illustrated that significant reductions in congestion could be achieved by extending Route 57 to Route 46 in the Township of Washington in Morris County. The Route 57 Extension could also be funded in part by a financing district.

County Transportation Model - The County's Model can be enhanced to perform trip generation based on the land use of individual parcels. This would help provide a defensible mechanism to obtain a 'fair share' contribution by a developer as described below.

Using the model, the effects of the developer's project could be determined system wide. Usually the traffic impacts of a development are determined for the development's access point to the roadway and the adjacent intersections or roadways. The impacts are often only assessed in the municipality where the project is proposed. With the enhanced computer model, a traffic engineer or planner could input the development into the model and determine its effect system or corridor wide. This would allow the County to identify the most effective mitigation measures and improvements necessary to address the impacts of a development.

III. WATER QUALITY

A. Water Quality Model

One of the Strategic Plan's goals is the protection and enhancement of water quality and quantity. Groundwater is an important natural resource that is integral to the sustainability of development in most rural communities. Groundwater within Warren County is particularly important since most of Warren County is located within the Northwest New Jersey Sole Source Aquifer. Because of its geographical location, it is even more important to implement development practices that sustain this natural resource.

During the strategic planning process, the supply of groundwater to meet the demands of future growth was considered. The 1979 General Development Plan (GDP) found that, with the exception of a portion of the northern part of the county in the Delaware River watershed (e.g., National Park), the major limiting factor to growth is the ability of the soils to accept on-site wastewater without adversely affecting water quality. In that analysis, as shown on Table II of the GDP, the population limits based on quantity would be nearly double the population based on water quality.

Municipalities are encouraged to examine the potential impacts of minimum lot size on water quality for individual wastewater treatment systems. This can be done using the New Jersey Geological Survey's "Recharge-Based Nitrate Dilution Model for New Jersey."

As part of the strategic planning process, the model was used to assess the ability of soils under existing zoning densities in Warren County to adequately protect water quality. The modeling was performed at the two thresholds – 10

mg/l and 2 mg/l. The results are presented in Appendix 2 – Water Quality Analysis: Recharge-Based Nitrate Dilution Model.

The Water Quality Model was utilized for each township and borough located in Warren County that are not entirely served by municipal sewer systems (i.e., Phillipsburg, Belvidere and Washington Borough). The model was only used to evaluate residential carrying capacity for each zoning district that relies on individual septic systems. Additional assumptions in the model can be found in Appendix 2.

The existing minimum lot sizes of most zoning districts exceed the minimum lot size needed to dilute the nitrate in the effluent to the 2 mg/l water quality goal. However, at the nitrate dilution standard of 10 mg/l, nearly all zoning districts are of an adequate density to sustain drinking water quality. The only districts that do not achieve the standard are the AR-1 District in Knowlton and the R-1 District in Greenwich. The lot sizes recommended by the modeling are for overall density of a subdivision and do not necessarily apply to each lot within a subdivision. **Tables 13 and 14** in Chapter 3 summarize the results for each zoning district by municipality for the two thresholds.

The State's Realty Improvement Act has a separate standard for nitrate in groundwater of 5.2 mg/l. While testing was not conducted at this standard, municipalities can use the model to assess the ability of their zoning and soils to achieve this standard.

The Realty Improvement Act also uses a standard of 8 mg/l as the minimum threshold for minimum lot sizes in cluster subdivisions. In order to further protect water quality in cluster subdivisions, the New Jersey Geological Survey recommends that deeper well casings be used and lots be arranged so that septic systems are down gradient of wells and permanently protected open space replenishes the wells.

B. Alternative Wastewater Systems

Municipalities are also encouraged to consider the use of alternative individual wastewater treatment systems to protect water quality. The alternative systems may be a useful technique for protecting water quality in cluster subdivisions (e.g., lot size averaging) and as an alternative to zoning that encourages large lots. Alternate systems can allow smaller lot sizes thereby allowing municipalities to preserve larger land areas without reducing water quality.

The effluent from individual wastewater disposal systems has the potential to impair water quality. As noted by the NJGS "where these systems are too close together the cumulative impact may exceed the natural ability of the environment to clean and dilute the effluent...". Nitrate is one pollutant discharged from individual on-site waste disposal systems. Nitrate production is a result of the anaerobic conversion of ammonia by bacteria in the unsaturated zone. Concentrations of nitrate in drinking water greater than 10mg/l can cause methemoglobinemia in infants and are a health threat to the

elderly. Nitrate contamination is also typically an indicator of other types of groundwater contamination.

Traditional individual subsurface waste disposal systems are generally a viable means of managing residential sanitary sewage in rural areas not serviced by municipal systems. For drinking water quality to be maintained, it is necessary to analyze (using the above referenced model) the existing zoning regulations to ensure lot sizes are adequate to dilute nitrate from sewage to an assigned post-treatment level. If zoning regulations permit densities greater than those indicated by the nitrate dilution model, municipalities should reassess the validity of their existing regulations and take immediate action to ensure development does not occur that will sacrifice overall groundwater quality.

