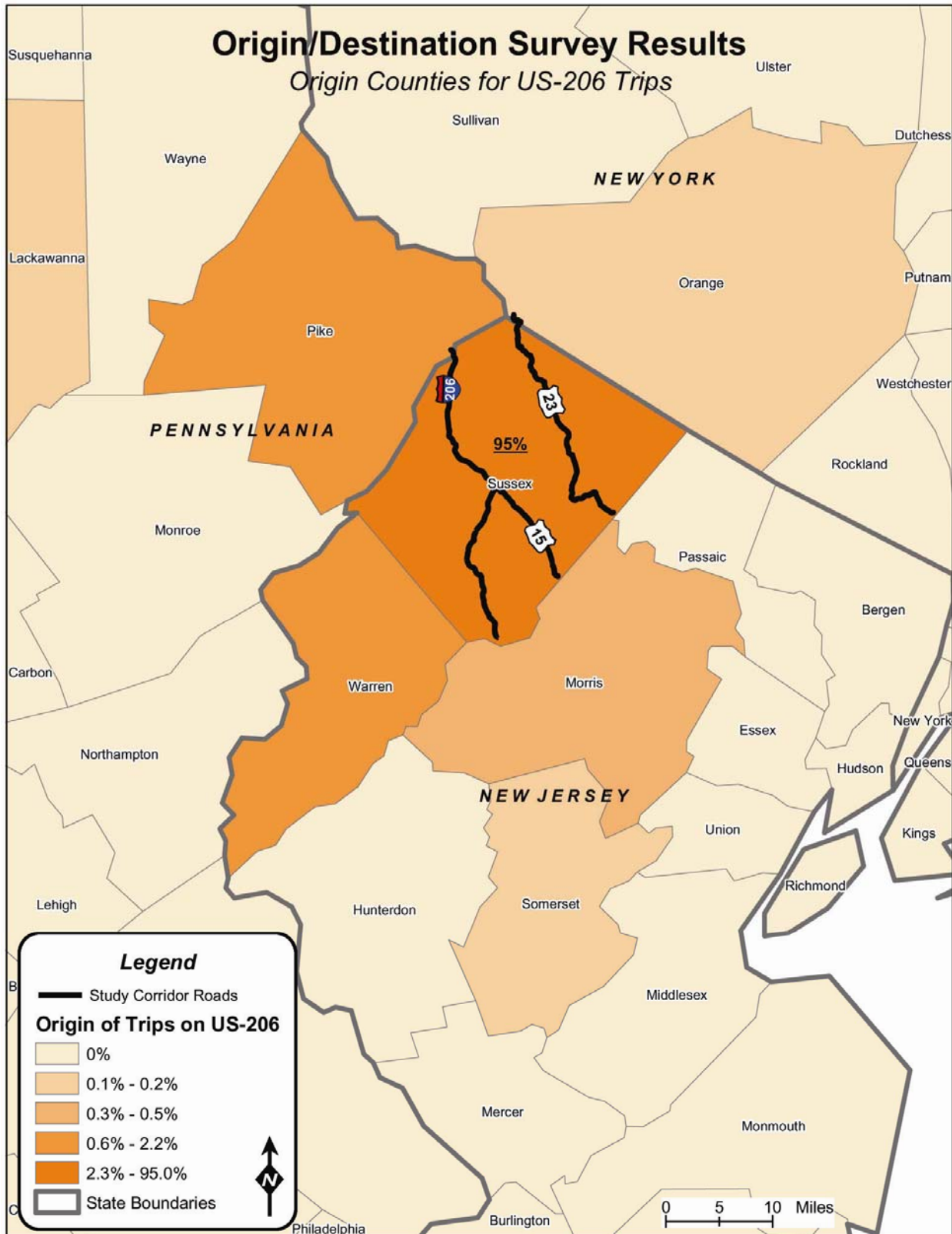




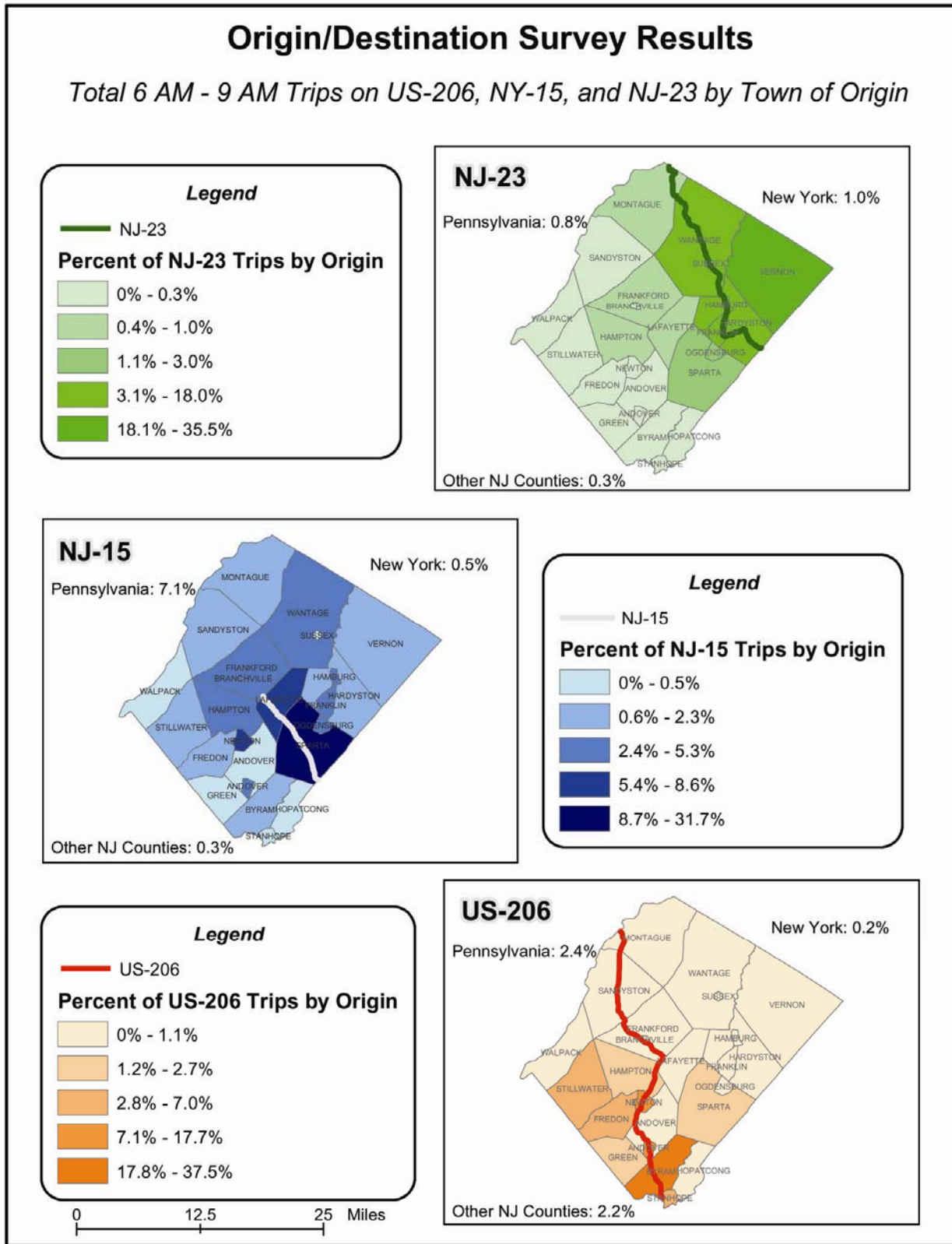
Table 3-22 lists the top ten trip origins by Sussex County municipality.

