

**New Jersey's Link to the 21<sup>st</sup> Century:  
Maximizing the Impact of Infrastructure Investments**

**Working Paper No. 6:**

**Presentation of Available Land Use Data Using TransCAD**

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# 1. INTRODUCTION

The primary purpose of this working paper is to present available land use information for New Jersey State at county and municipality level (where available).

Land use research is important for many scientific, ecological and land management purposes. Land use/land cover maps tell us how much of the landscape is changing, as well as what changes have occurred and where the changes are taking place.

When we have a glance at the recent reports (City 1990) on land use issues, we can see that there are generally the following categories of land use (all in acres):

- 1.Single-family housing units
- 2.Multi-family housing units
- 3.Commercial
- 4.Office
- 5.Industrial (Manufacturing, Warehousing, Equipment sales & service, Recycling & scrap)
- 6.Mining
- 7.Civic (Semi-institutional housing, Hospital, Government services, Educational, Meeting & assembly, Cemetery)
- 8.Open Space
- 9.Transportation (Railroad facilities, Transportation terminal, Aviation facilities, Marina, Parking)
- 10.Utilities
- 11.Undeveloped/Rural (Vacant, Under Construction)
- 12.Water

This working paper presents the available land use data for all the New Jersey counties using TransCAD. The following data sources (data items 4 through 13 are new) are available regarding land use:

- 1.Rutgers University Urban Planning database
- 2.Workforce New Jersey Public Information Network database
- 3.New York Metropolitan Area Transportation Council (NYMTC) database
- 4.New Jersey Department of Environmental Protection database
- 5.New Jersey Landscape Change Research database
- 6.New Jersey Office of Economic development database

- 7.Hunterdon County Tax Board database
- 8.US Census Bureau database
- 9.Union County Division of Policy and Planning, Department of Economic Development database
- 10.Middlesex County Planning Board database
- 11.Monmouth County Profile 2000
- 12.Delaware Valley Regional Planning Commission
- 13.Sussex County Economic Development Partnership

The above mentioned data sources provides with the following land use data for New Jersey:

- 1.Land use by type (only by land cover and housing units and only for Southern New Jersey counties) (Rutgers)
- 2.Number of new residential housing units authorized to be built for all New Jersey counties (Workforce)
- 3.Number of housing units by structure size (single family, multi family etc.) for Northern New Jersey counties only (NYMTC)
- 4.Floor space area for Northern New Jersey counties only (NYMTC)
- 5.Land use and land cover for all New Jersey counties (NJDEP, NJLCR)
- 6.Office space in square foot for all New Jersey counties (NJOED)
- 7.Property classification for Hunterdon county (Hunterdon)
- 8.Number of Occupied and vacant housing units for all New Jersey counties (US Census Bureau)
- 9.Property classification for Union county (Union)
- 10.Property classification for Middlesex county (Middlesex)
- 11.Property classification for Monmouth county (Monmouth)
- 12.Property classification for Mercer, Burlington, Camden and Gloucester counties (Delaware 1998)
- 13.Property classification for Sussex county (Sussex)

Among the data items listed above, the first one will not be presented here in much detail, since it is in graphical form already. However, the remaining data items are presented using TransCAD as given in the following section.

The data from the Urban Planning database (Rutgers) provides land use data only for Southern New Jersey counties, namely; Atlantic, Burlington, Cape May, Ocean, Salem, Gloucester, Camden and Cumberland. This database provides land cover data for these counties in the categories listed below for the years 1984 and 1994 in the form of maps. The data points are not available. This makes this data impossible to manipulate and use in our project.

- Highly Developed
- Moderately Developed
- Cultivated
- Grassland
- Deciduous Forest Woody Land
- Coniferous Forest Woody Land
- Mixed Deciduous/Coniferous Forest Woody Land
- Scrub/Shrub Woody Land
- Bare Land
- Estuarine Emergent Wetland
- Palustrine Emergent Wetland
- Palustrine Forest Woody Land
- Palustrine Shrub/scrub Woody Land
- Unconsolidated shore both estuarine and palustrine
- Water

In Urban Planning database, number of vacant and occupied housing units is also provided for 1983 in the form of a table for all the counties at census tract level.

This working paper will be helpful for the project team to identify the data needs for land use issue and initiate an effort to collect the missing data as soon as possible.

## **2. PRESENTATION OF LAND USE DATA USING TransCAD**

In this section of the Working Paper, the available and recently retrieved land use data will be described and presented using TransCAD, which is a Geographical Information System for transportation data management and analysis.

Besides the land use data, employment data by county and industry will be presented in this section. The reason for including ‘employment’ data in this ‘land use’ related paper is due to



the fact that, employment is the major indicator of economic development, and employment (activity) locations determine land use patterns. In addition, employment data is used in most of the computations to measure the accessibility index, which is another determining factor in land use patterns.

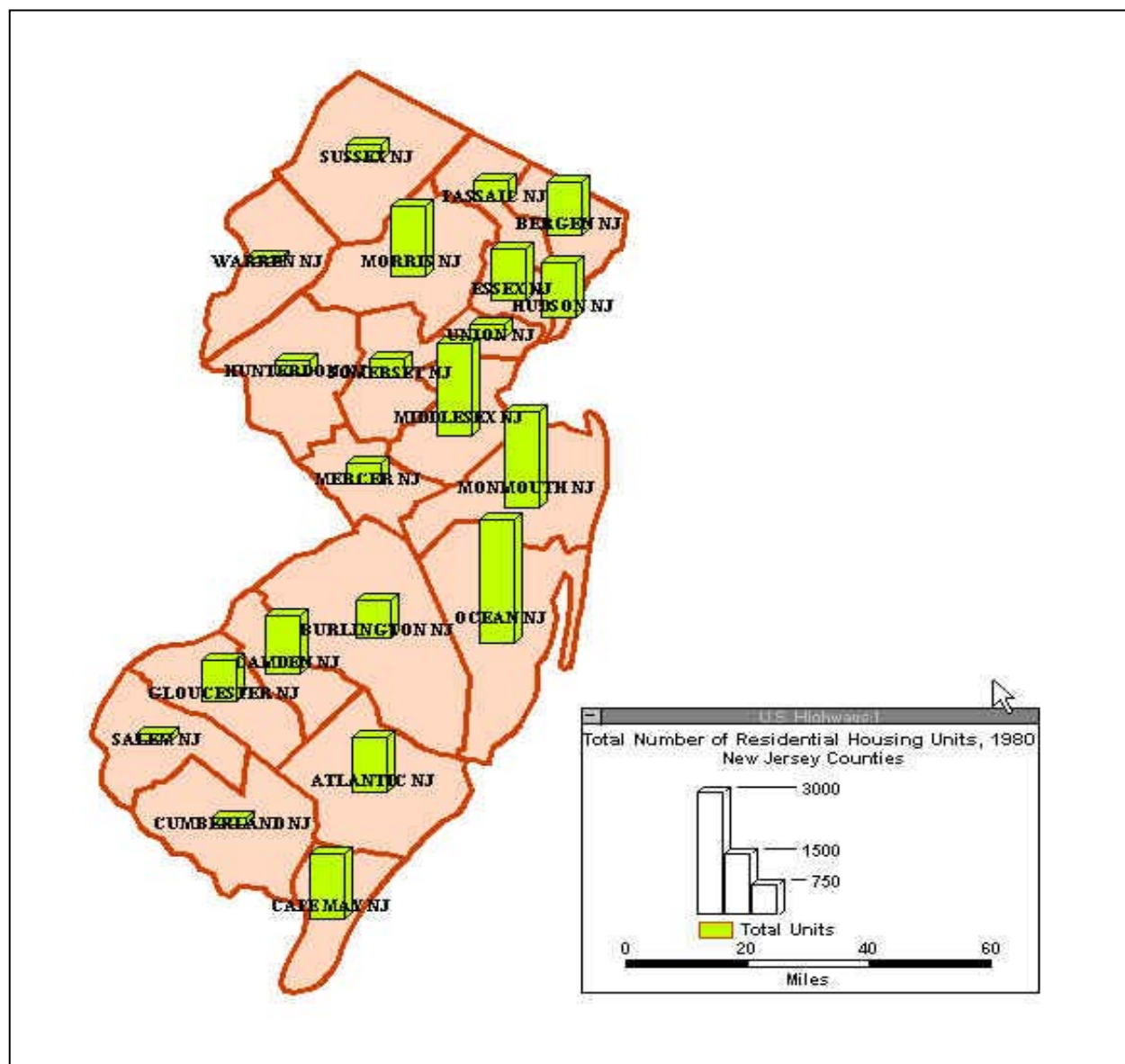
## 2.1. Number of New Residential Housing Units Authorized To Be Built (Workforce)

This data is available for all New Jersey **counties** and **municipalities** for the period between 1980 and 1999. Data for number of residential housing units in New Jersey is presented for the years 1980, 1990 and 1999 at county level in Table 1. Besides, these values are also shown in the form of maps in figures 1 to 3.

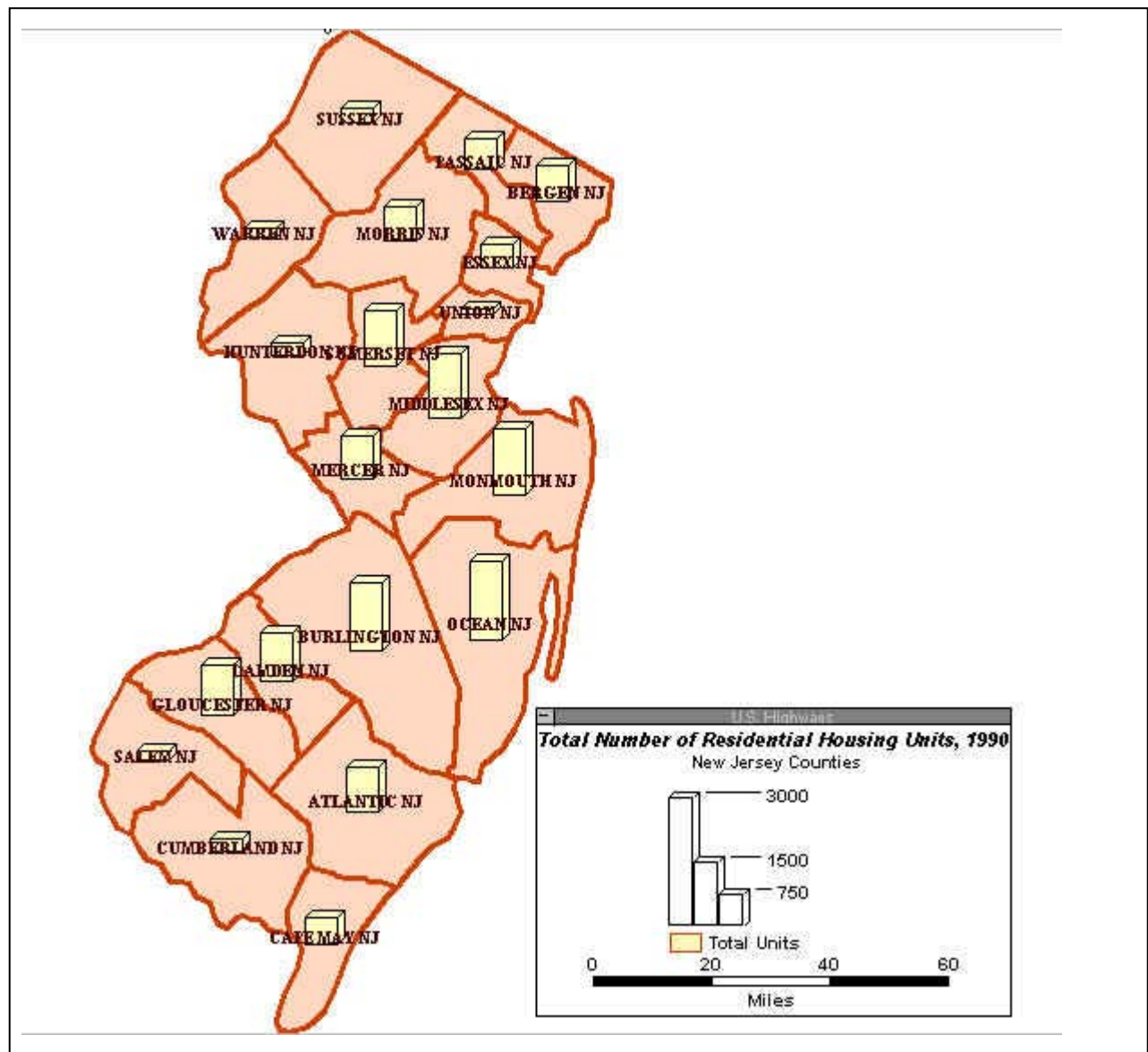
**TABLE 1 Total Number of New Residential Housing Units Authorized To Be Built**

