

Table IV-10. Households by Household Type.

Family Households (2+ Person Households)	<u>No. Households</u>	<u>Percent</u>
Married Couple	1,817	66.8
Single Male Head	98	3.6
Single Female Head	<u>318</u>	<u>11.7</u>
Subtotal:	2,233	82.0
Non-Family Households (Living alone)	<u>No. Households</u>	<u>Percent</u>
Male	186	6.8
Female	<u>242</u>	<u>8.9</u>
Subtotal:	428	15.7
Non-Family Households (Not living alone)	<u>No. Households</u>	<u>Percent</u>
Male	41	1.5
Female	<u>20</u>	<u>0.7</u>
Subtotal:	61	2.2
Total:	2,722	100.0 %

Source: 1990 US Census

INCOME CHARACTERISTICS

Persons residing in Pittsgrove have incomes comparable to those in Salem County as a whole. Median income in 1989 in Pittsgrove was \$34,724 for households and \$37,237 for families. In the County the median income was \$33,155 for households and \$38,924 for families. Salem County incomes were the second lowest in the region that includes Burlington, Camden, Cumberland, Gloucester, and Salem

Counties. The 1989 median household income for both the Township and the County were below the state figure of \$40,927.

Table IV-11 further illustrates these findings by noting the number of families and households in each of the income categories in 1989. Within the Township, 91% of all households and 89% of all families had annual incomes below \$75,000. The largest single income bracket, for both families and households,

was the group which earned between \$30,000 and \$39,000 per year.

**Table IV-11. Household and Family Income by Income Bracket:
Pittsgrove Township, 1989.**

	<u>Households</u>	<u>Percent</u>	<u>Families</u>	<u>Percent</u>
less than \$4,999	80	2.9%	37	1.7%
\$5,000 - \$9,999	179	6.6%	41	1.8%
\$10,000 - \$14,999	190	7.0%	156	7.0%
\$15,000 - \$19,999	194	7.1%	132	5.9%
\$20,000 - \$29,999	420	15.4%	363	16.3%
\$30,000 - \$39,999	585	21.5%	497	22.3%
\$40,000 - \$49,999	412	15.1%	399	17.9%
\$50,000 - \$74,999	410	15.1%	370	16.6%
\$75,000 - \$99,999	191	7.0%	179	8.0%
\$100,000- \$124,999	34	1.2%	42	1.9%
\$125,000- \$149,999	10	0.4%	0	0.0%
\$150,000 and more	<u>17</u>	<u>0.6%</u>	<u>17</u>	<u>0.8%</u>
Total	2,722	100.0%	2,233	100.0%
Median income:	\$34,724		\$37,237	

Source: 1990 US Census

Based on a 1989 median household income of \$33,155 in Salem County, at the time of the last Census count, the moderate income ceiling was \$26,514 (80% of \$33,155). A total of 643 households, or 23.6% of all households in Pittsgrove were below this threshold in 1989 and thus potentially within the low and moderate income category for the county (correlations of income with family size, which affect low and moderate income requirements, are not publicly available from the

Census). Table IV-12, Distribution of Persons and Households Below Poverty Level, shows that 4.7% of all Pittsgrove residents and 11.2% of households lived below the poverty level. These figures were lower than those for Salem County - 10.6% of all residents and 8.4% of all households, and those for New Jersey - 7.4% of all residents and 7.7% of all households, respectively.

Table IV-12. Percent Distribution of Persons and Households Below Poverty Level, 1990.

	% Below Poverty Level	
	<u>Persons</u>	<u>Households</u>
Pittsgrove	4.7%	11.2%
Salem Co.	10.6%	8.4%
New Jersey	7.4%	7.7%

Source: 1990 US Census

EMPLOYMENT CHARACTERISTICS

Table IV - 13, Distribution of Employment by Industry, shows the distribution of employment by industry for Pittsgrove residents in 1990. A large number of residents,

24.2%, were in professional services such as health, education or other similar disciplines. Another 23.3% were involved in manufacturing, and 18.6% worked in retail or wholesale trade.

Table IV-13. Distribution of Employment by Industry, 1990.

<u>Sector Jobs</u>	<u>Number</u>	<u>Percent</u>
Agriculture, Forestry, Fisheries & Mining	153	4.0%
Construction	261	6.8%
Manufacturing	898	23.3%
Transportation, Communications, Utilities	381	9.9%
Retail and Wholesale Trade	716	18.6%
Finance, Insurance, Real Estate	181	4.7%
Business & Personal Services	197	5.1%
Entertainment/Recreation	197	1.4%
Professional Services	932	24.2%
Public Administration	<u>76</u>	<u>2.0%</u>
Total	3,992	100.0%

Source: 1990 US Census

Table IV-14, Employment by Occupation, identifies the occupations of employed persons in 1990. While Pittsgrove residents work in a variety of industries, the data in Table IV-15 indicate that 18.1% of the Township's residents

worked in precision production, craft and repair occupations, 18.0% worked as operators, fabricators and laborers, and another 14.2% worked in administrative support, including clerical occupations, in 1990.

Table IV-14. Employment by Occupation, 1990.

<u>Sector Jobs</u>	<u>Number</u>	<u>Percent</u>
Executive, Administration, & Managerial	356	9.3%
Professional Specialty	504	13.1%
Technicians	97	2.5%
Sales	332	8.6%
Administrative & Clerical Support	547	14.2%
Services	509	13.2%
Farming, Forestry & Fishing	113	2.9%
Production/Crafts/Repairs	697	18.1%
Operators/Laborers	692	18.0%
Total	3,847	100.0%

Source: 1990 US Census

The number of employed people residing in Pittsgrove greatly exceeds the number of jobs located within the Township. The New Jersey Department of Labor tracks covered employment throughout the state.

most part-time and temporary employees. Table IV - 15 compares covered employment for several years in Pittsgrove and Salem County.

Covered employment data includes only those jobs for which unemployment compensation is paid. By definition it does not cover public employees, the self-employed,

**Table IV-15. Covered Employment Estimates, 1985, 1990-1996
Pittsgrove Township & Salem County.**

<u>Year</u>	<u>Pittsgrove</u>	<u>Salem</u>
1985	458	23,666
1990	429	19,961
1991	500	19,318
1992	539	20,261
1993	588	20,456
1994	599	20,250
1995	574	19,287
1996	673	19,307

Source: New Jersey Department of Labor, Division of Planning and Research, Office of Demographic and Economic Analysis, NJ Covered Employment Trends. Data are as of September of each year.

As can be seen in Table IV-15, covered employment in the Township has steadily increased from 458 jobs in 1985, to a peak of 673 jobs in 1996. In contrast, covered employment in the County peaked at 23,666 jobs in 1985 and has stayed between 19,307 and 20,456 jobs since 1990.

Employment projections have been compiled by the County in its February 1995 Data Book. The New Jersey Department of Transportation (DOT) projections for the year 2015 indicate a 25% increase in employment in the county between 1990 and 2015. However, the DOT 2015 employment projection for Pittsgrove Township indicates that jobs in the Township will decrease by 21.5% for

the same period. Department of Labor (DOL) employment projections for the year 2005 show an increase of 9.7% in the county. DOL employment projections are not available at the municipal level.

FAIR SHARE ALLOCATION

As noted in the introduction, the Council on Affordable Housing adopted a new set of substantive regulations on June 6, 1994 (*N.J.A.C. 5:93-1 et seq.*) which replaced the regulations under which the Council had administered the Fair Housing Act since 1986. These regulations allocate municipal affordable housing obligations through 1999 and establish a new policy framework for fair share

compliance during the next six-year period.

Municipal housing allocations remain comprised of three components - indigenous need, reallocated present need, and prospective need. COAH, however has modified the method of calculating the statewide and

regional housing need and the methods of allocating that need among the constituent municipalities. A tabular summary of the Town's affordable housing obligation is presented in Table IV-16, Pittsboro's Affordable Housing Allocation.

Table IV-16. Pittsboro's 1987-1999 Affordable Housing Allocation.