**Table 3-22: Distribution of Top Ten Trip Origins by Sussex County Municipality for All Surveyed Routes**

All Routes					
Rank	Municipality	County	State	6-9 AM Trips	Percent of All Trips
1	Sparta	Sussex	NJ	2,544	15.6%
2	Vernon	Sussex	NJ	2,149	13.2%
3	Byram	Sussex	NJ	1,486	9.1%
4	Hardyston	Sussex	NJ	1,045	6.4%
5	Andover	Sussex	NJ	1,026	6.3%
6	Wantage	Sussex	NJ	1,002	6.2%
7	Newton	Sussex	NJ	1,002	6.2%
8	Hamburg	Sussex	NJ	918	5.6%
9	Franklin	Sussex	NJ	714	4.4%
10	Lafayette	Sussex	NJ	501	3.1%
<b>Total</b>				<b>12,387</b>	<b>76.2%</b>
<i>Total of All Trips</i>				<i>16,256</i>	

Figure 3-36 describes the municipalities of origin for each individual surveyed route.

Figure 3-36: Percent Trips on NJ-23, NJ-15 and US-206 by Sussex Municipality of Origin



**Destination of Trips**

As with the question of trip origin, respondents were given several options to describe their destination. Please note that destinations with park & ride lots may be over counted, and destinations served by transit may be undercounted, due to some respondents using the park & ride location as their destination; however, since multi-mode trips accounted for only 2 to 3 percent of total trips, such inaccuracies are expected to be minor. The following general observations were made about the destinations of the survey respondents:

- Approximately 98 percent of all trips are destined to stay in New Jersey, with about 1 percent variation for individual routes.
- Approximately two-thirds of all trips on Routes 206 and 15 are destined for Morris County; 60 percent of Route 23 trips split evenly between Morris and Passaic Counties.
- Approximately 2 percent of all trips are destined for New York City, with Route 23 trips at 2.5 percent.
- With a range of 40 to 55 percent of trips heading for a top ten destination, destinations are much more dispersed than origins; at about 40 percent, trips on Route 23 indicate the most dispersion.
- The largest single destination, Parsippany, is the destination for 9.5 percent of all trips; with over 17 percent of Route 206 trips destined for it, Mount Olive is the largest single destination among individual routes.
- Wayne, in Passaic County, and Fairfield, in Essex County, are the only non-Morris County destinations in the overall top-ten, at just over 3.5 and 2.5 percent, respectively; at just over 1.5 percent -- 286 trips -- Newark is ranked 15<sup>th</sup> as a destination.

Table 3-23 describes the distribution of trip destinations for all surveyed trips by route.

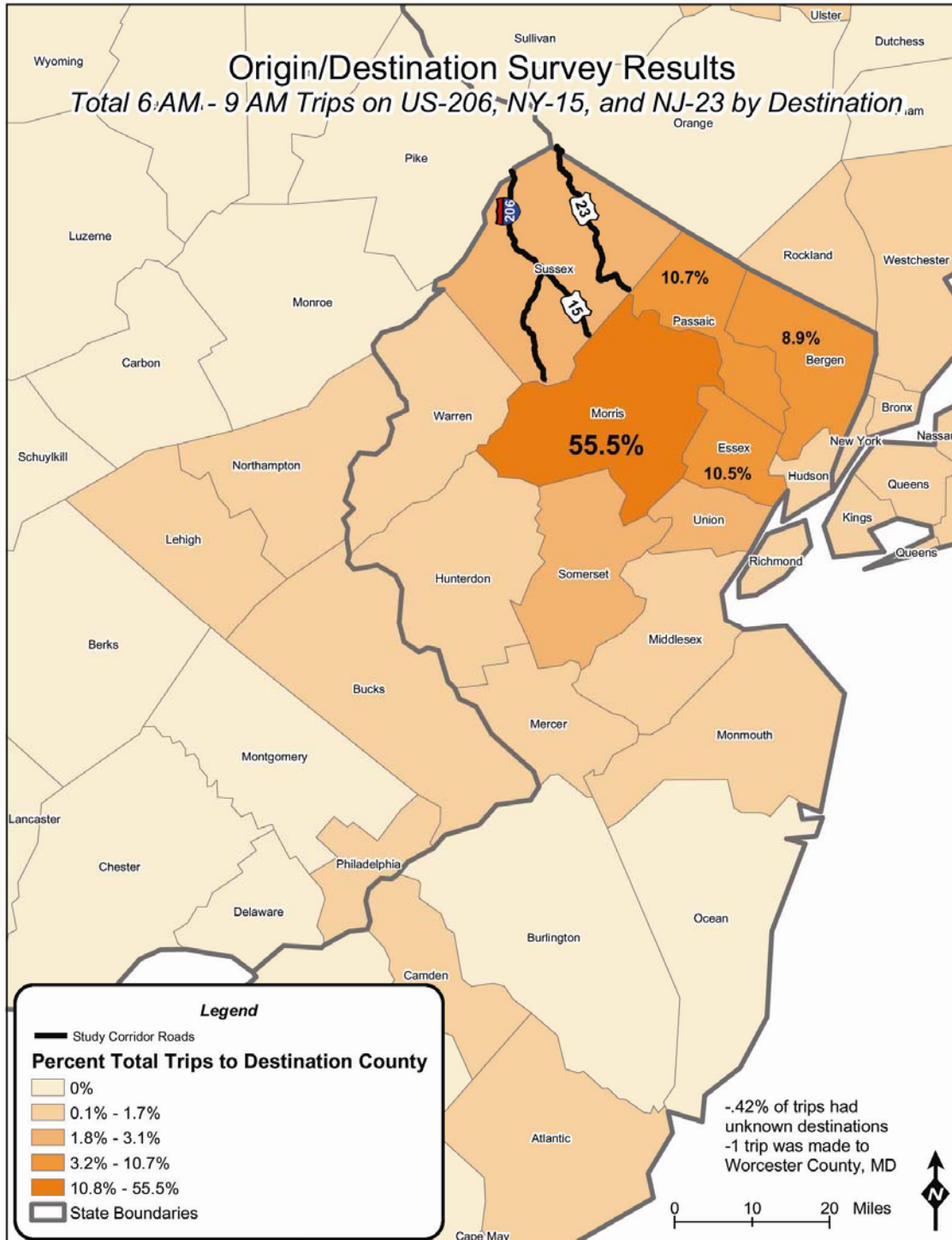
**Table 3-23: Origin/Destination Survey Distribution of Trip Destinations**

Destination	Distribution of Trip Destinations						All Routes Trips %	
	US-206		NJ-15		NJ-23			
	Trips	%	Trips	%	Trips	%	Trips	%
Bergen	81	2.1%	353	4.9%	1,092	21.2%	1,526	9.4%
Essex	265	7.0%	900	12.4%	522	10.1%	1,687	10.4%
Hudson	36	1.0%	152	2.1%	122	2.4%	311	1.9%
Middlesex	81	2.1%	47	0.6%	18	0.3%	146	0.9%
Morris	2,490	65.7%	4,777	66.0%	1,539	29.9%	8,806	54.4%
Passaic	82	2.2%	272	3.8%	1,539	29.9%	1,892	11.7%
Somerset	270	7.1%	94	1.3%	43	0.8%	406	2.5%
Sussex	264	7.0%	206	2.8%	22	0.4%	492	3.0%
Union	85	2.2%	238	3.3%	77	1.5%	400	2.5%
Warren	36	1.0%	3	0.0%	0	0.0%	39	0.2%
Other NJ Counties	46	1.2%	26	0.4%	17	0.3%	89	0.6%
<i>New Jersey Total</i>	<i>3,736</i>	<i>98.6%</i>	<i>7,068</i>	<i>97.7%</i>	<i>4,991</i>	<i>96.9%</i>	<i>15,794</i>	<i>97.6%</i>
New York City	39	1.0%	127	1.8%	130	2.5%	297	1.8%
Other NY Counties	6	0.2%	28	0.4%	29	0.6%	63	0.4%
Pennsylvania	8	0.2%	6	0.1%	3	0.1%	18	0.1%
Other States	0	0.0%	4	0.1%	0	0.0%	4	0.0%
<b>TOTAL *</b>	<b>3,789</b>	<b>100.0%</b>	<b>7,233</b>	<b>100.0%</b>	<b>5,153</b>	<b>100.0%</b>	<b>16,176</b>	<b>100.0%</b>

\* Usable responses only

Figure 3-37 describes the destination of all trips on all surveyed routes by destination county.