Alternative individual waste disposal systems may be useful for encouraging cluster subdivisions or as an option to requiring larger lot sizes in rural areas. The systems have been approved by the New Jersey Pinelands Commission that reduce the nitrate levels in effluent from onsite wastewater disposal systems. The 2001 Final Report from the New Jersey Pinelands Ad Hoc Committee on Alternative Septic Systems researched several systems that can reduce the nitrate concentrations in effluent from onsite waste disposal systems. Examples of systems include Fixed Activated Sludge Treatment (FAST), Cromaglass, Bioclere, ASCHO and Amphidrome.

The Pinelands Commission examined the cost implications of alternative systems compared to conventional systems (Final Report – Adhoc Committee on Alternative Septic Systems (2001)). The installation costs vary by alternative system (excepting the Ashco RFS system) but range from $13,000 to $21,000. The ASCHO system ranges from $15,000 to $25,000. A similar sized conventional system would cost $15,000. Maintenance costs for alternative systems range from $150 to $400 per year.

C. Brownfields

The Strategic Plan strongly recommends the redevelopment of brownfield sites within centers. Brownfields are vacant or underutilized sites that are or have the potential be contaminated with hazardous or toxic substances. The Environmental Protection Agency (EPA) has been funding Brownfield Assessment Demonstration Pilots across the nation since 1995 through its Brownfields Economic Redevelopment Initiative. The State of New Jersey is located in EPA Region 2 and in September of 1999, Phillipsburg was selected as one of several Demonstration Pilots in the Region. Phillipsburg received a $200,000 grant.

Four sites located in Phillipsburg have been identified for preliminary assessment and site investigation under this initiative. The sites include the Stockton Street property, a parcel of waterfront along the Delaware River, a bike path connecting to the proposed railroad museum and the Ingersoll Rand tract the largest component of the pilot study is the 145 acre Ingersoll Rand

tract on Route 22. The property is currently being marketed for a mixed use development and is in the Phillipsburg Urban Enterprise Zone.

IV. IMPLEMENTATION

A. Plan Endorsement

The State Plan response relies on strategies, policies and actions that lead to better education of public officials and citizens, greater use of available tools and technology, the creation of alternative mechanisms for conflict resolution, the identification of ongoing funding for planning, and the reengineering and streamlining of regulatory processes through more effective up front planning at all levels of government. Linked to these ideas are approaches to strengthen the role of regional planning, and better integrate investments and public facility provision with agreed upon plans.

The State Plan advocates the creation and coordination of strategic plans at regional, county, municipal and neighborhood levels. In particular, Regional Strategic Plans should define opportunities for economic integration and associated regional infrastructure improvements necessary for developing or revitalizing communities within the region. These plans should be prepared using market analysis, impact assessment and needs assessment techniques through collaborative efforts of governmental agencies, the private sector and the public. While each of these entities may currently prepare such assessments and plans, they are not coordinated in terms of base assumptions, time frames, analytical techniques or policy development.

A major goal of the State Planning Act is to coordinate and integrate planning at all levels of government to increase efficiency, predictability and the optimization of public investments. Sound and integrated planning and implementation is a necessary condition for the achievement of all of the State Planning Goals. The State Development and Redevelopment Plan, the Cross-acceptance process and the Plan Endorsement process provide forums for moving this agenda forward. The process increases the degree of consistency among municipal, county, regional and state agency plans, and the State Plan, and to facilitate the implementation of these plans. The State Plan outlines six objectives that derive from this purpose:

The purpose of Plan Endorsement is:

- To encourage municipal, county, regional and state agency plans to be coordinated and support each other to achieve the Goals of the State Plan;
- To encourage counties and municipalities to plan on a regional basis while recognizing the fundamental role of the municipal master plan and development regulations;
- To consider the entire municipality, including Centers, Cores, Nodes and Environs, within the context of regional systems;

- To provide an opportunity for all government entities and the public to discuss and resolve common planning issues;
- To provide a framework to guide and support state investment programs and permitting assistance in the implementation of municipal, county and regional plans that meet statewide objectives; and
- To learn new planning approaches and techniques from municipal, county and regional governments for dissemination throughout the state and possible incorporation into the State Plan.

Plan Endorsement will ensure that municipal, county and regional plans are recognized in the activities of state agencies and neighboring jurisdictions. The designation of Centers is part of Plan Endorsement. Entities that receive Plan Endorsement will be entitled to a variety of benefits, including but not limited to:

- priority for funding;
- coordination of planning with other agencies in meeting unique needs of the entity seeking endorsement; and
- expedited permit review.