<b>County</b>	<b>Total Units, 1980</b>	<b>Total Units, 1990</b>	<b>Total Units, 1999</b>
ATLANTIC NJ	1,324	1,026	1,401
BERGEN NJ	1,276	817	1,661
BURLINGTON NJ	920	1,600	2,755
CAMDEN NJ	1,396	1,125	867
CAPE MAY NJ	1,588	621	1,226
CUMBERLAND NJ	180	294	371
ESSEX NJ	1,226	540	1,343
GLOUCESTER NJ	1,007	1,183	1,527
HUDSON NJ	1,340	486	1,921
HUNTERDON NJ	351	281	708
MERCER NJ	504	1,004	1,159
MIDDLESEX NJ	2,219	1,486	3,102
MONMOUTH NJ	2,335	1,529	2,974
MORRIS NJ	1,681	798	1,853
OCEAN NJ	2,984	1,824	4,192
PASSAIC NJ	508	728	533
SALEM NJ	166	207	147
SOMERSET NJ	447	1,273	2,146
SUSSEX NJ	369	337	687
UNION NJ	320	138	513
WARREN NJ	129	227	890

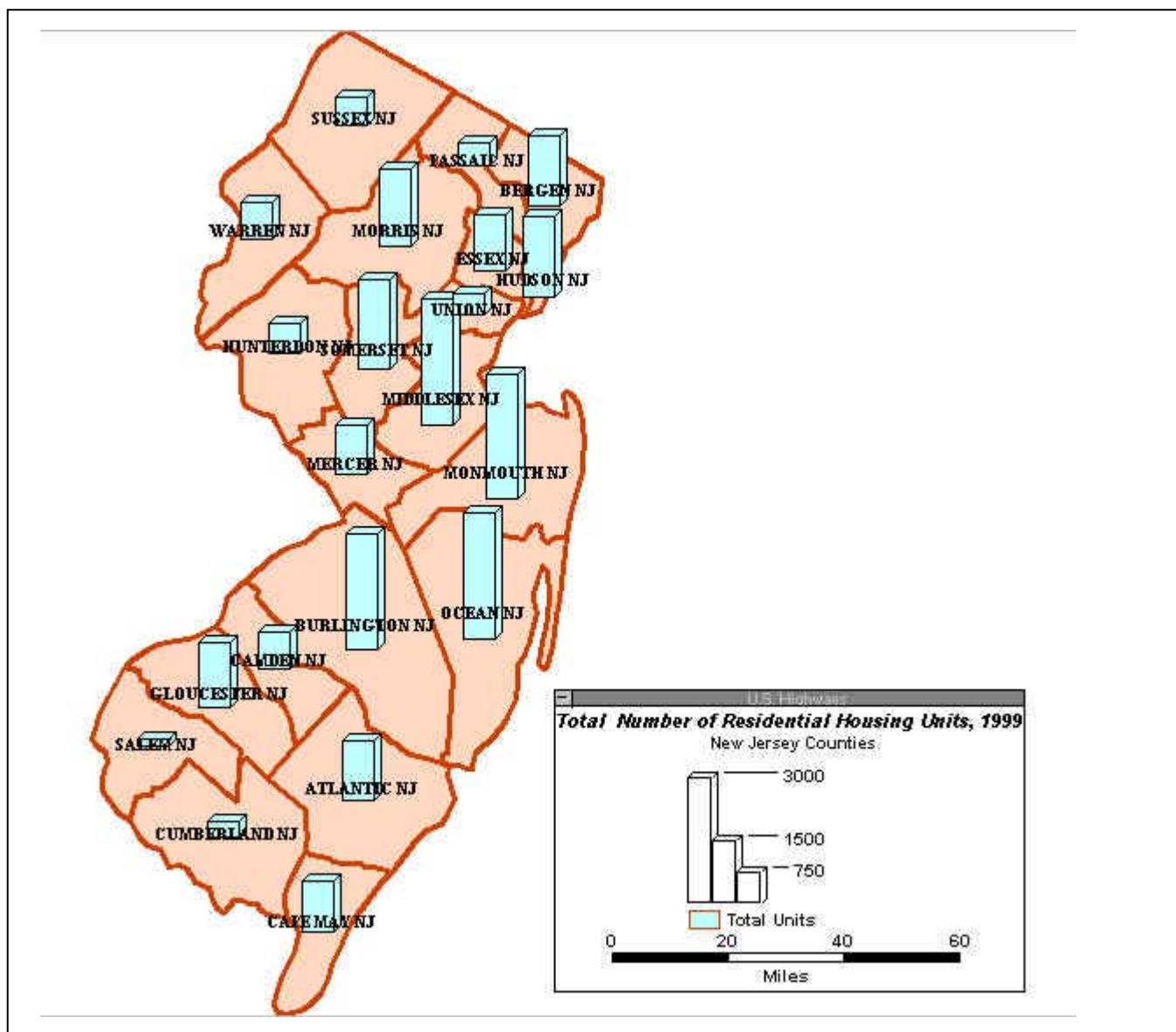
Source: Workforce New Jersey Public Information Network database



**FIGURE 1 Total Number of Residential Housing Units in 1980**



**FIGURE 2 Total Number of Residential Housing Units in 1990**



**FIGURE 3 Total Number of Residential Housing Units in 1999**

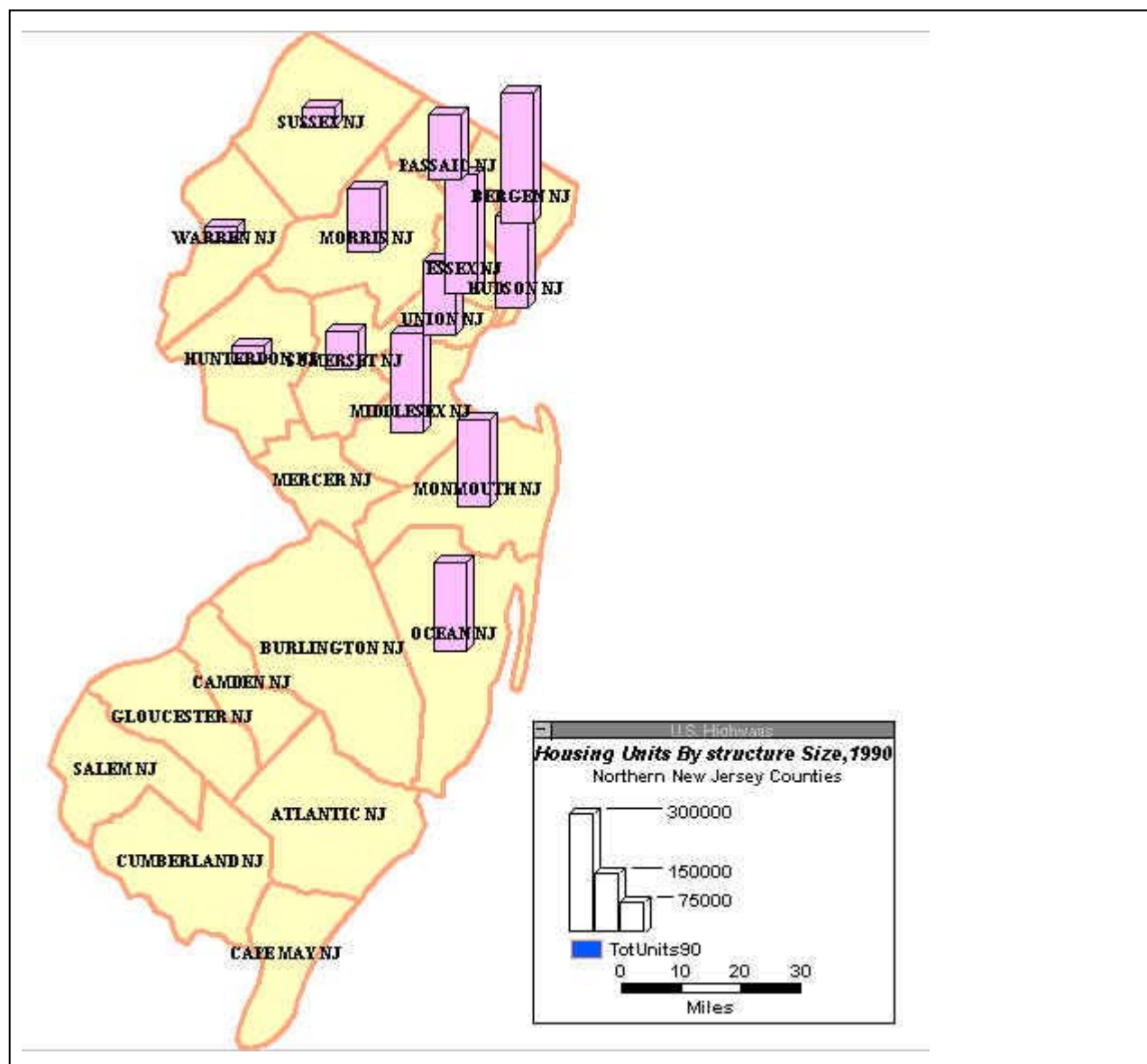
## 2.2. Number of Housing Units By Structure Size (NYMTC)

This data is available only for **northern New Jersey counties** for the years 1990 and 1996 as shown in Table 2. The term ‘housing units’ also includes all the vacant and seasonal units. The representation of this data on the map is provided in figures 4 and 5 below.

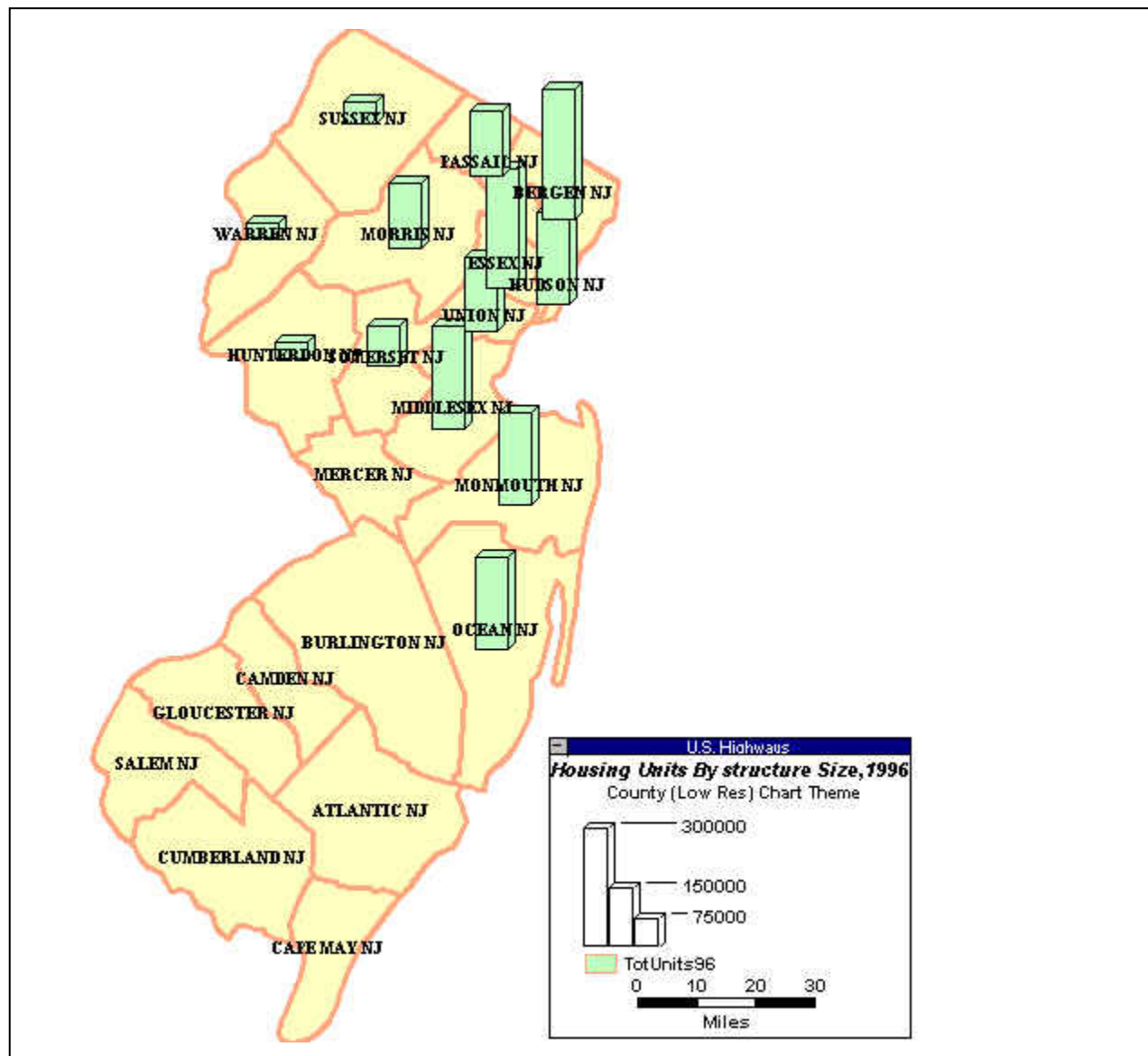
**TABLE 2 Housing Units By Structure Size**