**Figure 3-37: Percent of Total Trips by Destination County**



Figures 3-38 shows all trips on NJ Route 15 by destination county. Figures 3-39 and 3-40 further break NJ-15 trips down into destination municipalities in both Morris and Essex counties.

Figure 3-38: Percent of NJ-15 Trips by Destination County

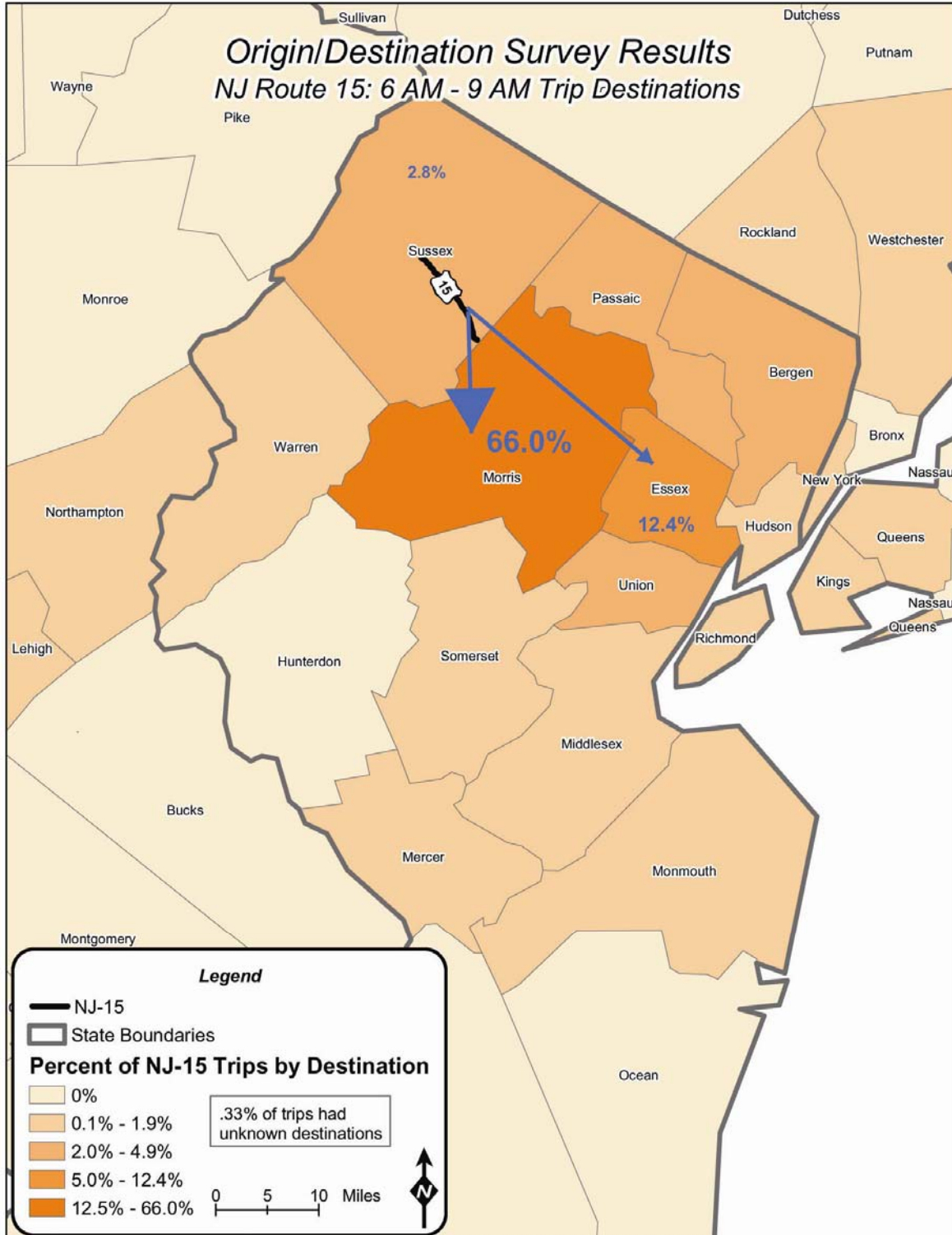


Figure 3-39: Percent of NJ-15 Trips to Morris County by Municipality

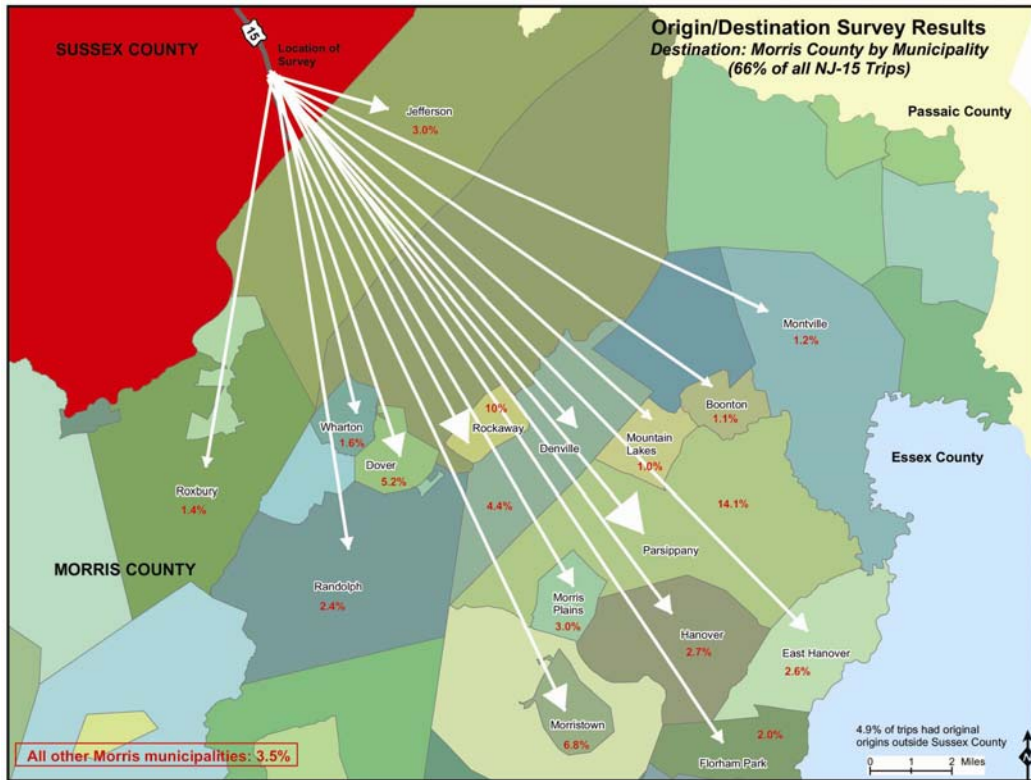


Figure 3-40: Percent of NJ-15 Trips to Essex County by Municipality

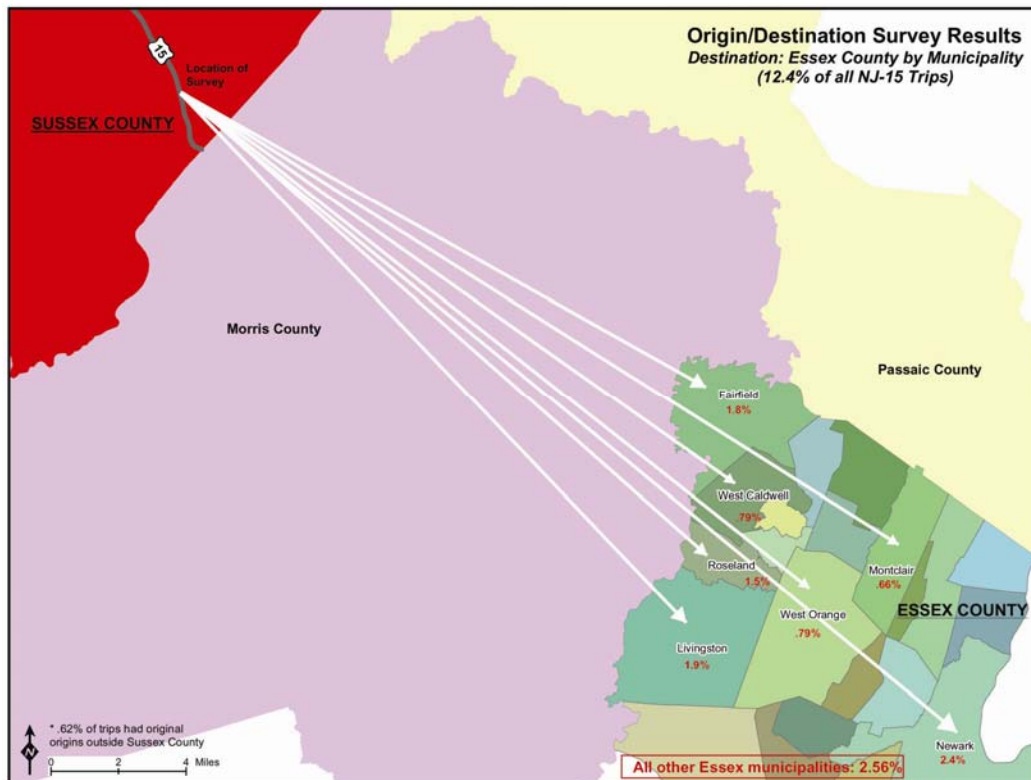


Figure 3-41 describes the destination counties of all NJ Route 23 trips. Figures 3-42 – 3-44 show in greater detail the municipality destinations of NJ-23 trips in Morris County, Passaic County, and Bergen County.