<u>Formula Category</u>	<u>Number of Units</u>
Indigenous Need	47
Reallocated Present Need	<u>5</u>
Present Need 1993	52
Prospective Need 1993-1999	<u>31</u>
Total Need 1993-1999	83
Prior Cycle Prospective Need	<u>23</u>
1987-1999 Total Need	106
Demolitions	4
Filtering	-4
Conversions	-1
Spontaneous Rehabilitation	<u>-3</u>
Housing Market Adjustments	-4
Pre-Credited Need	102
Reductions	0
Credits from First Round	0
20% Cap on Vacant Land	<u>0</u>
Calculated Need	102

Source: New Jersey Council on Affordable Housing, October 11, 1993

The components of calculated housing need are outlined as follows:

Indigenous Need is the number of dwellings that are substandard and inhabited by a low or moderate income household. Indigenous Need is a part of Present Need. This number is calculated from U.S. Census surrogates which are used instead of an actual count since data at the municipal level is not available. Pittsboro's Indigenous Need number is 47 units.

Reallocated Present Need is equal to the dwelling units assigned to municipalities from a regional pool of indigenous need. Each housing region has a regional average of all of its Indigenous Need units. If a municipality has more than the regional average, then the amount above the average is placed in a regional pool and reassigned to other municipalities within the region. The Reallocated Present Need number for Pittsboro is 5 units.

Present Need 1993 is the total of Indigenous Need and Reallocated Present Need. Both Reallocated Present Need and Prospective Need (*see below*) are distributed to municipalities through a formula that includes the municipal share of the regional undeveloped land, equalized non-residential property valuation, change in equalized non-

residential property valuation, and aggregate household income differences. For Pittsboro, Present Need 1993 equals 52 units (47 + 5).

Prospective Need 1993-1999 is the share of future households of low and moderate incomes allocated to Pittsboro Township which will require affordable housing not provided by the normal housing market. The Prospective Need 1993-1999 number for Pittsboro is 31 units.

Present and Prospective Need 1993-1999 together are called *Total Need* and equal 83 units. The Total Need is then added to Prospective Need from the first round, which is 31 units, for a two round cycle (1987-1999) of 114 units. This number in turn is modified by several factors intended to account for normal housing market adjustments. These factors are:

Demolition which is the number of units that are expected to be removed from the housing stock in the second round. In Pittsboro, 4 units are expected to be demolished.

Filtering is an adjustment that assumes over time the typical household will move up in price in the housing market, thereby selling a lower priced house to another household. In turn, the second

household sells a still lower priced house to a third party, and so on. This process of filtering creates housing opportunities for low and moderate income households. Filtering subtracts 4 units from Pittsgrove's total.

Residential Conversion is the process of providing affordable housing by the conversion of larger single-family homes to two or more dwellings or the conversion of previously non-residential buildings to residential uses. In Pittsgrove, 1 conversion is expected.

Spontaneous Rehabilitation is the reconstruction of the existing substandard housing stock to meet building and housing code requirements outside of governmental programs. This adjustment is based on per capita income. Spontaneous Rehabilitation removes 3 units from the Township's total housing need.

Pre-Credited Need is the sum of all of the preceding components and is equal to 102 units. Reductions from this number are permitted to account for affordable housing construction and fair share planning during the first cycle, as well as certain other credits to arrive at the second cycle Calculated Need. COAH's *Calculated Need* for Pittsgrove is 102 units.

The Township's Pre-Credited Need of 102 units includes both a rehabilitation component and a new construction component. Under COAH's rules, the maximum number of units which can be addressed through housing rehabilitation is calculated as follows:

	<u>No. of Units</u>
Indigenous Need (1993):	47
Less Spontaneous Rehabilitation:	<u>-3</u>
Rehabilitation Component =	44

This rehabilitation component can be addressed through a rehabilitation program or by utilizing the same range of techniques which are permissible for addressing the remaining 58 unit new construction component. The new construction component of the Pre-Credited Need can not be addressed through a rehabilitation program, but can be met by utilizing methods such as municipally-sponsored construction, accessory apartments, zoning for inclusionary housing, or a regional contribution agreement.

CREDITS

The Township's fair share allocation can be reduced by two types of credits permitted under COAH rules

-- so-called "credits without controls" and rehabilitation credits.

Credits without controls are authorized by COAH rules for eligible units constructed after the 1980 Census was taken (April 1, 1980) and prior to the effective date of COAH's initial rules (December 15, 1986). Such units are not required to meet all of the requirements which apply to units created after COAH adopted rules. For instance, the affordability of such units need not be enforced over time by a deed restriction.

However, a municipality must document that any units proposed for credit under this section of COAH rules meet the following standards:

1. The unit shall have been constructed between April 1, 1980 and December 15, 1986;
2. The unit shall have been certified to be in sound condition at the time of the survey;
3. The unit must be occupied by a low or moderate income household; and
4. The market value (for a sales unit) or monthly rent (for a rental unit) must be affordable (as that term is defined by

COAH) to a moderate income household. *NJAC 5:93-3.2*

In 1999 Pittsgrove Township undertook to document the number of such qualifying credits. The Township mailed out questionnaires and a committee of volunteers followed up with telephone calls and personal visits to maximize the number of returns. After the first campaign the Township launched a second initiative with letters/questionnaires and follow up contacts targeted to the four mobile home parks in Pittsgrove.

As a result of this survey the total number of credits without controls which the Township can claim stands at 49 units. This is not to say that 49 credits is the absolute limit of such credits in Pittsgrove; there are undoubtedly additional units which could qualify but the Township only has documentation for 49 units. This documentation along with a copy of the questionnaire and cover letter are included as part of the Township's Fair Share Plan. The Township reserves the right to secure documentation for and claim additional credits without controls in the future.

Pittsgrove is also entitled to take credit for qualified rehabilitation of substandard housing which occurred

since April 1, 1990. The conditions which must be addressed to substantiate rehabilitation credits are as follows:

1. The dwelling unit must have been rehabilitated to conform with applicable code standards;
2. The average cost expended on rehabilitating all of the dwelling units for which credit is being sought is at least \$8,000; and
3. The dwelling unit is either occupied by the resident who originally qualified for the rehabilitation program assistance or by another eligible

low or moderate income household. [NJAC 5:93-3.4]

From April 1, 1990 to the present, a total of 12 housing units were rehabilitated and received final inspections through a Township administered rehabilitation program. Funding for this rehabilitation program was provided from the U.S. Department of Housing and Urban Development (HUD) operating through the NJ Department of Community Affairs. The table below provides information supplied by the project coordinator for the Township's rehabilitation program:

Table IV-17. Pittsboro's Housing Rehabilitation Credits.

<u>Application Number</u>	<u>Date of Completion</u>	<u>Type of Work*</u>	<u>Cost of Construction</u>
8901	11-14-96	2,3,4,5	\$13,805
8902	2-25-97	1,3,4,5,7	\$12,896
8903	2-11-97	1,2,3,4,5,7	\$15,347
8904	2-11-97	2,3,5,7	\$13,285
8905	7-15-97	1,3,5	\$13,354
8906 & 8912	3-13-97	1,2,3,5	\$14,753
8907	5-22-97	1,3,4,5,7	\$12,772
8908	5-22-97	1,3,4,5	\$14,540
8909	7-3-97	1,2,3,5	\$13,255
8910	5-22-97	1,4,5,7	\$13,705
8911	10-21-97	1,2,5,7	<u>\$14,705</u>
TOTAL COST:			\$152,417
AVERAGE COST:			\$12,701

Notes for Table 17. Information provided by William Schluth, Jr. Project Coordinator;
* - 1 = roofing, 2 = sanitary plumbing, 3 = water supply plumbing, 4 = heater, 5 = electrical, 6 = exterior siding, doors, or windows, 7 = structural.

In summary, the 49 credits without controls reduce the new construction component of Pittsgrove Township’s fair share obligation from 58 to 9 units. The 12 rehabilitation credits reduce the rehabilitation component from 44 to 32 units. The Township’s net fair share obligation, after accounting for credits, is therefore 41 units (9 + 32).

PITTSBORO TOWNSHIP’S FAIR SHARE RESPONSIBILITIES

With the Township’s entitlement to “credits without controls” and credits for qualified housing rehabilitation as described above, the Pittsgrove’s “post-credited” fair share consists of 41 units, including a rehabilitation component of 32 units, and a new construction component of 9 units. The Township proposes to address its fair share responsibilities by continuing the rehabilitation program and by implementing an affordable accessory apartment program. These programs will be described below.