<b>County</b>	<b>1990</b>			<b>1996</b>		
	<b>Total Units</b>	<b>Single Family</b>	<b>Multifamily</b>	<b>Total Units</b>	<b>Single Family</b>	<b>Multifamily</b>
Bergen County	324,817	182,107	142,710	329,576	185,433	144,143
Essex County	298,710	99,385	199,325	302,605	101,178	201,427
Hudson County	229,682	21,297	208,385	231,885	22,113	209,772
Hunterdon County	39,987	29,512	10,475	43,485	33,002	10,483
Middlesex County	250,174	135,330	114,844	261,519	144,242	117,277
Monmouth County	218,408	143,754	74,654	231,533	156,087	75,446
Morris County	155,745	111,611	44,134	166,222	120,673	45,549
Ocean County	219,863	160,676	59,187	233,728	174,070	59,658
Passaic County	162,512	70,659	91,853	165,472	72,400	93,072
Somerset County	92,653	55,796	36,857	102,785	64,204	38,581
Sussex County	51,574	42,015	9,559	53,847	44,164	9,683
Union County	187,033	100,345	86,688	189,539	101,778	87,761
Warren County	36,589	23,051	13,538	38,816	25,134	13,682

Source: <http://www.nymtc.org>



**FIGURE 4 Housing Units By Structure Size, 1990**



**FIGURE 5 Housing Units By Structure Size, 1996**

### 2.3. Floor Space Area (NYMTC)

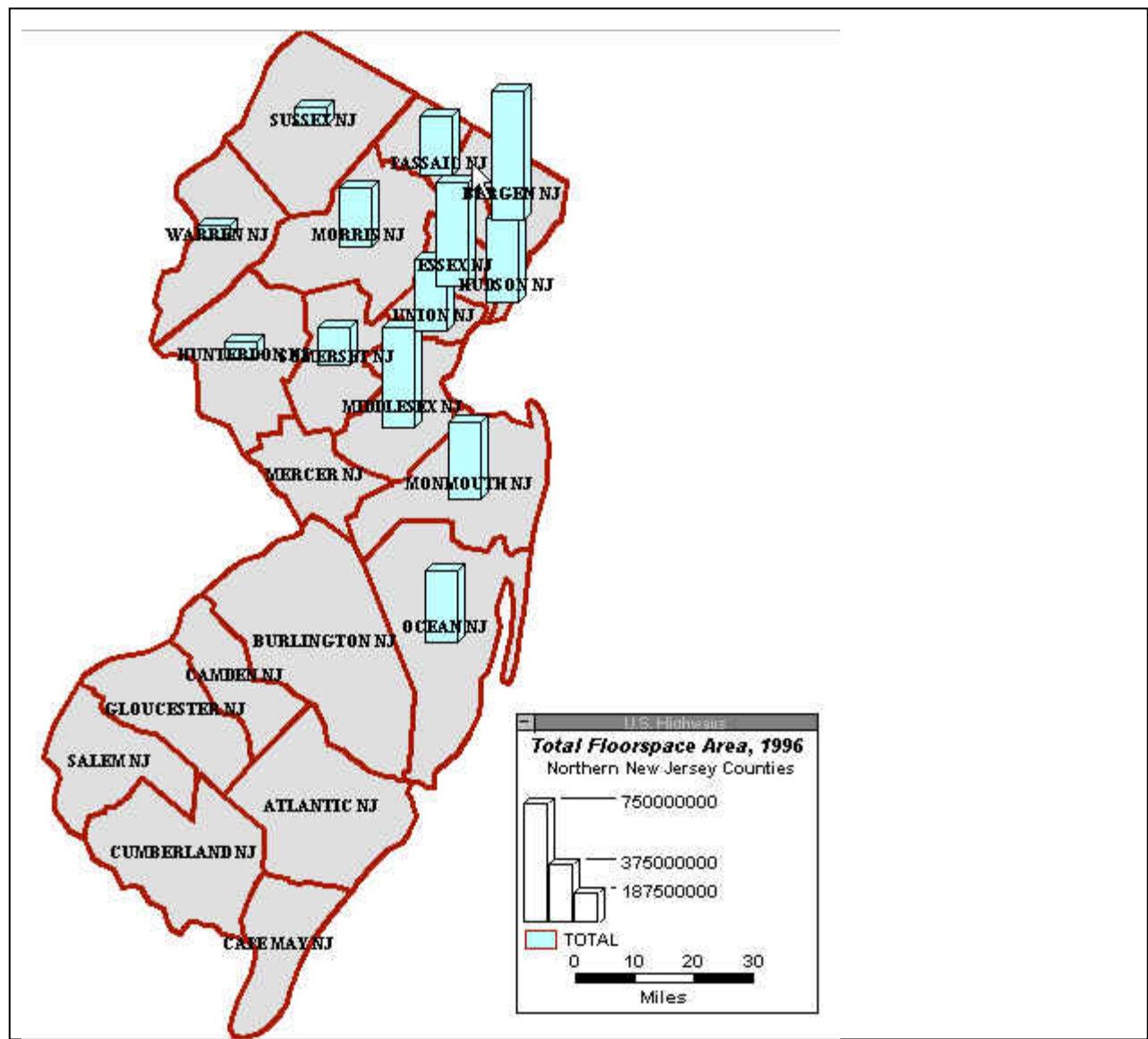
This data is available only for **northern New Jersey counties** for the year 1996 as shown in Table 3. The total floor space area data includes both the residential and non-residential floor spaces. This data is available both at **county level** and **census tract level** for the Northern New Jersey counties. The representation of the total floor space for northern New Jersey counties on the map is shown in figure 6 below.

**TABLE 3 Floor Space Area For Northern New Jersey Counties, 1996 (sq.ft.)**

<b>County</b>	<b>Total</b>	<b>Residential</b>	<b>Non-Residential</b>
Bergen County	806,730,804	481,554,800	325,176,004
Essex County	645,050,858	415,956,400	229,094,458
Hudson County	521,632,817	302,019,350	219,613,467
Hunterdon County	100,457,925	66,635,200	33,822,725
Middlesex County	624,002,852	386,186,200	237,816,652
Monmouth County	480,406,354	350,304,000	130,102,354
Morris County	370,390,168	253,319,000	117,071,168
Ocean County	445,378,257	357,663,200	87,715,057
Passaic County	373,800,677	232,505,400	141,295,277
Somerset County	231,748,532	153,956,000	77,792,532
Sussex County	106,668,024	83,412,400	23,255,624
Union County	452,588,008	273,693,600	178,894,408
Warren County	82,971,461	58,397,400	24,574,061

Source: <http://www.nymtc.org>





**FIGURE 6 Total Floor Space Area For Northern New Jersey Counties, 1996**

## 2.4. Land Use and Land Cover (NJDEP, NJLCR)

The land use and land cover data for all the New Jersey counties for the year 1986 is available in the NJDEP (New Jersey Department of Environmental Protection) database. This data is presented in Tables 4 through 24 for all the New Jersey counties. The representation of this data for some selected counties on the map is provided in figures 7 to 9.

There is another source for land cover data; New Jersey Landscape Change Research database (NJLCR). This database contains land cover data for all New Jersey counties for 1984 and 1995. An example for this data is shown in Table 25 for Monmouth county.