Figure 3-41: Percent of NJ-23 Trips by Destination County

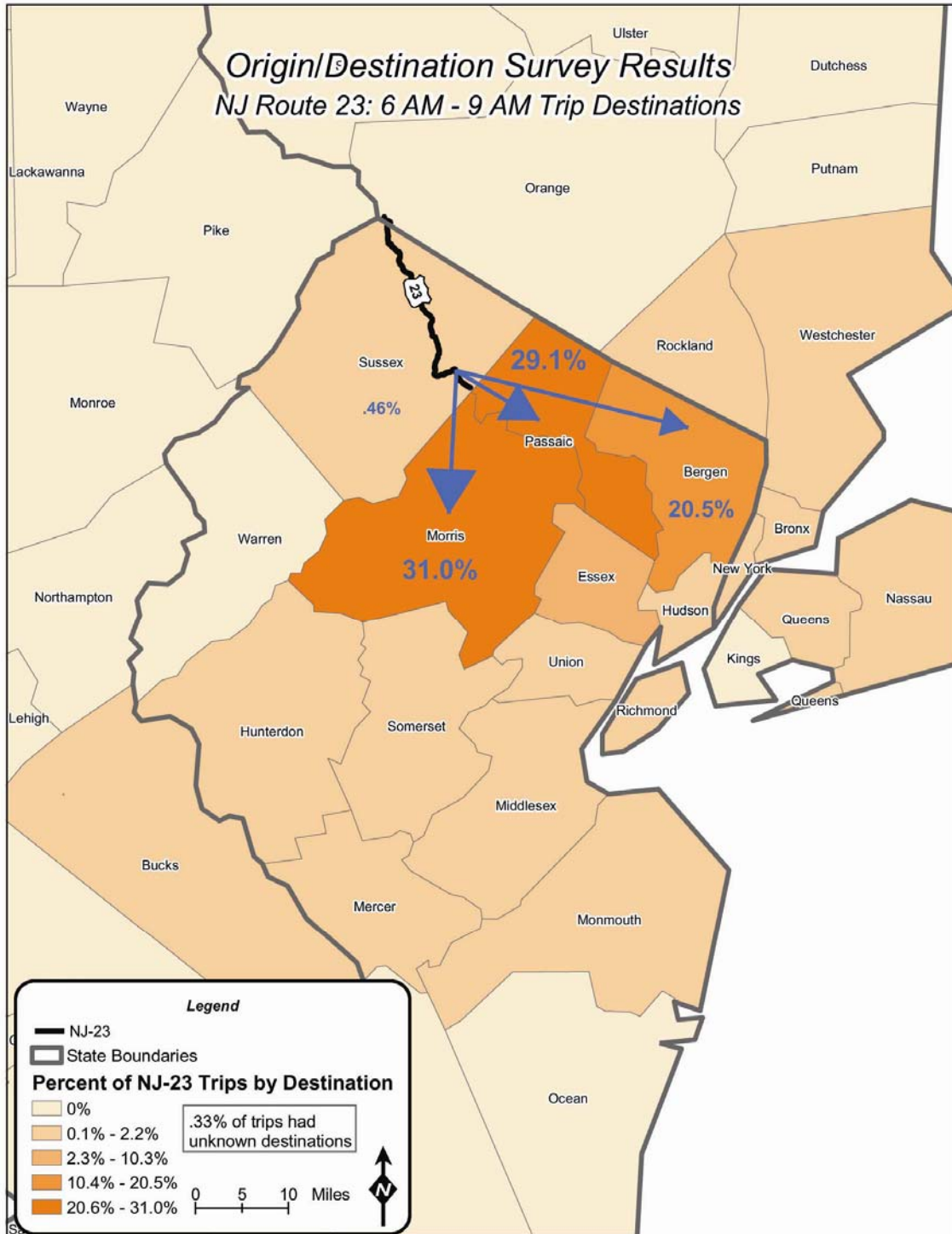


Figure 3-42: Percent of NJ-23 Trips to Morris County by Municipality

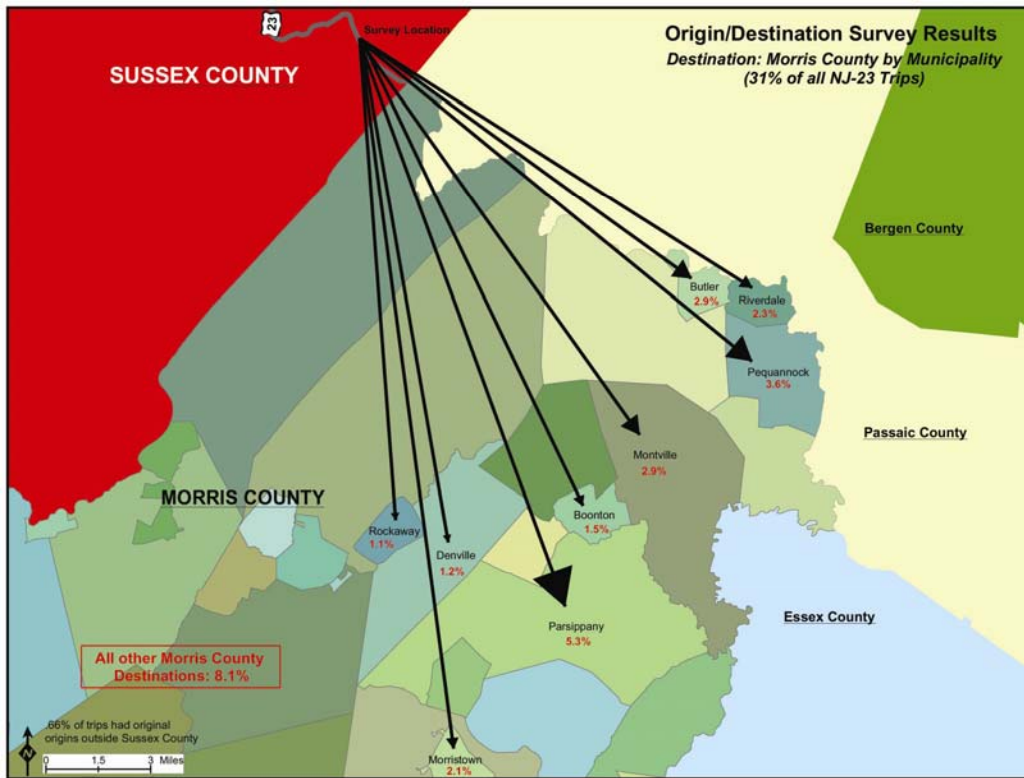


Figure 3-43: Percent of NJ-23 Trips to Passaic County by Municipality

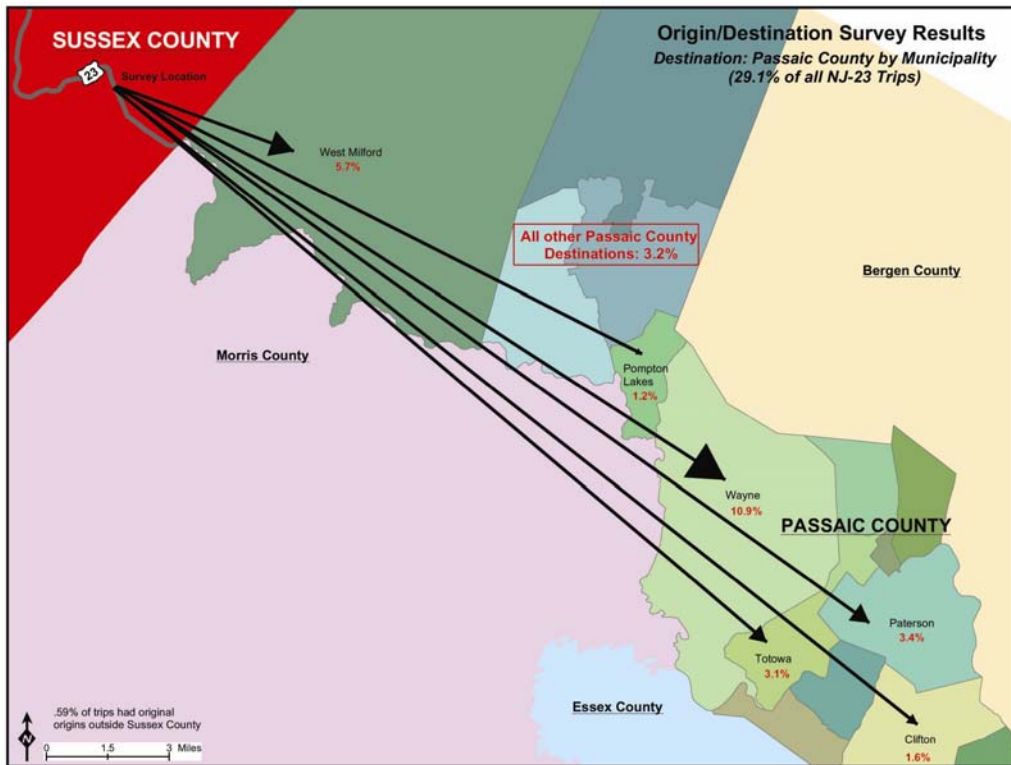