HOUSING REHABILITATION

As described in the Credits section, Pittsgrove Township administered a federally funded housing rehabilitation program from 1996 to

1997. After the federal funds were depleted the Township maintained a scaled-down version of the rehabilitation program which focused on making grants to senior citizens and low or moderate income households for emergency repairs. In 2000 the Township Committee allocated \$50,000 of local funds to re-institute a full-scale housing rehabilitation program. Pittsgrove intends to address the remaining 32 unit balance of its rehabilitation component during the next 6 years through the operation of its housing rehabilitation program.

COAH rules include requirements on the administration, advertising/marketing, code standards and funding of local housing rehabilitation programs (NJAC 5:93-5.2). One of the most important of these rules is that Pittsgrove incorporate into its Fair Share Plan a Resolution committing local funding or bonding if necessary to cover the cost of operating the program. This does not preclude the Township from utilizing funds collected pursuant to the ordinance as developer fees or from applying for grants for housing rehabilitation from higher levels of government. In fact, by securing Court approval of this Housing Element and the

associated Fair Share Plan the Township will become eligible for rehabilitation funding from the N.J. Department of Community Affairs.

In addition, the Township does not need to appropriate funding if, due to a slow response to advertising/marketing it appears likely that fewer than 32 units will be rehabilitated during the next 6 years. However, it is a municipal commitment to provide local funds if necessary to capitalize the program.

This resolution will commit the Township to make available a total of \$320,000 (\$10,000 per unit) for administration and the funding of rehabilitation of as many as 32 units of substandard housing. Furthermore, \$107,000 of this funding (sufficient to cover the first two years of operation) must be committed within one year of substantive certification by COAH or a final judgment by the Superior Court.

ACCESSORY APARTMENTS

Pittsgrove Township intends to address the 9 unit balance of the new construction component of its fair share obligation through the implementation of an accessory apartment program. An accessory apartment is defined in COAH rules as a self-contained residential

dwelling unit with a kitchen, sanitary facilities, sleeping quarters, and a private entrance, which is created within an existing home, or through the conversion of an existing attached accessory structure on the same site, or by an addition to an existing home or accessory building. [NJAC 5:93-1.3]

COAH rules permit municipalities whose housing stock is conducive to the creation of accessory apartments to include up to 10 such units to address the municipal fair share need. The Pittsgrove housing stock is sufficiently large in number (3,134 units estimated as of 1999) and size (nearly 60% of the units had 6 or more rooms as of the 1990 census) to justify including a 9 unit accessory apartment program in the Township's Fair Share Plan.

Furthermore, given the rural character of the Township and the absence of any public sewer system, achieving compliance with the Township's *Mount Laurel* responsibilities while minimizing residential development is an appropriate planning approach.

In order for the accessory apartment program to conform to COAH rules the Township must commit to providing at least \$10,000 per unit (\$90,000 for 9 units) to fund the construction, as may be necessary, to

create these dwelling units. As with the rehabilitation program, the Township may utilize developer fees or seek funding for this program from higher levels of government and, ultimately, will only be required to fund it in response to actual demand.

COAH rules also permit, under certain circumstances, prior accessory apartment conversions to be counted as part of the Township's Fair Share Plan without the need for Township funding. Pittsgrove reserves the right to incorporate such existing accessory apartments in its place.

The Township's Fair Share Plan will include a zoning ordinance amendment which will conditionally permit accessory apartments in all residential zoning districts subject to certain performance and design standards. This component of Pittsgrove's plan also satisfies COAH's requirement that a certain proportion of a municipality's compliance program provide for rental, as well as for-sale affordable units. In this instance 100% of the Township net new construction component will be addressed through a program to create affordable rental units.

CONCLUSION

Pittsgrove Township has been allocated a fair share obligation of 102 units for the period 1987-1999. This allocation consists of a rehabilitation component of 44 units and a new construction component of 58 units.

The Township is entitled to 61 credits under COAH rules. Under a housing rehabilitation program administered by Pittsgrove a total of 12 qualified units were brought into code compliance. These credits reduce the rehabilitation component from 44 units to 32 units. The Township has documented a total of 49 affordable units which were constructed between April 1, 1980 and December 15, 1986 and which qualify for COAH credit. These credits reduce the Township's new construction component from 58 units to 9 units.

Pittsgrove Township's Fair Share Plan calls for addressing the remaining 32 unit rehabilitation component through a continuation of the locally-administered housing rehabilitation program. The remaining 9 unit new construction component will be addressed through an accessory apartment program which the Township will also administer. Through these two programs Pittsgrove will satisfy its

1987-1999 fair share housing responsibilities under COAH rules. Approval of this Housing Element and the associated Fair Share Plan by COAH or the Superior Court will entitle Pittsgrove to a six year period of certification or repose. Upon approval the Township will no longer require the R-15A High Density Residential District to meet its *Mount Laurel* obligation and will consequently be at liberty to rescind that zone designation and replace it with alternative zoning.

UTILITY SERVICE PLAN

INTRODUCTION

The Utility Service Plan Element addresses municipal policy towards the creation and installation of public infrastructure for potable water, sanitary sewer, and storm water management, including where or not public systems should be established. Pittsgrove has developed almost entirely without public infrastructure for water, sanitary and storm sewers. The Township has lacked the intensity of development that would warrant public water and sewer systems. Where public systems have been considered in the past, the financial infeasibility of funding them at a reasonable cost to the users has stymied further planning efforts.

The Utility Plan Element will briefly examine potable water and storm water management issues, but will have the most emphasis on exploring methods of disposing effluent from residences and businesses. Other utilities, such as natural gas supply, electricity distribution and cable television are regulated by higher governmental levels and are not included in this element.

POTABLE WATER

Potable water is supplied entirely by private individual wells in Pittsgrove. The only municipal systems in close proximity to Pittsgrove are located in Elmer and Vineland. The Cohansey Sand geologic formation is used to supply potable water to households and businesses from wells that range from 50 to 140 feet in depth. In the region, this aquifer is also used to supply municipal drinking water at a pumping rate up to 1,500 gallons per minute.

As noted in the Conservation Element, long term threats to the ground water supply come from malfunctioning septic systems, inappropriately applied agricultural chemicals, road de-icing salts, and an imbalance in the amount of water removed by pumping compared to its recharge by percolation. The Township remains largely rural in character with very large areas that are open to rainfall. The essential openness of the Township aids in ensuring sufficient percolation to balance water withdrawals from the aquifer. Proper siting and maintenance of septic systems will ensure environmentally sound methods of maintaining the purity of

the water supply.

Since the Cohansey Sand is a good source of water at high levels of supply, there is no intent to establish a municipal or a private water franchise system at this time. Such a system would only be proposed within a Community Development Boundary¹ to be established around an existing center of population in Pittsgrove, including Norma/Brotmanville and Centerton/Olivet in response to heavier population pressures that are not expected in the course of this Master Plan.

DISPOSAL OF WASTEWATER

There is no public sewerage system in Pittsgrove. The vast majority of dischargers utilize individual septic fields or other means of disposing of wastewater. A few individual users in the Township have a New Jersey Pollution Discharge Elimination System (NJPDES) permit where the effluent discharge exceeds 2,000 gallons per day. These users include the Arthur P. Schalick High School, the Harding Woods mobile home

¹ - See Land Use Plan for discussion on Community Development Boundaries.

park on Rt. 40, and an industrial food processor, Colonial Kitchens, on Rt. 56. B&B Poultry, located on Almond Road in Norma, is also a food processor and has a direct force main connection to the Landis Sewerage Authority. It is the only use with public sewage treatment in the municipality.

SANITARY SEWERAGE PLANNING

Periodically the Township has examined the feasibility of developing a public sanitary sewerage system. Spurred in part by state requirements for wastewater planning and affordable housing, the Township first began a study in June 1992 to meet new rules established in *N.J.A.C. 7:15-5.23* for public systems. This administrative rule required that municipalities who were named as co-permittees (a requirement for NJPDES permits at the time) submit a Wastewater Management Plan (WMP) to the New Jersey Department of Environmental Protection (DEP). The WMP examined methods of providing public sewerage to the Rt. 40 corridor including the Harding Woods mobile home park, land adjacent to the Borough of Elmer, and the settlements of Centerton/Olivet, Norma and Brotsmanville.