**TABLE 4 Percentages of Land Cover Types for Atlantic County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>51067.22</b>	<b>13.06</b>
-Residential	33450.14	8.55
-Industrial	1421.91	0.36
-Recreational	2488.55	0.64
-Commercial & Services	4931.56	1.26
-Military Reservations	7.52	0
-Transp., Communication, Util.	6204.2	1.59
-Wetland Rights of Way	171.95	0.04
-Industrial/Commercial complexes	6.03	0
-Athletic Fields (Schools)	412.89	0.11
-Mixed Urban or Built-up Land	81.79	0.02
-Other Urban or Built-up Land	1890.68	0.48
<b>FORREST</b>	<b>150790.6</b>	<b>38.55</b>
<b>WATER</b>	<b>35529.45</b>	<b>9.08</b>
<b>WETLANDS</b>	<b>120973.67</b>	<b>30.93</b>
<b>AGRICULTURE</b>	<b>27951.19</b>	<b>7.15</b>
<b>BARREN LAND</b>	<b>4820.21</b>	<b>1.23</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>391132.34</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 5 Percentages of Land Cover Types for Bergen County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>110649.83</b>	<b>71.12</b>
-Residential	76417.72	49.11
-Industrial	7717.51	4.96
-Recreational	5879.45	3.78
-Commercial & Services	11741.17	7.55
-Military Reservations	17.43	0.01
-Transp., Communication, Util.	3646.03	2.34
-Wetland Rights of Way	7.81	0.01
-Industrial/Commercial complexes	470.99	0.3
-Athletic Fields (Schools)	1269.66	0.82
-Mixed Urban or Built-up Land	91.23	0.06
-Other Urban or Built-up Land	3390.83	2.18
<b>FORREST</b>	<b>26957.11</b>	<b>17.33</b>
<b>WATER</b>	<b>4374.99</b>	<b>2.81</b>
<b>WETLANDS</b>	<b>11891.22</b>	<b>7.64</b>
<b>AGRICULTURE</b>	<b>702.56</b>	<b>0.45</b>
<b>BARREN LAND</b>	<b>1014.69</b>	<b>0.65</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>155590.4</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 6 Percentages of Land Cover Types for Burlington County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>77154.08</b>	<b>14.72</b>
-Residential	49541.65	9.45
-Industrial	3354.32	0.64
-Recreational	2582.13	0.49
-Commercial & Services	6924.42	1.32
-Military Reservations	5871.39	1.12
-Transp.,Communication, Util.	3330.53	0.64
-Wetland Rights of Way	235.46	0.04
-Industrial/Commercial complexes	0	0
-Athletic Fields (Schools)	1387.93	0.26
-Mixed Urban or Built-up Land	22.75	0
-Other Urban or Built-up Land	2776.07	0.53
<b>FORREST</b>	<b>192194.24</b>	<b>36.66</b>
<b>WATER</b>	<b>12969.35</b>	<b>2.47</b>
<b>WETLANDS</b>	<b>137192.94</b>	<b>26.17</b>
<b>AGRICULTURE</b>	<b>99647.29</b>	<b>19.01</b>
<b>BARREN LAND</b>	<b>5049.8</b>	<b>0.96</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>524207.7</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 7 Percentages of Land Cover Types for Camden County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>65074.2</b>	<b>45.45</b>
-Residential	44344.16	30.97
-Industrial	3432.87	2.4
-Recreational	3136.27	2.19
-Commercial & Services	7117.08	4.97
-Military Reservations	0	0
-Transp.,Communication, Util.	3749.16	2.62
-Wetland Rights of Way	204.55	0.14
-Industrial/Commercial complexes	64.96	0.05
-Athletic Fields (Schools)	857.36	0.6
-Mixed Urban or Built-up Land	46.93	0.03
-Other Urban or Built-up Land	2120.86	1.48
<b>FORREST</b>	<b>37583.45</b>	<b>26.25</b>
<b>WATER</b>	<b>4053.14</b>	<b>2.83</b>
<b>WETLANDS</b>	<b>19941.48</b>	<b>13.93</b>
<b>AGRICULTURE</b>	<b>13634.27</b>	<b>9.52</b>
<b>BARREN LAND</b>	<b>2896.86</b>	<b>2.02</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>143183.4</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 8 Percentages of Land Cover Types for Cape May County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>27175.5</b>	<b>16.38</b>
-Residential	19359.98	11.67
-Industrial	248.32	0.15
-Recreational	1941.12	1.17
-Commercial & Services	1687.03	1.02
-Military Reservations	148.23	0.09
-Transp.,Communication, Util.	2361.38	1.42
-Wetland Rights of Way	213.56	0.13
-Industrial/Commercial complexes	0	0
-Athletic Fields (Schools)	154.12	0.09
-Mixed Urban or Built-up Land	12.3	0.01
-Other Urban or Built-up Land	1040.19	0.63
<b>FORREST</b>	<b>38680.13</b>	<b>23.31</b>
<b>WATER</b>	<b>5020.37</b>	<b>3.03</b>
<b>WETLANDS</b>	<b>81508.25</b>	<b>49.13</b>
<b>AGRICULTURE</b>	<b>9736.88</b>	<b>5.87</b>
<b>BARREN LAND</b>	<b>3783.62</b>	<b>2.28</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>165904.75</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 9 Percentages of Land Cover Types for Cumberland County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>31426.87</b>	<b>9.77</b>
-Residential	22746.32	7.07
-Industrial	1614.77	0.5
-Recreational	567.3	0.18
-Commercial & Services	3506.18	1.09
-Military Reservations	8.25	0
-Transp.,Communication, Util.	1404.04	0.44
-Wetland Rights of Way	76.16	0.02
-Industrial/Commercial complexes	20.87	0.01
-Athletic Fields (Schools)	303.67	0.09
-Mixed Urban or Built-up Land	16.58	0.01
-Other Urban or Built-up Land	1162.73	0.36
<b>FORREST</b>	<b>107129.02</b>	<b>33.31</b>
<b>WATER</b>	<b>14150.17</b>	<b>4.4</b>
<b>WETLANDS</b>	<b>93955.94</b>	<b>29.21</b>
<b>AGRICULTURE</b>	<b>70689.85</b>	<b>21.98</b>
<b>BARREN LAND</b>	<b>4276.83</b>	<b>1.33</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>321628.68</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 10 Percentages of Land Cover Types for Essex County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>64277.24</b>	<b>77.95</b>
-Residential	37644.78	45.66
-Industrial	5193.22	6.3
-Recreational	3763.15	4.56
-Commercial & Services	8718.68	10.57
-Military Reservations	16.67	0.02
-Transp.,Communication, Util.	5616.63	6.81
-Wetland Rights of Way	184.5	0.22
-Industrial/Commercial complexes	103.06	0.12
-Athletic Fields (Schools)	414.43	0.5
-Mixed Urban or Built-up Land	643.49	0.78
-Other Urban or Built-up Land	1978.63	2.4
<b>FORREST</b>	<b>9836.86</b>	<b>11.93</b>
<b>WATER</b>	<b>1136.87</b>	<b>1.38</b>
<b>WETLANDS</b>	<b>6492.64</b>	<b>7.87</b>
<b>AGRICULTURE</b>	<b>303.44</b>	<b>0.37</b>
<b>BARREN LAND</b>	<b>407.77</b>	<b>0.49</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>82454.82</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 11 Percentages of Land Cover Types for Gloucester County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>54285.22</b>	<b>25.18</b>
-Residential	36564.69	16.96
-Industrial	4090	1.9
-Recreational	1576.71	0.73
-Commercial & Services	3370.83	1.56
-Military Reservations	58.38	0.03
-Transp.,Communication, Util.	2951.05	1.37
-Wetland Rights of Way	261.05	0.12
-Industrial/Commercial complexes	10.67	0
-Athletic Fields (Schools)	719.69	0.33
-Mixed Urban or Built-up Land	0	0
-Other Urban or Built-up Land	4682.15	2.17
<b>FORREST</b>	<b>50489.56</b>	<b>23.42</b>
<b>WATER</b>	<b>9732</b>	<b>4.51</b>
<b>WETLANDS</b>	<b>32218.81</b>	<b>14.94</b>
<b>AGRICULTURE</b>	<b>64340.03</b>	<b>29.84</b>
<b>BARREN LAND</b>	<b>4543.26</b>	<b>2.11</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>215608.88</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 12 Percentages of Land Cover Types for Hudson County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>22912.49</b>	<b>57.6</b>
-Residential	8433.76	21.2
-Industrial	5996.41	15.08
-Recreational	1119.89	2.82
-Commercial & Services	2491.62	6.26
-Military Reservations	0	0
-Transp.,Communication, Util.	3020.53	7.59
-Wetland Rights of Way	0	0
-Industrial/Commercial complexes	0	0
-Athletic Fields (Schools)	88.84	0.22
-Mixed Urban or Built-up Land	160.86	0.4
-Other Urban or Built-up Land	574.7	1.44
<b>FORREST</b>	<b>1616.93</b>	<b>4.07</b>
<b>WATER</b>	<b>10650.4</b>	<b>26.78</b>
<b>WETLANDS</b>	<b>2791.55</b>	<b>7.02</b>
<b>AGRICULTURE</b>	<b>0</b>	<b>0</b>
<b>BARREN LAND</b>	<b>1804.04</b>	<b>4.54</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>39775.41</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 13 Percentages of Land Cover Types for Hunterdon County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>49929.55</b>	<b>17.83</b>
-Residential	41642.54	14.87
-Industrial	891.04	0.32
-Recreational	1139.97	0.41
-Commercial & Services	2953.75	1.05
-Military Reservations	0	0
-Transp.,Communication, Util.	2286.11	0.82
-Wetland Rights of Way	49.05	0.02
-Industrial/Commercial complexes	44.33	0.02
-Athletic Fields (Schools)	263.67	0.09
-Mixed Urban or Built-up Land	9.96	0
-Other Urban or Built-up Land	649.13	0.23
<b>FORREST</b>	<b>97213.42</b>	<b>34.71</b>
<b>WATER</b>	<b>6039.42</b>	<b>2.16</b>
<b>WETLANDS</b>	<b>19917.77</b>	<b>7.11</b>
<b>AGRICULTURE</b>	<b>105083.01</b>	<b>37.52</b>
<b>BARREN LAND</b>	<b>1919.65</b>	<b>0.69</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>280102.82</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 14 Percentages of Land Cover Types for Mercer County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>52088.61</b>	<b>35.84</b>
-Residential	33142.47	22.81
-Industrial	1335.35	0.92
-Recreational	1990.5	1.37
-Commercial & Services	8388.57	5.77
-Military Reservations	95.86	0.07
-Transp.,Communication, Util.	3040.01	2.09
-Wetland Rights of Way	138.86	0.1
-Industrial/Commercial complexes	0	0
-Athletic Fields (Schools)	950.12	0.65
-Mixed Urban or Built-up Land	8.72	0.01
-Other Urban or Built-up Land	2998.15	2.06
<b>FORREST</b>	<b>26462.33</b>	<b>18.21</b>
<b>WATER</b>	<b>2593.03</b>	<b>1.78</b>
<b>WETLANDS</b>	<b>20924.63</b>	<b>14.4</b>
<b>AGRICULTURE</b>	<b>41345.28</b>	<b>28.45</b>
<b>BARREN LAND</b>	<b>1904.99</b>	<b>1.31</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>145318.87</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 15 Percentages of Land Cover Types for Middlesex County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>95575.87</b>	<b>47.13</b>
-Residential	53158.08	26.21
-Industrial	13662.88	6.74
-Recreational	4044.56	1.99
-Commercial & Services	11499.65	5.67
-Military Reservations	323.34	0.16
-Transp.,Communication, Util.	5566.61	2.74
-Wetland Rights of Way	344.5	0.17
-Industrial/Commercial complexes	467.61	0.23
-Athletic Fields (Schools)	1124.13	0.55
-Mixed Urban or Built-up Land	161.16	0.08
-Other Urban or Built-up Land	5204.75	2.57
<b>FORREST</b>	<b>28895.48</b>	<b>14.25</b>
<b>WATER</b>	<b>5249.99</b>	<b>2.59</b>
<b>WETLANDS</b>	<b>39994.11</b>	<b>19.72</b>
<b>AGRICULTURE</b>	<b>26260.74</b>	<b>12.95</b>
<b>BARREN LAND</b>	<b>6828.6</b>	<b>3.37</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>202804.79</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 16 Percentages of Land Cover Types for Monmouth County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>112823.77</b>	<b>37.13</b>
-Residential	78332	25.78
-Industrial	3429.98	1.13
-Recreational	5915.28	1.95
-Commercial & Services	9732.75	3.2
-Military Reservations	2570.27	0.85
-Transp.,Communication, Util.	4759.26	1.57
-Wetland Rights of Way	413.9	0.14
-Industrial/Commercial complexes	218.58	0.07
-Athletic Fields (Schools)	1154.65	0.38
-Mixed Urban or Built-up Land	0	0
-Other Urban or Built-up Land	6297.1	2.07
<b>FORREST</b>	<b>57442.64</b>	<b>18.91</b>
<b>WATER</b>	<b>3528.39</b>	<b>1.16</b>
<b>WETLANDS</b>	<b>63546.33</b>	<b>20.91</b>
<b>AGRICULTURE</b>	<b>61056.31</b>	<b>20.1</b>
<b>BARREN LAND</b>	<b>5437.31</b>	<b>1.79</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>303834.75</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 17 Percentages of Land Cover Types for Morris County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>103486.19</b>	<b>33.67</b>
-Residential	73547.46	23.93
-Industrial	4299.75	1.4
-Recreational	4010.36	1.3
-Commercial & Services	10907.69	3.55
-Military Reservations	1102.13	0.36
-Transp.,Communication, Util.	5018.5	1.63
-Wetland Rights of Way	537.35	0.17
-Industrial/Commercial complexes	203.98	0.07
-Athletic Fields (Schools)	1041.71	0.34
-Mixed Urban or Built-up Land	14.94	0
-Other Urban or Built-up Land	2802.32	0.91
<b>FORREST</b>	<b>129289.67</b>	<b>42.06</b>
<b>WATER</b>	<b>10189.99</b>	<b>3.32</b>
<b>WETLANDS</b>	<b>43148.49</b>	<b>14.04</b>
<b>AGRICULTURE</b>	<b>18265.29</b>	<b>5.94</b>
<b>BARREN LAND</b>	<b>2985.96</b>	<b>0.97</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>307365.59</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database



**TABLE 18 Percentages of Land Cover Types for Ocean County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>78316.44</b>	<b>16.13</b>
-Residential	55356.07	11.4
-Industrial	967.25	0.2
-Recreational	2073.59	0.43
-Commercial & Services	6236.11	1.28
-Military Reservations	3083.53	0.64
-Transp.,Communication, Util.	3079.25	0.63
-Wetland Rights of Way	373.81	0.08
-Industrial/Commercial complexes	11.27	0
-Athletic Fields (Schools)	822.25	0.17
-Mixed Urban or Built-up Land	0	0
-Other Urban or Built-up Land	3658.13	0.75
<b>FORREST</b>	<b>199320.32</b>	<b>41.05</b>
<b>WATER</b>	<b>83698.86</b>	<b>17.24</b>
<b>WETLANDS</b>	<b>100799.03</b>	<b>20.76</b>
<b>AGRICULTURE</b>	<b>11373.56</b>	<b>2.34</b>
<b>BARREN LAND</b>	<b>12065.07</b>	<b>2.48</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>485573.28</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 19 Percentages of Land Cover Types for Passaic County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>44493.59</b>	<b>35.33</b>
-Residential	29761.29	23.63
-Industrial	3510.95	2.79
-Recreational	1729.98	1.37
-Commercial & Services	6136.03	4.87
-Military Reservations	0	0
-Transp.,Communication, Util.	1883.97	1.5
-Wetland Rights of Way	25.85	0.02
-Industrial/Commercial complexes	109.52	0.09
-Athletic Fields (Schools)	322.11	0.26
-Mixed Urban or Built-up Land	75.66	0.06
-Other Urban or Built-up Land	938.23	0.75
<b>FORREST</b>	<b>62134.46</b>	<b>49.34</b>
<b>WATER</b>	<b>8390.35</b>	<b>6.66</b>
<b>WETLANDS</b>	<b>9020.16</b>	<b>7.16</b>
<b>AGRICULTURE</b>	<b>492.74</b>	<b>0.39</b>
<b>BARREN LAND</b>	<b>1390.66</b>	<b>1.1</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>125921.96</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 20 Percentages of Land Cover Types for Salem County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>20155.16</b>	<b>9.06</b>
-Residential	13365.93	6.01
-Industrial	1508.88	0.68
-Recreational	976.48	0.44
-Commercial & Services	1302.64	0.59
-Military Reservations	89.51	0.04
-Transp.,Communication, Util.	1635.27	0.73
-Wetland Rights of Way	252.32	0.11
-Industrial/Commercial complexes	0	0
-Athletic Fields (Schools)	244.11	0.11
-Mixed Urban or Built-up Land	15.04	0.01
-Other Urban or Built-up Land	764.98	0.34
<b>FORREST</b>	<b>37964.37</b>	<b>17.06</b>
<b>WATER</b>	<b>10444.57</b>	<b>4.69</b>
<b>WETLANDS</b>	<b>56638.02</b>	<b>25.46</b>
<b>AGRICULTURE</b>	<b>94608.99</b>	<b>42.52</b>
<b>BARREN LAND</b>	<b>2684.99</b>	<b>1.21</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>222496.1</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 21 Percentages of Land Cover Types for Somerset County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>65125.57</b>	<b>33.38</b>
-Residential	45966.2	23.56
-Industrial	2738.48	1.4
-Recreational	3120.31	1.6
-Commercial & Services	6076.88	3.11
-Military Reservations	411.25	0.21
-Transp.,Communication, Util.	2664.59	1.37
-Wetland Rights of Way	190.45	0.1
-Industrial/Commercial complexes	520.52	0.27
-Athletic Fields (Schools)	623.03	0.32
-Mixed Urban or Built-up Land	7.66	0
-Other Urban or Built-up Land	2806.2	1.44
<b>FORREST</b>	<b>51562.11</b>	<b>26.43</b>
<b>WATER</b>	<b>2148.77</b>	<b>1.1</b>
<b>WETLANDS</b>	<b>24939.36</b>	<b>12.78</b>
<b>AGRICULTURE</b>	<b>47433.19</b>	<b>24.31</b>
<b>BARREN LAND</b>	<b>3908.76</b>	<b>2</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>195117.76</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 22 Percentages of Land Cover Types for Sussex County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>37866.52</b>	<b>11.02</b>
-Residential	30714.31	8.94
-Industrial	348.27	0.1
-Recreational	2275.81	0.66
-Commercial & Services	2773.88	0.81
-Military Reservations	0	0
-Transp.,Communication, Util.	991.62	0.29
-Wetland Rights of Way	95	0.03
-Industrial/Commercial complexes	40.69	0.01
-Athletic Fields (Schools)	327.81	0.1
-Mixed Urban or Built-up Land	0	0
-Other Urban or Built-up Land	299.13	0.09
<b>FORREST</b>	<b>194105.15</b>	<b>56.51</b>
<b>WATER</b>	<b>12698.39</b>	<b>3.7</b>
<b>WETLANDS</b>	<b>41585.12</b>	<b>12.11</b>
<b>AGRICULTURE</b>	<b>54887.49</b>	<b>15.98</b>
<b>BARREN LAND</b>	<b>2322.63</b>	<b>0.68</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>343465.3</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 23 Percentages of Land Cover Types for Union County, 1986**

Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>56083.87</b>	<b>84.52</b>
-Residential	33278.6	50.15
-Industrial	7324.11	11.04
-Recreational	2679.2	4.04
-Commercial & Services	6172.19	9.3
-Military Reservations	13.97	0.02
-Transp.,Communication, Util.	4178.61	6.3
-Wetland Rights of Way	17.53	0.03
-Industrial/Commercial complexes	101.83	0.15
-Athletic Fields (Schools)	467.84	0.71
-Mixed Urban or Built-up Land	98.5	0.15
-Other Urban or Built-up Land	1751.49	2.64
<b>FORREST</b>	<b>5606.25</b>	<b>8.45</b>
<b>WATER</b>	<b>728.6</b>	<b>1.1</b>
<b>WETLANDS</b>	<b>3341.56</b>	<b>5.04</b>
<b>AGRICULTURE</b>	<b>262.82</b>	<b>0.4</b>
<b>BARREN LAND</b>	<b>335</b>	<b>0.5</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>66358.1</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

**TABLE 24 Percentages of Land Cover Types for Warren County, 1986**

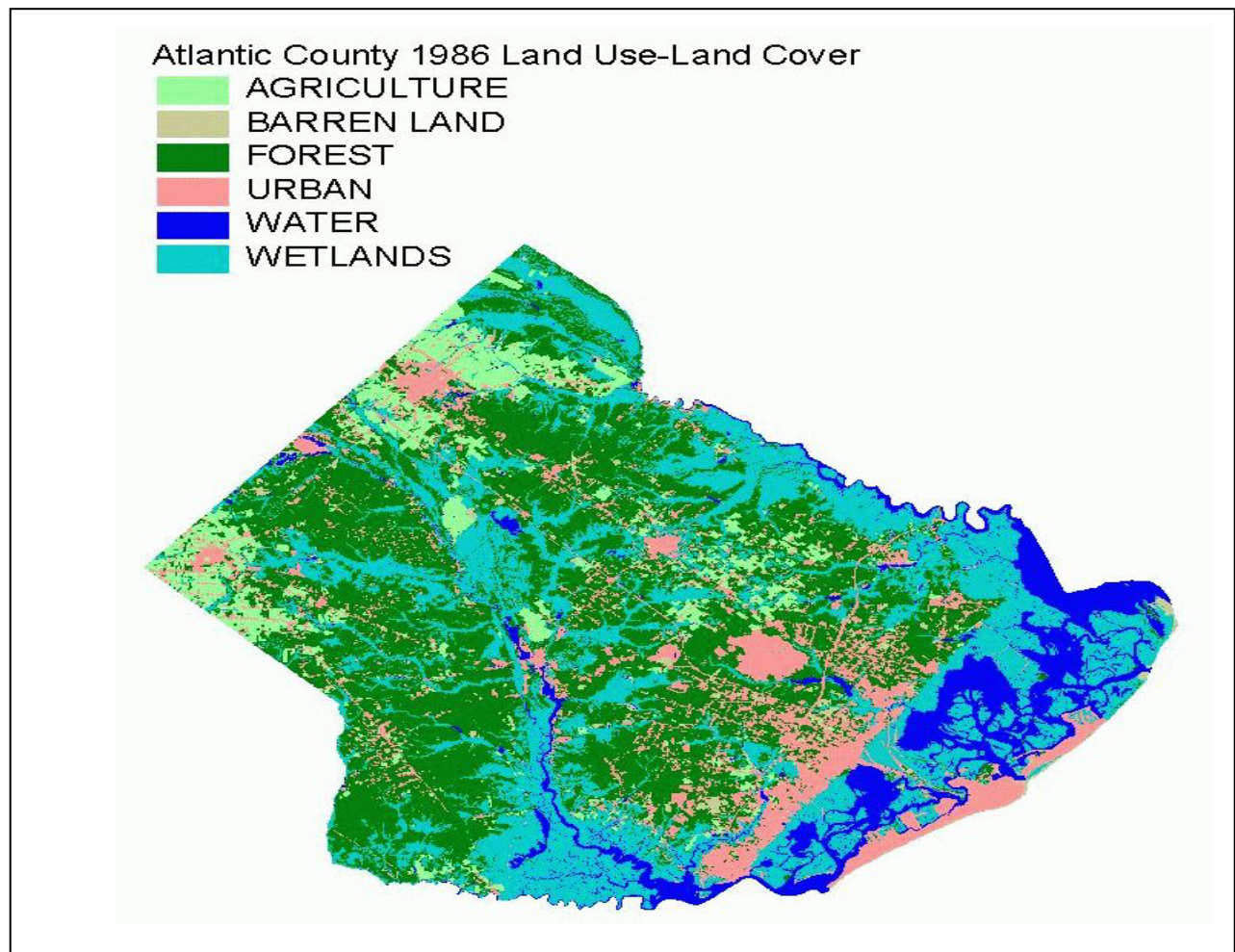
Land Use/Land Cover	Area in Acres	As A Percentage of Total Land (%)
<b>TOTAL URBAN:</b>	<b>28650.43</b>	<b>12.33</b>
-Residential	20668.19	8.89
-Industrial	1343.36	0.58
-Recreational	941.21	0.41
-Commercial & Services	2069.88	0.89
-Military Reservations	8.51	0
-Transp., Communication, Util.	2561.93	1.1
-Wetland Rights of Way	49.87	0.02
-Industrial/Commercial complexes	1.86	0
-Athletic Fields (Schools)	245.92	0.11
-Mixed Urban or Built-up Land	18.09	0.01
-Other Urban or Built-up Land	741.61	0.32
<b>FORREST</b>	<b>109612.31</b>	<b>47.17</b>
<b>WATER</b>	<b>4723.65</b>	<b>2.03</b>
<b>WETLANDS</b>	<b>17605.48</b>	<b>7.58</b>
<b>AGRICULTURE</b>	<b>70514.66</b>	<b>30.35</b>
<b>BARREN LAND</b>	<b>1264.87</b>	<b>0.54</b>
<b>TOTAL LAND AREA (Urban+ Forrest+Water+Wetland+Agr.+Barren)</b>	<b>232371.4</b>	<b>100</b>

Source: New Jersey Department of Environmental Protection database

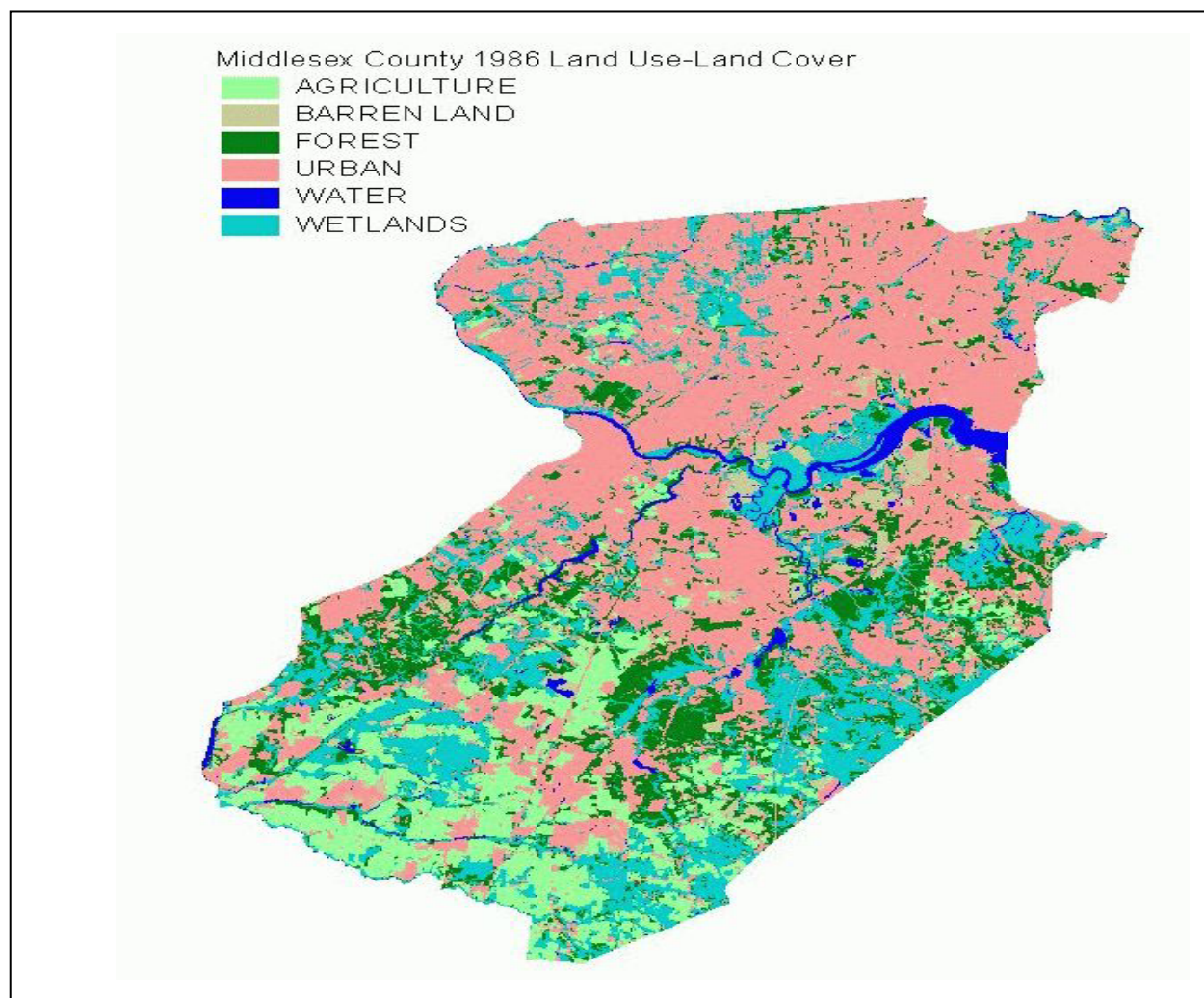
**TABLE 25 Areas of Land Cover Types for Monmouth County (Acres)**

MONMOUTH	1984	1995	84-95 change
Total area	309751		
DEVELOPED	111500	132176	20676
CULTIVATED/GRASS	73126	65625	-7501
FOREST	62043	53277	-8766
BARE (INLAND)	2137	2690	553
BARE (COAST)	1465	1057	-408
COAST WETLAND	2528	2266	-262
INLAND WETLAND	49276	44366	-4910
WATER	7676	8291	615

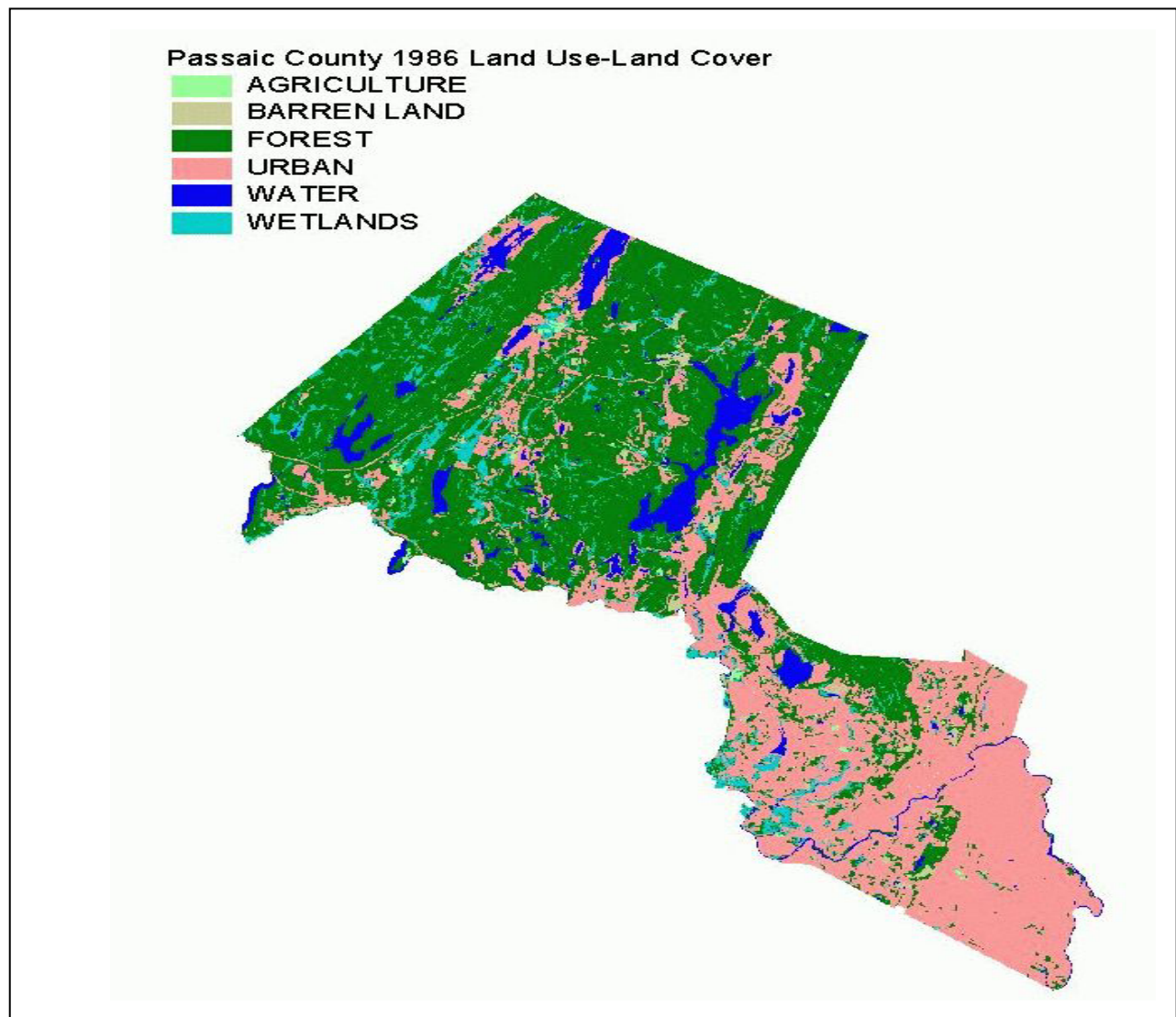
Source: New Jersey Landscape Change Research database



**FIGURE 7 1986 Land Cover View For Atlantic County, NJ**



**FIGURE 8 1986 Land Cover View For Middlesex County, NJ**



**FIGURE 9 1986 Land Cover View For Passaic County, NJ**

## 2.5. Office Space (NJOED)

Data for office space in square feet in 1995 and 1999 for all New Jersey counties is given in Table 26 below. Representation of this data (1995 data only) in TransCAD is shown in figure 10.