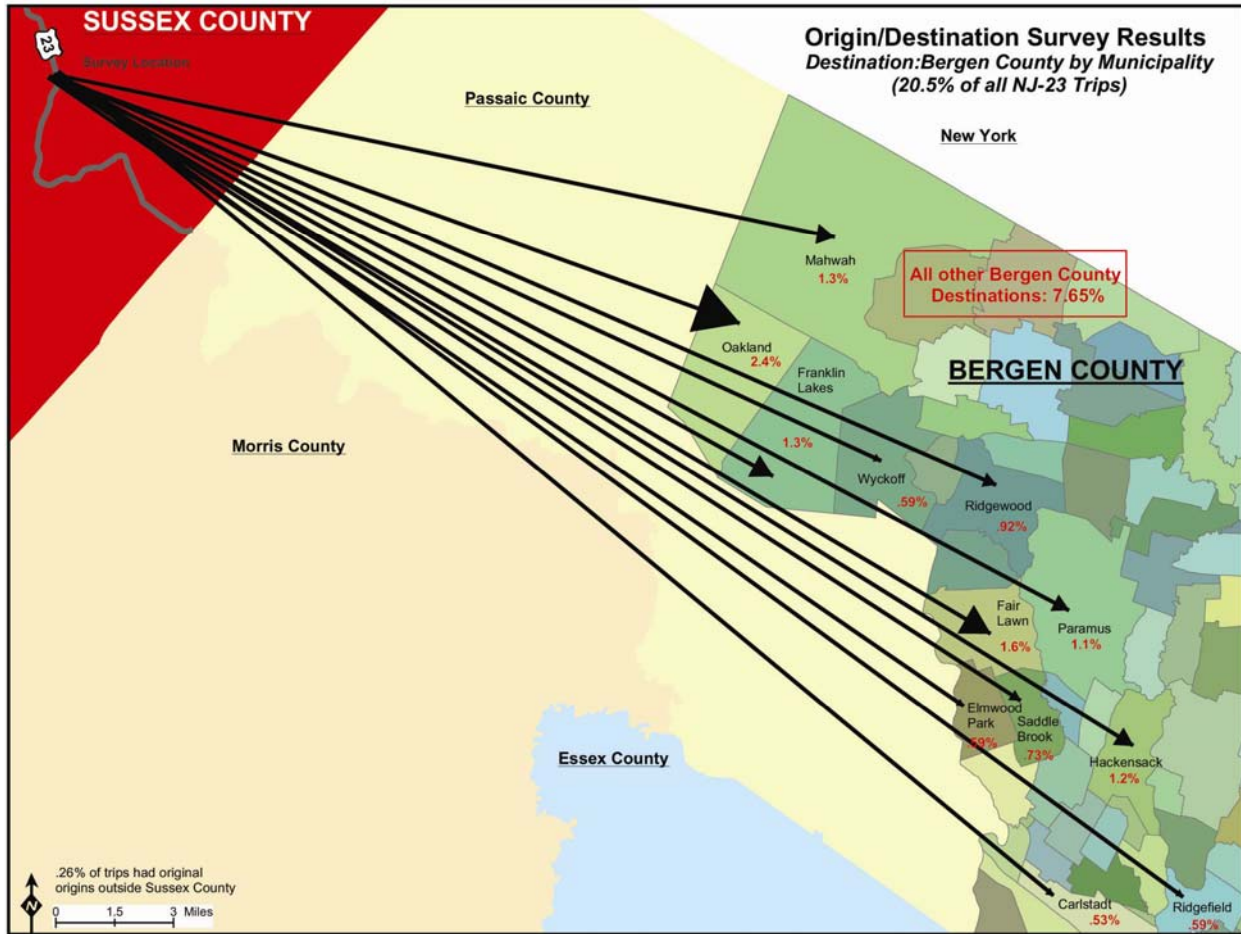




Figure 3-44: Percent of NJ-23 Trips to Bergen County by Municipality



Finally, Figure 3-45 maps the destination counties for all US Route 206 trips. Figures 3-46 through 3-49 describe the destination municipalities of US-206 trips to Morris County, Somerset County, Essex County, and Sussex County.