The original plan proposed connecting to the Cumberland County Utility Authority (CCUA) for the northern and western areas of the Rt. 40 highway, Elmer fringe, and Centerton/Olivet. Norma and Brotsmanville in the Township's southeastern area were proposed to be connected to the Landis Sewerage Authority (LSA) serving the City of Vineland. In July 1994 the CCUA responded that it had no additional capacity with which to provide any sanitary sewer service to Pittsgrove. The Landis Sewerage Authority, however, responded with an offer to supply up to 100,000 gallons per day of treatment under certain conditions.

Following the CCUA response, the Township amended its Wastewater Management Plan to indicate the Landis Sewerage Authority as the intended facility for the two proposed service areas. However, the Township was not able to negotiate an agreement with the LSA for additional treatment capacity. The NJ Department of Environmental Protection then took more than two years to review this plan. In December 1996, the DEP issued a letter requiring a more definitive agreement between the Township and Landis Sewerage Authority before the DEP would accept or reject the draft WMP.

However, when the Township re-contacted the LSA in February 1997 and then in January 1999, they were no longer interested in providing sanitary sewerage services to the Township even though the Authority has designed and is planning to implement an increase in capacity to 10-10.2 million gallons per day -- approximately double the average flow treated each day. Subsequently, the Cumberland County Improvement Authority (CCIA) also reexamined the feasibility of providing sanitary sewer to Pittsgrove in the summer of 1999, but its preliminary cost estimate, \$17 million, was too high to believe that the costs could be recovered from potential users under several different scenarios.

One of the primary purposes of the Township's WMP was the establishment of the boundaries of sanitary sewer service areas for Centerton/Olivet, Norma and Brotmanville and along the Rt. 40 highway corridor. The sanitary sewer service delineation is significant because it establishes where pipes and treatment services may be extended. The extension of sewer service into non-sewered areas typically generates significant development pressure from the private sector to increase the permitted land use intensity.

However, the appropriate intensity of land use depends upon a multitude of planning factors in addition to the availability of public utilities. Availability alone should not be the deciding factor in assigning land use intensities.

Because of the development pressure on agriculture that is exerted from the extension of sewers, the high financial costs associated with a public sewerage system, and the lack of a sewage treatment operator willing to enter into an agreement with Pittsgrove, no sanitary system is proposed or contemplated within the time period of this Master Plan. However, should there be a significant change in these circumstances, it would be prudent to establish some guidelines that may be used to delineate a sanitary sewer service area - a necessary first step towards conceptualizing the utility.

A sanitary sewer service area should be designed to do the following:

- Assist in implementing the goals and objectives of the Master Plan;
- Be matched with the areas designated for higher density future development;

- Serve existing development to the greatest extent feasible; and
- Be within designated population centers.

Applying these guidelines to the Township suggests that the Norma/Brotmanville area is best suited as a location for any potential sanitary sewer service area or areas in the future. This is shown schematically on the Utility Service Plan at the end of this element. This is intended to focus future discussion rather than provide a definitive policy at this time.

PRIVATE WASTEWATER DISPOSAL

The problems associated with poorly functioning private septic systems are detailed in the Conservation Element. In summary, when septic systems fail, the biological processes that break down wastewater no longer adequately treat the effluent to an acceptable degree of cleanliness and may eventually pollute potable water supplies. The State, through its Chapter 199 regulations, sets design parameters for private septic systems. The Salem County Board of Health and its professionals witness tests in the field and supporting data to determine if the location and design

of new septic systems meet the State requirements. Problems that occur in older systems tend to come from antiquated designs or improper maintenance of the systems. In some instances, however, problems can be avoided from the outset through the planning process by identifying soils known to be poor processors of wastewater. Soils identified as having severe constraints for septic systems are as follows:

Table V-1. Soils with Severe Sewage Disposal Constraints

Aura gravelly sandy loam (AgB, AgC)
 Aura sandy loam (ArB, ArC)
 Berryland sand (Bp)
 Chicone (Ce)
 Humaqueptic Fluvaquents (Hw)
 Keyport silt loam (KsA)
 Manahawkin Muck (Ma)
 Othello, Fallsington and Trussim complex (FeA, OtA)

Source: Table 8. Soil Survey for Salem County, U.S.D.A. Soil Conservation Service, 1969

Aura soils are the dominant soil type in the Township and are considered a Soil of Statewide Importance, yet is a poor soil with severe constraints for the disposal of wastewater. Fortunately, Aura soils are concentrated in a broad band running roughly north and south in

the Township's farmbelt between the population centers of Centerton and Olivet to the west and Norma and Brotmanville to the east where there is presently little residential development (*see* Soils Map, p. III-10). Because of the poor soils for septic effluent disposal and its importance for agriculture, this area should be earmarked for the lowest densities for development.

Aura soils, however, also make up a sizeable portion of the land in Norma and Brotmanville roughly bounded by Reckondorfer Avenue on the north, Gershal Avenue to the east, Central Avenue to the south and Elmer Road to the west. Since this area is also the most densely settled area of Pittsgrove and has the highest zoned capacity, this section should be the first priority for any public system that may be contemplated at a future date.

The Aura and Othello/Fallsington/Trussim soil types are found primarily in upland areas. The remaining soil types in Table V-1 are found along stream corridors and are typically indicative of freshwater wetlands. Lands of this type would not be easily developed because of the limitations imposed by the State to conserve these lands. This policy is also proposed at the local level by designating these areas for

conservation purposes on the Conservation Plan.

STORMWATER MANAGEMENT

Stormwater management in some states is a utility in the same fashion as sanitary sewerage or water supply. In New Jersey, however, stormwater management is largely designed at the site specific level. This portion of the Utility Element discusses ways to improve the design of stormwater management systems to enhance water quality and allow to allow for better recharge of underlying aquifers.

Stormwater management began as a technique to control the volume of water from rain running off of the land into streams, ponds and lakes. Lack of these control devices has led to soil and stream erosion, elevated levels of pollutants, and downstream flooding. The original emphasis on the management of the volume of water has expanded to include the quality of the runoff and the reduction of pollutants. Since these pollutants are not concentrated at one particular spot, they are known as non-point source pollutants.

The State Department of Environmental Protection has

established six categories of potential pollutants in stormwater. These include:

- **Nutrients.** In rural areas these typically come from fertilizers and livestock manure.
- **Pathogens.** Passing of viruses and bacteria into the water supply from inadequately treated wastewater.
- **Pesticides.** Like nutrients, most of these come from agricultural uses and residential lawns. Golf courses are typically heavy users of pesticides.
- **Hydrocarbons.** Gasoline and other fuels, oils and greases are pollutants from engines and mechanical equipment.
- **Metals.** Metals, particularly heavy metals like lead, arsenic, mercury, copper, and cadmium, are pollutants that can occur naturally as well as from man-made sources. Highly acidic soils (which are common in New Jersey) leach metals into the water supply from storms.
- **Road Salt.** This is common salt applied as a de-icing mineral which can have the effect of increasing the salinity of water -

at high levels this makes water unpleasant to drink and affects manufacturing processes.

- Solids. Trash left on the ground gets transported by stormwater into creeks and estuaries.
- Sediment. Erosion of the soil into water courses and bodies from agriculture and site construction can smother aquatic communities and reduce sunlight in the water. Soil particles also help transport some of the other pollutants and toxins into water.

Control of pollutants from stormwater runoff is a necessary next step in maintaining the high quality stream environment in Pittsgrove. The Maurice River watershed drains most of the municipality and is listed as a Non-trout Category 1 watershed by the State, the second most pristine category.

One of the most effective means of improving and maintaining water quality, particularly in farming areas, is to retain a vegetated buffer between fields and streams. Since many of the streams in Pittsgrove are bounded on either side by freshwater wetlands, this usually ensures that the State's transition buffer requirements adjacent to

wetlands will function as this vegetated buffer.

The State Planning Commission examined the distance requirements for various stream functions as part of its technical background for the State Plan². In the relevant publication, the following buffer widths were determined to be necessary:

Table V-2. Recommended Buffer Widths from Streams

<u>Stream Function</u>	<u>Buffer Width</u>
Stream bank stabilization	25-50 feet
Sediment control	65-150 feet
Nutrient removal	65-150 feet
Food energy	25-50 feet
Temperature control	50-80 feet
Fish cover	25-50 feet
Wildlife habitat	100-330 feet

These and other related technical standards can provide a basis for setbacks of development from stream corridors. These should be reviewed for consideration as amendments to the Township's land development regulations.