B. County Role

The 1979 General Development Plan recognized that the authority for land use regulation is vested with the municipality. There are, however, areas of involvement for the county government. Primarily, the County can serve as a liaison between the State and municipalities for achieving common goals.

Under the County Plan, the role of the County is to present guidelines and tools that will assist in the rational development of Warren County. The County can bring a regional perspective that are sometimes not considered at the local level. For example, the County has developed a land use and transportation model as part of this Strategic Plan update that considers the cumulative traffic impacts of the zoning decisions of all 22 municipalities. The model can be made available to assist municipalities in reviewing the system-wide impacts of development proposals in their communities.

The County's role in implementing this Plan can occur in a number of other ways. For example:

1. The County's decisions for expenditures of County funds for projects should be based on the extent to which each project is consistent with the objectives of this plan.
2. The development of utility and public infrastructure systems should be consistent with the concepts presented herein.
3. The County Planning Board should update its Open Space Plan, Transportation Plan and Development Regulations and adopt a Stormwater Management Plan that are compatible with the strategic Plan

to guide the Board in its review of site plan and subdivision applications affecting county facilities (e.g., roadways, drainage facilities and open spaces)

4. The County can also advance the Strategic Plan by advocating for state legislation that supports the recommendations. For example, the County strongly supports the adoption of legislation that enables municipalities to use tools such as Transfer of Development Rights and Transportation Enhancement Districts. The County also advocates for legislation that expands the powers and responsibilities of counties for regional planning.
5. The County can initiate regional planning meetings to discuss regional issues with affected municipalities and promote regional cooperation as discussed in Inter-municipal Agreements below.
6. Each of the Strategic Plan's strategies should be defined further in the next update of the County's Master Plan Elements including but not limited to the General Development Plan, Open Space Plan, Stormwater Plan and Development Regulations.

C. Intermunicipal Agreements

An intermunicipal agreement (IMA) is a cooperative agreement made between municipalities to undertake planning and growth and transportation management in a coordinated manner. The Strategic Plan recommends the use of IMAs to foster coordinated planning and growth management along major roadway corridors in the county. For example, two adjoining communities could undertake comprehensive planning and adopt land use regulations at the same time and in a shared manner. This will help to ensure the actions of one municipality do not impair conditions in an adjoining municipality.

An intermunicipal agreement seeks to promote increased coordination and effectiveness of comprehensive planning and land use regulation. Intermunicipal agreements could result in increased efficiency of revenues and infrastructure. Extending beyond municipal boundaries, it can promote a system of land use planning and limit the negative impact of projects approved by neighboring communities. In addition, municipalities involved in an IMA may also qualify more easily for funding not otherwise available.

The tool can be useful in several other ways. For example, the municipalities could develop an intermunicipal review procedure to implement a single set of design guidelines and access management strategies along major county and state roadways. It may be in the form of a joint advisory committee that would be responsible for the review of proposals in each corridor. The final decision would rest with the governing authority where the project is proposed.

In addition, municipalities enter in an IMA to adopt land use regulations pertaining to aquifer and watershed protection; flood plain and wetlands protection; and historic preservation, cultural protection, visual buffering.

Municipalities may also enter into an IMA to establish joint planning and zoning boards.

The implementation of intermunicipal agreements begins with the desire of municipalities to coordinate planning efforts. Neighboring communities might have similar, or widely varied visions for their future and that of the region. An important step in creating an IMA is to determine which land use issues have intermunicipal implications and to develop an intermunicipal vision. Public input is important at this stage. A committee or task force is then created to examine the identified issues and the practicality of entering into an IMA to resolve such issues. The committee will develop the actual agreement that includes the detailed responsibilities of each municipality.

Municipalities within the same high school district could be a logical geographic framework for establishing the basis to discuss planning issues particularly with respect to the impact of land use decisions on school facilities. The high schools are North Warren, Warren Hills, Hackettstown, Belvidere and Phillipsburg. The municipalities located within each of the districts are as follows:

- North Warren - Knowlton, Blairstown, Hardwick, Frelinghuysen
- Warren Hills - Washington Township, Washington Borough, Franklin, Oxford, Mansfield
- Hackettstown - Hackettstown, Allamuchy, Independence, Liberty
- Belvidere - Belvidere, White, Harmony, Hope
- Phillipsburg - Phillipsburg, Lopatcong, Greenwich, Pohatcong, Alpha

The Somerset County Planning Board is working its municipal planning boards to implement a Memorandum of Understanding for "projects of regional significance." This effort provides a framework for enhanced notification and public participation, a detailed analysis of how master plans and zoning ordinances are consistent with county and adjacent municipal master plans (consistency review), and cooperative strategies related to the planning and infrastructure needs of large-scale housing or commercial developments.

REMAINDER OF THIS PAGE HAS BEEN LEFT INTENTIONALLY BLANK