Figure 3-45: Percent of US-206 Trips by Destination County

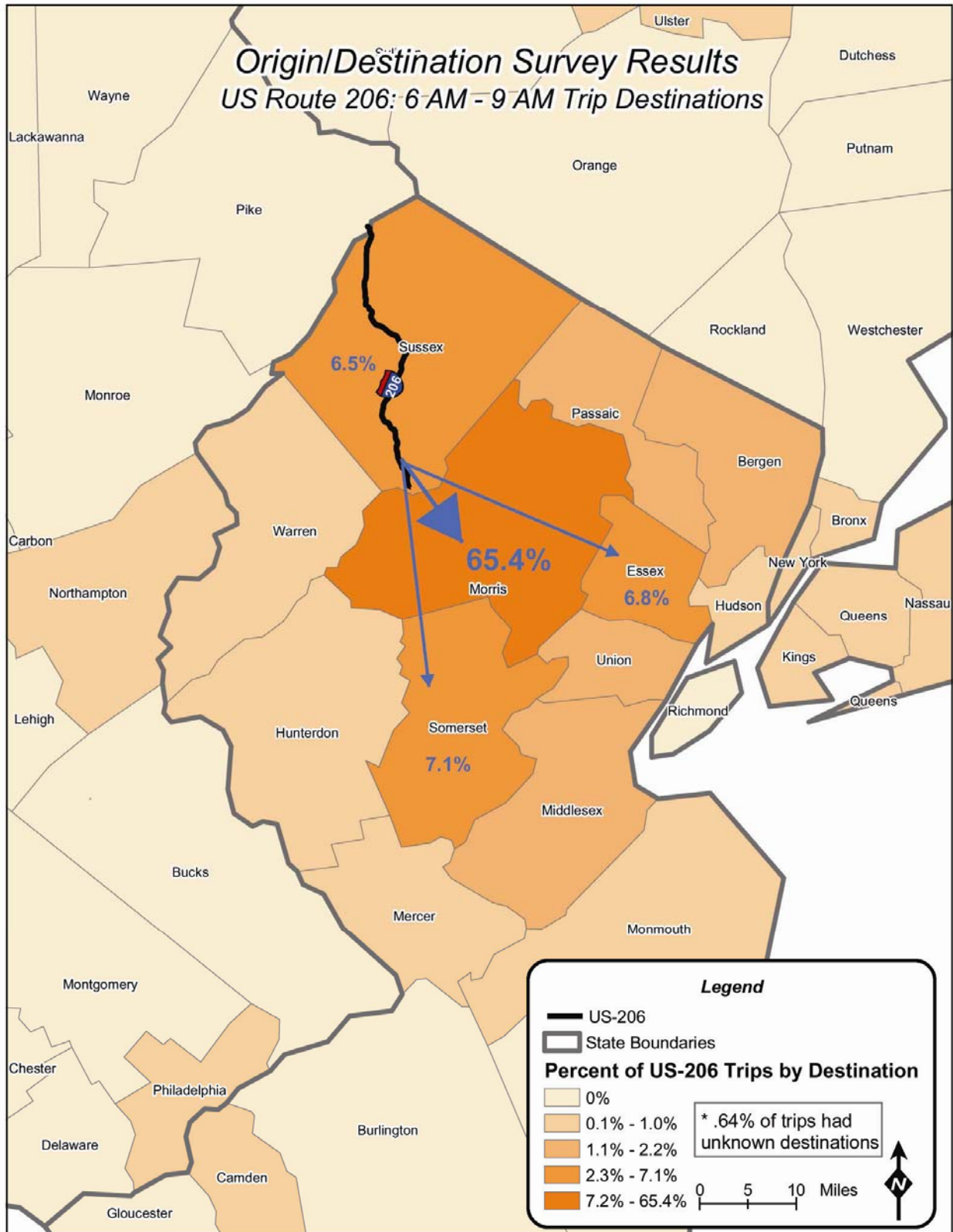


Figure 3-46: Percent of US-206 Trips to Morris County by Municipality

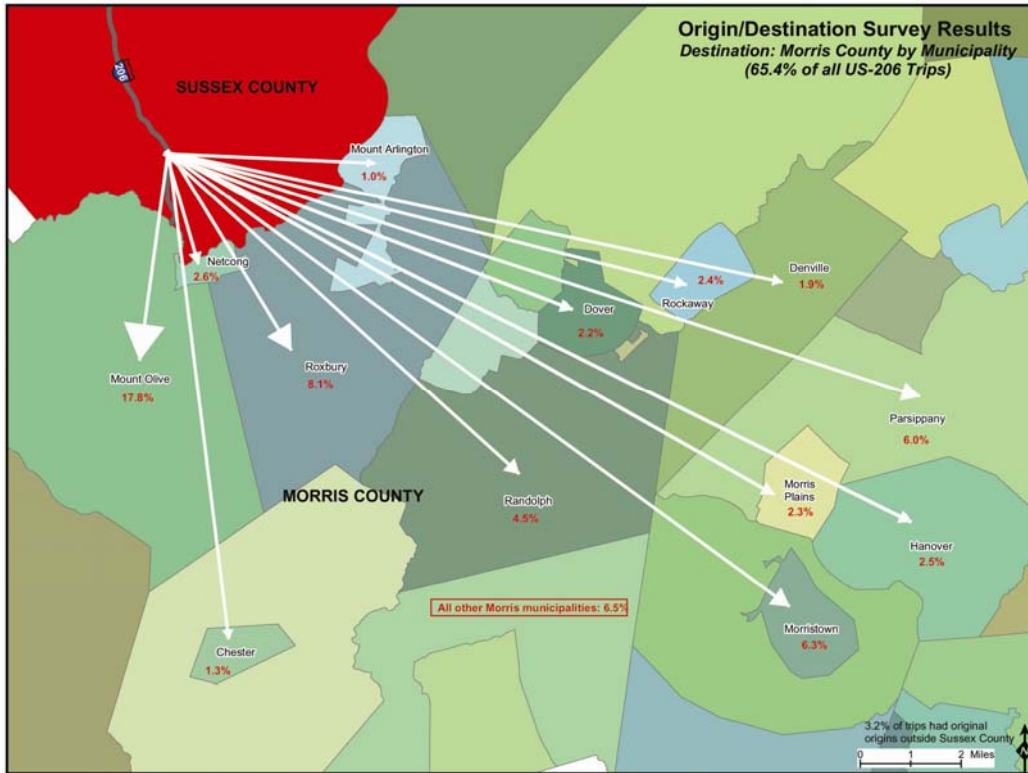


Figure 3-47: Percent of US-206 Trips to Somerset County by Municipality

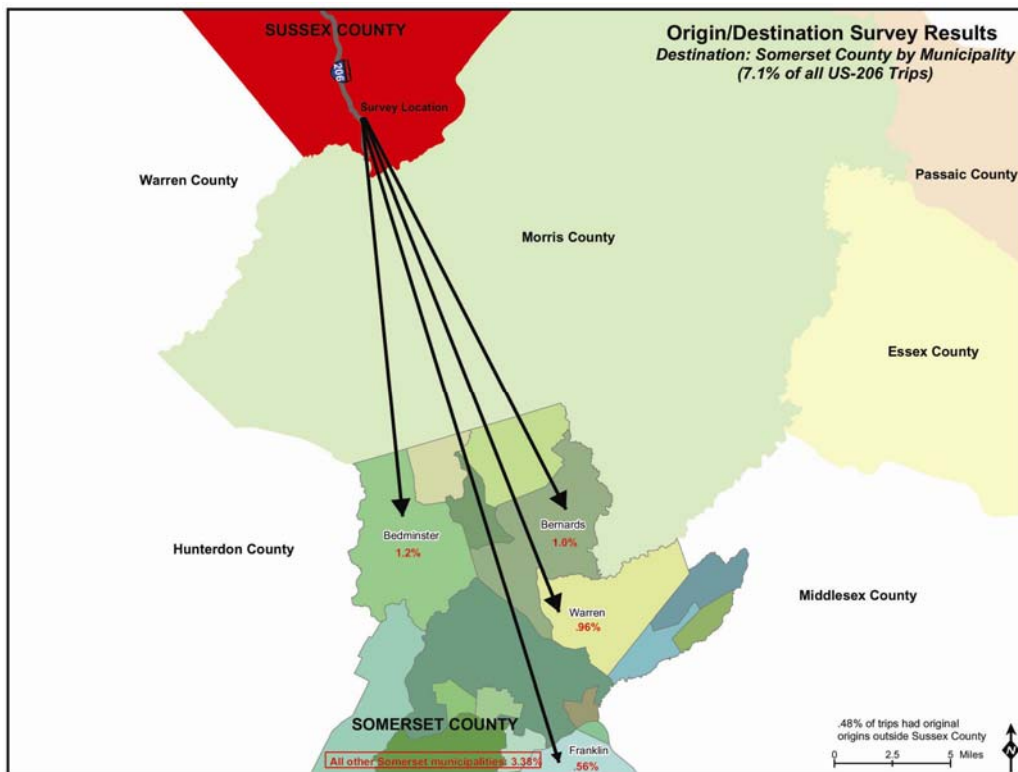


Figure 3-48: Percent of US-206 Trips to Essex County by Municipality

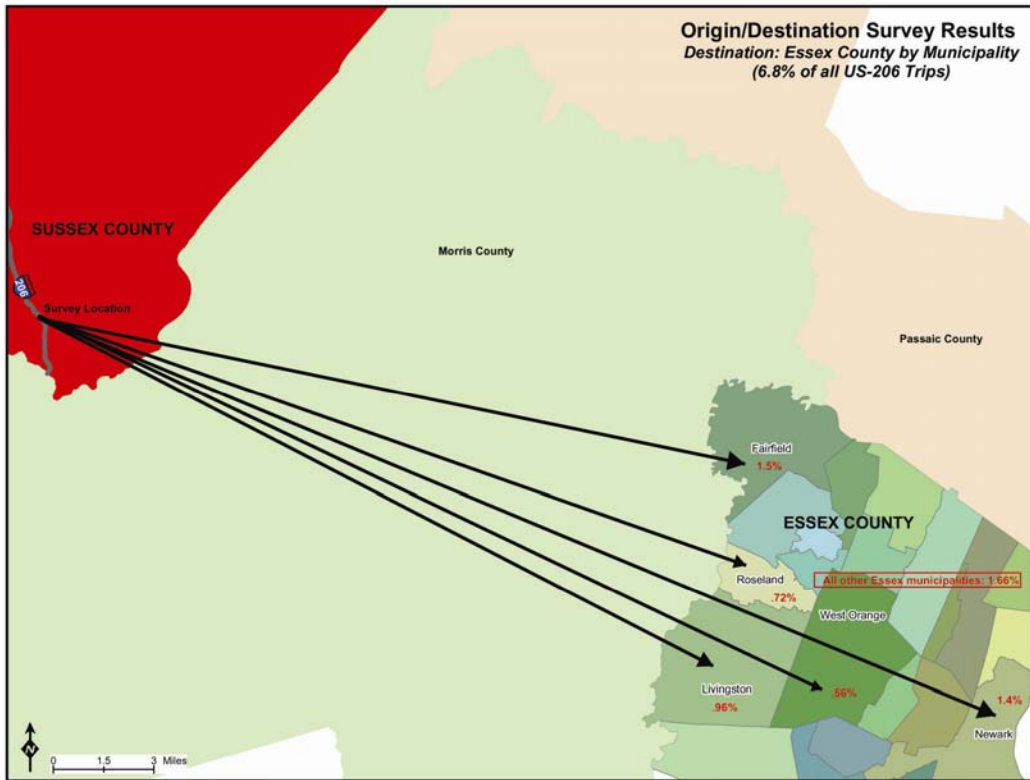
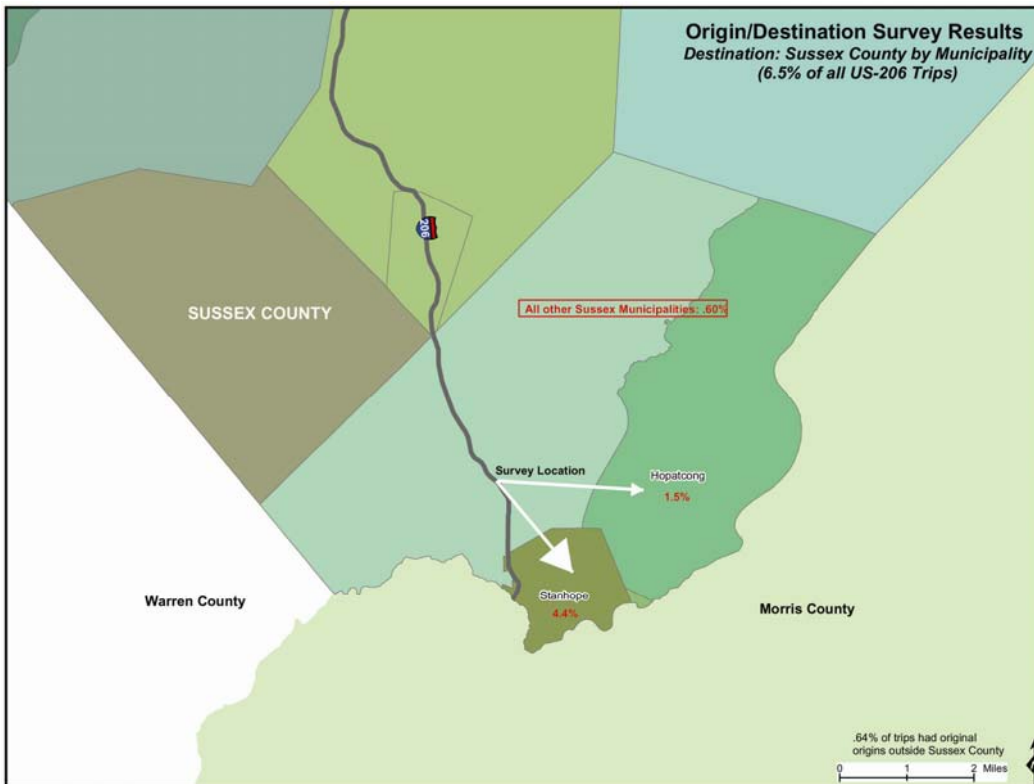


Figure 3-49: Percent of US-206 Trips to Sussex County by Municipality



**Common Origin/Destination Pairs**

After discussing the origins and destinations of all surveyed trips in detail, it is time to look at the combination of the two results – origin/destination pairs. These pairs are very useful to public transportation planning because they show the direction of people flow. Table 3-24 lists the origins and destinations for all trips in matrix format.

**Table 3-24: Origin/Destination Matrix for All Surveyed Routes**

Origin	Destination						Total
	Sussex	Morris	Other NJ	NY	PA	Other	
Sussex	444	8,266	6,211	335	12	48	15,316
Morris	0	26	21	0	0	0	47
Other NJ	11	50	23	3	0	0	87
NY	6	50	39	0	0	0	95
PA	32	421	221	35	6	0	715
Other	0	0	0	0	0	0	0
<b>Total</b>	493	8,813	6,515	373	18	48	16,260

Table 3-25 lists the top ten most common origin/destination pairs.

**Table 3-25: Distribution of Top Ten Origin/Destination Pairs for All Surveyed Routes**

All Routes								
Rank	Origin			Destination			6-9 AM Trips	Percent of All trips
	Municipality	County	State	Municipality	County	State		