² - *The New Jersey Freshwater Wetlands Protection Act As It Relates to Stream Corridor Buffer Considerations in the State Development and Redevelopment Plan*, Draft, January 11, 1988, Rogers, Golden & Halpern

BEST MANAGEMENT PRACTICES

There are a number of engineering and non-engineering methods of controlling both the volume and quality of storm water. Called by the generic name of Best Management Practices (BMPs), their use in the design and/or management of sites for residential and non-residential purposes is increasing as the awareness of the effects of poor stormwater control become apparent.

BMPs can include management practices such as requiring vacuum sweeping in commercial parking lots, using biodegradable fertilizers and pesticides, and using alternatives to road salt, such as calcium magnesium acetate or urea.

In site design, wet ponds, extended dry basins and the creation of artificial wetlands are increasingly being required by municipalities. These types of detention and retention basins allow the filtering of runoff to settle large particles and provide skimmers to remove hydrocarbons before runoff is discharged to streams. Trash racks are used on outfall structures to prevent solid waste from leaving basins.

The infiltration of stormwater back

into the ground to recharge aquifers has gained recent attention. In commercial settings, rooftops, which discharge cleaner water than parking lots, can be tied into sand trenches either in landscaping beds or in basins. In residential development, a sand trench encircling the basin above the bottom would allow the cleaner part of the stormwater from streets to be recharged back into the ground.

New types of inlets can be used which trap sediment at the bottom and oil and grease at the top. These type of inlets, however, require more periodic maintenance than standard inlets.

These BMP's, which are not an exhaustive list, represent a range of different techniques that may be used to retain the pristine quality of the Township's streams and lakes. Consideration should be given in the revision of Pittsgrove's land development regulations to incorporate suitable techniques for stormwater management.

SUMMARY

Pittsgrove has developed to the present day with essentially no public utility infrastructure. This policy is proposed to continue in the

time period of this Master Plan and is specifically directed towards public water supply and sanitary sewer systems. However, stormwater management systems should be instituted as sites are reviewed and approved for development. The following specific recommendations are made within this overall framework:

- 1) Soil types should be a factor in determining the density of development. Lower densities should be assigned to lands with severe limitations for on-site sewage disposal.
- 2) Aquifer recharge should be instituted in the site plan review process and eventually in the municipality's land development regulations. The amount of allowable impervious site coverage should be related to the overall goals for land use in the Township.
- 3) Should circumstances change and a sanitary sewer system become feasible and desirable, than the boundaries of the service area should be drawn to effectuate the purposes of this Master Plan.
- 4) Best Management Practices for storm water management should

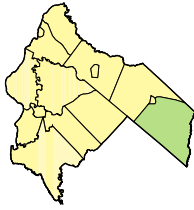
be seriously considered and any regulating ordinance amended accordingly.

- 5) Consider stream corridor setback requirements in the land development regulations.

Utility Plan

Township of Pittsgrove
Salem County, New Jersey

February 2000



Upper Pittsgrove Township
Salem County

Elmer Boro
Salem County




Franklin Township
Gloucester County

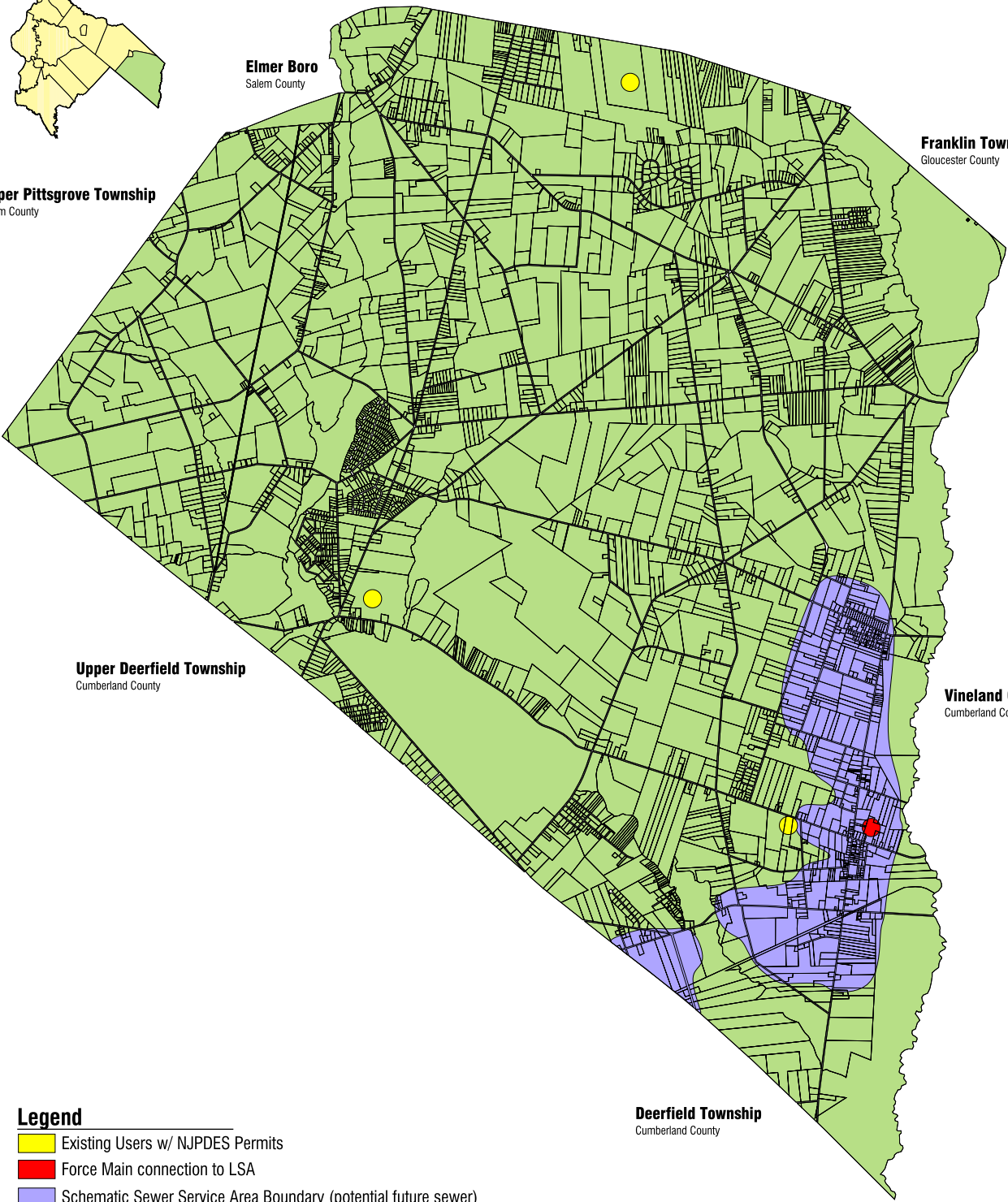
Upper Deerfield Township
Cumberland County

Vineland City
Cumberland County

Deerfield Township
Cumberland County

Legend

-  Existing Users w/ NJPDES Permits
-  Force Main connection to LSA
-  Schematic Sewer Service Area Boundary (potential future sewer)



1800 0 1800 3600 Feet



CLARKE CATON HINTZ
A Professional Corporation
400 Sullivan Way, Trenton, New Jersey

RECYCLING

INTRODUCTION

Mandatory recycling has been established as state policy since 1987 when amendments to the Solid Waste Act were adopted. At that time, suitable landfill space was at a premium and the costs of disposal were skyrocketing. Against this backdrop, the state required municipalities to plan for recycling and to ensure through the land development review process that sufficient physical facilities were constructed as part of residential complexes and commercial or industrial buildings. Since the mid-1980's, new landfills built to better standards, the development of resource recovery facilities (i.e., 'trash-to-steam' plants), and other means of disposal have reduced solid waste removal costs. Recycling has shifted from being mainly a cost avoidance issue to one marking social progress. In fact, recycling sometimes costs municipalities money when the market for a particular item is over supplied. The consensus that has emerged, nonetheless, is that recycling should be done as a matter of course since it benefits both mankind and nature.