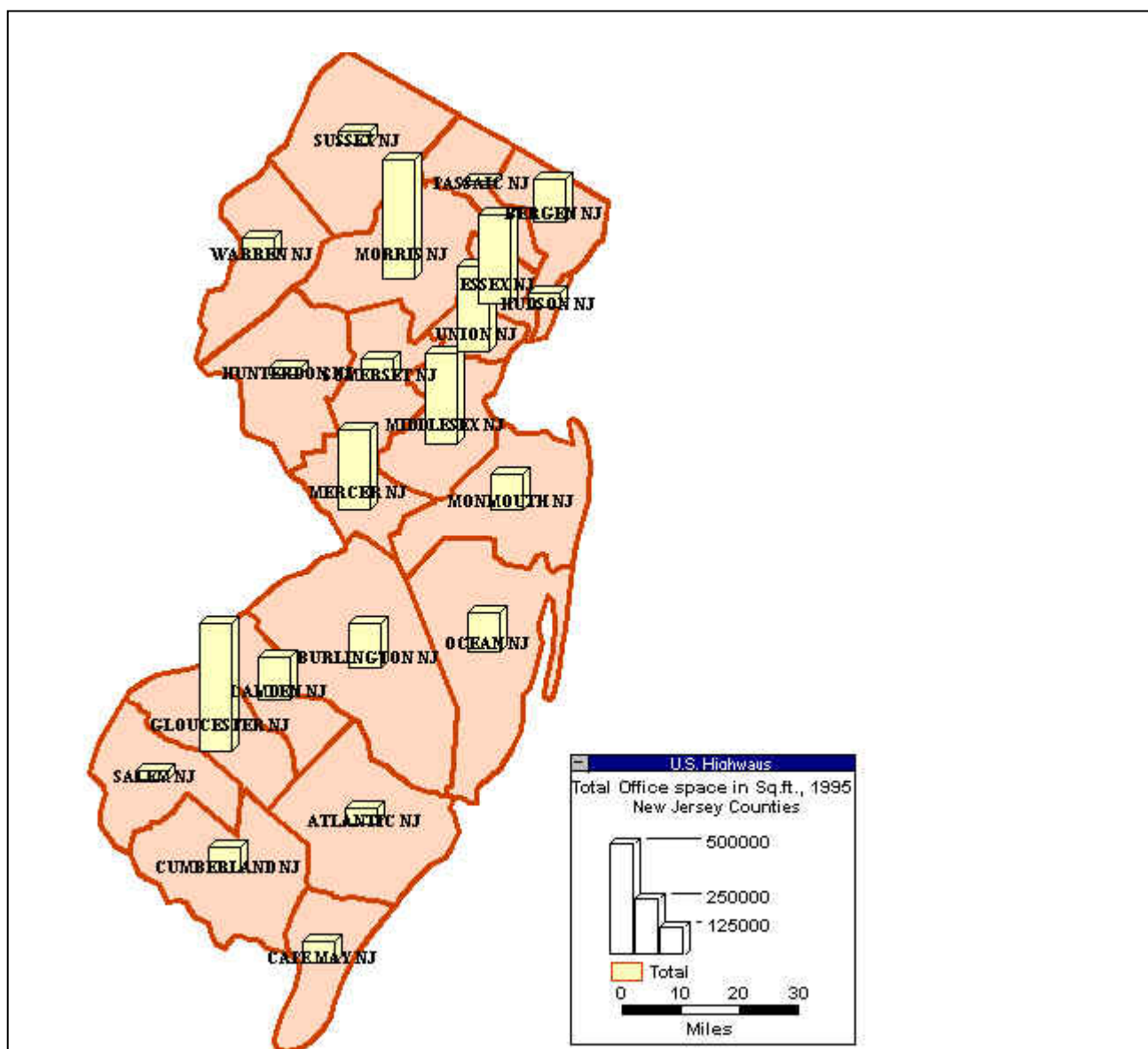
**TABLE 26 Office Space (Sq.ft. Authorized by Building Permit)**

<b>County</b>	<b>1995, Total</b>	<b>1995, New Construction<sup>a</sup></b>	<b>1999, Total</b>	<b>1999, New Construction</b>
ATLANTIC	73,425	65,294	194,919	165,425
BERGEN	187,924	87,055	163,103	112,119
BURLINGTON	197,846	150,590	126,591	89,403
CAMDEN	192,260	113,020	166,553	144,721
CAPE MAY	93,672	68,850	22,673	17,146
CUMBERLAND	109,317	81,845	76,099	66,388
ESSEX	398,125	86,550	113,942	94,058
GLOUCESTER	569,609	503,066	152,589	106,645
HUDSON	63,180	51,283	1,018,996	1,009,855
HUNTERDON	30,521	29,863	121,258	90,027
MERCER	354,326	302,848	468,166	291,170
MIDDLESEX	404,828	348,980	1,426,752	1,038,214
MONMOUTH	155,700	92,218	859,271	732,062
MORRIS	533,437	425,021	1,138,706	955,069
OCEAN	175,218	153,145	84,021	68,971
PASSAIC	19,554	3,295	220,283	127,515
SALEM	43,220	30,652	154,206	151,306
SOMERSET	94,565	46,004	285,192	197,476
SUSSEX	55,796	51,146	82,805	70,543
UNION	381,711	309,709	426,331	350,290
WARREN	95,212	40,163	55,447	39,245

<sup>a</sup> 'New Construction' is included in 'total' office space; i.e., for Atlantic for example, out of 73425 sq.ft. space, 65294 sq.ft. is the space with newly constructed office buildings. This means that addition of 8131 sq.ft. office space occurred.

Source: New Jersey Office of Economic Development database





**FIGURE 10 Total Office Space in square Feet, 1995**

## 2.6. Property Classification (Hunterdon, Union, Middlesex, Monmouth, Delaware, Sussex)

Property classification data for all New Jersey counties in 1986 has been presented in Section 2.4 of this working paper. However, some more up to date data was also found in some other databases and it will be presented in this section. The data presented here might also be useful in our project. This data is available only for Hunterdon, Union, Middlesex, Monmouth, Mercer, Burlington, Camden and Gloucester and Sussex counties in different databases as described earlier. Table 27 shows property classification for Hunterdon in 1997. 1998 data is also available. Table 28 shows this data for Union county for the years 1976, 1989 and 1996.

Tables 29 through 32 show the property classification for Middlesex, Monmouth, Mercer-Burlington- Camden-Gloucester, and Sussex counties respectively. The data for Mercer, Burlington, Camden and Gloucester counties is also available for Minor Civil Divisions in each county.

**TABLE 27 Hunterdon County Property Classification, 1997**

Municipality	Vacant	Residential	Farm(reg.) <sup>1</sup>	Farm(qualified) <sup>2</sup>	Commercial	Industrial	Apartments	Railroads	Exempt <sup>3</sup>	Total <sup>4</sup>
Alexandria	1,456	3,984	351	10,554	204	83	1	0	1,019	17,651
Bethlehem	1,636	3,187	197	6,934	99	37	0	0	616	12,705
Bloomsbury	19	101	3	249	24	8	1	54	99	557
Califon	83	307	3	105	23	0	1	0	50	571
Clinton	89	244	1	105	65	0	14	0	272	790
Clinton	1,244	5,119	193	6,660	677	209	15	0	6,621	20,737
Delaware	769	4,254	626	16,739	75	83	11	14	555	23,125
East	998	3,041	394	12,395	133	0	21	2	940	17,925
Flemington	40	197	0	19	176	7	43	7	99	588
Franklin	541	2,732	516	9,858	95	23	5	0	957	14,726
Frenchtown	78	328	1	149	27	17	9	0	63	672
Glen	103	324	10	264	23	16	2	0	120	861
Hampton	96	251	8	431	15	9	6	0	61	877
High	208	567	11	317	10	98	4	32	228	1,474
Holland	1,829	3,867	537	7,612	275	413	7	0	494	15,033
Kingwood	1,306	3,989	415	15,586	153	133	33	0	251	21,866
Lambert	186	189	5	29	44	13	5	15	89	575
Lebanon	90	157	2	61	93	26	0	0	41	470
Lebanon	1,974	5,310	295	9,358	236	23	57	0	2,688	19,941
Milford	166	238	4	90	16	81	10	0	118	723
Raritan	2,436	7,195	452	10,263	867	480	21	84	1,371	23,169
Reading	1,825	9,326	617	14,065	1,363	104	9	128	2,014	29,450
Stockton	75	103	3	80	10	0	1	0	39	311
Tewksbury	1,220	5,171	607	11,949	111	75	0	0	831	19,963
Union	776	2,566	182	5,134	260	128	1	35	3,635	12,718
West	980	2,360	237	9,154	626	55	10	19	260	13,702
<b>Totals County</b>	<b>20,223</b>	<b>65,105</b>	<b>5,667</b>	<b>148,161</b>	<b>5,698</b>	<b>2,120</b>	<b>285</b>	<b>390</b>	<b>23,528</b>	<b>271,178</b>

Source: Hunterdon County Tax Board

<sup>1</sup>Farm regular includes farm structures and residences

<sup>2</sup>Farm qualified eligible for reduced assessment under the Farmland Assessment Act

<sup>3</sup>Exempt includes school, church, cemetery, and other exempt public and private properties

<sup>4</sup>Totals may not include 100% of municipal acreage.