1	Sparta	Sussex	NJ	Parsippany	Morris	NJ	335	2.1%
2	Sparta	Sussex	NJ	Rockaway	Morris	NJ	185	1.1%
3	Vernon	Sussex	NJ	Wayne	Passaic	NJ	180	1.1%
4	Sparta	Sussex	NJ	Morristown	Morris	NJ	173	1.1%
5	Byram	Sussex	NJ	Mount Olive	Morris	NJ	155	1.0%
6	Vernon	Sussex	NJ	Parsippany	Morris	NJ	154	0.9%
7	Andover	Sussex	NJ	Parsippany	Morris	NJ	123	0.8%
8	Newton	Sussex	NJ	Parsippany	Morris	NJ	119	0.7%
9	Newton	Sussex	NJ	Mount Olive	Morris	NJ	106	0.7%
10	Hamburg	Sussex	NJ	Wayne	Passaic	NJ	104	0.6%
<b>Total</b>							<b>1,633</b>	<b>10.1%</b>

*Total of All Trips – 16,215*

The following general observations are indicative of the scattered nature of the origin/destination pairs:

- The top ten overall origin-destination pairs account for only about 10 percent of all trips. For Route 206, the top ten pairs account for almost 23 percent, while top ten pairs account for roughly 17 to 18 percent of Routes 15 and 23 trips.
- Sparta to Parsippany has the largest number of trips for a single O-D pair at 335 – just over 2 percent of all trips.
- On individual routes, Sparta to Parsippany accounts for about 4.5 percent of Route 15 trips, Byram to Mount Olive accounts for just over 4 percent of Route 206 trips, and Vernon to Wayne accounts for about 3.5 percent of Route 23 trips.
- Vernon to Manhattan, at just over 1 percent of Route 23 trips, is the only top-ten O-D pair with a non-New Jersey destination.
- The largest and second largest destination districts, Central and Northwest Morris County, each have almost twice the trips as the third largest, Passaic County.