This element focuses on Pittsboro's recycling requirements in implementing the State goals for

recycling. Pittsboro Township has taken an integrated approach to solid waste for residents. The Township provides a central collection point for both solid waste and recyclables at the waste disposal facility located at the public works complex on Porchtown Road. Though more densely settled municipalities often provide curbside pickup, the costs of providing this level of service is too high in the scattered residential development in the Township.

The Township issues a sticker that permits residents to dispose of their solid waste and recyclables at the waste disposal facility. Commercial, industrial, and agricultural waste is not handled at the Township's facility but must be disposed of through a licensed commercial hauler. Minor construction debris is permitted to be disposed of by residents, but projects that generate more than two cubic yards of waste have to be disposed of commercially. The Township also permits residents to contract with a private waste disposal contractor but still requires that the recyclable materials be recycled, rather than disposed of as trash.

Residents are required to recycle the

following materials:

1. Glass of all colors, excluding blue. Also excluded are flat glass, such as in windows and mirrors. Lead crystal or other high mineral content glass is also excluded.
2. Aluminum and steel cans, which does not include flat products such as cake pans and TV dinner trays.
3. Newspaper and assorted paper such as junk mail and office paper.
4. Numbers 1 and 2 plastic containers excluding anti-freeze and motor oil.
5. Corrugated cardboard.
6. Scrap metal, which includes most metals and white goods, but excludes fuel tanks.
7. Motor vehicle batteries.
8. Small brush, leaves and grass clippings.
9. Limited amounts of concrete debris.
10. Tires, but these require the payment of an extra fee.
11. Used motor oil.

The Township uses a variety of vendors that take the materials collected from residents. Solid waste is sent to the Salem County Utilities Authority landfill in Alloway. Newspapers, aluminum cans, scrap metal excluding anything with chlorofluorocarbons (i.e. Freon), and cardboard is sent to DiGiordano's Recycling in Vineland. Plastic containers are handled by the Cumberland County Improvement Authority in Bridgeton. Glass is collected by the Gloucester County Recycling in Glassboro. White goods with refrigerant, such as air conditioners and refrigerators are recycled in Philadelphia at Safe Disposal Systems. Waste oil is also sent to Philadelphia to the C.R. Warner Company. Much of this waste oil is burnt in industrial boilers. Though these are the current vendors for recycling materials, the Township periodically reviews existing operations to ensure that the lowest cost is obtained consistent with meeting state requirements.

The range of materials recycled is typical of most municipalities. Over the past 15 years, the range has become more standardized in response to the requirements mandated by the State and the sophistication of recycling businesses has increased and new

markets have developed.

At the present time, residents are required to separate the different materials. Glass is separated into clear, brown and green varieties and tin cans from aluminum cans. In some locales, beverage and food containers are allowed to be commingled. Commingled materials are then separated by the recycling business. The Township is considering whether this more convenient system can be instituted in Pittsgrove at a reasonable cost.

In 1996, the Township Committee adopted Ordinance 9-1996 that amended the Land Development Ordinance to require that any new multi-family housing development be designed to accommodate recycling by residents. This would permit centralized collection from the residential development by a commercial solid waste disposal firm that would also pick up trash.

The Township's recycling program is currently consistent with the goals and objectives of both the State of New Jersey and Salem County. Residents and businesses throughout New Jersey have responded well to state initiatives with high levels of recycling occurring in excess of 60% of the total waste stream in 1997, the latest year available. Salem County,

however, had a lower percentage of total recycling than most other counties, 53.1%. Only Atlantic County had a lower percentage, 49.6%¹.

SUMMARY OF RECOMMENDATIONS

The number of materials recycled is similar to the types collected throughout the state. Accordingly, no expansion of the range of materials is proposed. The present system of solid waste disposal and recyclable collection appears to operate efficiently with few complaints. However, as an increase in the provision of services, the Township Committee may consider allowing commingled container recycling. The Land Development Ordinance adequately addresses the state requirements for mandating recycling in multi-family developments during the approval process. These regulations should be extended to commercial and industrial uses in order to be fully consistent with state requirements.

¹ - Source - NJ Department of Environmental Protection, Division of Solid and Hazardous Waste.

CIRCULATION

INTRODUCTION

The Circulation Element examines the existing transportation network in Pittsgrove Township, the potential problems that may exist for mobility and recommendations for improvements. An adequate transportation system is vital to a prosperous economic system for it provides access to jobs, provides methods of moving goods and materials, and permits easy social interaction. Because of its rural nature, the primary means of transportation is by motorized vehicles – passenger cars and delivery trucks.

Transportation systems have always influenced the development and redevelopment of land. In the early history of Pittsgrove Township, rivers and streams were the first transportation routes, supplemented by Indian trails that connected incipient population centers. In other areas of the State, canals, such as the Delaware and Raritan in central New Jersey, improved the use of water borne transportation. Later, railroads like the Pennsylvania-Reading Seashore Line supplanted canals for moving goods and people. Many of the early roads were unreliable in the winter

and early spring and the development of railroads greatly expanded markets for Pittsgrove farmers.

Modern roads were developed to accommodate the explosion in the growth of motorized vehicles beginning in the 1920's. It was during this time that U.S. Route 40 was surveyed and constructed. The era of limited access highways in South Jersey began with the opening of the Delaware Memorial Bridge in August 1951 and the southern stretch of the New Jersey Turnpike (from Exit 1 through 7) in November 1951. Rt. 55, just to the east of Pittsgrove, from Rt. 40 south to Millville opened in 1972 and the northerly connector to Rt. 42 in 1989.

Land value is partially dependent on its accessibility to the transportation system. Historically, proximity was necessary to achieve the benefits of urbanization that generated wealth. In population centers, homes and businesses were located so as to require the least amount of travel time between them.

Reasonable travel distance between settlements was affected by the prevailing level of technology. The

development of centers is strongly influenced by the prevailing transportation mode and the nature of economic activity. The horse and wagon mode of transportation common until the 1920's required that settlements be compact and closely spaced. Other towns had their genesis in the location of railroad stations. With the present day dominance of the automobile, growth has occurred along road and highway corridors.

Transportation and the use of land are strongly linked together. Improvements to existing transportation systems and the creation of new technologies brings added mobility, making heretofore inaccessible places within reasonable commuting distance. The completion of Rt. 55 a short distance away from Pittsgrove has permitted commuters better access to jobs in the Philadelphia metropolitan area, particularly to the emerging employment center in Deptford Township, Gloucester County. It has made Pittsgrove more attractive to new residents while also providing access to jobs for existing residents.

The Circulation Element will primarily focus on the street and highway network, with a brief overview of public transportation in

the region.

ROAD JURISDICTION

The jurisdiction of the public road network is divided among state, county, and local governments. In this discussion, federal aid highways have been combined with the state's jurisdiction since the New Jersey Department of Transportation (NJDOT) has responsibility for the construction and maintenance of federal highways.

The jurisdiction of roadways has been allocated among different levels of government in rough approximation of their tax base and purpose of the road. Federal and state highways are intended for interstate and intrastate travel. County highways are important intermunicipal and intracounty roadways. County highways collect traffic from municipal streets for dispersal to the state system and vice versa. County roads have unusual importance for circulation in Pittsgrove because of the relatively low percentage of municipal streets compared to more highly developed areas. Local roads are intramunicipal streets that provide access primarily to residential property.

Table VII-1 lists the roads under state and county jurisdiction. These roads primarily function as routes for regional and long distance travel.

Table VII-1. State and County Roads.

NEW JERSEY STATE ROADS:

Harding Highway (U.S. Route 40)
Landis Avenue (Rt. 56)

SALEM COUNTY ROADS:

Almond Rd. (Rt. 540)
Alvine Road (Rt. 655)
Big Oak Road (Rt. 658)
Buck Road (Rt. 553)
Burlington Road (Rt. 677)
Centerton Road (Rt. 616)
Dealtown Road (Rt. 612)
Deerfield Road (Rt. 711)
Dutch Row/Shirley-Elmer Road
(Rt. 611)
Fork Bridge Road (Rt. 671)
Garden Road (Rt. 674)
Gershal Ave./Brotsmanville-Willow
Grove/Jesse Bridge Road (Rt. 638)
Olivet/Upper Neck Road (Rt. 690)
Palatine Road (Rt. 608)
Parvin Mill Road (Rt. 645)
Porchtown Road (Rt. 613)
Willow Grove Road (Rt. 639)

Sources: NJDOT, Salem County Planning Office

Many of the County roads are known by more than one name. The names listed here are the most commonly used.