TABLE 28 Union county Vacant Land Inventory for 1976, 1989 and 1996 (Acres) (Excluding tracts less than 1 acre)

	RESIDENTIAL AREA				CHANGE, 1976-1996			COMMERCIAL & OFFICE AREA			CHANGE, 1976-1996			INDUSTRIAL & RESEARCH AREA			CHANGE, 1976-1996	
	1976	1989	1996		ACRES	PERCENT		1976	1989	1996	ACRES	PERCENT		1976	1989	1996	ACRES	PERCENT
Bentley Heights	185.0	83.5	23.9		-162.1	-87.2%		12.5	4.0	2.0	-10.5	-84.0%		220.0	28.0	6.9	-213.1	-95.9%
Clark	65.0	42.0	31.0		-34.0	-52.3%		14.0	6.0	5.6	-8.4	-60.0%		3.0	1.5	0.0	-3.0	-100.0%
Clarend	54.5	37.0	33.8		-20.7	-38.0%		35.0	31.0	30.7	-4.3	-12.3%		0.0	5.0	4.8	4.8	
Elizabeth	31.0	0.0	47.6		16.6	53.5%		0.0	15.0	22.3	22.3			711.0	3.0	164.9	-546.1	-76.8%
Fairwood	5.0	5.0	3.8		-1.2	-24.0%		0.0	0.0	0.0	0.0	0.0%		0.0	0.0	0.0	0.0	0.0%
Garwood	8.0	4.0	0.0		-8.0	-100.0%		0.0	0.0	0.0	0.0	0.0%		1.5	1.0	5.9	4.4	283.3%
Hillside	0.0	1.0	1.0		1.0	0.0%		0.0	0.0	1.0	1.0			4.5	2.5	3.4	-1.1	-24.4%
Kentworth	4.5	0.0	0.0		-4.5	-100.0%		0.0	0.0	3.0	3.0			18.0	11.0	4.9	-14.1	-74.2%
Lincoln	7.0	16.0	15.4		8.4	120.0%		0.0	0.0	0.0	0.0	0.0%		732.0	139.0	105.8	-626.2	-85.5%
Mountainside	70.0	24.5	10.8		-59.2	-84.6%		0.0	0.0	7.1	7.1			18.0	16.0	0.0	-18.0	-100.0%
New Providence	58.0	73.0	11.2		-46.8	-80.7%		0.0	5.0	3.8	3.8			81.0	54.0	44.8	-36.2	-44.7%
Plainfield	160.3	51.0	59.8		-100.5	-62.7%		5.0	3.0	10.9	5.9	118.0%		28.5	7.0	0.0	-28.5	-100.0%
Railway	17.5	28.0	16.3		-1.2	-6.8%		5.5	1.5	3.0	-2.5	-45.5%		44.5	13.5	17.5	-27.0	-60.7%
Roselle	21.0	11.0	11.0		-10.0	-47.6%		0.0	6.0	9.5	9.5			4.0	3.0	3.2	-0.8	-20.0%
Roselle Park	0.0	0.0	0.0		0.0	0.0%		0.0	0.0	0.0	0.0	0.0%		0.0	0.0	0.0	0.0	0.0%
Scotch Plains	446.0	223.5	94.9		-351.1	-78.7%		3.0	2.0	2.2	-0.8	-26.7%		148.0	58.5	3.9	-144.1	-97.4%
Springfield	124.0	57.0	53.5		-70.5	-56.9%		0.0	4.5	5.8	5.8			55.5	4.0	3.7	-51.8	-93.3%
Summit	144.0	51.5	51.9		-92.1	-64.0%		0.0	4.0	3.9	3.9			56.6	37.5	37.4	-19.2	-33.9%
Union	86.0	54.0	155.5		80.5	93.6%		8.0	30.0	5.6	-2.4	-30.0%		134.0	19.0	65.7	-68.3	-51.0%
Westfield	188.0	89.0	47.2		-138.8	-74.6%		5.0	0.0	1.4	-3.6	-72.0%		16.0	5.0	5.0	-11.0	-68.8%
Winfield	0.0	0.0	0.0		0.0	0.0%		0.0	0.0	0.0	0.0	0.0%		0.0	0.0	0.0	0.0	0.0%
COUNTY TOTAL	1,673.8	852.0	679.6		-994.2	-59.4%		88.0	112.0	117.8	29.8	33.8%		2,278.1	406.5	477.8	(1,800.3)	-79.0%

**TABLE 29 Land Use Descriptions for Middlesex County, 1993**

<b>Land Use Description</b>	<b>Sq. Miles</b>	<b>% of County</b>
Residential-low (0-1 DU <sup>a</sup> /acre)	7.8	
Residential-moderate (2-5 DU/acre)	65.12	
Residential-high (5 + DU/acre)	7.73	
<b>Residential-Total</b>	<b>80.66</b>	<b>25.86</b>
Urban Commercial	9.61	
Suburban Commercial	3.92	
<b>Commercial-Total</b>	<b>13.53</b>	<b>4.34</b>
<b>Industrial</b>	<b>21.26</b>	<b>6.82</b>
<b>Recreational</b>	<b>27.31</b>	<b>8.76</b>
<b>Agriculture</b>	<b>41.88</b>	<b>13.43</b>
<b>Forested</b>	<b>82.85</b>	<b>26.57</b>
<b>Wetlands (Unofficial)</b>	<b>70.28</b>	<b>22.63</b>
<b>LAND AREA-Total</b>	<b>311.85</b>	
<b>COUNTY AREA-Total</b>	<b>323.32</b>	
<b>DEVELOPED LAND-Total {Res,Com,Ind,Rec}</b>	<b>179.25</b>	
<b>UNDEVELOPED LAND-Total {Agr,For,Wet}</b>	<b>195</b>	

<sup>a</sup>DU stands for Dwelling Units

Source: Middlesex County Planning Board

**TABLE 30 Monmouth County Assessed Valuation, 1999**

<b>Land Use Category</b>	<b>Percentage</b>
Commercial	12%
Industrial	2%
Apartments	2%
Farm	1%
Residential	80%
Vacant	3%

Source: Monmouth County Profile 2000

**TABLE 31 County Land Use Totals (Square Miles), 1995<sup>a</sup>**

County	Single Fam.detached <sup>b</sup>	Single Fam, Attached <sup>c</sup>	Multi-fam	Manu.	Trans.	Utility	Commercial	Commun. <sup>d</sup>
BURLINGTON	63.74	1.17	5.06	3.49	30.7	3.54	11.91	3.38
CAMDEN	49.49	2.64	5.17	4.85	25.71	2.11	11.05	2.83
GLOUCESTER	41.36	0.1	2.09	5.4	20.34	3.1	6.66	2.16
MERCER	39.67	1.51	4.47	1.85	22.84	2.45	7.94	4.1
TOTAL	194.25	5.42	16.79	15.59	99.59	11.19	37.55	12.47

<sup>a</sup>1990 data is also available<sup>b</sup>Mobile homes<sup>c</sup>Duplexes and row houses<sup>d</sup>Community Services such as hospitals, cemeteries, places of worship, educational facilities etc.

Source: Delaware Valley Regional Planning Commission

**TABLE 31 County Land Use Totals (Square Miles), 1995<sup>a</sup> (Cont'd)**

County	Military	Rec.	Agr.	Mining	Wooded	Vacant	Water	TOTAL
BURLINGTON	7.15	8.9	145.1	0.92	485.42	26.23	22.96	819.68
CAMDEN	0	5.77	17.18	2.03	84.65	7.15	6.86	227.48
GLOUCESTER	0.05	3.87	98.04	1.04	124.42	13.23	15.11	336.96
MERCER	0.04	6.78	56.95	0.36	66.69	8.14	5.04	228.83
TOTAL	7.25	25.32	317.27	4.34	761.19	54.75	49.97	1,612.94

<sup>a</sup>1990 data is also available

Source: Delaware Valley Regional Planning Commission

**TABLE 32A Land and Building Areas for Some Municipalities in Sussex County**

Location	Size/Sq.Ft.	Other Information
Hamburg	96,000	• 2 Stories.
		• 10' to 22' ceiling heights.
		• Municipal water and sewer.
		• Rail access.
		• Heavy electric power.
		• Zoned Industrial
Hamburg	70,000	• 14' to 22' ceiling heights
		• Rail access.
		• Heavy power usage.
		• Municipal water and sewer.
		• Zoned Industrial.
Hamburg	30,000	• 1,000-9,000 sq ft available
Wantage	50,000	• Located on 20 acres.
		• 14' to 21' ceiling heights.
		• Zoned Industrial.
Newton	50,000	• Located on 4 acres.
		• Built in 1980.
		• 6,000 sq. ft. air conditioned office.
		• 16' to 18' ceiling heights.

		<ul style="list-style-type: none"> <li>1,2000 AMPS electrical service.</li> </ul>
		<ul style="list-style-type: none"> <li>Public utilities.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Distribution/Manufacturing.</li> </ul>
Sparta	17,537	<ul style="list-style-type: none"> <li>Corporate headquarters quality.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Light Industrial/R&amp;D.</li> </ul>
Hardyston	16,000	<ul style="list-style-type: none"> <li>Located on 3 acres.</li> </ul>
		<ul style="list-style-type: none"> <li>2,000 sq. ft. office space.</li> </ul>
		<ul style="list-style-type: none"> <li>18' ceilings.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Light Industrial.</li> </ul>
Green	13,500	<ul style="list-style-type: none"> <li>Located on 4.5 acres.</li> </ul>
		<ul style="list-style-type: none"> <li>Professional office suites.</li> </ul>
		<ul style="list-style-type: none"> <li>Park like setting.</li> </ul>
		<ul style="list-style-type: none"> <li>Close proximity to Interstate 80.</li> </ul>
		<ul style="list-style-type: none"> <li>Expansion potential.</li> </ul>
Green	12,000	<ul style="list-style-type: none"> <li>22 acres</li> </ul>
		<ul style="list-style-type: none"> <li>Parking Available</li> </ul>
Sparta	12,800 total 6400 each	<ul style="list-style-type: none"> <li>Brand new - ready for occupancy late 1998.</li> </ul>
	(two twin buildings)	<ul style="list-style-type: none"> <li>Ideal for office, warehouse, showrooms, distribution</li> </ul>
		<ul style="list-style-type: none"> <li>20' ceiling height.</li> </ul>
		<ul style="list-style-type: none"> <li>One story with flexible floor plan</li> </ul>
		<ul style="list-style-type: none"> <li>Divisible from 3,160 sq. ft.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Commercial/Light Industrial</li> </ul>
Vernon	1,000 to 10,000	<ul style="list-style-type: none"> <li>20' ceiling height.</li> </ul>
		<ul style="list-style-type: none"> <li>Heavy Electric.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Industrial?Research/Warehouse</li> </ul>
Newton	8,000	<ul style="list-style-type: none"> <li>Modern offices.</li> </ul>
		<ul style="list-style-type: none"> <li>Elevator service.</li> </ul>
		<ul style="list-style-type: none"> <li>Historic Victorian Home.</li> </ul>
		<ul style="list-style-type: none"> <li>City water and sewer.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Office.</li> </ul>
Vernon	6,048	<ul style="list-style-type: none"> <li>Private with easy access.</li> </ul>
		<ul style="list-style-type: none"> <li>3,000 to 3,500 sq. ft. of office space.</li> </ul>
		<ul style="list-style-type: none"> <li>1,200 AMP service.</li> </ul>
		<ul style="list-style-type: none"> <li>Located on 6 acres.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned light Industrial/Residential.</li> </ul>
Byram	6,000	<ul style="list-style-type: none"> <li>Highway location.</li> </ul>
		<ul style="list-style-type: none"> <li>Expandable.</li> </ul>
		<ul style="list-style-type: none"> <li>Close to Interstate 80.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Retail/Office.</li> </ul>
Franklin	5,000	<ul style="list-style-type: none"> <li>Sewer and water.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Professional Offices.</li> </ul>
Sparta	4,480	<ul style="list-style-type: none"> <li>Three separate units.</li> </ul>
		<ul style="list-style-type: none"> <li>Route 181 frontage.</li> </ul>
		<ul style="list-style-type: none"> <li>Zoned Retail/Office.</li> </ul>

Source: Sussex County Economic Development Partnership.

**TABLE 32B Land Areas for Some Municipalities in Sussex County**

Site Location	Size/Acres	Other Information
Andover/Fredon/Newton	247+ Acres	• Close proximity to Route 206.
Hampton	168	• On Rt. 206 with highway frontage.
		• Close to Route 15.
		• Zoned Commercial/Residential.
Stanhope	140	• Zoned Industrial.
Montague	111	• Zoned Commercial
Byram/Stanhope	106	• Water and sewer.
		• Zoned Light Industrial.
Hardyston	84	• Zoned Industrial/Residential.
Vernon	72	• Zoned Light Industrial.
Vernon	70 total	• All utilities are to the property.
	(20-25 buildable)	• Zoned Industrial.
Hardyston	68	• Sewer.
		• Zoned Multi-use
Hardyston	3 to 60	• All utilities: Water/sewer/electric to site.
		• Convenient to Routes 94,23 and 15.
		• Build-to-suit in corporate park setting.
		• Zoned Industrial.
Frankford	55	• Developing area.
		• 3,300 feet of highway frontage.
		• At intersection of Routes 206 and 15.
		• Zoned Light Industrial/Commercial.
Andover Boro	47	• Zoned Commercial.
Sussex Boro	50	• 40 acres are flat..
		• Highway frontage.
		• Zoned Industrial/Retail.
Sparta	2 to 40	• Build- to-Suit.
		• Rail access.
		• Water to property.
		• Sites are flat and cleared.
		• Convenient to Route 15.
		• Zoned Light Industrial.
Sparta	33	• Rail access.
		• Site is flat.
		• Zoned Commercial.

Wantage	30	• Zoned Industrial.
Vernon	33 total	• 6,050 sq. ft. building on site.
	(12 buildable)	• Zoned Commercial/Residential.
Byram	10 to 40 buildable	• Divided into several sites.
		• Zoned Commercial/Industrial.
Vernon	12	• Located on Route 94.
		• Zoned Commercial.
Montague	12 total	• 800 feet highway frontage.
	(5 to 6 buildable)	• Site is flat and ready to build on.
		• Zoned Commercial.
Wantage	11	• Located on Route 23.
		• Corner site.
		• Zoned Highway Commercial.
Ogdensburg	10	• Zoned Light Industrial/Commercial.
Vernon	15	• 800 feet highway frontage.
	(8 buildable)	• Zoned General Business.
Fredon	6.7 acres each	• Zoned Light Industrial/Office/Warehouse.
	(2 sites)	
Hardyston	32	• Zoned Industrial.
	(6 buildable)	
Hardyston	6+ acres total	• Located on Route 94.
	(3 sites)	• Zoned Commercial.
Wantage	6	• Corner site.
		• Zoned Highway Commercial.
Vernon	5	• Zoned Industrial/Commercial.
Montague	5	• Zoned Industrial/Commercial.
Fredon	4	• Located on Route 94.
		• Zoned Commercial/Professional Office.
Vernon	3	• Zoned Industrial.
Montague	1 to 3 acres	• Zoned Industrial/Commercial.
Sparta	2.6 acres	• 500 feet frontage on Route 181.
		• Build-to-Suit.
		• Zoned Commercial/Office.