Figures 3-50 – 3-52 describe the ten most common origin/destination municipality pairs for trips on routes 15, 23, and 206.

**Figure 3-50: Ten Most Common Origin/Destination Municipality Pairs for NJ-15 Trips**

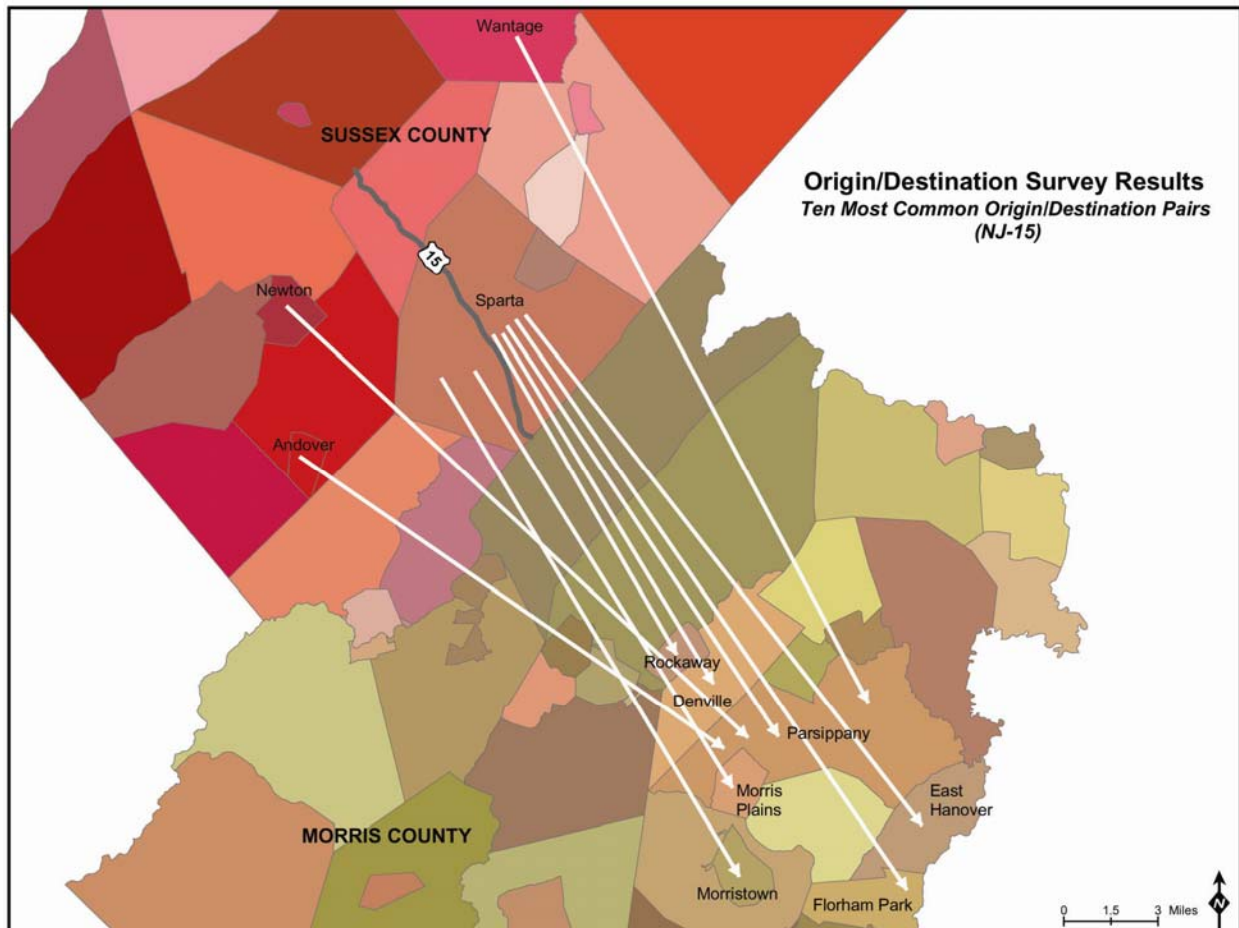


Figure 3-51: Ten Most Common Origin/Destination Municipality Pairs for NJ-23 Trips

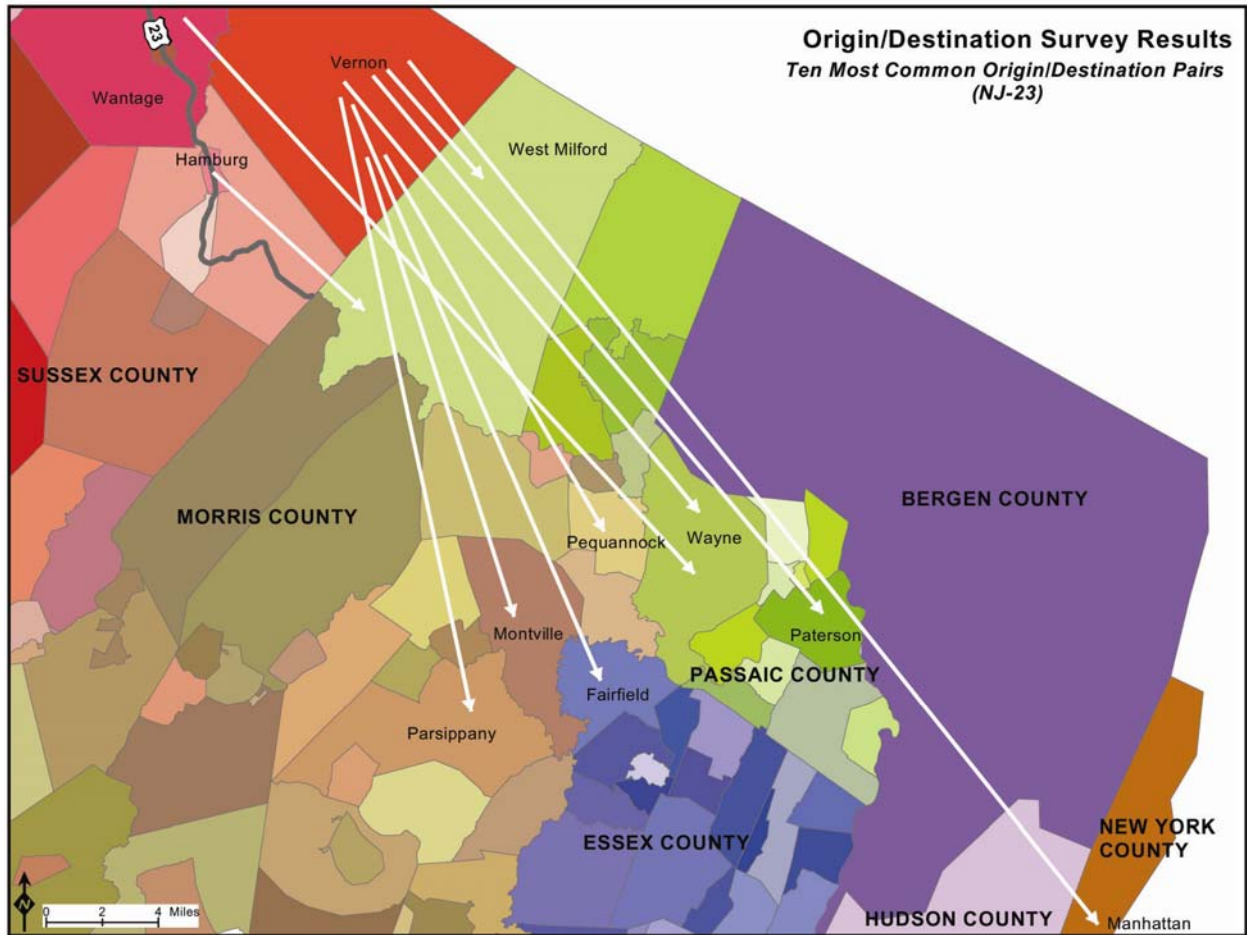


Figure 3-52: Ten Most Common Origin/Destination Municipality Pairs for US-206 Trips