DESCRIPTION OF THE ROAD NETWORK

One of the requirements of the Circulation Element is to account for the 'functional classification' of the road system based on certain criteria of the Federal Highway Administration. The functional classification is based on the planned use of the road and is intended more for the highway system than as a system for residential purposes. This residential system will be discussed further below.

The functional classification is based on the theory and much experience that a community's circulation system is most efficient when it has been developed with a hierarchy of roads which are designed to each serve a specialized function. A description of this road network is discussed below.

PRINCIPAL ARTERIALS

Principal Arterials are intended to handle large volumes of regional and through traffic. Typically they are under the jurisdiction of the State. The State receives substantial funding from the federal government for their construction and maintenance. Highways of this type are intended for volumes of traffic exceeding 25,000 vehicles per day

(on an annualized basis). There are no roadways in Pittsboro, however, that fall into this category. The closest one is Rt. 55 and while designed for more than 25,000 vehicles per day, is by latest count averaging about 22,000 vehicles per day near the Rt. 40 interchange.

MAJOR ARTERIALS

Major Arterials are intended to move traffic from municipality to municipality within a region and to provide connections between higher and lower orders of streets – for example between Interstates and other state or federal roads. The average annualized daily traffic (ADT) for major arterials is in excess of 10,000 vehicles. Only U.S. Route 40 is classified as this type of highway. In the federal system, Major Arterials are also considered Principal Arterials. The Master Plan differentiates Major Arterials from Principal Arterials because it creates a useful distinction from the heavier volumes found on large highways and the lesser volumes of traffic on Minor Arterials. It is a common distinction used within the state.

MINOR ARTERIALS

Minor Arterials function in much the same way as Major Arterials but

with lesser volumes of traffic and fewer through routes. They provide a connection between major arterials and residential or non-residential collector streets, as well as providing intra-municipal travel paths. These roads are under Salem County's jurisdiction except for Landis Avenue, which is the New Jersey Department of Transportation's responsibility.

Salem County calls these roads Arterial or Rural Arterial Roads (*see* the County classifications on the Circulation Plan at the end of the element). Minor Arterials are designed to accommodate between 3,000 and 10,000 vehicles, ADT. Minor arterials, as noted before, are also placed in the Principal Arterial category in the federal system. All of Salem County's road network may be classified as minor arterials, except Langley and Dealtown Roads which function as Collectors. Two municipal streets function as Minor Arterials though they do not carry the volume of traffic normally associated with this classification. These include Lower Mill Road and Grier's Lane.

COLLECTORS

Collector roads are the next lower step in the street hierarchy after arterials. Collectors distribute

traffic between residential access and subcollector streets and arterial order streets in residential subdivision design. Non-residential collectors also service industrial and business parks by channeling traffic to arterial roads. Collectors are intended to carry up to 3,000 vehicles per day (ADT). Collector roads include Dealtown Road, Langley Road, Sand Bridge Road, Sheep Pen Road, Crow Pond Road, English Road, Morton Avenue, Shiff Road, and Central Avenue.

The Principal Arterial, Major Arterial, Minor Arterial, and Collector classifications represent a descending hierarchy in the order of streets from the national to the county or municipal level. This order is independent of the use of land and is based on the capacity of the roadway and the existing or designed volume of traffic. In the time span of this document, no new arterials or collectors are proposed. However, as the Township's population density increases, additional collector roads should be pursued to link new development in the hamlets out to the minor arterial system. Road classifications for Pittsboro are shown on the Circulation Plan at the end of the element.

RESIDENTIAL SITE IMPROVEMENT STANDARDS

In addition to the functional classification for roads established by the Federal Highway Administration (FHA), described above, a street order has also been developed for local roads. All of the roads noted in this section are categorized as Local Streets in the Federal Highway Administration's classification system.

Most local roads provide access to residential lots. The design and functionality of residential streets are the primary foci for roads under local jurisdiction – which has a particular emphasis in Pittsboro because of its low percentage of commercial and industrial land uses.

In January 1997, the New Jersey Department of Community Affairs adopted the Residential Site Improvement Standards (RSIS) that, among other things, superseded municipality's street standards for residential uses. It established a set of residential standards for street hierarchy that include the following road classifications:

MAJOR COLLECTOR is the highest order of residential streets and is also known as a residential collector.

This street type, as its name suggests, collects and distributes traffic between lower-order residential streets and the higher order streets noted in the FHA section. This type of collector should not be confused with the same term used in the federal system. The Major Collector is not designed for area-wide through traffic or non-residential traffic. Compared to other residential streets, the Major Collector carries the largest volume of traffic at the highest speeds. Its function is to promote the free flow of traffic within residential neighborhoods.

On-street parking and direct access reduce this free flow and should not be permitted for this type of street. Major Collectors should be designed so they cannot be used as shortcuts by non-neighborhood traffic. Major Collector's should be limited to no more than 7,500 trips per day, a very large number in Pittsburgh's experience. There are presently no Major Collectors in the Township.

MINOR COLLECTORS are a middle order residential street. These are also known as residential sub-collectors. They provide frontage for access to lots and carry traffic to and from adjoining residential access streets. Minor Collectors connect either to (Residential) Major

Collectors or to the higher order Collectors or Arterials (FHA). This type of street should be designed to carry higher traffic volumes than lower order streets such as rural and residential access streets, with traffic limited to motorists having an origin or destination within the immediate neighborhood. It is not intended to carry area-wide traffic. Each half of a loop-configured minor collector may be classified as a single Minor Collector street, but the total traffic volume conveyed on the loop should not exceed 3,500 ADT, nor should it exceed 1,750 ADT at any point of traffic concentration. The closest example of a Minor Collector is Palatine Lake Drive in Centerton. Under the Township's design standards, collectors are intended for servicing more than 20 single family houses.

RESIDENTIAL ACCESS streets are the lowest order classification, other than the rural street type. As its name suggests, this street type allows access to lots and carries traffic with destination or origin on the street itself. They are designed to carry the least amount of traffic at the lowest speed. The best design practice is to front all of the lots on streets of this order. Each half of a loop street should be classified as a single residential access street, but the total traffic volume generated on

the loop street should not exceed 1500 ADT, nor should it exceed 750 ADT at any point of traffic concentration.

Specialized forms of residential access streets are rural streets and lanes, cul-de-sacs, alleys, and parking loops which should not exceed 200-500 ADT, depending on their function.

This street system was designed for every municipality in the State with more or less applicability to the Township.

RESIDENTIAL STREET DESIGN

Most of the streets that will be built in the future in Pittsboro will be designed to service new residential development. New residential streets are created as part of the subdivision and development of land. The Township has an important interest in the design and layout of streets for several reasons. The street layout has an impact on the cost of providing services to residents. Inefficient layouts are wasteful of land and are more expensive to maintain and reconstruct. An inefficient system means more road per dwelling and consequently less money to maintain each part of the road system.

Certain types of streets are inherently more expensive to service, for example, cul-de-sacs. Fire trucks and school buses have difficulty in maneuvering within cul-de-sac streets and snow clearing is complicated. Loop streets should be encouraged over the use of cul-de-sacs in residential street design, however, cul-de-sacs may be suitable in the Rural Residential and Conservation land use districts (*see* Land Use Element) to reduce their visual impact on rural character.

In the Rural Residential and Conservation areas of Pittsboro, greater use of the rural street and lane configurations of the RSIS for small major subdivisions would reduce costs for street maintenance for the municipality while at the same time providing the 'country lane' atmosphere desired by many of the residents. Rural streets have a 20 foot wide cartway with graded swales to carry stormwater runoff and are designed for under 50 houses for the entire development. Rural lanes, with an 18 foot wide cartway, are designed for subdivisions under 20 single family houses. These types of streets are most suitable where minimum lot sizes are at least two acres.

Street design also affects the quality of life in a development. Streets

with a design speed set too high encourage motorists to travel faster than is desirable. If possible, the design speed should be set at 20 mph and no greater than 25 mph. Streets also serve as locations for social interaction among neighbors. Travel speeds that are too high discourage this interaction among neighbors. How streets intersect with each other also affects the quality of life. Headlight glare shining into houses can be avoided through proper design.