Source: Sussex County Economic Development Partnership.



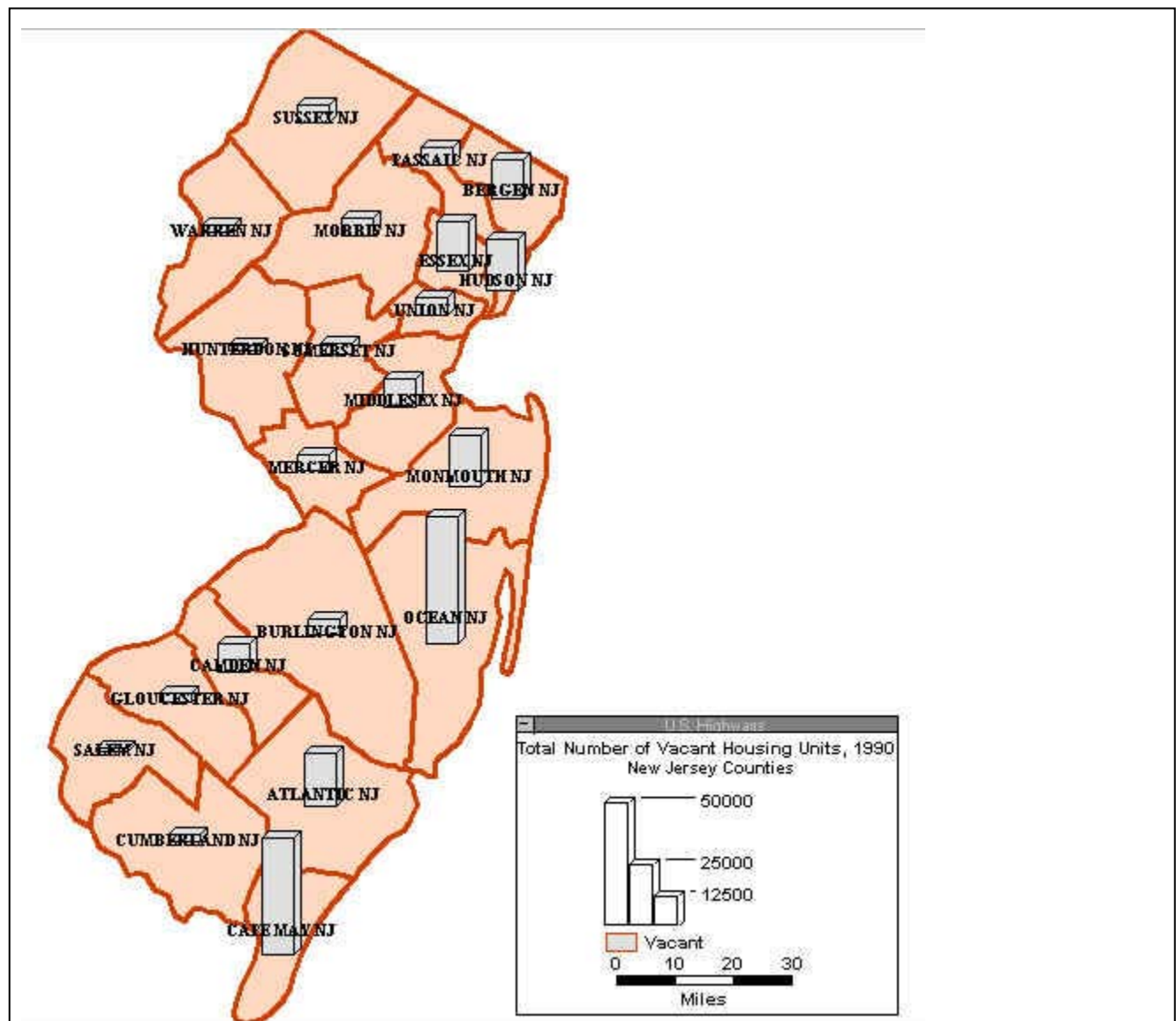
## 2.7. Number of Occupied and Vacant Housing Units (US Census Bureau)

This census data is available for all New Jersey counties for 1990 as shown in Table 33. Representation of this data in TransCAD is given in figure 11.

**TABLE 33 Number of Occupied and Vacant Housing Units**

County	Number of Occupied Housing Units		Number of Vacant Housing Units	Number of Housing Units for Seasonal, Recreational, or Occasional Use
	Owner Occupied	Renter Occupied		
Atlantic	54,923	30,200	21,754	11,835
Bergen	209,876	99,004	15,937	659
Burlington	102,910	33,644	6,682	365
Camden	124,711	54,047	11,387	262
Cape May	27,242	10,614	47,681	36,448
Cumberland	32,299	14,819	3,176	654
Essex	126,313	152,439	19,958	203
Gloucester	61,774	17,071	3,614	176
Hudson	67,837	140,902	20,943	203
Hunterdon	30,527	7,379	2,081	206
Mercer	77,816	39,125	6,725	174
Middlesex	160,991	77,842	11,341	471
Monmouth	143,533	54,037	20,838	6,881
Morris	110,089	38,662	6,994	1,373
Ocean	139,417	28,730	51,716	35,017
Passaic	86,638	68,631	7,243	833
Salem	17,198	6,596	1,555	149
Somerset	66,561	21,785	4,307	162
Sussex	36,574	7,882	7,118	3,836
Union	112,508	67,568	6,957	216
Warren	23,644	10,353	2,592	468

Source: US Census Bureau



**FIGURE 11 Number of Vacant Housing Units, 1990**

## 2.8. Employment Data

Employment type data is available for 13 of the 21 New Jersey counties between years 1995 and 2020; the counties are Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, Union and Warren. This data is available in New York Metropolitan Transportation Council (NYMTC) database (NYMTC). It contains annual employment forecasts (in units of ‘number of jobs’ for all the industries) for the following industries for each of the 13 counties:

- Proprietors

- Total Payroll
- Mining
- Construction
- Manufacturing
- Transportation, Communications and Public Utilities
- Wholesale Trade
- Retail Trade
- Finance, Insurance, Real Estate (FIRE)
- Services
- Government

An example data for Essex county is given below. Only the data for the years between 1995 and 2002 is shown in Table 34.

**TABLE 34 Example Employment By Type Data For Essex County (In 000's) (Forecast)**

<b>Industry</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
Total	412.8	416.6	420.5	423.8	426.7	429.8	431.9	433.4
Proprietors	49.7	50.4	51.3	52	52.7	53.4	53.9	54.2
Total Payroll	363.1	366.1	369.2	371.7	374	376.4	378.1	379.2
Mining	0	0	0	0	0	0	0	0
Manuf	45.9	44.6	43.7	42.8	41.9	41.4	40.2	38.7
Const	10.4	10.6	10.9	11	11.1	11.2	11.3	11.4
TPU	35.1	35.2	35.3	35.3	35.3	35.3	35.3	35.3
Whol.Tr	21.4	21.6	22	22.4	22.8	23	23.3	23.6
Retl.Tr	43.5	44.2	44.4	44.6	44.7	44.9	45	45
FIRE	31.8	32	32.2	32.4	32.6	32.8	33	33.2
Services	121.5	125.2	128.6	131.7	134.6	137.2	139.8	142.2
Gov't	53.4	52.8	52.1	51.5	51	50.5	50.1	49.8

Source: <http://www.nymtc.org>

In addition, employment data is available classified by industries for 1990 (census data) and 1996 (estimates) at municipality level. This data is available in NYMTC database (NYMTC). It contains the following fields for 13 counties in New Jersey:

- Municipality names
- Total employment

- Agricultural/ other
- Mining
- Construction
- Manufacturing
- Transportation
- Communications and Public Utilities
- Wholesale trade
- Retail trade
- FIRE
- Bus/ Repair
- Pers., Ent.
- Health
- Education
- Other, PA

Example data is shown in Table 35 for 1990 Bergen county for only some of the relevant fields.

**TABLE 35 Example Employment By Type 1990 Data For Bergen County**

Workplace	Total	Ag/Other	Mining	Constr.	Manu	Trans	CPU	Whole	Retail	FIRE
<b>Bergen County</b>	<b>442,318</b>	<b>4,233</b>	<b>377</b>	<b>24,366</b>	<b>87,889</b>	<b>23,167</b>	<b>10,220</b>	<b>36,590</b>	<b>74,148</b>	<b>35,801</b>
Allendale borough	2,802	35	0	199	675	61	0	262	401	158
Alpine borough	629	17	0	145	7	45	27	21	104	33
Bergenfield borough	8,021	66	122	321	775	304	138	477	1,573	1,755
Bogota borough	1,636	0	0	134	228	80	6	232	281	129
Carlstadt borough	12,946	21	12	505	5,614	1,413	172	2,382	1,154	355
Cliffside Park borough	3,733	0	12	419	310	166	72	160	1,125	277
Closter borough	3,476	100	0	149	450	230	34	239	776	379
Cresskill borough	2,759	16	0	242	581	44	148	95	547	196
Demarest borough	891	7	0	76	37	22	0	7	62	22

Source: <http://www.nymtc.org>

### 3. CONCLUDING REMARKS

As a summary of all data described in the previous sections, the following table (Table 36) might be helpful to visualize much more clearly the land use data availability.

**TABLE 36 Land Use Data Availability**

<b>Land Use Data Item</b>	<b>Availability (Full, Partial, None)</b>	<b>Remarks</b>
By Structure Size (Single family, multifamily etc.)	Full	-
By Property Classification (Commercial, Office, Industrial etc.)	Full	Not so up to date
By occupancy (vacant, occupied etc.) of housing units	Full	-
By Land Cover (Barren land, wetland etc.)	Full	-
By Floor Space Area	Partial	Missing for Southern counties

In order to “fully” obtain the partially available data item and to obtain more recent and “up to date” data for the available data items, the following people have been contacted by e-mail and phone and their responses are shown below.

- Mr. Paul Zeysett from US Census Bureau; responded ‘no data available’.
- Mr. Tom Angelucci from New Jersey Office of State Planning; responded ‘no data available’.
- New Jersey Transportation Planning Authority (NJTPA); no response obtained yet.
- Mr. Eric Vowinkel from US Geological Survey; recommended GIRAS database and Prof. Lathrop from GIS Center at Rutgers. The overall result is ‘no useful source to complete our missing data’.
- US Department of Agriculture; no response obtained yet.
- County Economic development departments for all NJ counties; partial response obtained. Still waiting for responses from some counties.

### REFERENCES

*City of Austin 1990 Land Use Survey, Planning Area Data and Maps* [online]. Available from: <http://www.ci.austin.tx.us/landuse/1990lus.htm>. [Accessed Sep. 9, 2000]

*Delaware Valley Regional Planning Commission, Data Bulletin No. 59*, August 1998 [online]. Available from: <http://www.dvrpc.org/data/dbs/dbs59.htm> [Accessed Oct. 20, 2000]  
*Hunterdon County Tax Board database* [online]. Available from: <http://www.co.hunterdon.nj.us/facts/97class.htm>. [Accessed Sep.9, 2000]

Middlesex County Planning Board [online]. Available from: <http://www.co.middlesex.nj.us/economicdevelopment/factsfigures-quallife-landuse.asp> [Accessed Oct.20, 2000]

*Monmouth County Profile 2000*, page 3.

*NJDEP (New Jersey Department of Environmental Protection) database* [online]. **Available from:** <http://www.state.nj.us/dep/gis>. [Accessed July 15, 2000]

*NJLCR (New Jersey Landscape Change Research) database* [online]. Available from: <http://www.crssa.rutgers.edu/projects/lc/>. [Accessed Sep.9, 2000]

NJOED (New Jersey Office of Economic Development) database [online]. Available from: <http://www.co.middlesex.nj.us/office.html>. [Accessed Sep.9, 2000]

*NYMTC (New York Metropolitan Transportation Council) Web Page* [online]. Available from: <http://www.nymtc.org>. [Accessed Jan. 28, 2000]

*Rutgers University Urban Planning database* [online]. Available from: <http://urban.rutgers.edu/gepgrowth>. [Accessed Jan. 29, 2000]

*Sussex County Economic Development Partnership* [online]. Available from: <http://www.scedp.com/buildings.html> [Accessed Oct. 20, 2000]

*Union County Division of Policy and Planning, Department of Economic Development database* [online]. Available from: <http://www.unioncountynj.org/>. [Accessed Sep.9, 2000]

*US Census Bureau database* [online]. Available from: [http://factfinder.census.gov/java\\_prod/dads.ui.fac.CommunityFactsPage](http://factfinder.census.gov/java_prod/dads.ui.fac.CommunityFactsPage). [Accessed Sep.9, 2000]

*Workforce New Jersey Public Information Network database* [online]. Available from: <http://www.wnjp.in.state.nj.us>. [Accessed Jan. 28, 2000]