Perhaps the greatest effect on the quality of life, though, is the failure to design the street system with the hierarchy established by the RSIS. This leads to houses fronting on higher order streets such as Arterial and Collector Roads, which makes for greater noise, access problems into and out of the lot, and lower property values.

Potentially, Pittsboro could be faced with this problem because of the large number of residential lots that have been subdivided along the county road frontage. Traffic volumes are currently low on these minor arterial streets. Historically in suburbanizing areas, however, county roads have become the main routes of travel for commuters. The negative effects of suburbanizing traffic are usually felt when the

population density approaches 1,000 people per square mile. Pittsboro would need considerable growth to reach this density and that is unlikely to be achieved without public water and sewer systems. The present population density is about 200 people per square mile, however it is more concentrated in the east and west central portions of the Township where there are higher net densities.

Despite Pittsboro's existing low density, the land use policies in adjacent municipalities may also create high traffic volumes through the Township if significant new employment is created. If Vineland's Empowerment Zone fulfills all of its promises, for example, higher traffic volumes would occur from commuter traffic traveling through the Township and from new development spurred by employment opportunity.

The Township's low threshold for the number of lots in a minor subdivision also aids in the development of a street network that encourages houses to face internal residential access streets rather than front on the minor arterial. It accomplishes this by requiring a major subdivision application for more than three lots, including the remainder lot, or if a previous minor

subdivision has occurred in the prior six years. With a major subdivision, new streets are usually required and thus creates the opportunity to plan the entire tract including the tract frontage. Several options for the clustering of residential development in the farmbelt are presented in the Land Use Element.

The land development regulations could also be revised to create requirements for the pre-planning of new streets even if an application for development meets the definition of a minor subdivision. In the application process, a future right-of-way providing for access to the internal portion of a larger tract could be required. In those situations where such reservations are not practical, a larger setback from the street could aid in reducing negative traffic impacts.

RETENTION OF RURAL ROAD CHARACTERISTICS

In part, the attractive character of Pittsboro is determined by views from public roads. The design of the road itself, the openness of the land, the terrain and the type of vegetation found along the roadway are all aspects that contribute to the character of the Township. At present, the road system largely

retains this rural character. The scenic value of some streets is also enhanced by running through historic hamlets, such as Centerton. Scenic roadways promote aesthetic values in Pittsboro and enhance its image.

Pittsboro's subdivision design standards include marginal access and reverse frontage streets which are more evocative of suburban design. A revised set of standards should be considered that are more in concert with the characteristics that retain rural and scenic roads. In essence, this means retaining narrow cartways with open drainage systems and foregoing sidewalks and curbing. The use of rural streets and lanes in the design of new residential subdivisions should be encouraged. These streets would intersect with higher order streets. Illustrations of these design principles are located in the Land Use Element. Adherence to these ideas would help to maintain the scenic beauty of Pittsboro.

The existing and anticipated density of development is low in most of the municipality. Wide or multi-lane streets would not be needed to handle high volume traffic.

**STATE HIGHWAY ACCESS
MANAGEMENT CODE**

The New Jersey Department of Transportation (NJDOT) adopted a Highway Access Management Code (HAMC) in April 1992, with several subsequent amendments, that applies to all of the roads under their jurisdiction. The HAMC was developed in response to the unprecedented increase in traffic congestion in the 1980's when the state realized that it could not construct enough capacity to satisfy rising demand for roads. The demand for new roads or additional traffic lanes occurred from several trends that accelerated in the 1980's - the increasing percentage of women in the workforce, an increase over time in the average lot size and house (which continues unabated), and decreasing household size.

NJDOT changed its view on the purpose of the highway system from one that emphasized providing access to abutting land to one that placed the mobility of moving people and goods at a higher priority. NJDOT noted that unrestricted access to the state highway system impaired its capacity – inconveniencing the public, adversely affecting the environment by creating more air and water pollution and increasing costs to the economy

through transportation inefficiencies.

Pittsboro has limited access to state highways; however, the HAMC provides a useful concept for planning the local road system and anticipating future demand by motorists. This can be accomplished through adopting a local access management plan under rules established by the NJDOT. The state will enter into an access management plan with a county or a municipality on roads under NJDOT jurisdiction, or approve purely local plans. Since the proposed land use for Route 40 is for highway commercial uses, the potential for uncoordinated or ad hoc driveways intersecting the highway is high. A highway access management plan coordinated with the Dept. of Transportation could pre-plan access to the highway, including internal streets that would provide access to individual lots, yet preserve highway capacity.

TRAFFIC ACCIDENT INDICATORS

Data were obtained from the Buena Vista headquarters of Troop A of the NJ State Police and the Salem County Planning Office on traffic accidents. The former data are from 1996 to 1999 and the latter from

1993 to 1995. Overall, Pittsboro has a low level of accidents and, not surprisingly, are concentrated on the routes with the highest traffic volumes: Rt. 40, Rt. 56, and Gershal Avenue (County Rt. 638). Accidents typically occurred at intersections either with motorists turning left into the path of vehicles or being struck from behind. The intersection of Almond Road (Rt. 540) with Gershal Avenue (Rt. 538) had the highest total number of accidents over the study period with the intersection of U.S. Rt. 40 with Buck Road, the second highest. Other common accident locations include Rt. 56 (Landis Avenue) and Gershal Avenue, Landis Avenue and Alvine Road, and Rt. 40 with Dutch Row Road (Rt. 609). Though these intersections had the highest level of accidents, they never exceeded 6 per year. No one characteristic stands out in the type of accidents that occurred that would point to the need for road improvements at the intersections such as limited sight distance, congestion, or poor intersection geometry. "Driver inattention" was cited in approximately a third of the State Police reports as the primary cause of the accident.

Though no definitive conclusions can be drawn from the accident data, the two six point intersections in Olivet

and "Six Points" west of Brotsmanville along Garden Avenue have inherently awkward configurations for motorists. Salem County has presented some design ideas for the Olivet intersection but has not yet decided on a solution or funded the project.

PROPOSED COUNTY IMPROVEMENTS

The Salem County Capital Transportation Program (CTP) and its companion Transportation Improvement Program (TIP) have particular importance for mobility in Pittsboro because of its dependence on the county road system. In Pittsboro, all of the county projects have been funded by pass-through money from the state and were implemented as part of the CTP. The 1998 CTP funded the paving of Porchtown Road (Rt. 613) from Centerton Road to Upper Neck Road. In 1999, the CTP earmarked funding for paving Centerton Road (Rt. 553) from Almond Road north to Upper Neck Road. Drainage improvements at Rt. 40 and Bucks Road (also Rt. 553) were also funded in 1999.

There are two potential projects that the County is considering for inclusion in its Year 2001 CTP. The first potential project is the

reconstruction of Bucks Road from Upper Neck Road to Willow Grove Road. The second project is the possible installation of a traffic signal in Olivet at the six points.

PUBLIC TRANSPORTATION

Pittsboro has no available public transportation. The closest bus terminal is in Vineland at 339 Landis Avenue and provides access to Philadelphia, Atlantic City and Cape May. Passenger rail service in southern New Jersey is confined to the Philadelphia/Atlantic City corridor. Bus routes are normally the most cost effective means of public transportation, however, the low overall population density of Pittsboro does not lend itself to public transportation.

BICYCLE CIRCULATION

The establishment of a system for bicycle use is a secondary goal of this element. Bikeways can be categorized into three types:

- **Bicycle Routes.** Roadways designated for bicycle use through the installation of directional and informational signage.
- **Bicycle Lanes.** A lane designated for the exclusive or preferential

use by bicyclists through the application of pavement striping, markings and signage.

- **Bicycle Paths.** A bikeway separated from motorized traffic located within the highway right-of-way or in its own right-of-way. Usually for exclusive use, but may be designed for shared use with pedestrians.¹

The three types of bikeways have functional utility for various places in the Township. However, for Pittsboro, the most desirable is the development of a bicycle lane system where roads are reconstructed or built initially with a widened shoulder area striped for bicycle use. The bicycle route system provides less safety for bicyclists due to the relatively high speed limits of the road system. The bicycle path system would be useful in connecting residential development to the Greenway Network, but it would not provide a comprehensive system.

The bicycle lane is envisioned along the county highway system to link together the Township's hamlets and recreation areas. The amount of additional width to construct a

¹ - NJDOT *Bicycle Compatible Roadways and Bikeways*.